

Test Data

Model Number: eNSP3-450P-S20-H1V

Model Name: Nonstop Power Supply

Option: BS10A-H24/2.0L

INPUT: 85V – 264V AC, 50 / 60 Hz

OUTPUT: 3.3 V 11.5 A (20 A_{max}, 30 A_{peak})
5 V 16.0 A (22 A_{max}, 33 A_{peak})
12 V 18.0 A (22 A_{max}, 30 A_{peak})
-12 V 0.5 A
5 V_{Sb} 2.0 A (2.5 A_{peak})

Maximum continuous output power: 350W

Peak output power: 450.5W

Approved by : Hagno Imai (QA manager)

Designed by : Naoki Yamamoto (R&D engineer)

Tested by : Toshi Yoshikawa (Evaluation test engineer)

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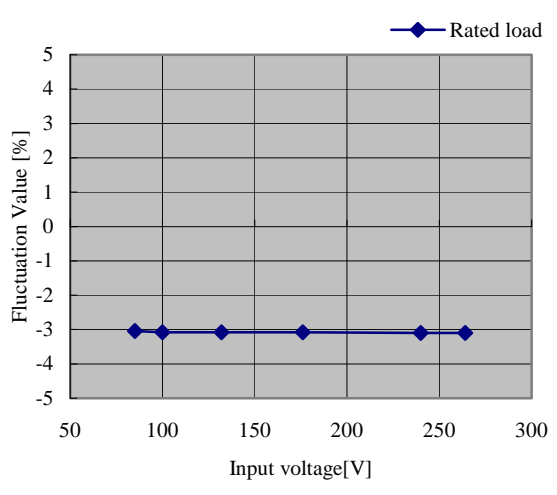
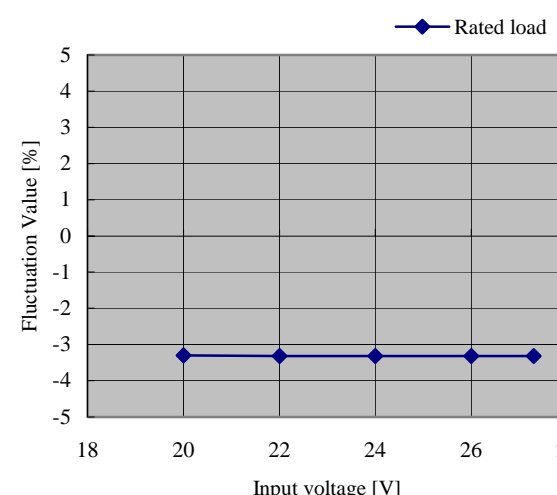
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Item	Line Regulation																					
V1:3.3V 11.5A																						
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V2:5V 16A																						
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Model	eNSP3-450P-S20-H1V
Item	Efficiency

at AC Input

at Back up by Battery

at AC Input

Load Power [W]	Efficiency [%]			
	Input Voltage 85V AC	Input Voltage 100V AC	Input Voltage 240V AC	Input Voltage 264V AC
87.5	65.54	66.24	68.56	68.81
175.0	71.80	72.85	75.83	76.07
262.5	72.43	73.80	77.54	77.72
350.0	70.94	72.66	77.17	77.38

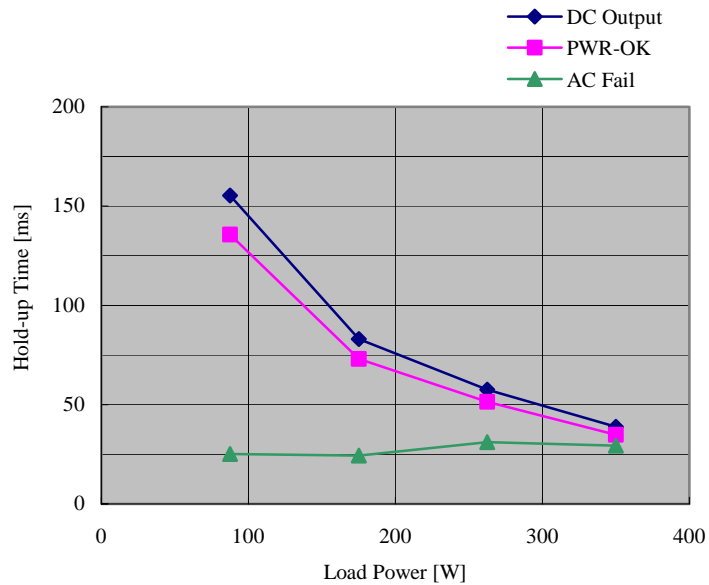
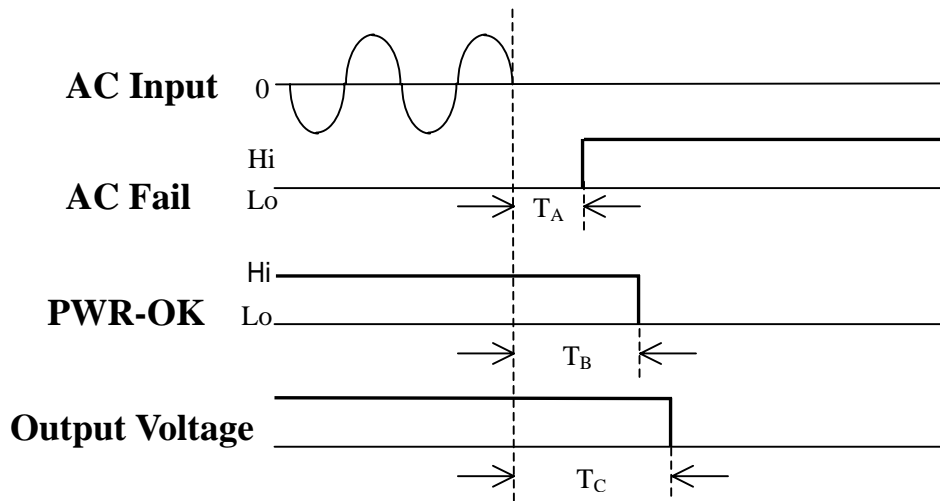
at Back up by Battery

Load Power [W]	Efficiency [%]		
	Input Voltage 20V DC	Input Voltage 24V DC	Input Voltage 27.3V DC
87.5	73.57	73.91	73.37
175.0	77.20	77.49	77.00
262.5	76.28	76.56	75.98
350.0	74.11	74.38	73.55

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Model	eNSP3-450P-S20-H1V
Item	Instantaneous Interruption Compensation (by Load Power)

at AC Input (85V / 100V / 240V / 264V)



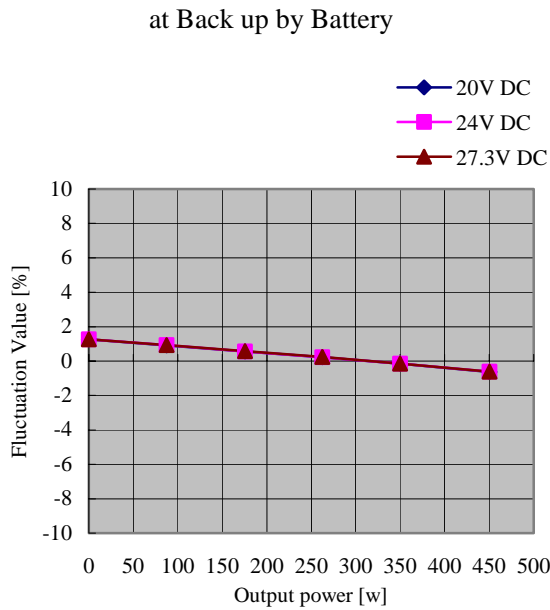
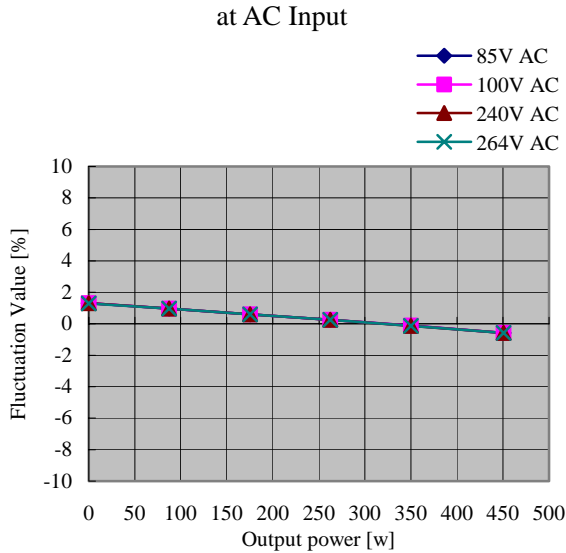
Load Power [W]	Interruption Detecting Time (ms)		
	AC Fail T_A	PWR-OK T_B	DC Output T_C
87.5	25.15	135.6	155.35
175	24.35	73.1	83.05
262.5	31.1	51.5	57.6
350	29.3	34.8	38.95

Model	eNSP3-450P-S20-H1V																																															
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V1:3.3V 11.5A																																																
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Load Power [W]	Load Current [A]																																															
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Load Power [W]	Load Current [A]																																															
	3.3V	5V	12V	-12V	5Vs																																											
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Model	eNSP3-450P-S20-H1V
Item	Load Regulation

V3:12V 18A



at AC Input

Load Power [W]	Fluctuation Value [%]			
	Input Voltage 85V AC	Input Voltage 100V AC	Input Voltage 240V AC	Input Voltage 264V AC
0.0	1.32	1.32	1.31	1.30
87.5	0.97	0.97	0.97	0.96
175.5	0.61	0.61	0.60	0.60
262.5	0.26	0.26	0.25	0.25
350.0	-0.11	-0.11	-0.13	-0.13
450.5	-0.58	-0.58	-0.58	-0.58

Load Condition

Load Power [W]	Load Current [A]				
	3.3V	5V	12V	-12V	5Vs
0.0	0.00	0.00	0.00	0.00	0.00
87.5	2.88	4.00	4.50	0.13	0.50
175.5	5.75	8.00	9.00	0.25	1.00
262.5	8.63	12.00	13.50	0.38	1.50
350.0	11.50	16.00	18.00	0.50	2.00
450.5	8.00	9.60	30.00	0.50	2.00

at Back up by Battery

Load Power [W]	Fluctuation Value [%]		
	Input Voltage 20V DC	Input Voltage 24V DC	Input Voltage 27.3V DC
0.0	1.28	1.28	1.28
87.5	0.92	0.92	0.92
175.5	0.57	0.57	0.58
262.5	0.22	0.22	0.23
350.0	-0.14	-0.14	-0.15
450.5	-0.63	-0.62	-0.62

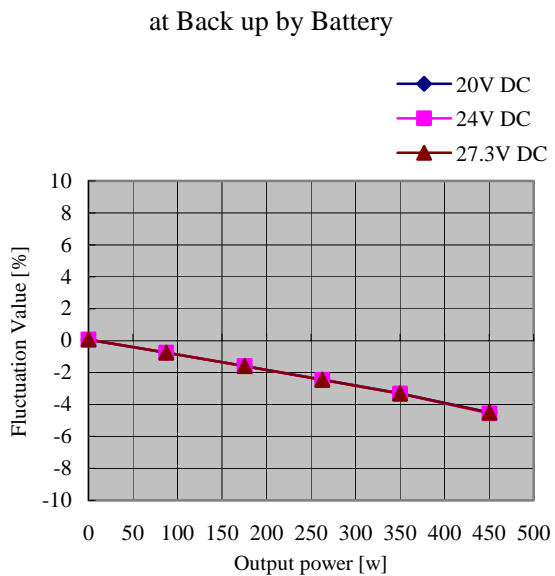
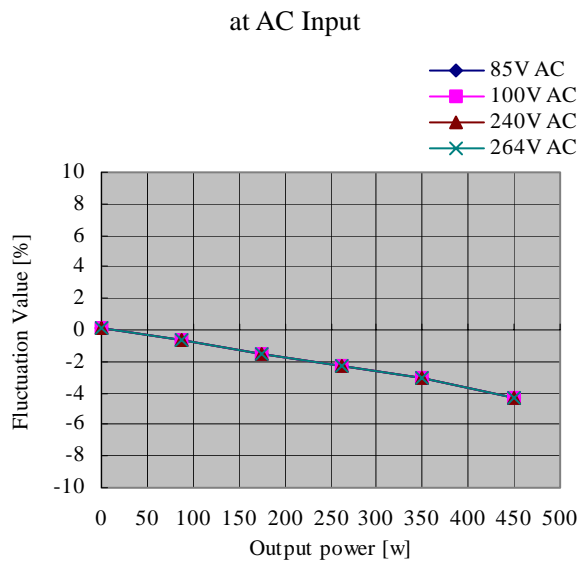
Load Condition

Load Power [W]	Load Current [A]				
	3.3V	5V	12V	-12V	5Vs
0.0	0.00	0.00	0.00	0.00	0.00
87.5	2.88	4.00	4.50	0.13	0.50
175.5	5.75	8.00	9.00	0.25	1.00
262.5	8.63	12.00	13.50	0.38	1.50
350.0	11.50	16.00	18.00	0.50	2.00
450.5	8.00	9.60	30.00	0.50	2.00

Model	eNSP3-450P-S20-H1V																																																																																																																																																				
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350.0	11.50	16.00	18.00	0.50	2.00																																																																																																																																																

Model	eNSP3-450P-S20-H1V
Item	Load Regulation

V5:5Vsb 2A



at AC Input

Load Power [W]	Fluctuation Value [%]			
	Input Voltage 85V AC	Input Voltage 100V AC	Input Voltage 240V AC	Input Voltage 264V AC
0.0	0.08	0.10	0.10	0.10
87.5	-0.68	-0.68	-0.68	-0.68
175.5	-1.46	-1.46	-1.48	-1.48
262.5	-2.24	-2.26	-2.26	-2.28
350.0	-3.04	-3.08	-3.10	-3.10
450.5	-4.30	-4.30	-4.32	-4.34

Load Condition

Load Power [W]	Load Current [A]				
	3.3V	5V	12V	-12V	5Vs
0.0	0.00	0.00	0.00	0.00	0.00
87.5	2.88	4.00	4.50	0.13	0.50
175.5	5.75	8.00	9.00	0.25	1.00
262.5	8.63	12.00	13.50	0.38	1.50
350.0	11.50	16.00	18.00	0.50	2.00
450.5	19.00	21.00	22.00	0.50	2.50

at Back up by Battery

Load Power [W]	Fluctuation Value [%]		
	Input Voltage 20V DC	Input Voltage 24V DC	Input Voltage 27.3V DC
0.0	0.06	0.08	0.08
87.5	-0.76	-0.76	-0.76
175.5	-1.60	-1.60	-1.60
262.5	-2.44	-2.46	-2.46
350.0	-3.30	-3.32	-3.32
450.5	-4.50	-4.56	-4.52

Load Condition

Load Power [W]	Load Current [A]				
	3.3V	5V	12V	-12V	5Vs
0.0	0.00	0.00	0.00	0.00	0.00
87.5	2.88	4.00	4.50	0.13	0.50
175.5	5.75	8.00	9.00	0.25	1.00
262.5	8.63	12.00	13.50	0.38	1.50
350.0	11.50	16.00	18.00	0.50	2.00
450.5	19.00	21.00	22.00	0.50	2.50

Model	eNSP3-450P-S20-H1V
Item	Ripple / Noise Voltage Test

[Test conditions]

Ambient temperature: -5 , 25 , 50 , 65

Input voltage: 85V, 100V, 240V, 264V AC

Load: Rated load (At 65 , the derating factor (70%) specified for 60 is applied to this test.)

Temp	AC Input voltage	CH1 3.3V		CH2 5V		CH3 12V	
		Ripple (mV)	Noise (mV)	Ripple (mV)	Noise (mV)	Ripple (mV)	Noise (mV)
-5	85 V	7.3	15.7	6.4	13.8	21.4	28.2
	100 V	7.4	14.6	6.4	13.5	21.8	29.0
	240 V	7.1	14.6	5.7	11.3	21.7	28.3
	264 V	7.0	14.6	5.7	11.5	21.7	28.2
25	85 V	7.1	16.4	7.0	15.6	15.7	22.4
	100 V	7.0	15.8	6.7	14.2	15.9	22.4
	240 V	6.6	15.7	6.6	12.6	15.7	23.1
	264 V	6.8	15.4	6.3	12.6	15.8	23.0
50	85 V	7.1	16.9	7.2	15.9	13.9	21.2
	100 V	7.1	16.5	6.9	15.5	13.6	21.5
	240 V	6.6	15.8	6.5	12.8	13.8	20.8
	264 V	6.9	15.7	6.3	13.8	13.8	21.3
65	85 V	6.1	14.4	6.0	14.5	10.2	16.4
	100 V	5.8	15.0	6.1	12.3	10.2	16.1
	240 V	5.4	14.4	5.6	11.7	9.9	16.3
	264 V	5.3	14.7	5.6	12.9	9.9	15.7
Specification		50	100	50	100	120	170
Judgment		PASS		PASS		PASS	

Temp	AC Input voltage	CH4 -12V		CH5 5Vs	
		Ripple (mV)	Noise (mV)	Ripple (mV)	Noise (mV)
-5	85 V	6.4	14.5	7.5	15.3
	100 V	6.3	13.3	7.8	15.4
	240 V	5.8	13.7	7.1	16.1
	264 V	6.0	14.0	7.3	15.3
25	85 V	5.4	13.2	7.0	18.4
	100 V	5.1	12.6	7.6	17.0
	240 V	4.8	13.0	7.0	17.6
	264 V	5.1	12.5	6.8	17.6
50	85 V	5.3	13.0	7.9	19.3
	100 V	5.4	13.4	7.6	19.4
	240 V	5.0	13.1	6.9	19.3
	264 V	5.0	12.6	7.0	18.7
65	85 V	4.4	12.4	6.7	17.3
	100 V	4.8	12.0	6.7	18.8
	240 V	4.2	12.1	5.8	17.0
	264 V	4.1	11.7	6.0	17.9
Specification		120	170	50	100
Judgment		PASS		PASS	

Model	eNSP3-450P-S20-H1V
Item	Ripple / Noise Voltage Test

[Test conditions]

Ambient temperature: -5 , 25 , 50 , 65

Input voltage: 20V, 24V, 27.3V DC

Load: Rated load (At 65 , the derating factor (70%) specified for 60 is applied to this test.)

Temp	DC Input voltage	CH1 3.3V		CH2 5V		CH3 12V	
		Ripple (mV)	Noise (mV)	Ripple (mV)	Noise (mV)	Ripple (mV)	Noise (mV)
-5	20 V	12.3	30.2	10.5	27.4	38.8	45.8
	24 V	12.3	28.9	12.0	25.5	27.0	35.5
	27.3 V	9.6	31.4	11.0	27.6	22.5	30.8
25	20 V	12.9	31.4	13.0	27.6	25.4	35.0
	24 V	9.6	29.5	9.2	24.5	18.3	28.3
	27.3 V	7.9	29.3	9.0	25.6	16.0	27.9
45	20 V	11.6	29.2	11.2	24.9	19.9	29.6
	24 V	8.8	28.3	7.4	22.9	14.7	26.4
	27.3 V	7.9	30.4	7.7	24.3	13.0	27.2
65	20 V	9.5	30.1	8.7	28.9	13.4	23.0
	24 V	12.5	35.8	14.7	30.8	11.4	25.8
	27.3 V	13.1	36.5	14.6	32.1	10.4	25.9
Specification		50	100	50	100	120	170
Judgment		PASS		PASS		PASS	

Temp	AC Input voltage	CH4 -12V		CH5 5Vs	
		Ripple (mV)	Noise (mV)	Ripple (mV)	Noise (mV)
-5	20 V	13.3	24.9	16.3	35.4
	24 V	10.7	27.2	14.7	35.8
	27.3 V	10.0	27.2	13.1	35.6
25	20 V	12.7	27.1	16.0	39.1
	24 V	8.1	25.8	10.2	35.1
	27.3 V	7.8	25.6	11.2	34.7
45	20 V	11.4	26.8	14.3	39.1
	24 V	7.6	24.3	9.1	36.4
	27.3 V	8.0	26.6	11.4	34.9
65	20 V	9.0	27.5	12.2	40.7
	24 V	12.7	33.7	18.8	47.6
	27.3 V	12.3	33.2	19.3	47.0
Specification		120	170	50	100
Judgment		PASS		PASS	

Model	eNSP3-450P-S20-H1V
Item	Over-Current Protection

[Test conditions]

Ambient temperature: -5 , 25 , 50 , 65

Input voltage: 85V, 100V, 240V, 264V AC

Load: All loads other than measurement channel are set to the ratings.

At 65 , the derating factor (70%) specified for 60 is applied to this test.

Temperature	AC input voltage	CH1: 3.3V	CH2: 5V	CH3: 12V
-5	85 V	40.4 A	42.6 A	32.6 A
	100 V	39.0 A	42.0 A	33.6 A
	240 V	39.0 A	42.0 A	34.6 A
	264 V	39.0 A	42.0 A	35.8 A
25	85 V	39.4 A	41.0 A	32.6 A
	100 V	38.0 A	40.0 A	35.0 A
	240 V	38.0 A	40.0 A	35.0 A
	264 V	38.0 A	40.0 A	36.0 A
50	85 V	38.4 A	40.2 A	35.0 A
	100 V	37.6 A	39.8 A	35.6 A
	240 V	37.6 A	39.8 A	36.2 A
	264 V	37.6 A	39.8 A	36.2 A
65	85 V	41.8 A	42.0 A	36.6 A
	100 V	40.6 A	41.6 A	36.4 A
	240 V	40.6 A	41.6 A	36.4 A
	264 V	40.6 A	41.6 A	36.4 A
Specification		31A	34A	28.0A
Judgment		PASS	PASS	PASS

Temperature	AC input voltage	CH4: -12V	CH5: 5Vsb
-5	85 V	1.09 A	3.22 A
	100 V	1.10 A	3.20 A
	240 V	1.10 A	3.20 A
	264 V	1.10 A	3.20 A
25	85 V	1.04 A	3.16 A
	100 V	1.02 A	3.16 A
	240 V	1.02 A	3.16 A
	264 V	1.01 A	3.16 A
50	85 V	0.92 A	3.08 A
	100 V	0.92 A	3.08 A
	240 V	0.92 A	3.08 A
	264 V	0.92 A	3.08 A
65	85 V	0.90 A	3.04 A
	100 V	0.86 A	3.04 A
	240 V	0.86 A	3.04 A
	264 V	0.86 A	3.04 A
Specification		0.525A	2.1A
Judgment		PASS	PASS

Model	eNSP3-450P-S20-H1V
Item	Over-Current Protection

[Test conditions]

Ambient temperature: -5 , 25 , 50 , 65

Input voltage: 20V, 24V, 27.3V DC

Load: All loads other than measurement channel are set to the ratings.

At 65 , the derating factor (70%) specified for 60 is applied to this test.

Temperature	DC input voltage	CH1: 3.3V	CH2: 5V	CH3: 12V
-5	20 V	36.2 A	39.6 A	32.6 A
	24 V	337.0 A	40.6 A	35.6 A
	27.3 V	37.4 A	40.8 A	37.0 A
25	20 V	33.4 A	37.6 A	34.4 A
	24 V	34.2 A	38.0 A	35.4 A
	27.3 V	34.4 A	38.8 A	36.0 A
50	20 V	33.4 A	38.0 A	34.0 A
	24 V	34.4 A	38.4 A	34.8 A
	27.3 V	34.8 A	38.8 A	35.6 A
65	20 V	37.0 A	40.6 A	34.6 A
	24 V	37.8 A	41.0 A	35.6 A
	27.3 V	38.2 A	41.0 A	36.6 A
Specification		31A	34A	28.0A
Judgment		PASS	PASS	PASS

Temperature	DC input voltage	CH4: -12V	CH5: 5Vsb
-5	20 V	1.10 A	3.20 A
	24 V	1.10 A	3.20 A
	27.3 V	1.10 A	3.20 A
25	20 V	0.99 A	3.16 A
	24 V	1.01 A	3.16 A
	27.3 V	1.03 A	3.16 A
50	20 V	0.93 A	3.06 A
	24 V	0.93 A	3.06 A
	27.3 V	0.93 A	3.06 A
65	20 V	0.85 A	3.00 A
	24 V	0.86 A	3.02 A
	27.3 V	0.86 A	3.04 A
Specification		0.525A	2.1A
Judgment		PASS	PASS

Model	eNSP3-450-S20-H1V
Item	Over-Voltage Protection

[Test conditions]

Ambient temperature: -5 , 25 , 45 , 65

Input voltage : 100V, 240V AC and 24V DC

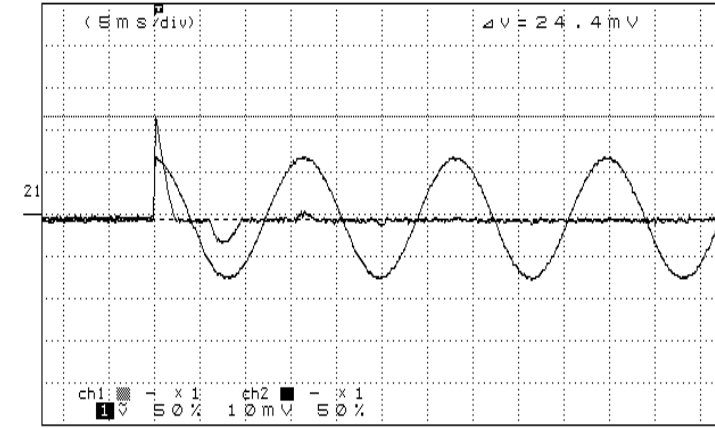
Load: Minimum load

Temperature	Input voltage	CH1 3.3V	CH2 5V	CH3 12V
-5	100V AC	4.07 V	6.39 V	14.71 V
	240V AC	4.08 V	6.40 V	14.71 V
	24V DC	4.08 V	6.40 V	14.71 V
25	100V AC	3.96 V	6.24 V	14.77 V
	240V AC	3.96 V	6.25 V	14.77 V
	24V DC	3.95 V	6.24 V	14.77 V
50	100V AC	3.88 V	6.12 V	14.81 V
	240V AC	3.88 V	6.13 V	14.80 V
	24V DC	3.87 V	6.12 V	14.81 V
65	100V AC	3.82 V	6.01 V	14.81 V
	240V AC	3.82 V	6.01 V	14.80 V
	24V DC	3.82 V	6.01 V	14.79 V
Specification		3.76 - 4.3V	5.74 - 7.0V	13.4 - 15.6V
Judgment		PASS	PASS	PASS

Model	eNSP3-450P-S20-H1V
Item	Inrush Current

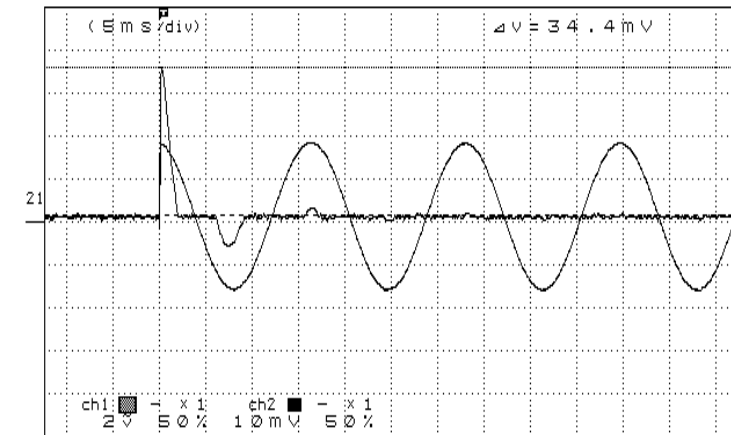
Inrush Current Waveforms

* MEM * trig:SINGLE CH2 leve ↓ 60% - 5%
 5ms x1 csr:↓ A&B A:CH2 B:CH2



DATA 1	
CH1	Measuring Point: AC Input Voltage
	Range: 100V/DIV
CH2	Measuring Point: AC Input Current
	Range: 10A/DIV
Sweep time	5ms/DIV
Conditions	Input: 100V AC, 60Hz Load: Rated Load
Note: Inrush Current: 24.4A	

* MEM * trig:SINGLE CH2 leve ↓ 60% - 5%
 5ms x1 csr:↓ A&B A:CH2 B:CH2



DATA 2	
CH1	Measuring Point: AC Input Voltage
	Range: 200V/DIV
CH2	Measuring Point: AC Input Current
	Range: 20A/DIV
Sweep time	5ms/DIV
Conditions	Input: 240V AC, 60Hz Load: Rated Load
Note: Inrush Current: 68.8A	

OFF DARK LIGHT (scale)

Model	eNSP3-450P-S20-H1V
Item	Dynamic Load Response

[Test Conditions]

Ambient Temperature 25±5°C (Room Temperature)
 Input Voltage 100V AC
 Load-change repetition rate 50 Hz – 10 kHz (No capacitive load)

Note 1: Test limits are derived from the specified DC output voltage accuracy.
 Note 2: V_m is measured voltage

Table 1. +3.3 V DC Output transient response result

Test Item	Rated Load ≒ 8.05 A	Test limits	Judgment
Voltage variance	High: 68 mV Low: - 64mV	+132 mV ≥ V _m ≥ -132 mV	PASS
Load-change repetition rate from 50Hz to 10kHz.	Normal	No failure and damages.	PASS

Table 2. +5 V DC Output transient response result

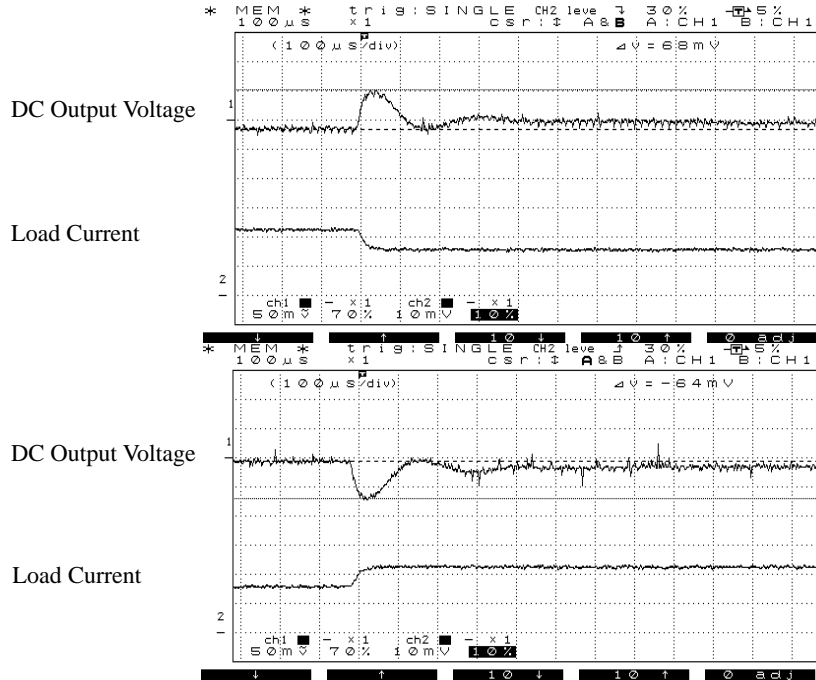
Test Item	Rated Load ≒ 11.2 A	Test limits	Judgment
Voltage variance	High: 108 mV Low: -110 mV	+200mV ≥ V _m ≥ -200 mV	PASS
Load-change repetition rate from 50Hz to 10kHz.	Normal	No failure and damages.	PASS

Table 3. +12 V DC Output transient response result

Test Item	Rated Load ≒ 9 A	Test limits	Judgment
Voltage variance	High: 106 mV Low: -114 mV	+600 mV ≥ V _m ≥ -600 mV	PASS
Load-change repetition rate from 50Hz to 10kHz.	Normal	No failure and damages.	PASS

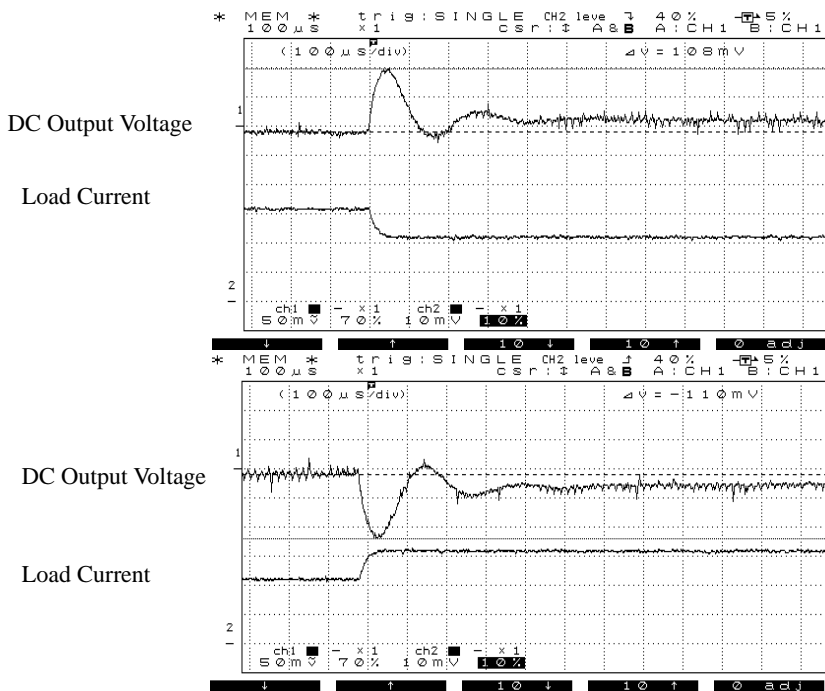
Model	eNSP3-450P-S20-H1V
Item	Dynamic Load Response

(CH1) +3.3V DC output response waveforms



Waveform 1	
CH1	Measuring Point: DC Output Voltage Range: 50mV/DIV
CH2	Measuring Point: DC Output Current Range: 5A/DIV
Sweep time	100 μ s/DIV
Condition	Input: 100V AC Load: Rated Load (Other output)
Note: Rated Load \approx 8.05 A	

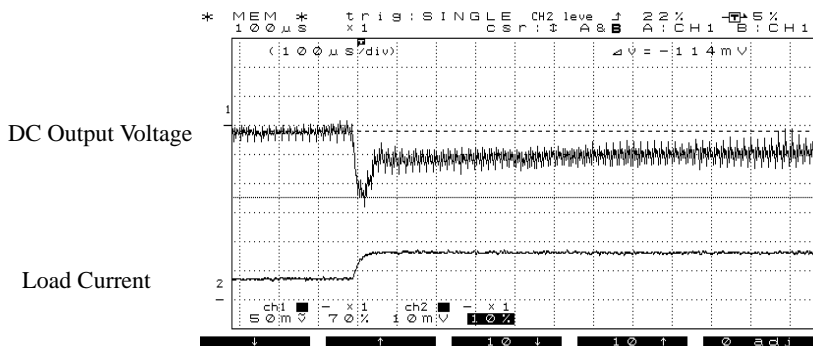
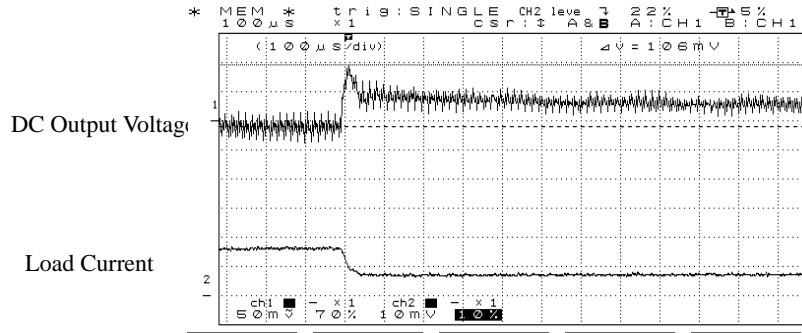
(CH2) +5V DC output response waveforms



Waveform 2	
CH1	Measuring Point: DC Output Voltage Range: 50mV/DIV
CH2	Measuring Point: DC Output Current Range: 5A/DIV
Sweep time	100 μ s/DIV
Condition	Input: 100 V AC Load: Rated Load (Other output)
Note: Rated Load \approx 11.2 A	

Model	eNSP3-450P-S20-H1V
Item	Dynamic Load Response

(CH3) +12V DC output response waveforms



Waveform 3	
CH1	Measuring Point: DC Output Voltage
	Range: 50mV/DIV
CH2	Measuring Point: DC Output Current
	Range: 10A/DIV
Sweep time	100µs/DIV
Condition	Input: 100 V AC Load: Rated Load (other output)
Note: Rated Load ≅ 9 A	

Model	eNSP3-450P-S20-H1V
Item	12V Cross Regulation

12V Load Current	12V Voltage Value [V]				
	5V 0A	5V 8A	5V 16A	5V 22A	5V 33A
0A	12.134	12.109	12.083	12.059	12.022
9A	12.049	12.023	11.997	11.977	11.938
18A	11.961	11.935	11.912	11.893	11.854
22A	11.926	11.9	11.871	-	-
30A	11.85	11.82	11.791	-	-

12V Load Current	Fluctuation Value [%]				
	5V 0A	5V 8A	5V 16A	5V 22A	5V 33A
0A	1.12	0.91	0.69	0.49	0.18
9A	0.41	0.19	-0.02	-0.19	-0.52
18A	-0.32	-0.54	-0.73	-0.89	-1.22
22A	-0.62	-0.83	-1.07	-	-
30A	-1.25	-1.50	-1.74	-	-

Model	eNSP3-450P-S20-H1V																																																											
Item	Ambient Temperature Drift																																																											
V1:3.3V 11.5A																																																												
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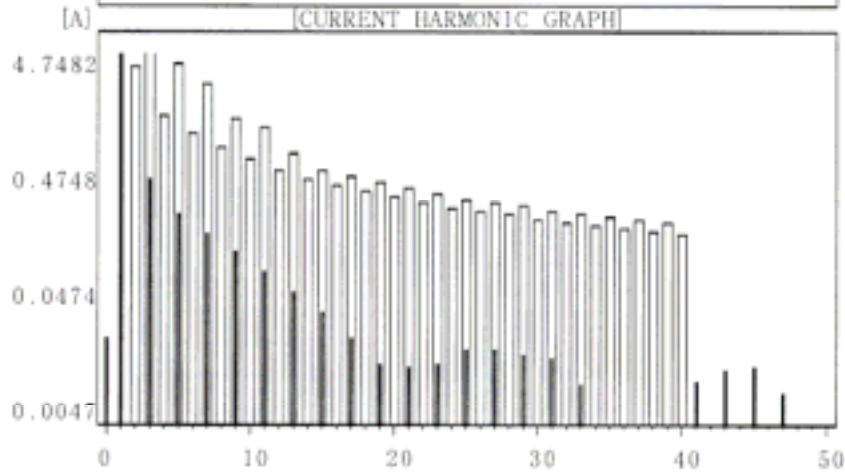
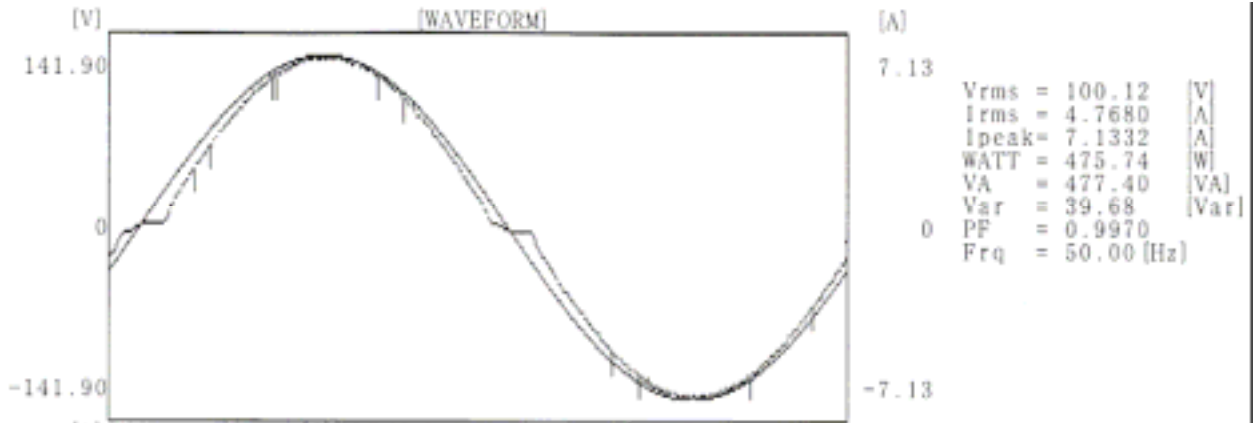
Model	eNSP3-450P-S20-H1V																																																											
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Model	eNSP3-450P-S20-H1V
Item	AC Harmonic Current

[Test Conditions]

Ambient temperature: 25' ± 5 (Room Temperature)
 Input voltage: 100V AC, 50 Hz
 Load: Rated load
 Measuring Instrument: MP701 (Keisoku Giken)



Std. : [Revised]
 IEC555-2 (S) 77A
 CLASS : A
 Rated Volt : 100V
 Judge Factor : 1.00
 Judgement : PASS

[CURRENT HARMONIC DATA]

No	(A)	No	(A)	No	(A)	No	(A)
00	0.0157	13	0.0388	26	0.0018	39	0.0033
01	4.7482	14	0.0031	27	0.0128	40	0.0018
02	0.0031	15	0.0257	28	0.0018	41	0.0071
03	0.3068	16	0.0021	29	0.0117	42	0.0025
04	0.0031	17	0.0162	30	0.0015	43	0.0090
05	0.1665	18	0.0031	31	0.0107	44	0.0025
06	0.0028	19	0.0100	32	0.0025	45	0.0090
07	0.1111	20	0.0007	33	0.0067	46	0.0018
08	0.0015	21	0.0093	34	0.0000	47	0.0057
09	0.0809	22	0.0028	35	0.0031	48	0.0015
10	0.0025	23	0.0100	36	0.0015	49	0.0038
11	0.0564	24	0.0007	37	0.0015		
12	0.0015	25	0.0128	38	0.0018		

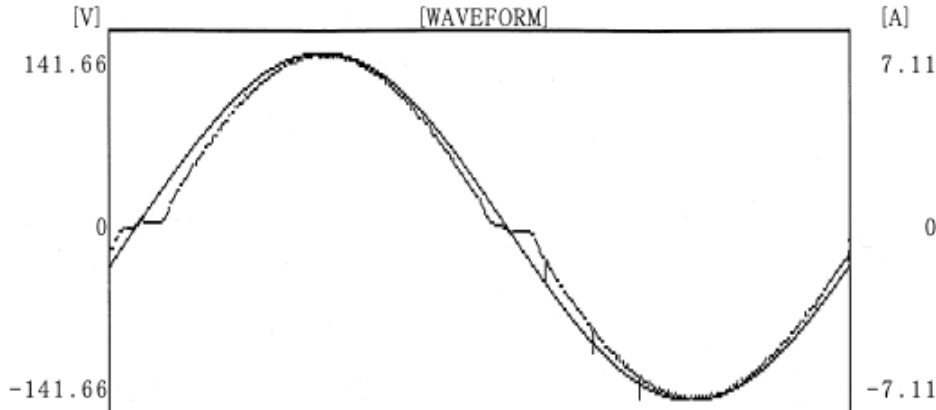
Fig.1 AC Harmonic Current test data

Judgment: PASS

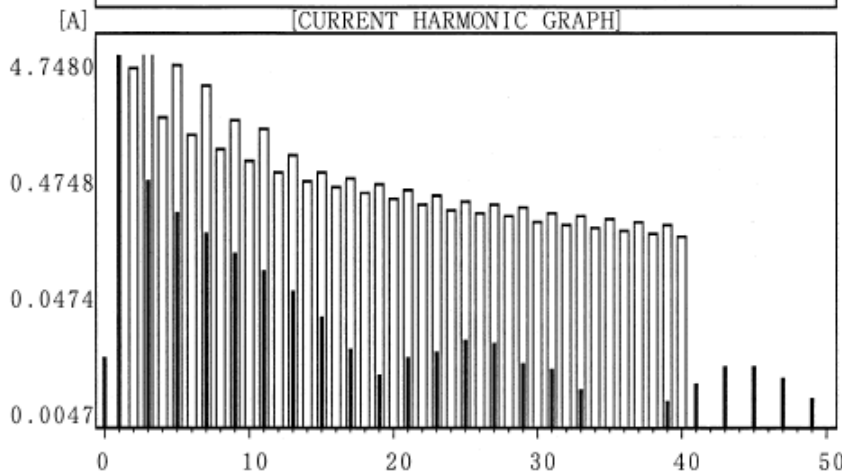
Model	eNSP3-450P-S20-H1V
Item	AC Harmonic Current

[Test Conditions]

Ambient temperature: 25' ± 5 (Room Temperature)
 Input voltage: 100V AC, 60Hz
 Load: Rated load
 Measuring Instrument: MP701 (Keisoku Giken)



Vrms = 100.04 [V]
 Irms = 4.7680 [A]
 Ipeak = 7.1145 [A]
 WATT = 475.24 [W]
 VA = 476.98 [VA]
 Var = 40.69 [Var]
 PF = 0.9969
 Frq = 60.00 [Hz]



Std. : [Revised]
 IEC555-2 (S) 77A
 CLASS : A
 Rated Volt : 100V
 Judge Factor : 1.00
 Judgement : PASS

[CURRENT HARMONIC DATA]

No	(A)	No	(A)	No	(A)	No	(A)
00	0.0112	13	0.0394	26	0.0018	39	0.0050
01	4.7480	14	0.0031	27	0.0148	40	0.0022
02	0.0044	15	0.0252	28	0.0018	41	0.0070
03	0.3082	16	0.0021	29	0.0104	42	0.0025
04	0.0031	17	0.0134	30	0.0022	43	0.0096
05	0.1713	18	0.0021	31	0.0092	44	0.0022
06	0.0028	19	0.0085	32	0.0015	45	0.0099
07	0.1151	20	0.0025	33	0.0065	46	0.0031
08	0.0018	21	0.0113	34	0.0015	47	0.0077
09	0.0829	22	0.0015	35	0.0015	48	0.0000
10	0.0018	23	0.0127	36	0.0018	49	0.0055
11	0.0583	24	0.0015	37	0.0028		
12	0.0025	25	0.0157	38	0.0015		

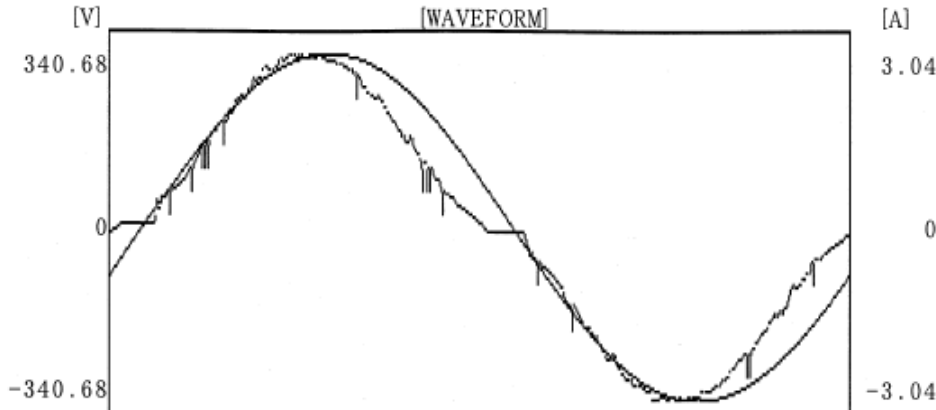
Fig.2 AC Harmonic Current test data

Judgment: PASS

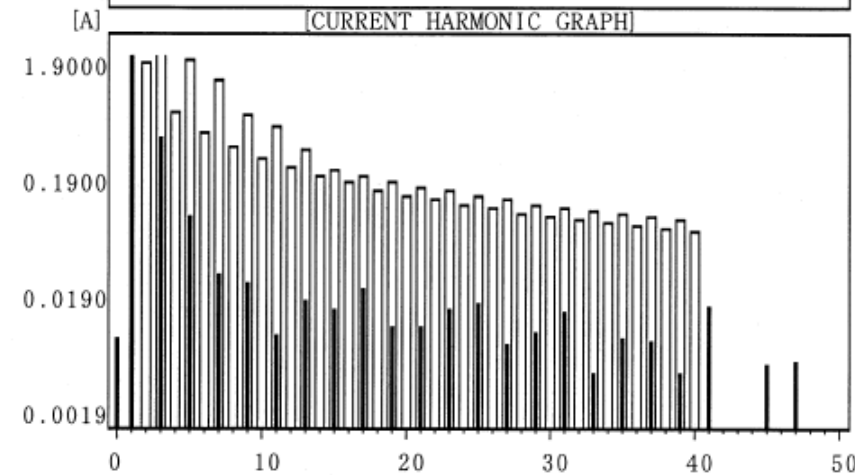
Model	eNSP3-450P-S20-H1V
Item	AC Harmonic Current

[Test Conditions]

Ambient temperature: 25' ± 5 (Room Temperature)
 Input voltage: 240V AC, 50Hz
 Load: Rated load
 Measuring Instrument: MP701 (Keisoku Giken)



Vrms = 240.60 [V]
 Irms = 1.9238 [A]
 Ipeak = 3.0396 [A]
 WATT = 451.10 [W]
 VA = 462.85 [VA]
 Var = 103.64 [Var]
 PF = 0.9751
 Frq = 50.00 [Hz]



Std. : [Revised]
 IEC555-2 (S) 77A
 CLASS : A
 Rated Volt : 230V
 Judge Factor : 1.00
 Judgement : PASS

[CURRENT HARMONIC DATA]

No	(A)	No	(A)	No	(A)	No	(A)
00	0.0065	13	0.0134	26	0.0003	39	0.0036
01	1.9000	14	0.0007	27	0.0059	40	0.0014
02	0.0013	15	0.0115	28	0.0012	41	0.0119
03	0.2818	16	0.0006	29	0.0073	42	0.0011
04	0.0016	17	0.0169	30	0.0008	43	0.0019
05	0.0656	18	0.0008	31	0.0112	44	0.0015
06	0.0017	19	0.0081	32	0.0008	45	0.0042
07	0.0216	20	0.0005	33	0.0035	46	0.0011
08	0.0013	21	0.0085	34	0.0009	47	0.0043
09	0.0189	22	0.0009	35	0.0068	48	0.0005
10	0.0009	23	0.0113	36	0.0008	49	0.0008
11	0.0073	24	0.0004	37	0.0062		
12	0.0009	25	0.0128	38	0.0009		

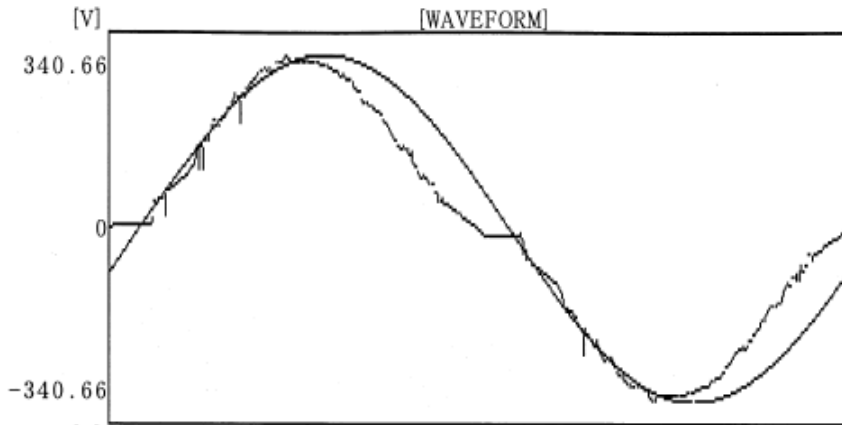
Fig.3 AC Harmonic Current test data

Judgment: PASS

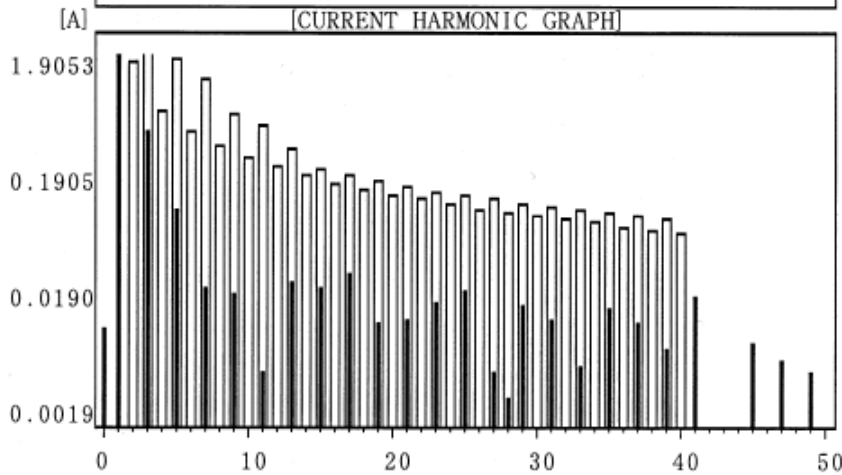
Model	eNSP3-450P-S20-H1V
Item	AC Harmonic Current

[Test Conditions]

Ambient temperature: 25' ± 5 (Room Temperature)
 Input voltage: 240V AC, 60Hz
 Load: Rated load
 Measuring Instrument: MP701 (Keisoku Giken)



[A]
 3.13
 Vrms = 240.59 [V]
 Irms = 1.9330 [A]
 Ipeak = 3.1349 [A]
 WATT = 450.07 [W]
 VA = 465.05 [VA]
 Var = 117.09 [Var]
 0 PF = 0.9683
 Frq = 60.00 [Hz]



Std. : [Revised]
 IEC555-2 (S) 77A
 CLASS : A
 Rated Volt : 230V
 Judge Factor : 1.00
 Judgement : PASS

[CURRENT HARMONIC DATA]

No	(A)	No	(A)	No	(A)	No	(A)
00	0.0080	13	0.0193	26	0.0009	39	0.0054
01	1.9053	14	0.0010	27	0.0036	40	0.0010
02	0.0015	15	0.0172	28	0.0022	41	0.0142
03	0.3047	16	0.0000	29	0.0124	42	0.0009
04	0.0014	17	0.0222	30	0.0008	43	0.0014
05	0.0722	18	0.0008	31	0.0095	44	0.0002
06	0.0015	19	0.0088	32	0.0010	45	0.0059
07	0.0171	20	0.0015	33	0.0040	46	0.0015
08	0.0011	21	0.0096	34	0.0009	47	0.0045
09	0.0151	22	0.0017	35	0.0117	48	0.0008
10	0.0011	23	0.0126	36	0.0011	49	0.0036
11	0.0035	24	0.0006	37	0.0087		
12	0.0009	25	0.0165	38	0.0017		

Fig.4 AC Harmonic Current test data

Judgment: PASS

Model	eNSP3-450P-S20-H1V
Item	Leakage Current

[Test Conditions]

Ambient temperature $25^{\circ} \pm 5$ (Room Temperature)
 Input voltage 100V and 200V AC, 60Hz
 Load Rated load, Minimum load
 Measuring Instrument YEW.TYPE 3226 or equivalent (Input resistance: 1k)

[Test results]

Input voltage	Rated load	Minimum load
100V AC	0.29mA	0.27mA
200V AC	0.53mA	0.52mA

Specification: 0.5mA (AC100V), 1.0mA (AC200V)

Judgment : PASS

Model	eNSP3-450P-S20-H1V
Item	Line Noise Tolerance

[Test Conditions]

Ambient temperature	25° ± 5 (Room Temperature)
Input Voltage	100V AC
Load	Rated load
Applied Noise Voltage	± 2000V
Repetitive Cycle	30 - 100Hz
Pulse Width	100, 1000ns

Measuring Instrument: INS420 (Noise Laboratory Co.,Ltd.)

[Test results]

Normal mode	Pulse width and polarity			
	100ns		1000ns	
	Polarity +	Polarity -	Polarity +	Polarity -
	✓	✓	✓	✓
Common mode R Phase	Pulse width and polarity			
	100ns		1000ns	
	Polarity +	Polarity -	Polarity +	Polarity -
	✓	✓	✓	✓
Common mode S Phase	Pulse width and polarity			
	100ns		1000ns	
	Polarity +	Polarity -	Polarity +	Polarity -
	✓	✓	✓	✓

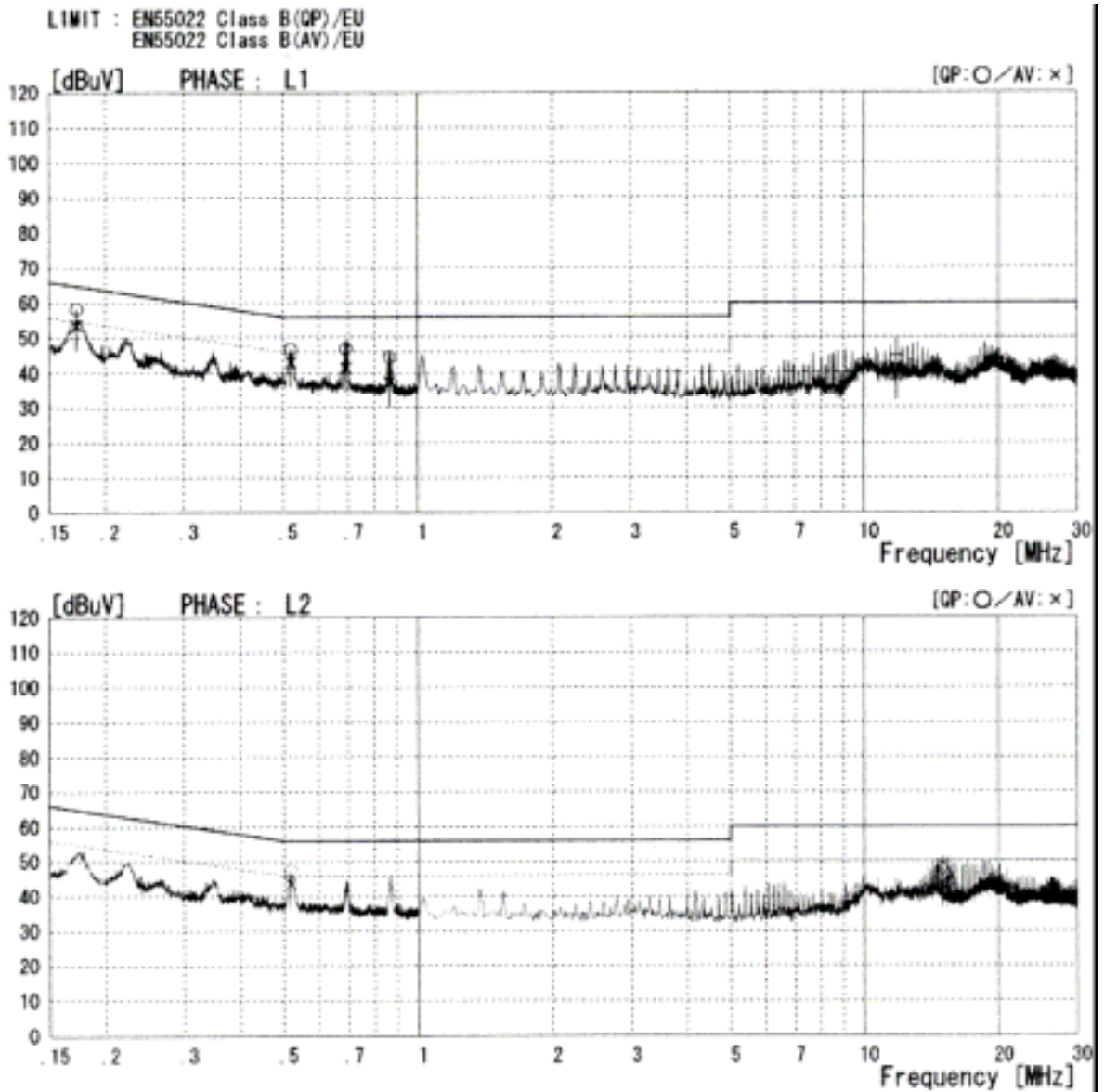
Symbol notes ✓ Normal
 ✕ Power Supply Breakdown

Judgment: PASS

Model	eNSP3-450P-S20-H1V
Item	Conducted Emission

[Test conditions]

Temperature	25 ° ± 5 Room Temperature
Input	100V AC
Load	Rated Load
Measuring Point	L-FG, N-FG
Specification	EN55022 Class B

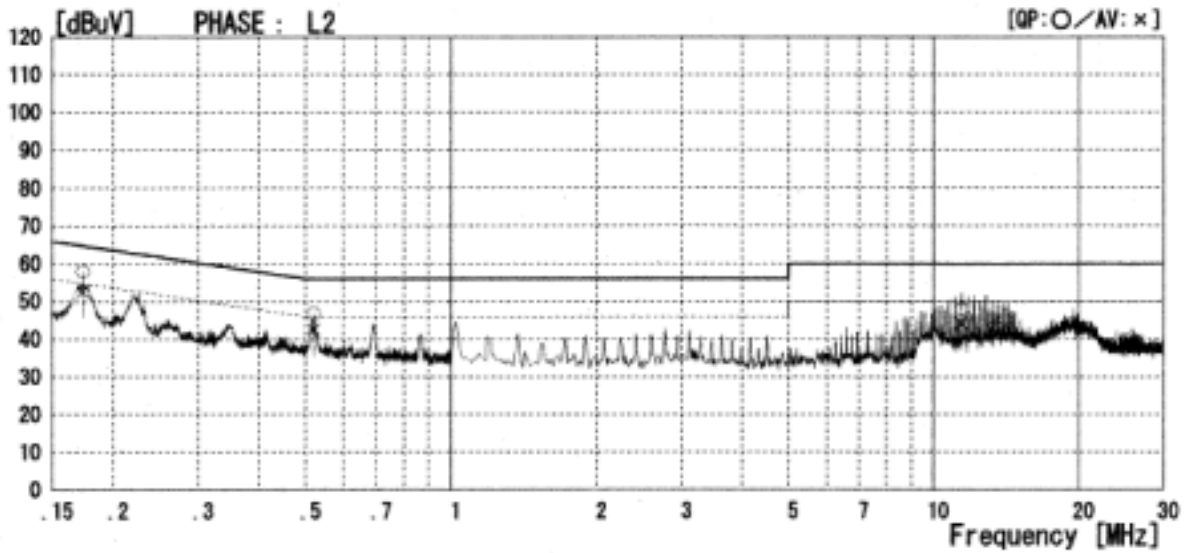
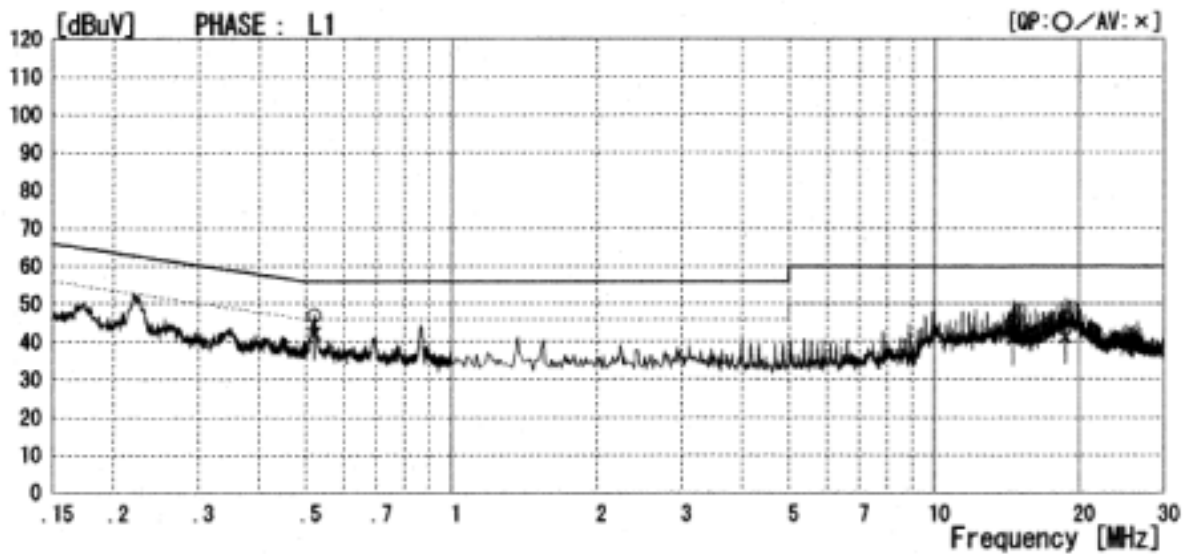


Model	eNSP3-450P-S20-H1V
Item	Conducted Emission

Test conditions

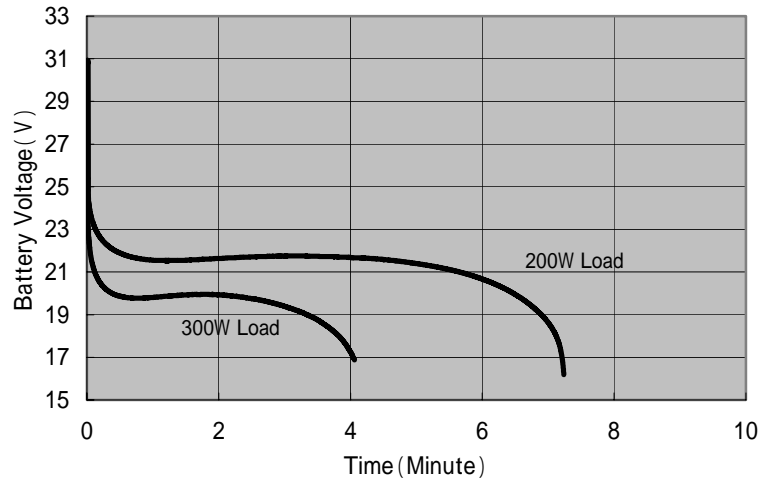
Temperature	25 ° ± 5 Room Temperature
Input	100V AC
Load	Rated Load
Measuring Point	L-FG, N-FG
Specification	EN55022 Class B

LIMIT : EN55022 Class B(OP)/EU
 EN55022 Class B(AV)/EU



Model	eNSP3-450P-S20-H1V with BS10A-H24/2.0L
Item	Battery Discharge

Back up time



Output Power [W]	Back up Time [Minute]
200	7.22
300	4.05