

CUS800M

EVALUATION DATA

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Terminology used

	Definition
V_{in}	Input voltage
V_{out}	Output voltage
I_{in}	Input current
I_{out}	Output current
T_a	Ambient temperature
f	Frequency
PG	Power good signal
V_{stb}	Output voltage of standby
I_{stb}	Output current of standby

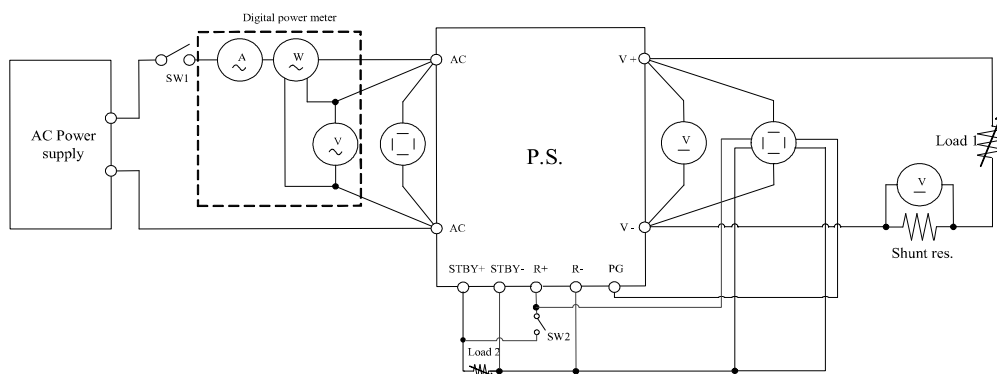
※ Test results are reference data based on our measurement condition.

1. Evaluation Method

1-1. Circuit used for determination

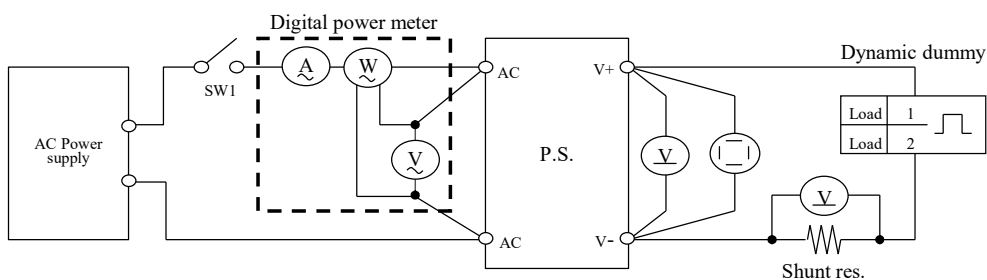
Circuit 1 used for determination

- Steady state data
- Warm up voltage drift characteristics
- Hold up time characteristics
- Output rise characteristics
- Output fall characteristics
- Over current protection (OCP) characteristics
- Over voltage protection (OVP) characteristics
- Response to brown out characteristics
- Various signal

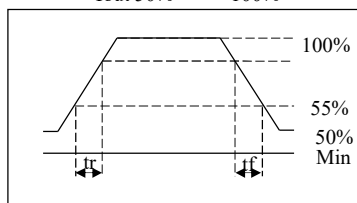


Circuit 2 used for determination

- Dynamic load response characteristics

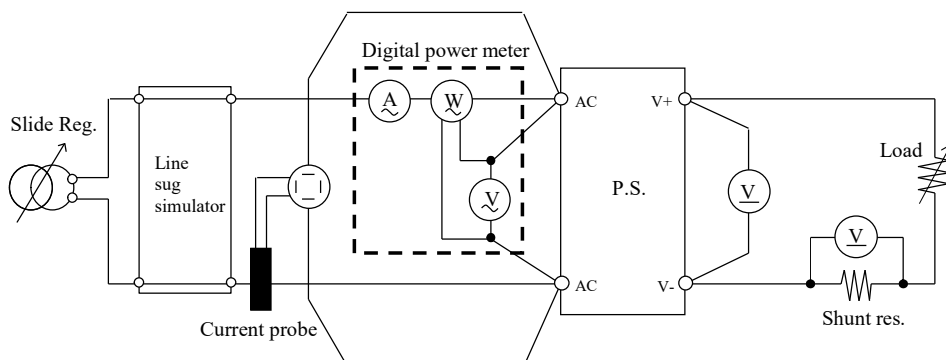


Output current waveform
I_{out} 50% \rightleftharpoons 100%



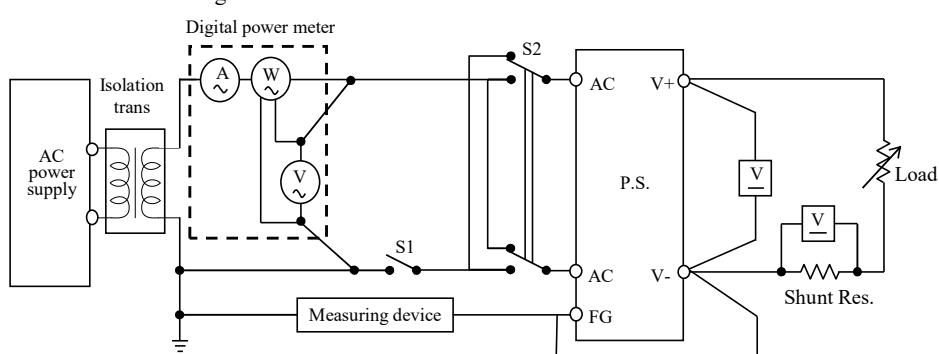
Circuit 3 used for determination

- Inrush current waveform



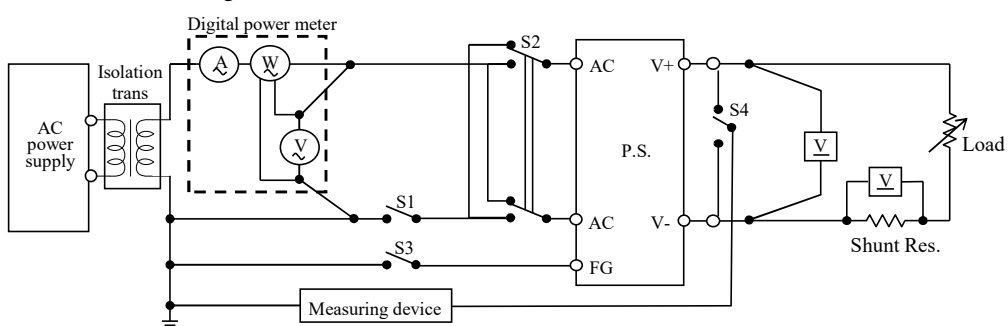
Circuit 4 used for determination

- Earth leakage current characteristics



Measure in all possible combination of position of S2 with :
S1 closed (normal condition), and S1 open (single fault condition).

- Patient leakage current



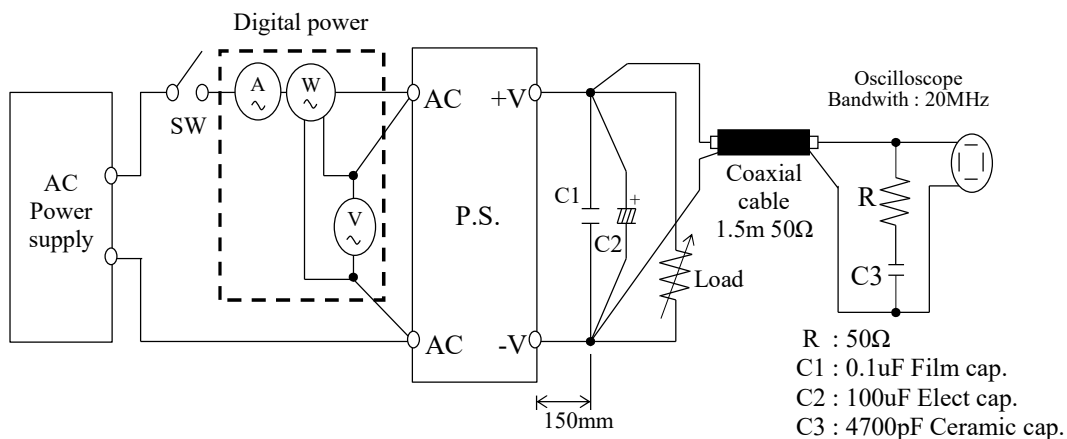
CLASS I equipment:

S1, S3 closed, measure under all possible position of S2 & S4.

Single fault condition: S1 open with S3 close or S1 close with S3 open.

Circuit 5 used for determination

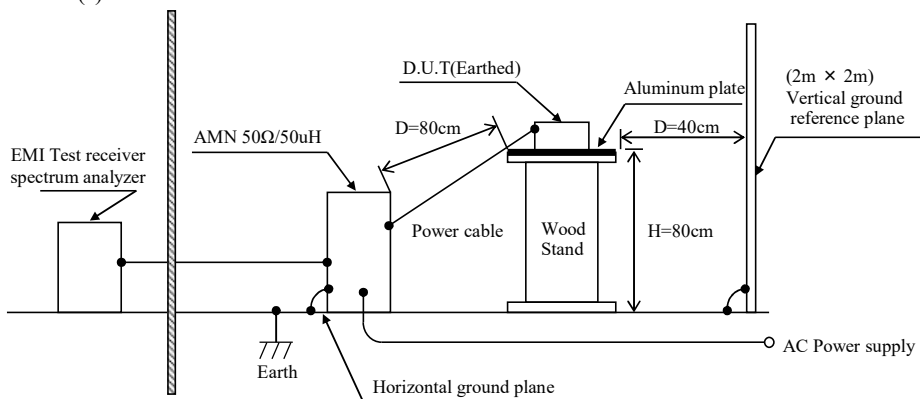
- Output ripple and noise waveform



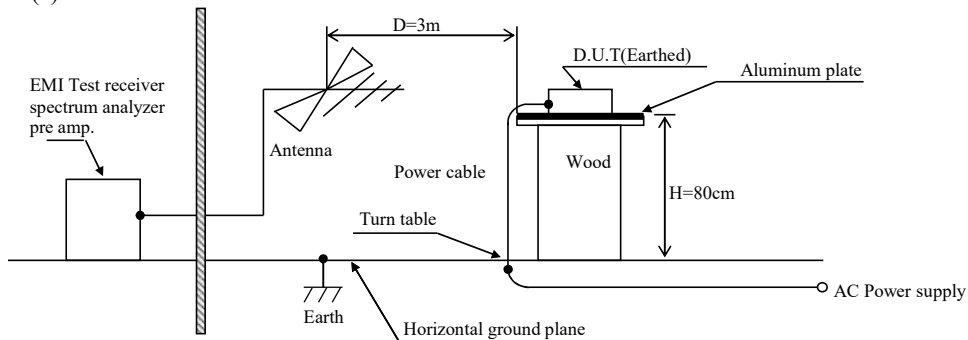
Configuration used for determination

- Electro-Magnetic Interference characteristics

(a) Conducted Emission



(b) Radiated Emission



1-2. List of equipment used

	EQUIPMENT USED	MANUFACTURER	MODEL NO.
1	DIGITAL STORAGE OSCILLOSCOPE	YOKOGAWA ELECT.	DLM2054
2	DIGITAL MULTIMETER	KEYSIGHT	34970A
3	DIGITAL POWER METER	YOKOGAWA ELECT.	WT310
4	CURRENT PROBE	YOKOGAWA ELECT.	701930
5	POWER SUPPLY	YOKOGAWA ELECT.	701934
6	DYNAMIC DUMMY LOAD	CHROMA	63030/63203A/63640
7	AC SOURCE	KIKUSUI	PCR4000LE
8	EARTH LEAKAGE CURRENT METER	SIMPSON	228
9	PATIENT LEAKAGE CURRENT METER	SIQ	SIQ16042
10	CONTROLLED TEMP. CHAMBER	TABAI-ESPEC	SH-662
11	EMI TEST RECEIVER	ROHDE & SCHWARZ	ESR3
12	LISN	ROHDE & SCHWARZ	ENV216
13	BROADBAND ANTENNA	SCHWARZBECK	VULB9163
14	LINE SUG SIMULATOR	TAKAMISAWA	PSA-210
15	SOUND CALIBRATOR	BRUEL AND KJAER	TYPE 4231
16	AUDIO ANALYZER	BRUEL AND KJAER	TYPE 3560-C

1-3. Load conditions

Vin	Iout	12V	24V	36V	48V
85 - 265VAC	50%	28.35A	16.7A	11.1A	8.35A
85VAC	90%	51.03A	30.06A	19.98A	15.03A
90 - 265VAC	100%	56.7A	33.4A	22.2A	16.7A
85 - 265VAC	50%Peak	33.35A	16.7A	11.1A	8.35A
85 - 265VAC	Peak	66.7A	33.4A	22.2A	16.7A

*Vstb=5V, Istb=2A(100%)

2. Characteristics

2-1. Steady state data

(1) Regulation - line and load, Temperature drift / Start up voltage and Drop out voltage

12V 1. Regulation - line and load

Condition Ta : 25 °C
Iout : 100 % (56.7A)
Istb : 0 %

Iout \ Vin	85VAC	115VAC	230VAC	265VAC	Line regulation	
0%	12.028V	12.025V	12.025V	12.024V	4mV	0.033%
50%	12.010V	12.010V	12.010V	12.009V	1mV	0.008%
100%	-	11.996V	11.996V	11.996V	0mV	0.000%
Peak	-	11.976V	11.976V	11.976V	0mV	0.000%
Load	18mV	29mV	29mV	28mV		
regulation	0.150%	0.242%	0.242%	0.233%		

2. Temperature drift

Condition Vin : 115 VAC
Iout : 100 % (56.7A)
Istb : 0 %

Ta	-20°C	+25°C	+55°C	Temperature stability	
Vout	11.987V	11.996V	11.996V	9mV	0.075%

3. Start up voltage and Drop out voltage

Condition Ta : 25 °C
Iout : Peak (66.7A)
Istb : 0 %

Start up voltage (Vin)	79.2VAC
Drop out voltage (Vin)	77.8VAC

24V 1. Regulation - line and load

Condition Ta : 25 °C
Iout : 100 % (33.4A)
Istb : 0 %

Iout \ Vin	85VAC	115VAC	230VAC	265VAC	Line regulation	
0%	24.048V	24.045V	24.046V	24.044V	4mV	0.017%
50%	24.025V	24.024V	24.025V	24.024V	1mV	0.004%
100%	-	24.017V	24.017V	24.016V	1mV	0.004%
Load	23mV	28mV	29mV	28mV		
regulation	0.096%	0.117%	0.121%	0.117%		

2. Temperature drift

Condition Vin : 115 VAC
Iout : 100 % (33.4A)
Istb : 0 %

Ta	-20°C	+25°C	+55°C	Temperature stability	
Vout	23.985V	24.017V	24.022V	37mV	0.154%

3. Start up voltage and Drop out voltage

Condition Ta : 25 °C
Iout : 100 % (33.4A)
Istb : 0 %

Start up voltage (Vin)	79.1VAC
Drop out voltage (Vin)	78.0VAC

(1) Regulation - line and load, Temperature drift / Start up voltage and Drop out voltage

36V 1. Regulation - line and load

Condition Ta : 25 °C
Iout : 100 % (22.2A)
Istb : 0 %

Iout \ Vin	85VAC	115VAC	230VAC	265VAC	Line regulation	
0%	36.084V	36.085V	36.052V	36.080V	33mV	0.092%
50%	36.045V	36.045V	36.045V	36.045V	0mV	0.000%
100%	-	36.037V	36.037V	36.037V	0mV	0.000%
Load regulation	39mV	48mV	15mV	43mV		
	0.108%	0.133%	0.042%	0.119%		

2. Temperature drift

Condition Vin : 115 VAC
Iout : 100 % (22.2A)
Istb : 0 %

Ta	-20°C	+25°C	+55°C	Temperature stability	
Vout	36.002V	36.037V	36.036V	35mV	0.097%

3. Start up voltage and Drop out voltage

Conc Ta : 25 °C
Iout : 100 % (22.2A)
Istb : 0 %

Start up voltage (Vin)	78.7VAC
Drop out voltage (Vin)	77.8VAC

48V 1. Regulation - line and load

Condition Ta : 25 °C
Iout : 100 % (16.7A)
Istb : 0 %

Iout \ Vin	85VAC	115VAC	230VAC	265VAC	Line regulation	
0%	48.081V	48.094V	48.094V	48.082V	13mV	0.027%
50%	48.039V	48.039V	48.039V	48.038V	1mV	0.002%
100%	-	48.032V	48.032V	48.032V	0mV	0.000%
Load regulation	42mV	62mV	62mV	50mV		
	0.088%	0.129%	0.129%	0.104%		

2. Temperature drift

Condition Vin : 115 VAC
Iout : 100 % (16.7A)
Istb : 0 %

Ta	-20°C	+25°C	+55°C	Temperature stability	
Vout	47.976V	48.032V	48.044V	68mV	0.142%

3. Start up voltage and Drop out voltage

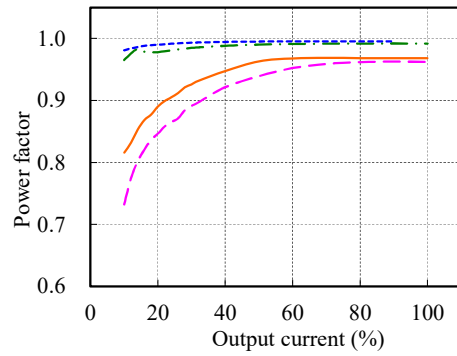
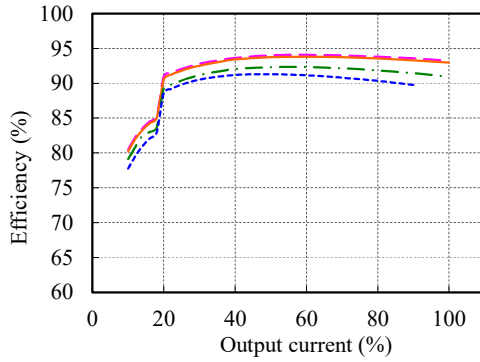
Condition Ta : 25 °C
Iout : 100 % (16.7A)
Istb : 0 %

Start up voltage (Vin)	79.4VAC
Drop out voltage (Vin)	78.3VAC

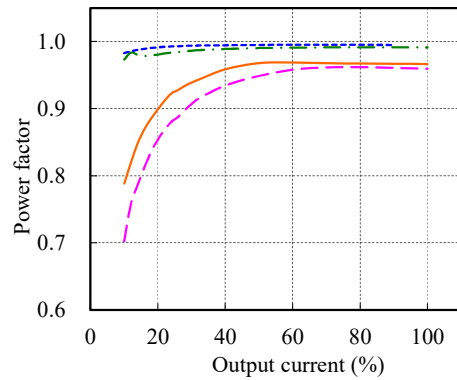
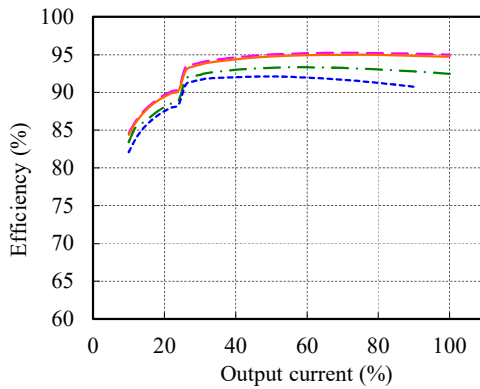
(2) Efficiency and Power factor vs. Output current

Conditions Vin : 85 VAC ---
 115 VAC - - -
 230 VAC ---
 265 VAC - - -
 Ta : 25 °C
 Istb : 0 %

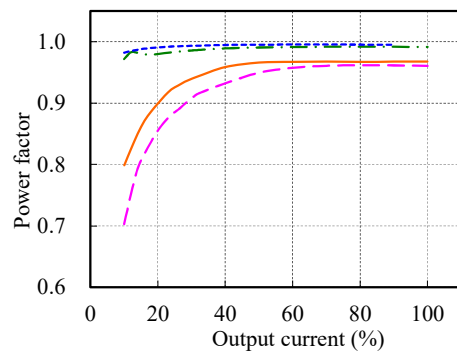
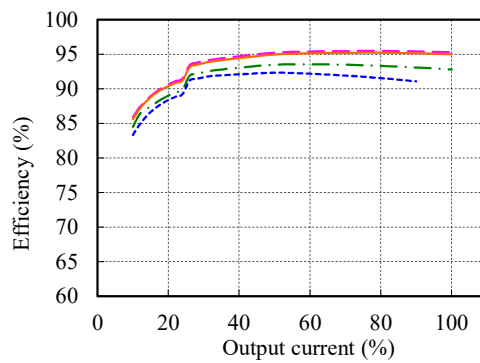
12V



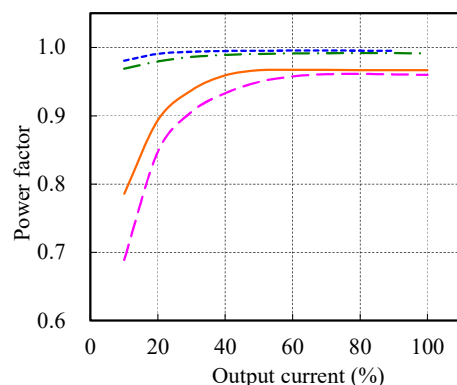
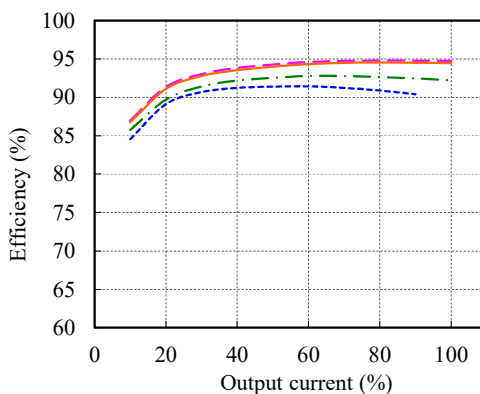
24V



36V



48V

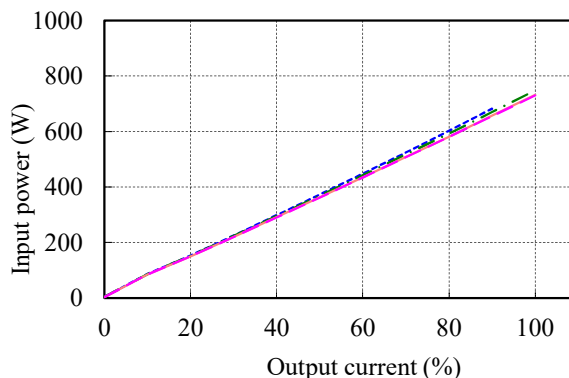


(3) Input power vs. Output current

Conditions Vin : 85 VAC ---
 115 VAC -.-
 230 VAC ---
 265 VAC -.-
 Ta : 25 °C
 Istb : 0 %

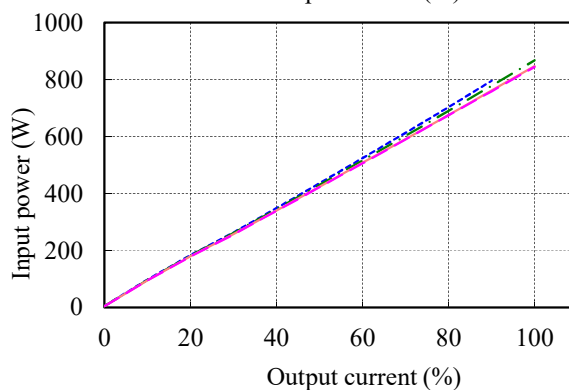
12V

Vin	Input power	
	Iout : 0%	Remote OFF
85VAC	4.4W	0.30W
115VAC	4.4W	0.34W
230VAC	3.2W	0.60W
265VAC	3.5W	0.72W



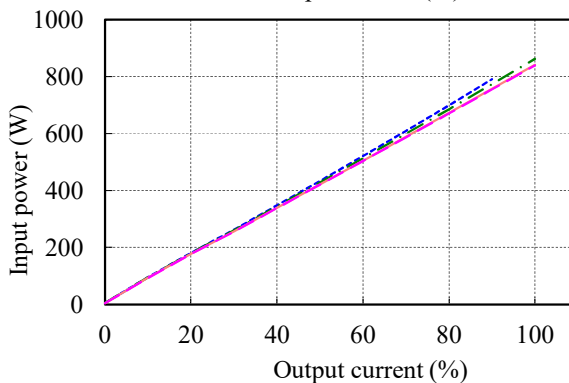
24V

Vin	Input power	
	Iout : 0%	Remote OFF
85VAC	4.7W	0.30W
115VAC	5.0W	0.34W
230VAC	3.9W	0.60W
265VAC	3.9W	0.72W



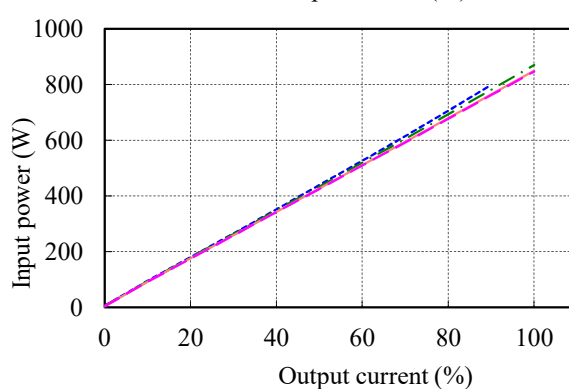
36V

Vin	Input power	
	Iout : 0%	Remote OFF
85VAC	5.0W	0.31W
115VAC	5.4W	0.34W
230VAC	4.0W	0.61W
265VAC	4.0W	0.73W



48V

Vin	Input power	
	Iout : 0%	Remote OFF
85VAC	5.6W	0.30W
115VAC	5.8W	0.34W
230VAC	4.4W	0.60W
265VAC	4.4W	0.72W

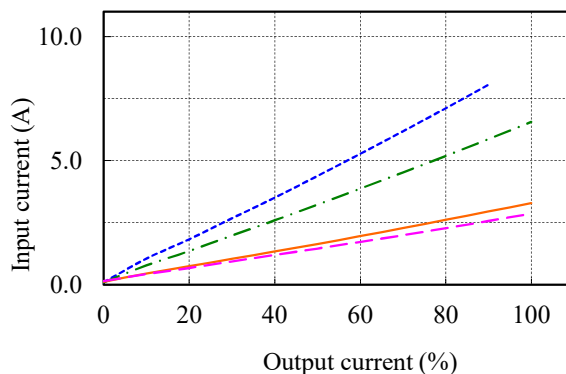


(4) Input current vs. Output current

Conditions Vin : 85 VAC ---
 115 VAC -.-
 230 VAC —
 265 VAC -.-
 Ta : 25 °C
 Istb : 0 %

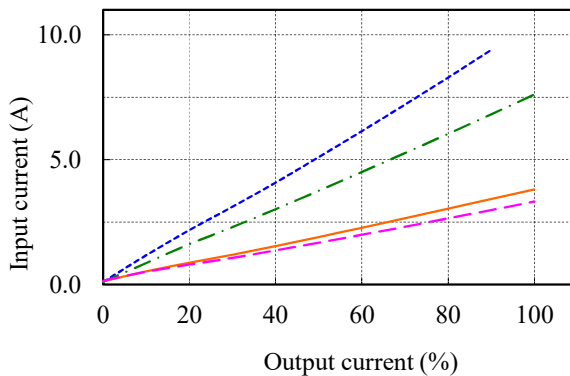
12V

Vin	Input current	
	Iout : 0%	Remote OFF
85VAC	0.09A	0.04A
115VAC	0.09A	0.05A
230VAC	0.12A	0.11A
265VAC	0.14A	0.12A



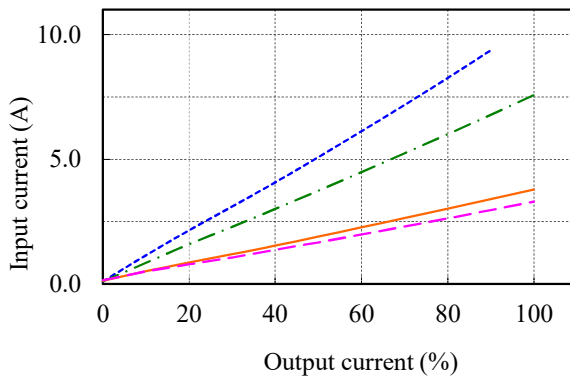
24V

Vin	Input current	
	Iout : 0%	Remote OFF
85VAC	0.10A	0.04A
115VAC	0.10A	0.05A
230VAC	0.12A	0.11A
265VAC	0.15A	0.12A



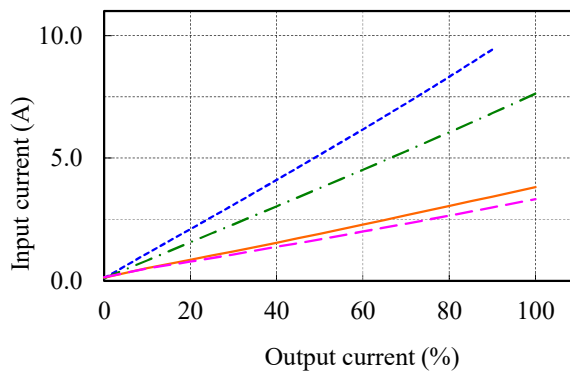
36V

Vin	Input current	
	Iout : 0%	Remote OFF
85VAC	0.10A	0.04A
115VAC	0.10A	0.05A
230VAC	0.12A	0.11A
265VAC	0.15A	0.12A



48V

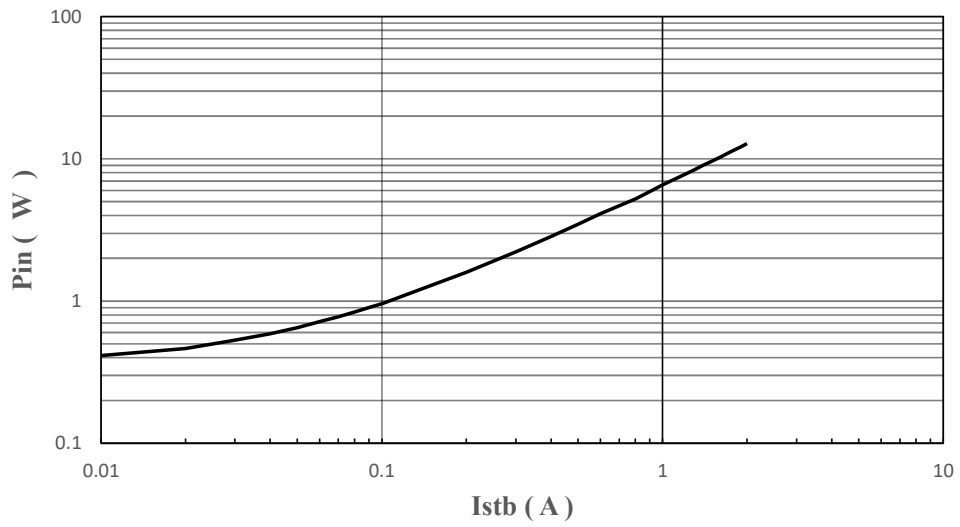
Vin	Input current	
	Iout : 0%	Remote OFF
85VAC	0.11A	0.04A
115VAC	0.11A	0.05A
230VAC	0.13A	0.11A
265VAC	0.15A	0.12A



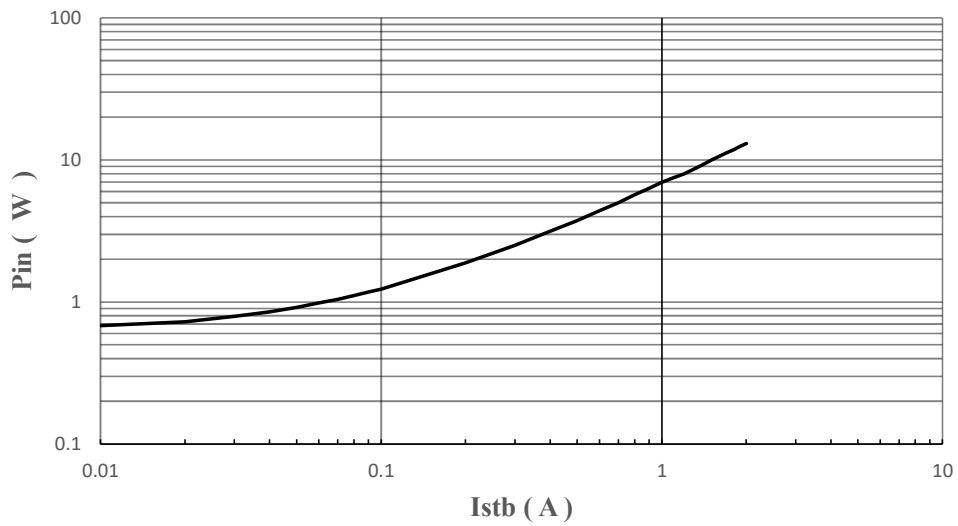
(5) Input power vs. Output current @ Remote OFF

Condition : Remote OFF

Istb Vs Pin @ 115VAC

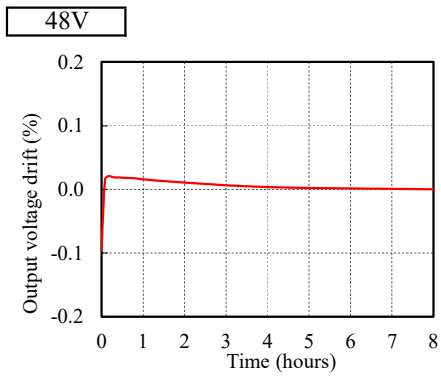
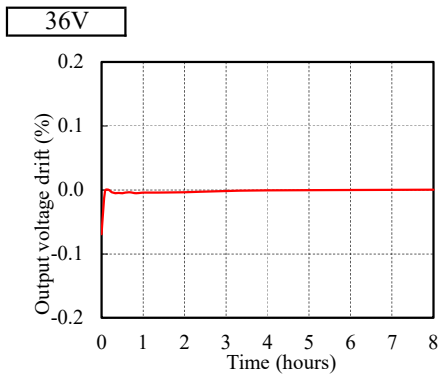
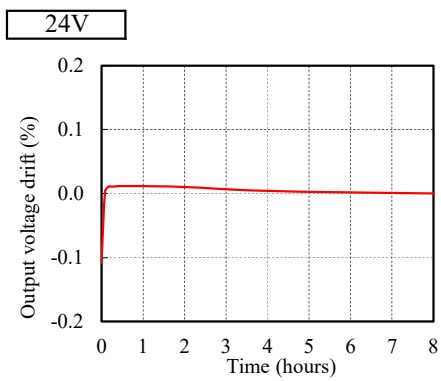
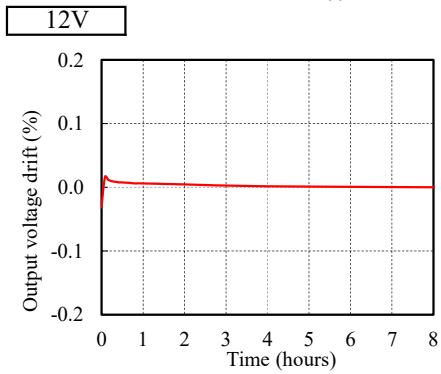


Istb Vs Pin @ 230VAC



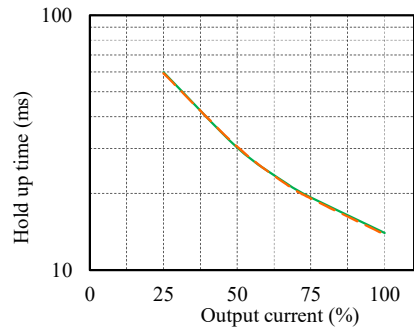
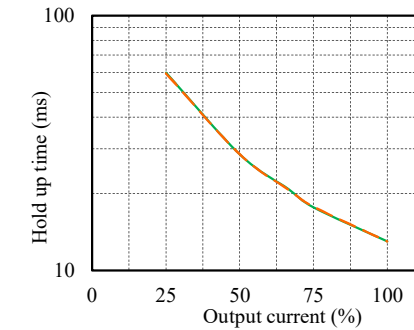
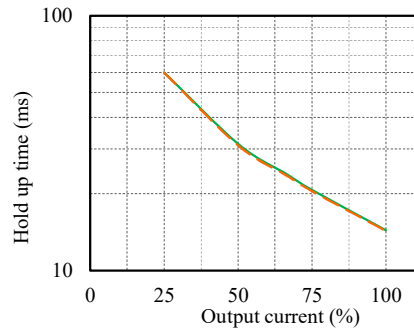
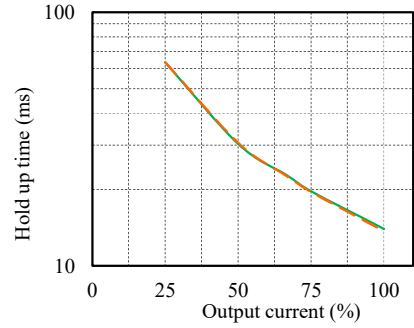
2-2. Warm up voltage drift characteristics

Conditions V_{in} : 115 VAC
 I_{out} : 100 %
 T_a : 25 °C
 I_{stb} : 100%



2-3. Hold up time characteristics

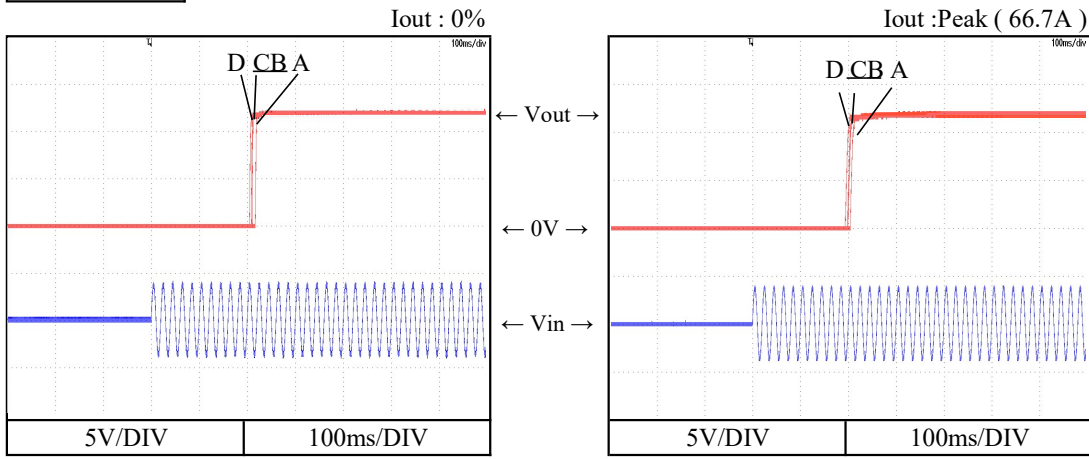
Conditions V_{in} : 115 VAC ———
 230 VAC - - - -
 T_a : 25 °C
 I_{stb} : 100%



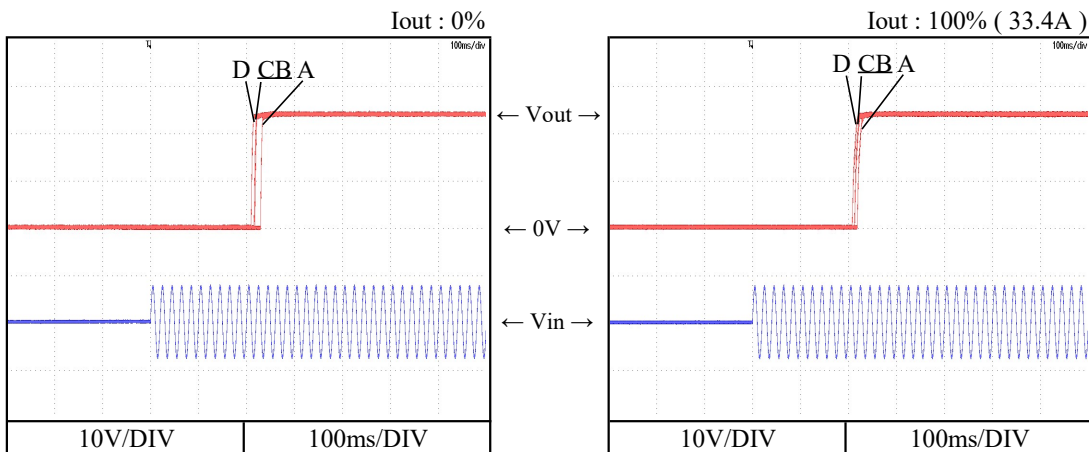
2-4. Output rise characteristics

Conditions Vin : 85 VAC (A)
 115 VAC (B)
 230 VAC (C)
 265 VAC (D)
 Istb : 100 %
 Ta : 25 °C

12V



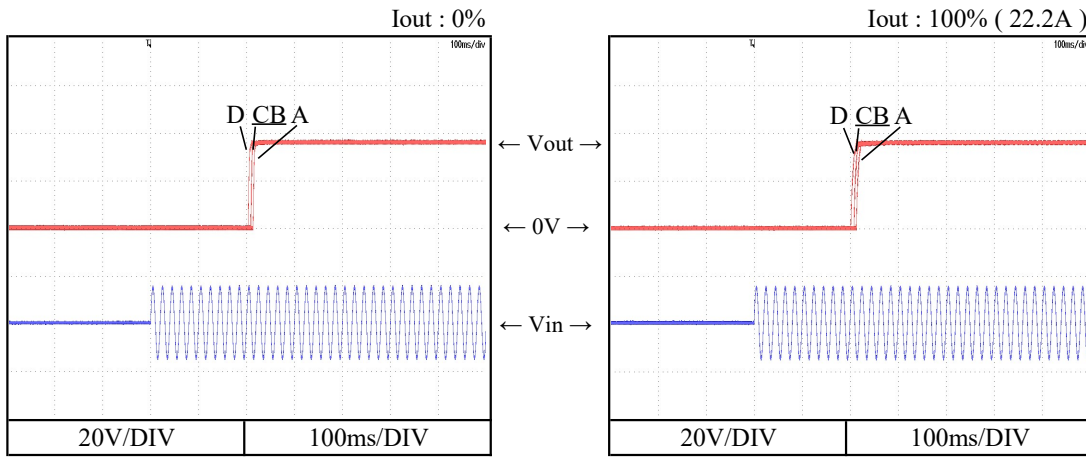
24V



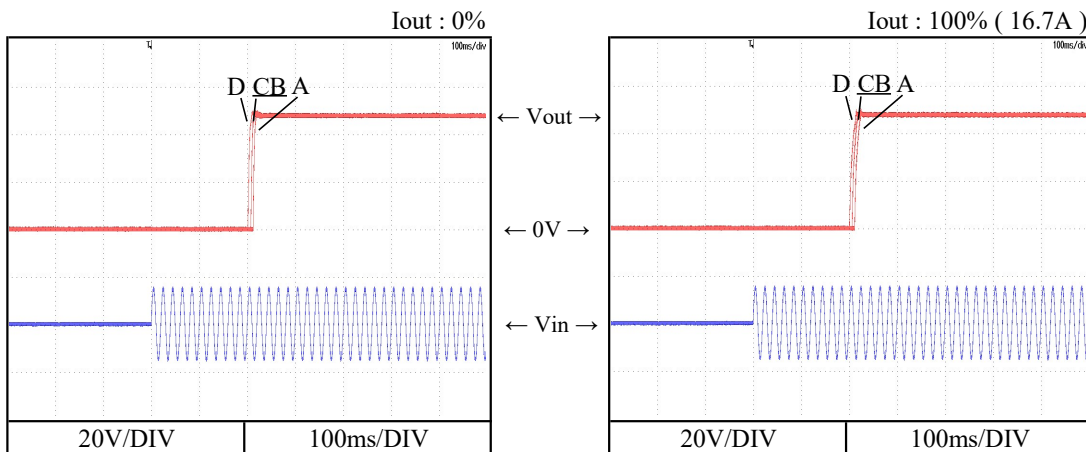
2-4. Output rise characteristics

Conditions Vin : 85 VAC (A)
 115 VAC (B)
 230 VAC (C)
 265 VAC (D)
 Istb : 100 %
 Ta : 25 °C

36V



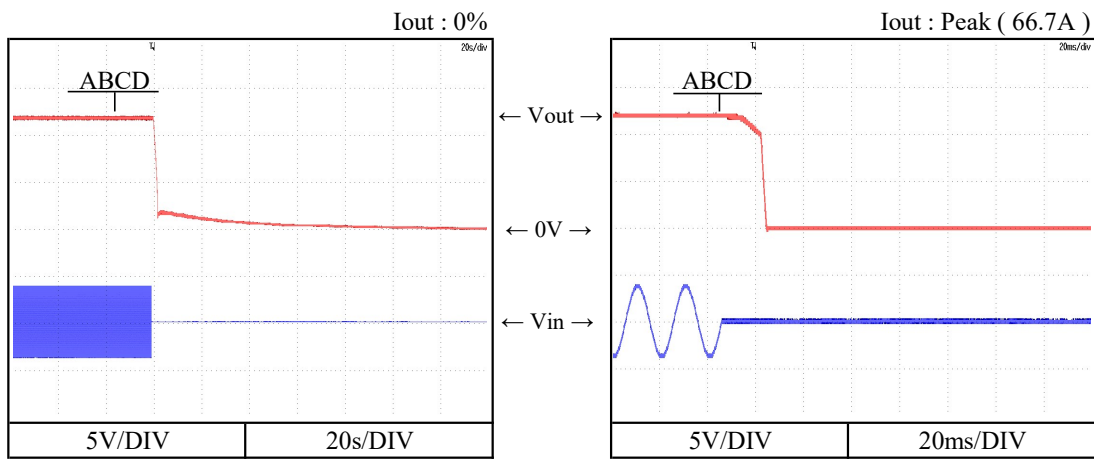
48V



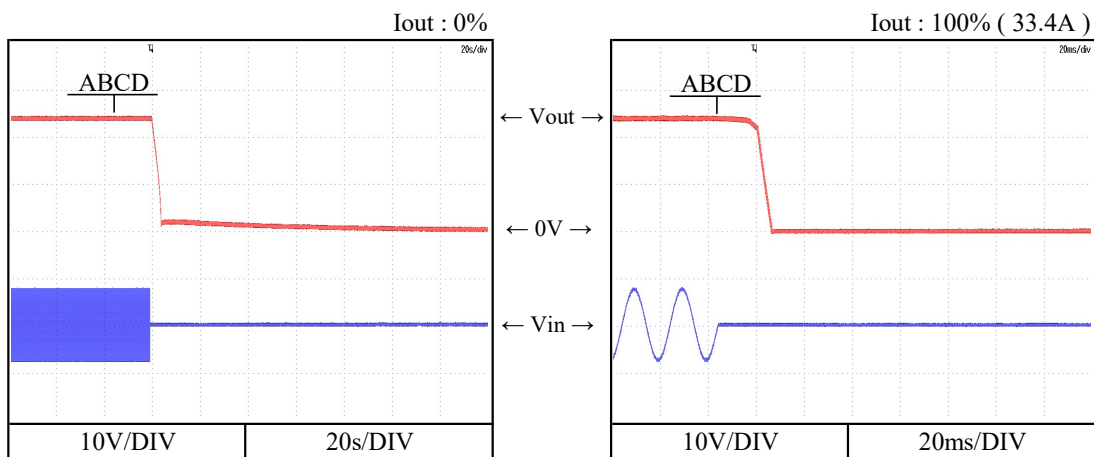
2-5. Output fall characteristics

Conditions Vin : 85 VAC (A)
 115 VAC (B)
 230 VAC (C)
 265 VAC (D)
 Istb : 100 %
 Ta : 25 °C

12V



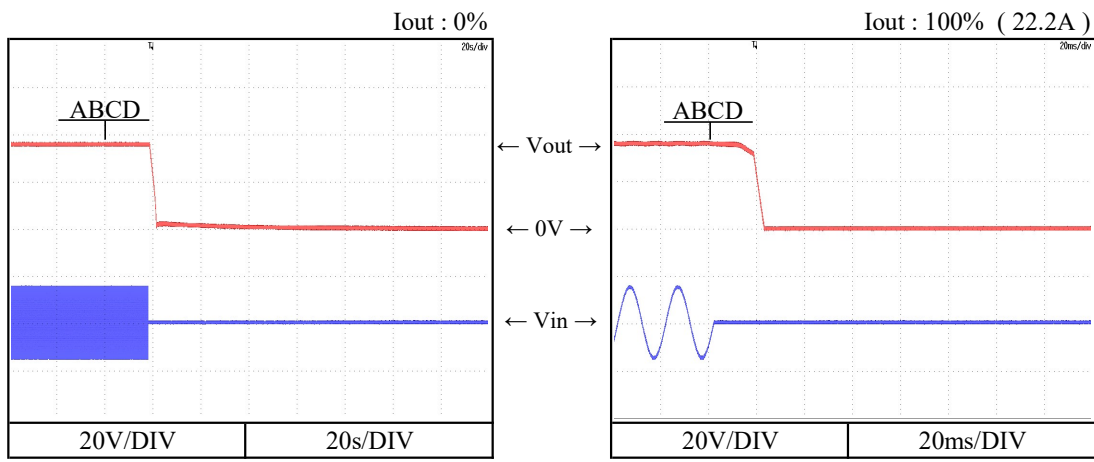
24V



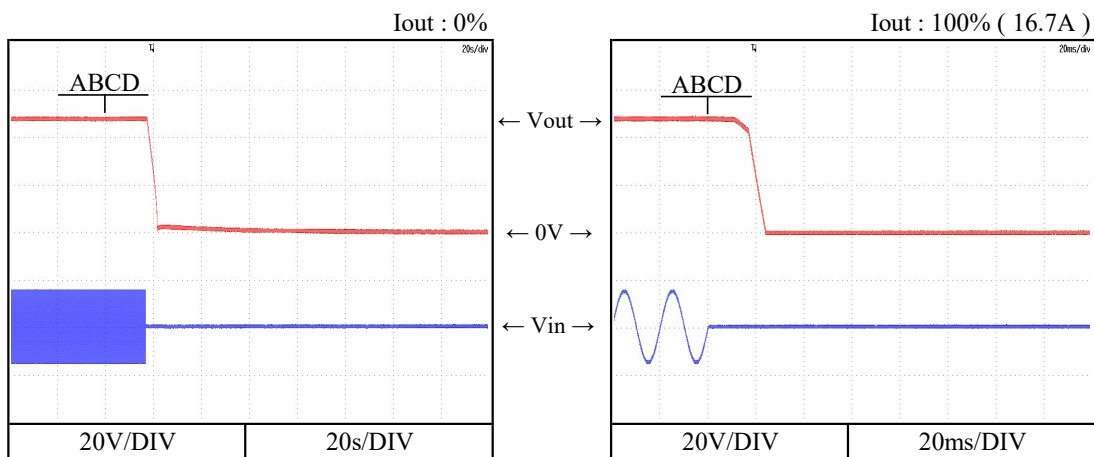
2-5. Output fall characteristics

Conditions Vin : 85 VAC (A)
 115 VAC (B)
 230 VAC (C)
 265 VAC (D)
 Istb : 100 %
 Ta : 25 °C

36V



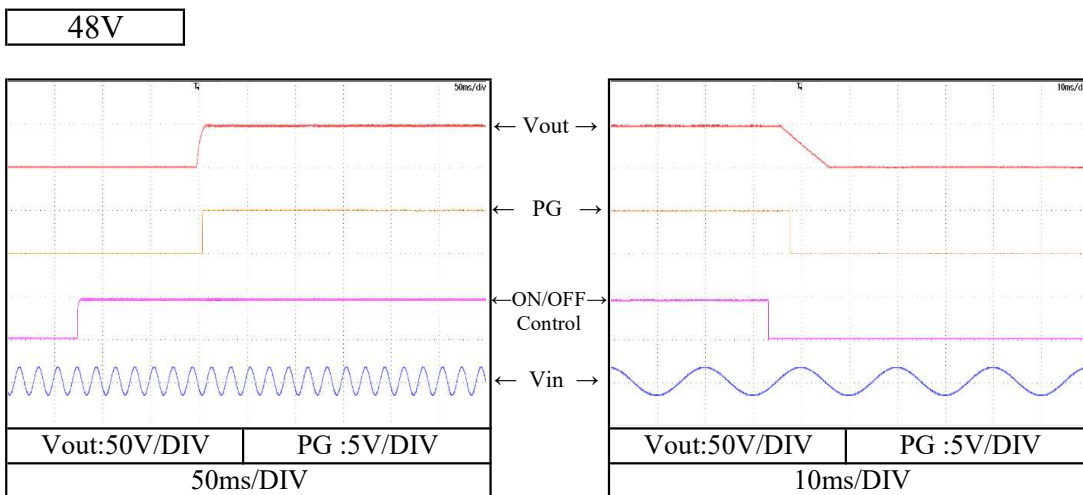
48V



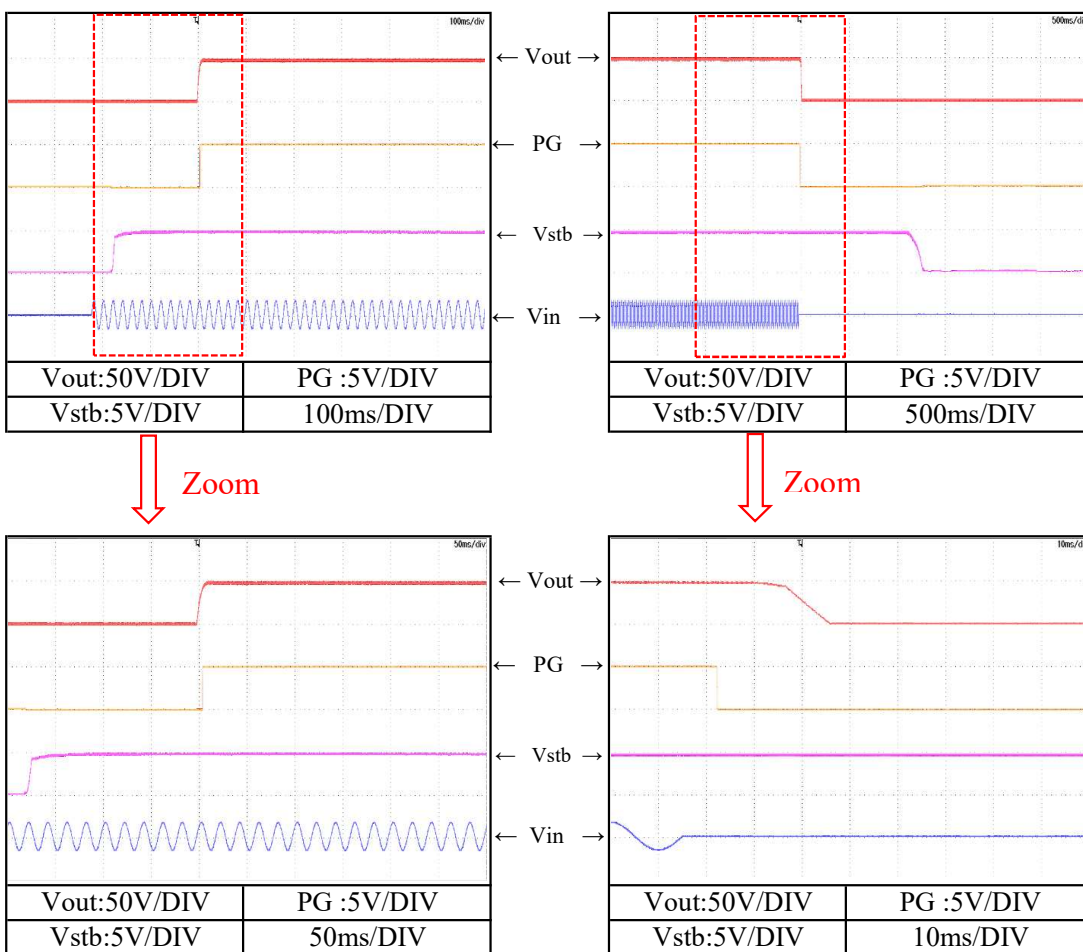
2-6. Various signal

Conditions Vin : 115 VAC
 Iout : 100 %
 Istb : 100 %
 Ta : 25 °C

Output rise, fall characteristics with Remote ON/OFF Control

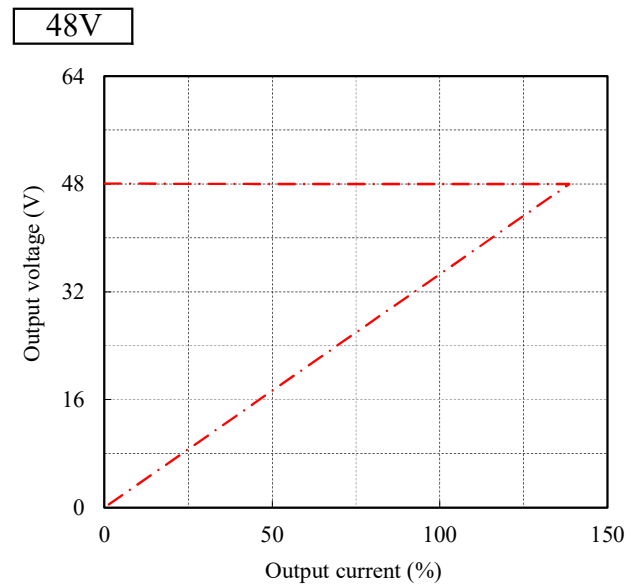
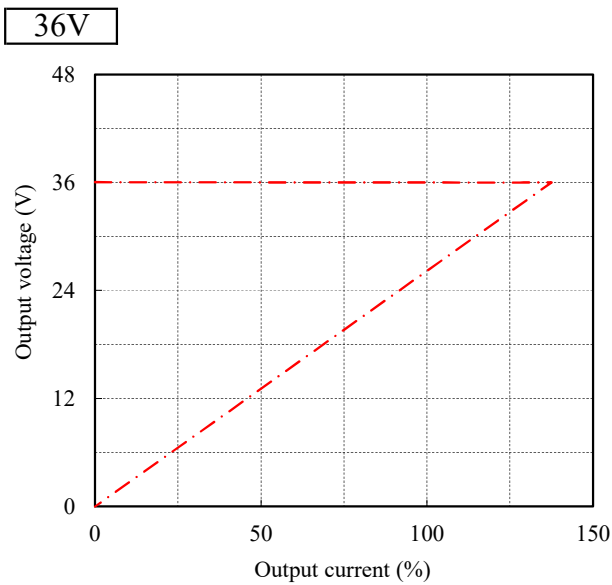
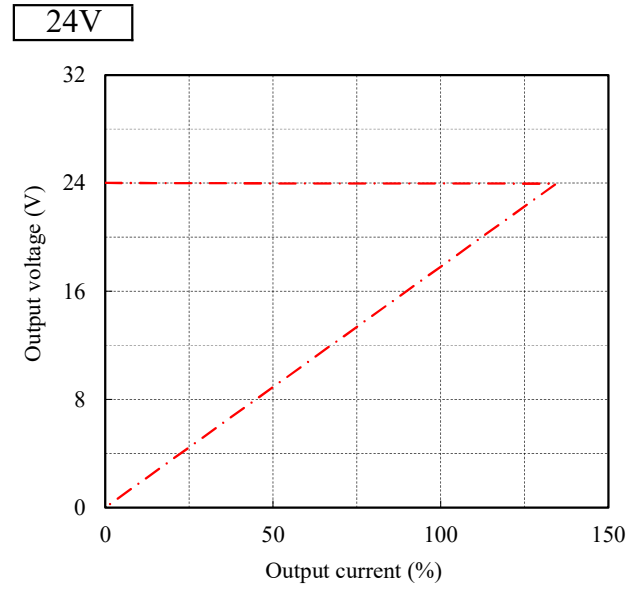
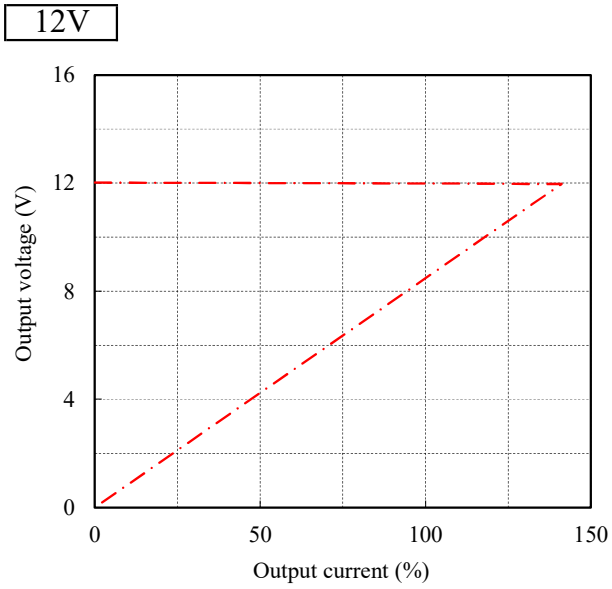


Output rise, fall characteristics with Input voltage ON/OFF



2-7. Over current protection (OCP) characteristics

Conditions V_{in} : 115 VAC
 I_{stb} : 100 %
 T_a : 25 °C



2-8. Over voltage protection (OVP) characteristics

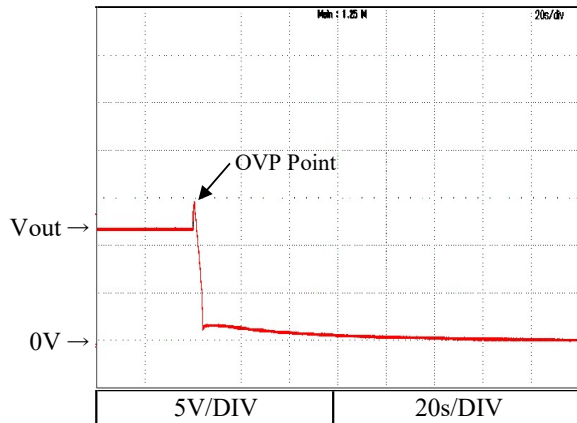
Conditions Vin : 115 VAC

Iout : 0 %

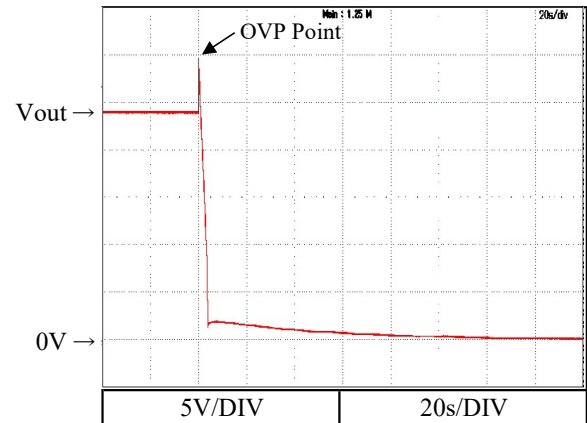
Istb : 0 %

Ta : 25 °C

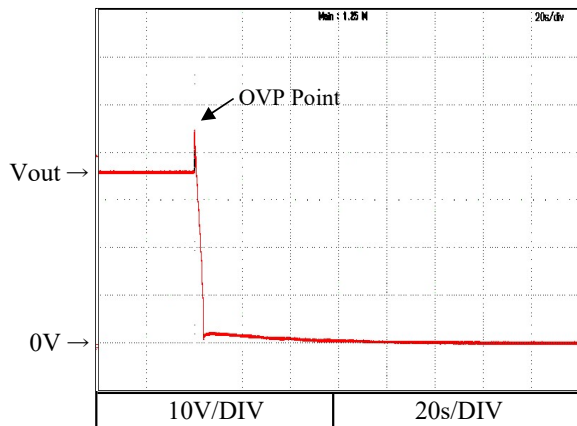
12V



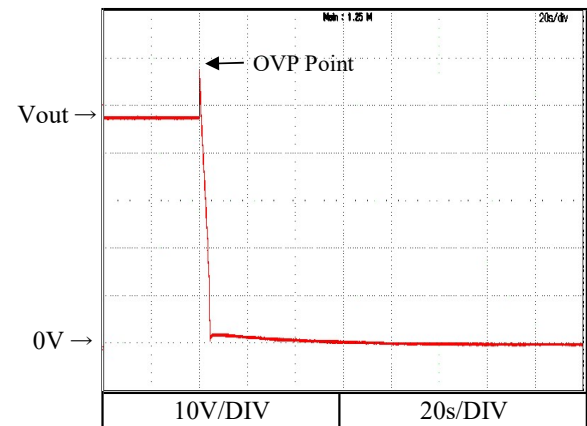
24V



36V



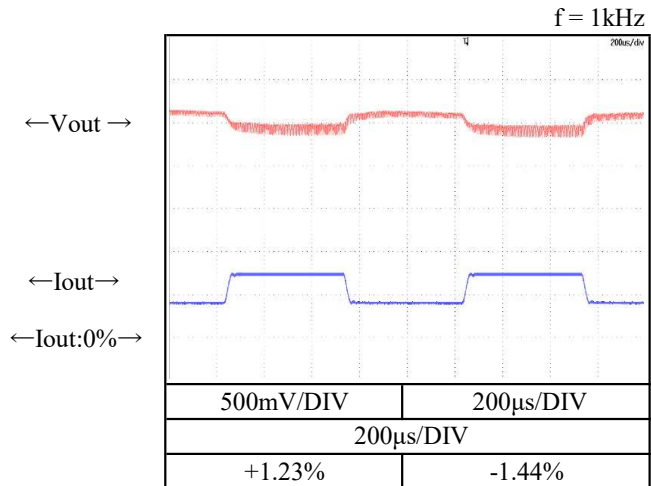
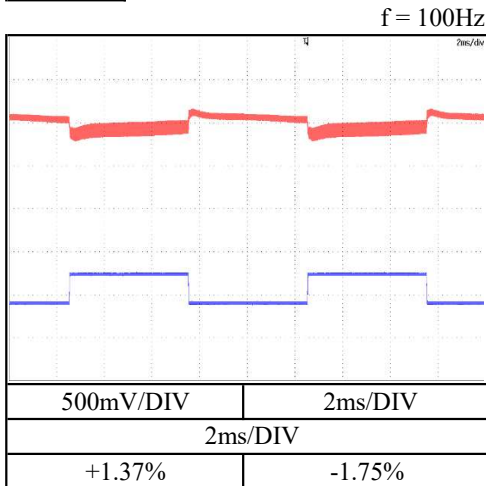
48V



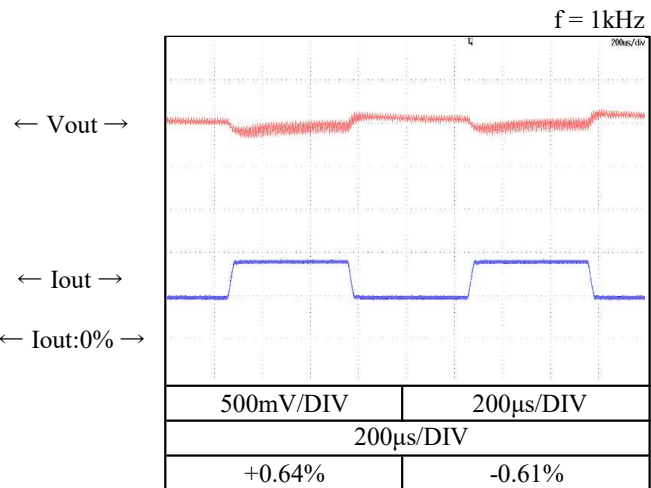
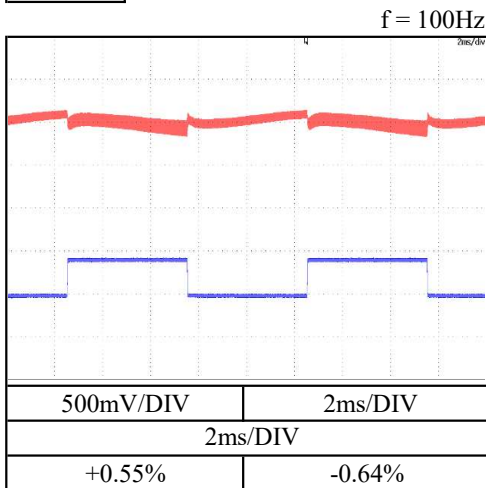
2-9. Dynamic load response characteristics

Conditions V_{in} : 115 VAC
 I_{out} : 50 % \leftrightarrow 100 % (Peak)
 ($t_r = t_f = 50\mu s$)
 I_{stb} : 100 %
 T_a : 25 °C

12V



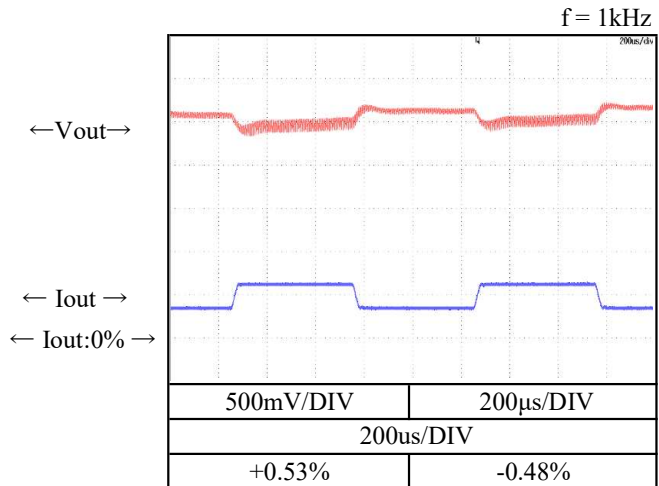
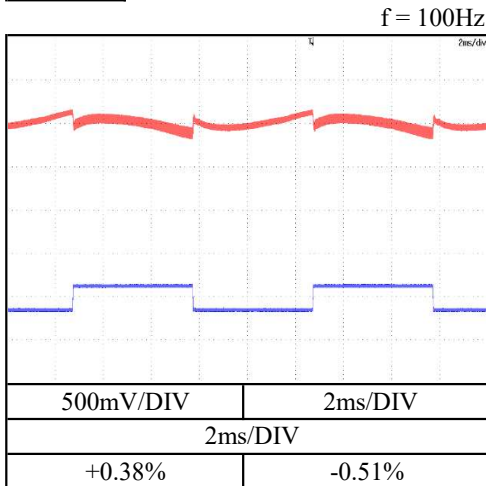
24V



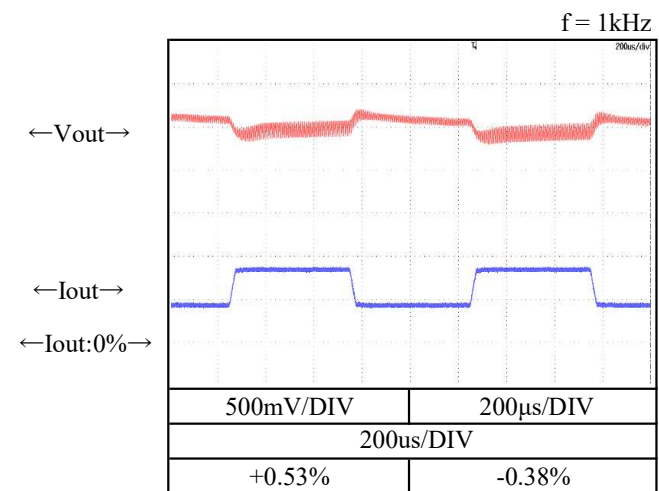
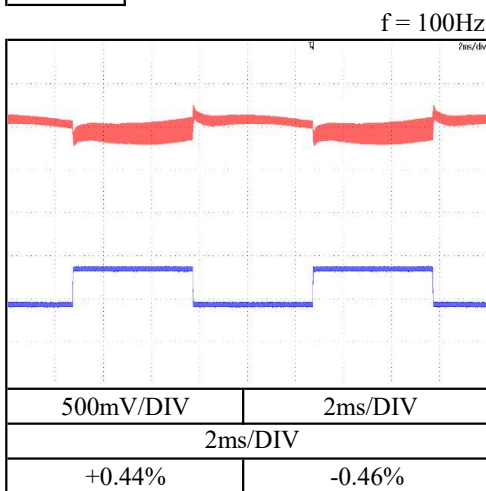
2-9. Dynamic load response characteristics

Conditions Vin : 115 VAC
 Iout : 50 % ↔ 100 % (Peak)
 (tr = tf = 50us)
 Istb : 100 %
 Ta : 25 °C

36V



48V

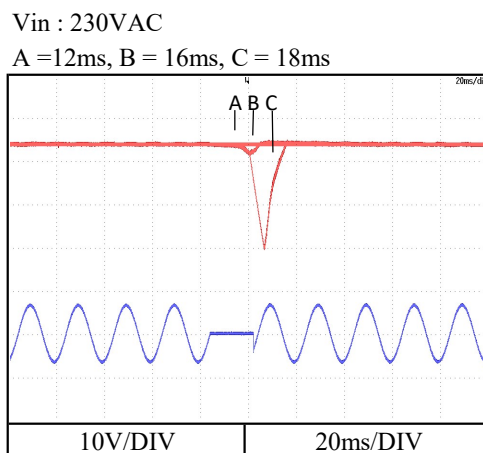
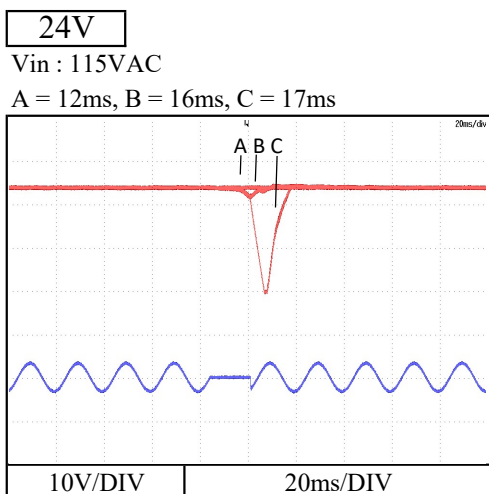
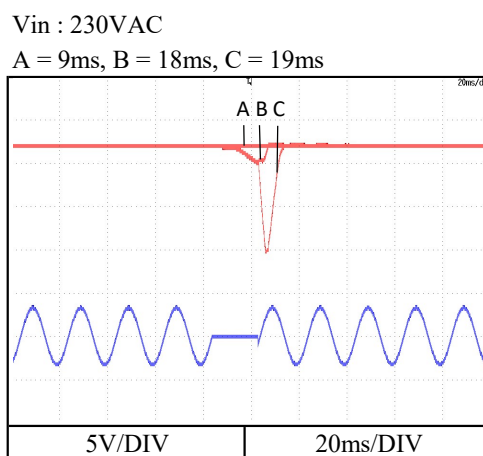
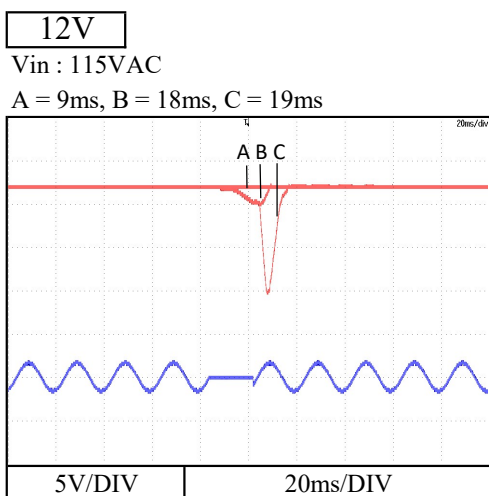


2-10. Response to brown out characteristics

Conditions Iout : 100 %
 Istb : 100 %
 Ta : 25 °C

Interruption time

- A : Output voltage does not drop.
- B : Output voltage drop down to 20~40% of the nominal output voltage.
- C : Output voltage drops until 0V.

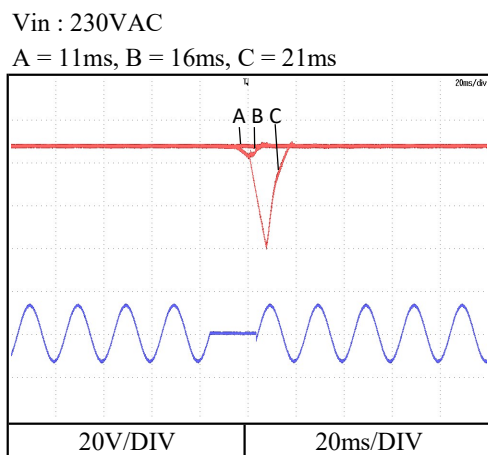
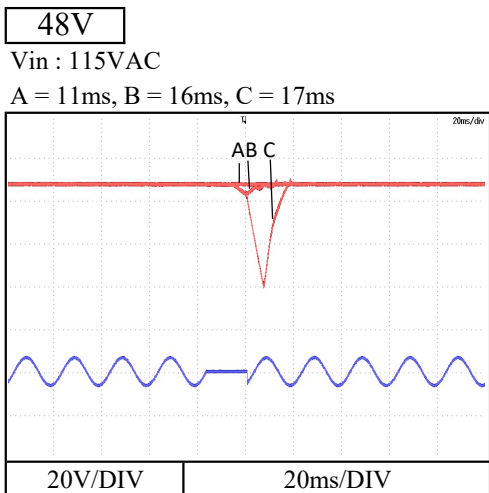
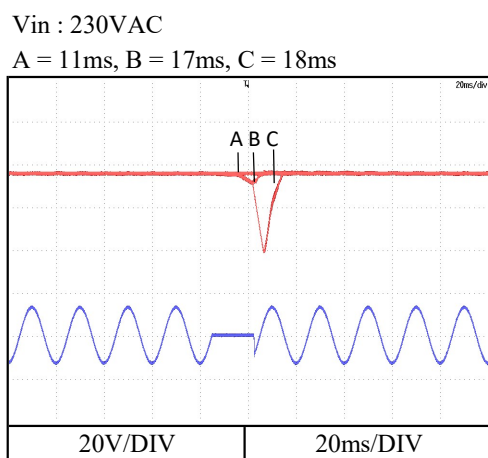
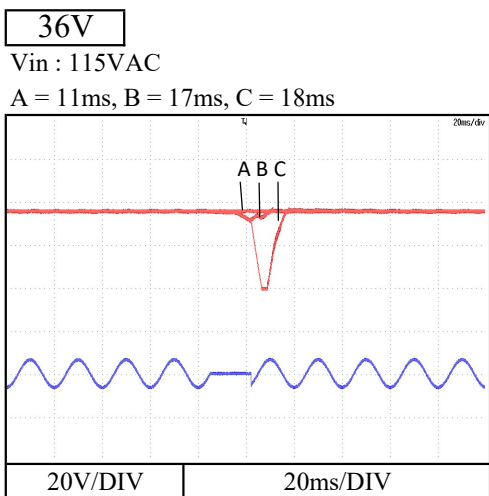


2-10. Response to brown out characteristics

Conditions Iout : 100 %
 Istb : 100 %
 Ta : 25 °C

Interruption time

- A : Output voltage does not drop.
- B : Output voltage drop down to 20~40% of the nominal output voltage.
- C : Output voltage drops until 0V.

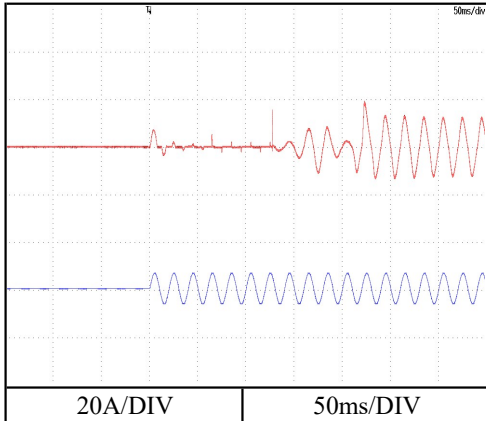


2-11. Inrush current waveform

Conditions Vin : 115 VAC
 Iout : 100 % (16.7A)
 Istb : 100 %
 Ta : 25 °C

48V

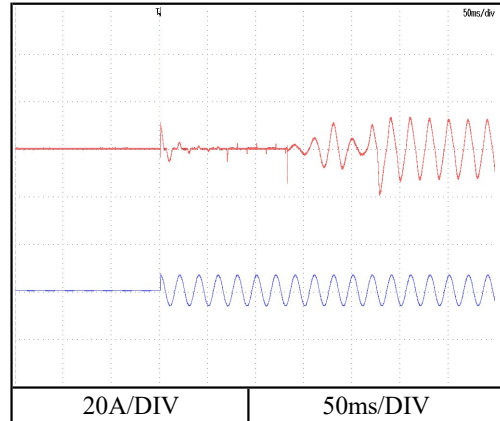
Switch on phase angle of input AC voltage
 $\phi = 0^\circ$



← Iin →

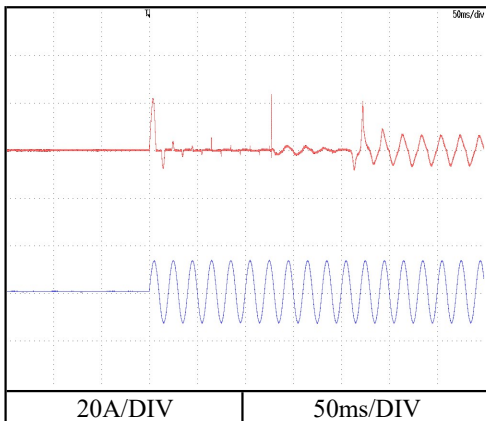
← Vin →

Switch on phase angle of input AC voltage
 $\phi = 90^\circ$



Conditions Vin : 230 VAC
 Iout : 100 % (16.7A)
 Istb : 100 %
 Ta : 25 °C

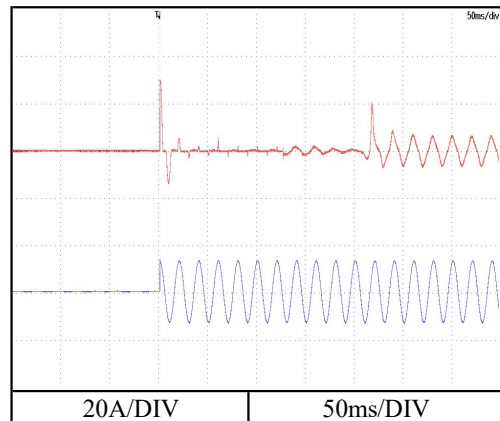
Switch on phase angle of input AC voltage
 $\phi = 0^\circ$



← Iin →

← Vin →

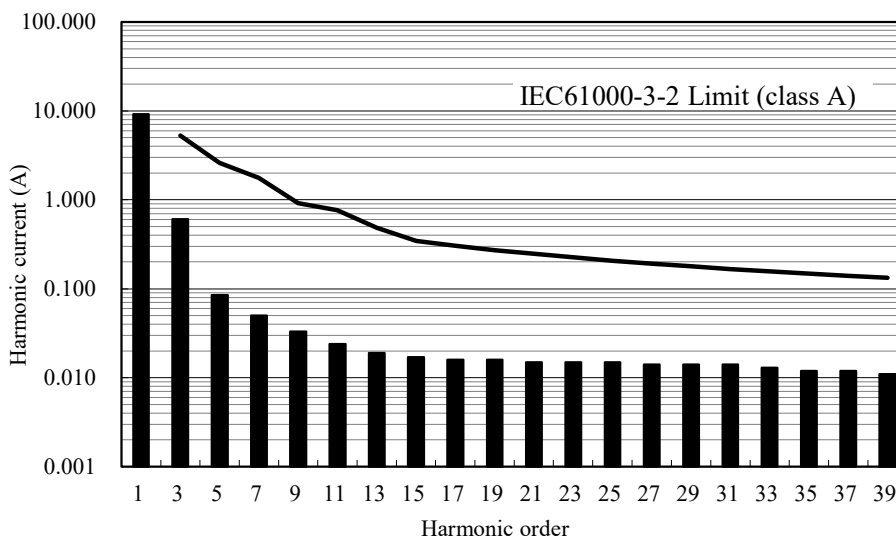
Switch on phase angle of input AC voltage
 $\phi = 90^\circ$



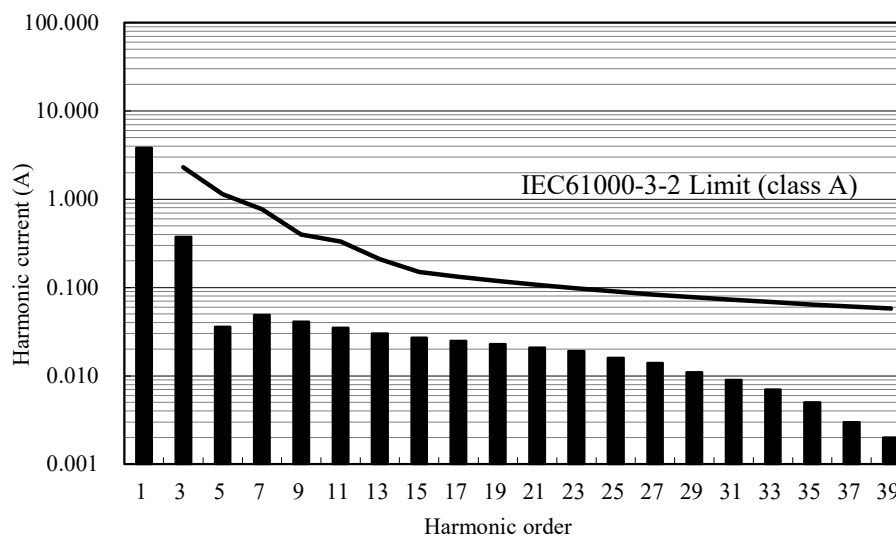
2-12. Input current harmonics

Conditions Vin : 100 VAC
 Iout : 16.7 A (100%)
 Istb : 100 %
 Ta : 25 °C

48V



Conditions Vin : 230 VAC
 Iout : 16.7 A (100%)
 Istb : 100 %
 Ta : 25 °C

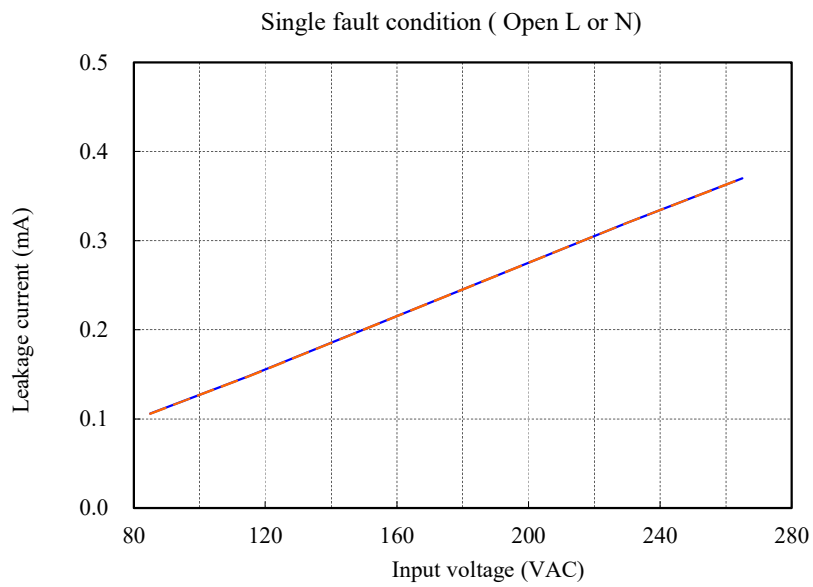
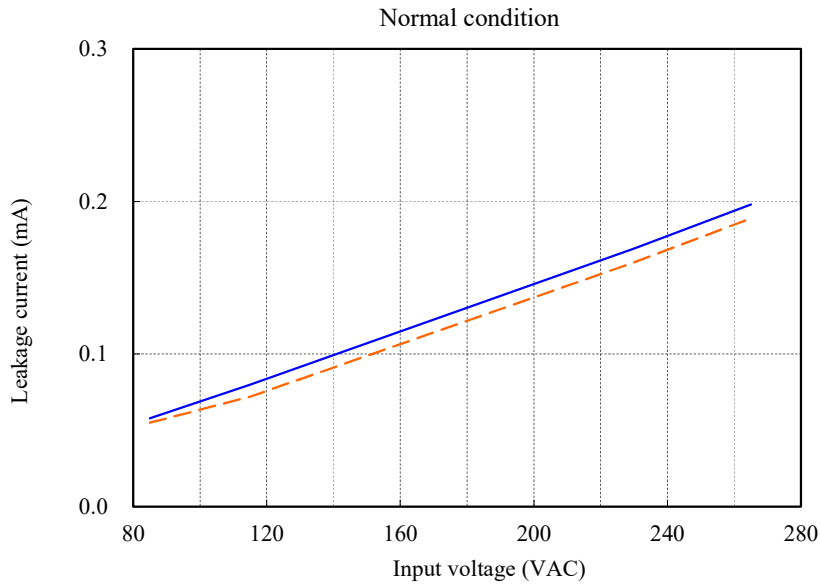


2-13. Leakage current characteristics

Earth leakage current of CLASS I equipment

Conditions Iout : 0 % ———
 100 % - - - -
 Ta : 25 °C
 Istb : 100 %
 f : 60 Hz

48V

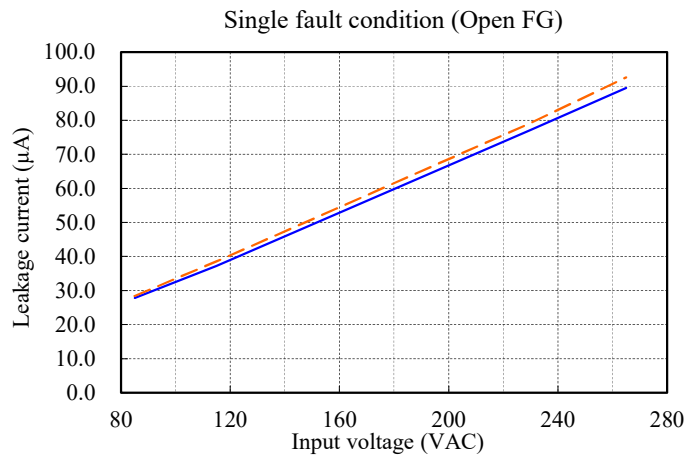
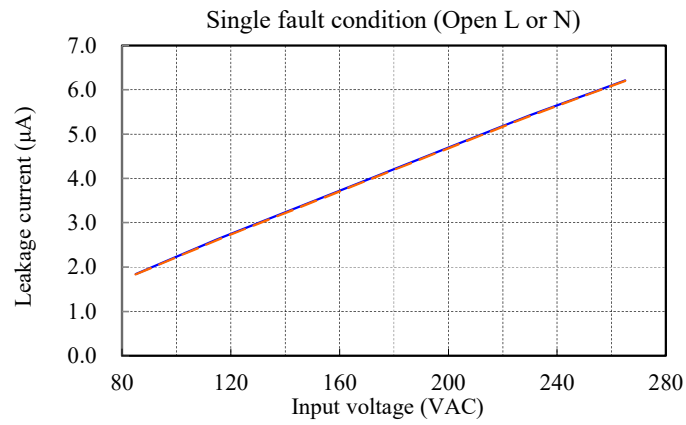
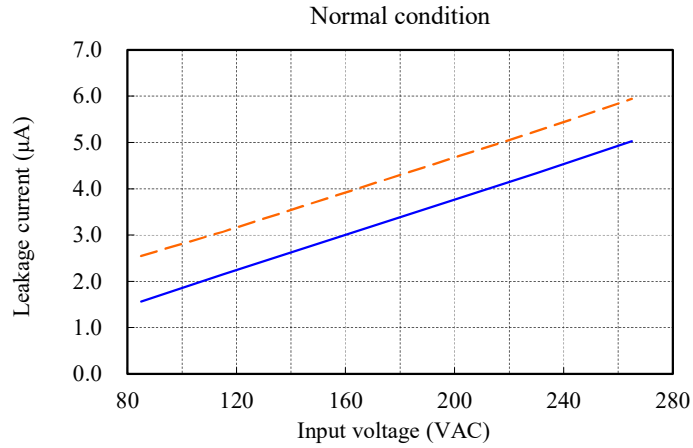


2-13. Leakage current characteristics

Patient leakage current of CLASS I equipment

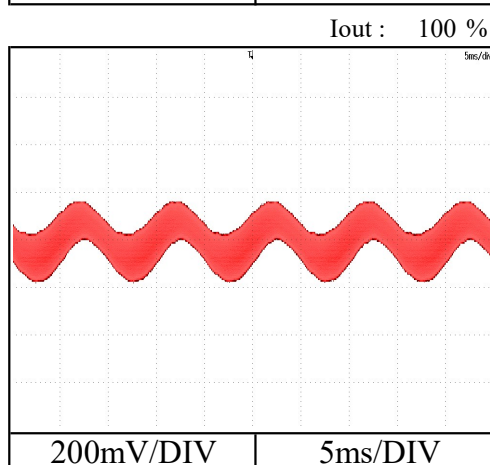
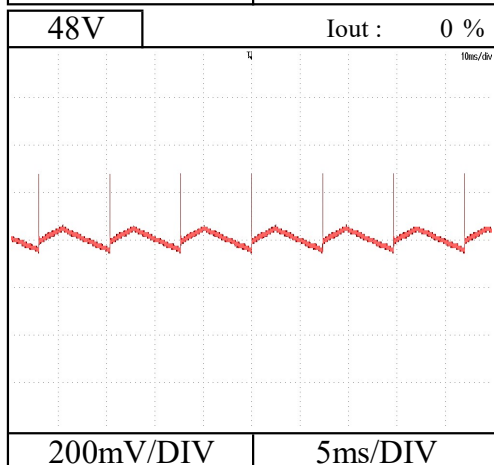
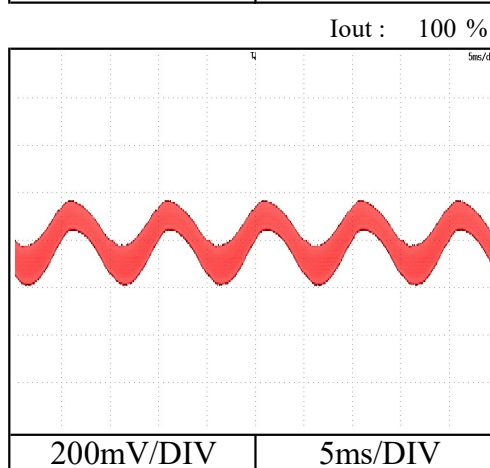
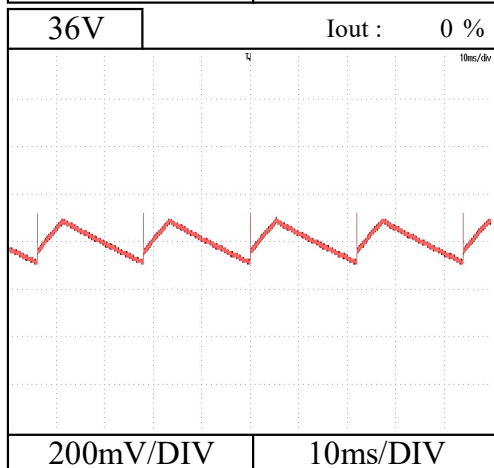
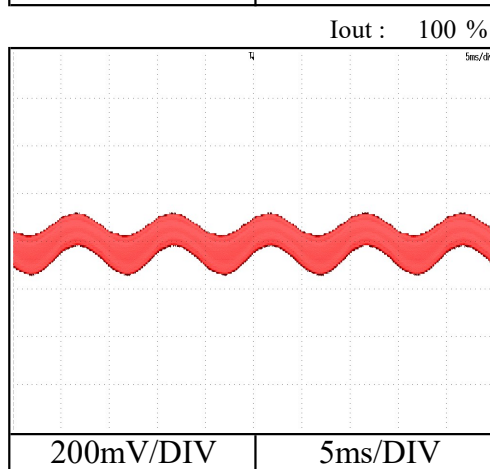
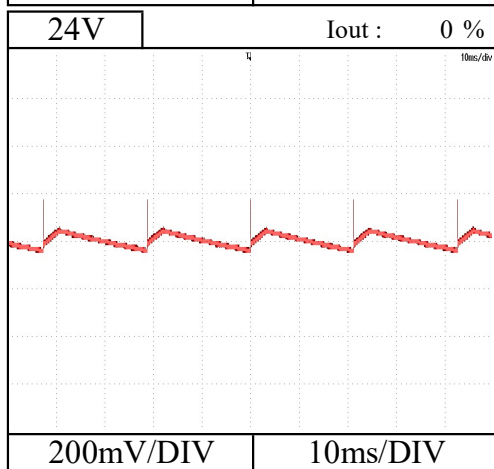
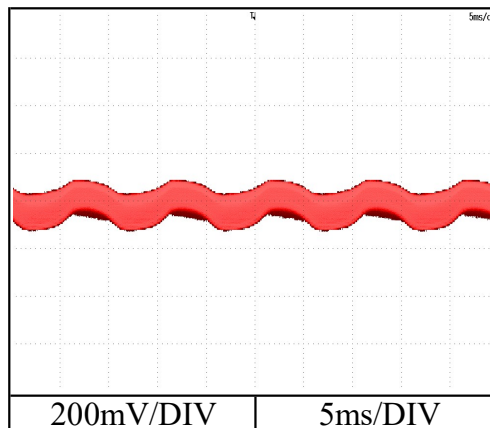
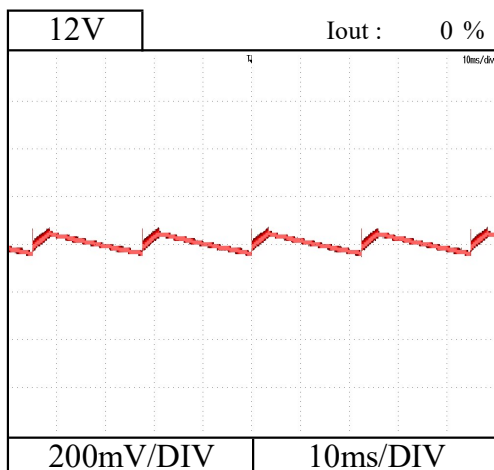
Conditions Iout : 0 % ———
 100 % - - - -
 Ta : 25 °C
 Istb : 100 %
 f : 60 Hz

48V



2-14. Output ripple and noise waveform

Conditions Vin : 115 VAC
 Istb : 100 %
 Ta : 25 °C
 Iout : 100 %



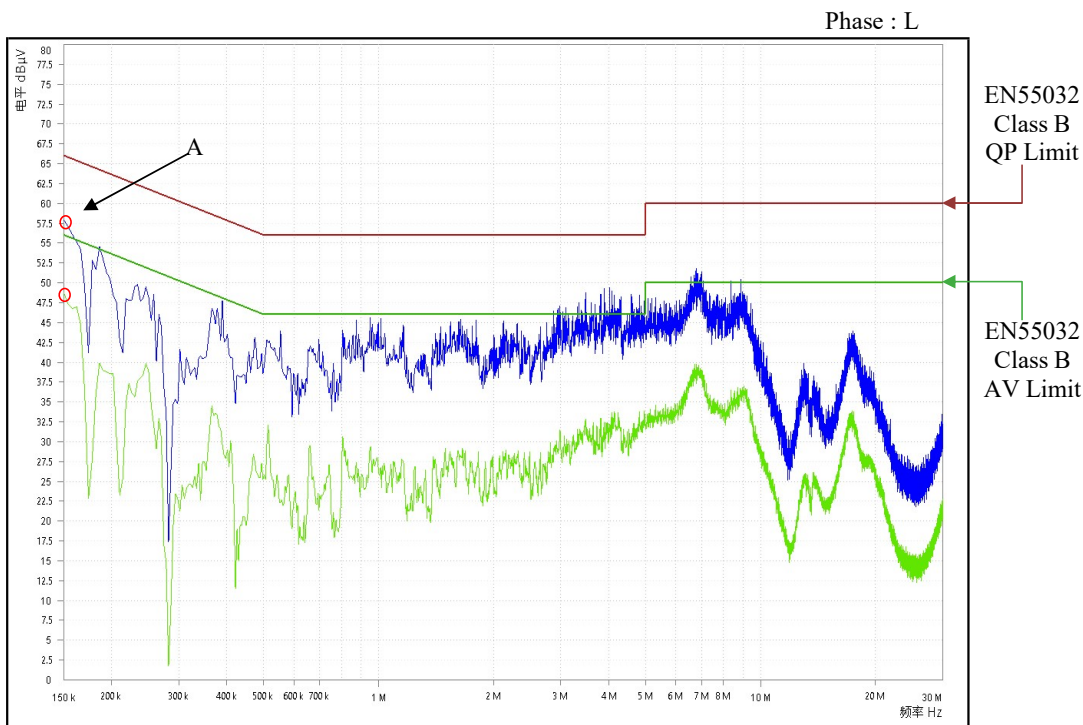
2-15. Electro-Magnetic Interference characteristics

Conditions Vin : 115 VAC
 Iout : 56.7 A (100%)
 Istb : 100 %
 Ta : 25 °C

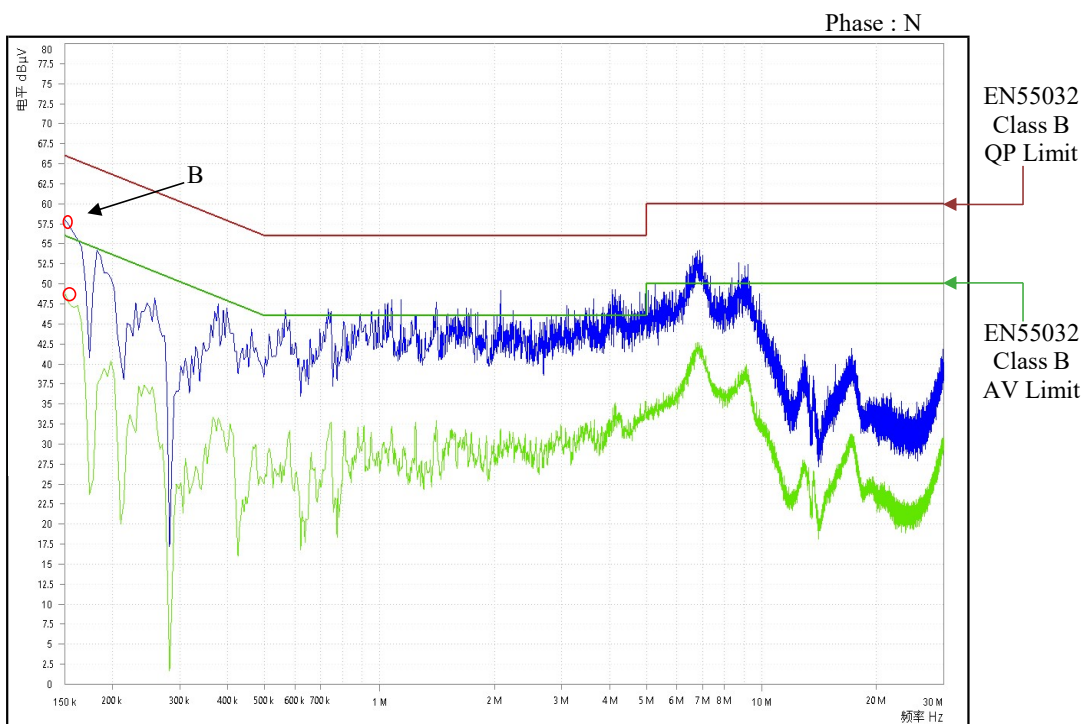
Conducted Emission

12V

Ref. Data	Point A (150kHz)	
	Limit (dB)	Measure (dB)
QP	66.0	57.9
AV	56.0	48.7



Ref. Data	Point B (150kHz)	
	Limit (dB)	Measure (dB)
QP	66.0	58.0
AV	56.0	48.4



Limit of EN55011-B,FCC-Class B are same as its EN55032-B.

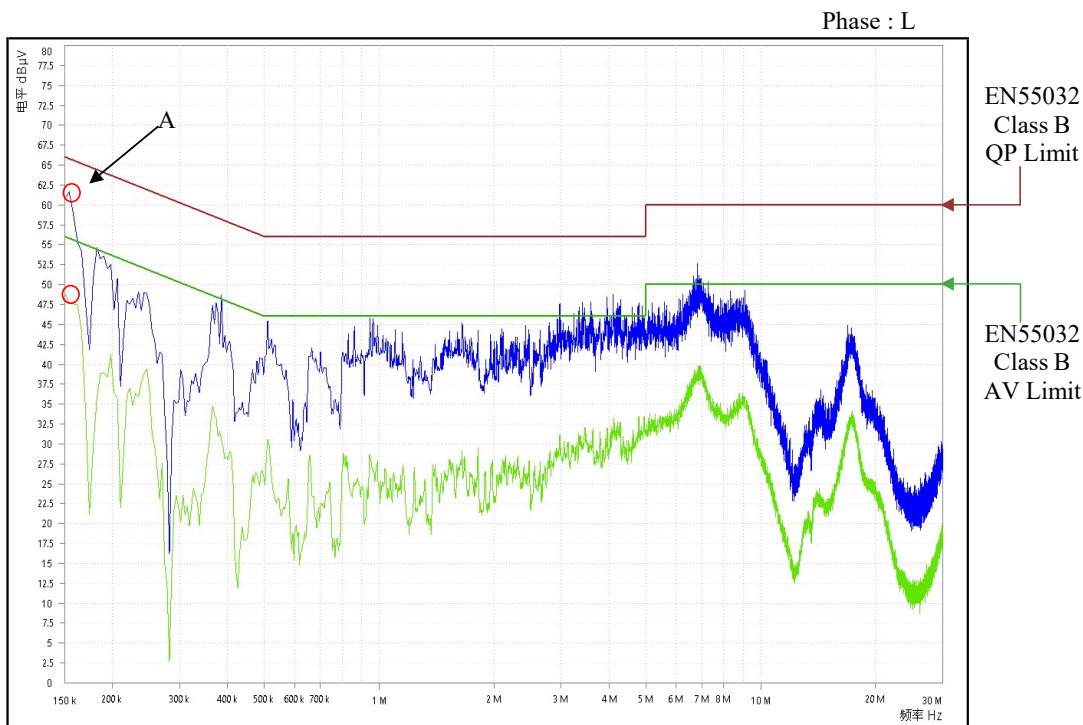
2-15. Electro-Magnetic Interference characteristics

Conditions Vin : 230 VAC
 Iout : 56.7 A (100%)
 Istb : 100 %
 Ta : 25 °C

Conducted Emission

12V

Ref. Data	Point A (154kHz)	
	Limit (dB)	Measure (dB)
QP	65.8	60.2
AV	56.0	48.3



Ref. Data	Point B (154kHz)	
	Limit (dB)	Measure (dB)
QP	65.8	60.4
AV	56.0	48.5



Limit of EN55011-B,FCC-Class B are same as its EN55032-B.

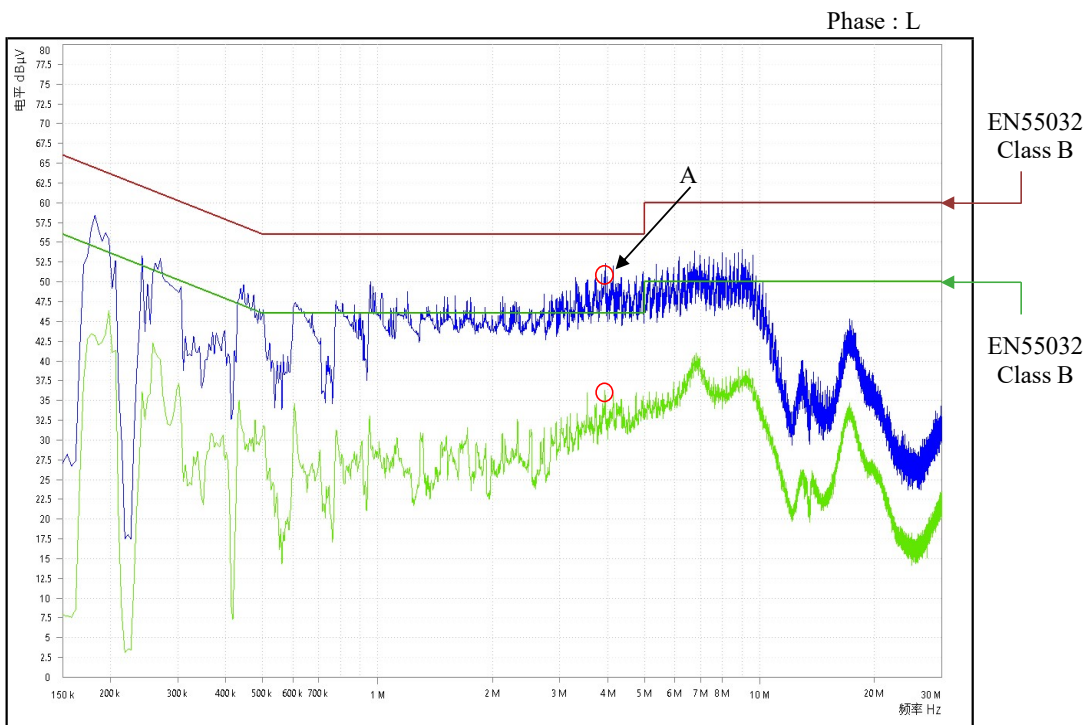
2-15. Electro-Magnetic Interference characteristics

Conditions Vin : 115 VAC
 Iout : 33.4 A (100%)
 Istb : 100 %
 Ta : 25 °C

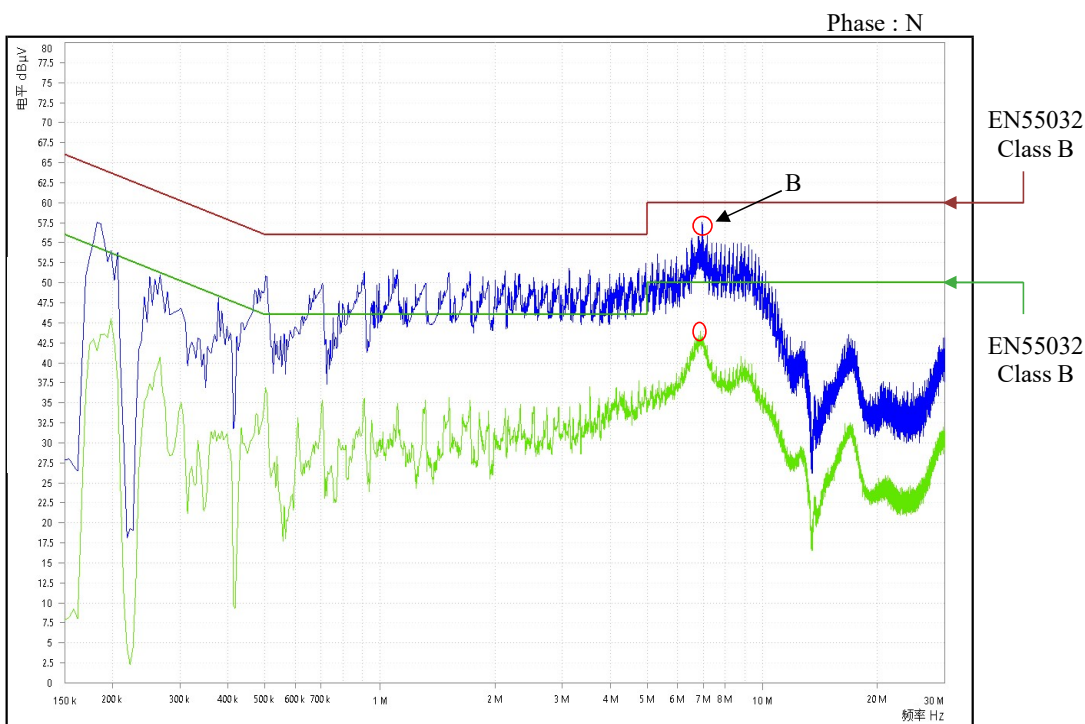
Conducted Emission

24V

Point A (3.934MHz)		
Ref. Data	Limit (dB)	Measure (dB)
QP	56.0	48.1
AV	46.0	36.3



Point B (6.966MHz)		
Ref. Data	Limit (dB)	Measure (dB)
QP	60.0	51.8
AV	50.0	42.4



Limit of EN55011-B,FCC-Class B are same as its EN55032-B.

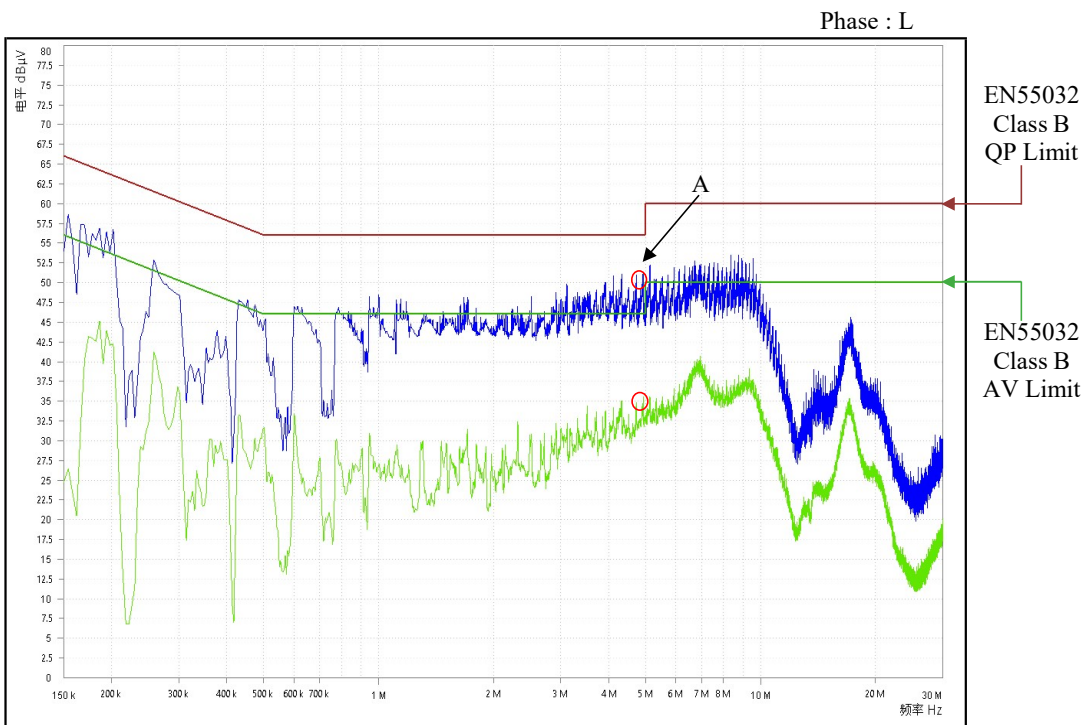
2-15. Electro-Magnetic Interference characteristics

Conditions Vin : 230 VAC
 Iout : 33.4 A (100%)
 Istb : 100 %
 Ta : 25 °C

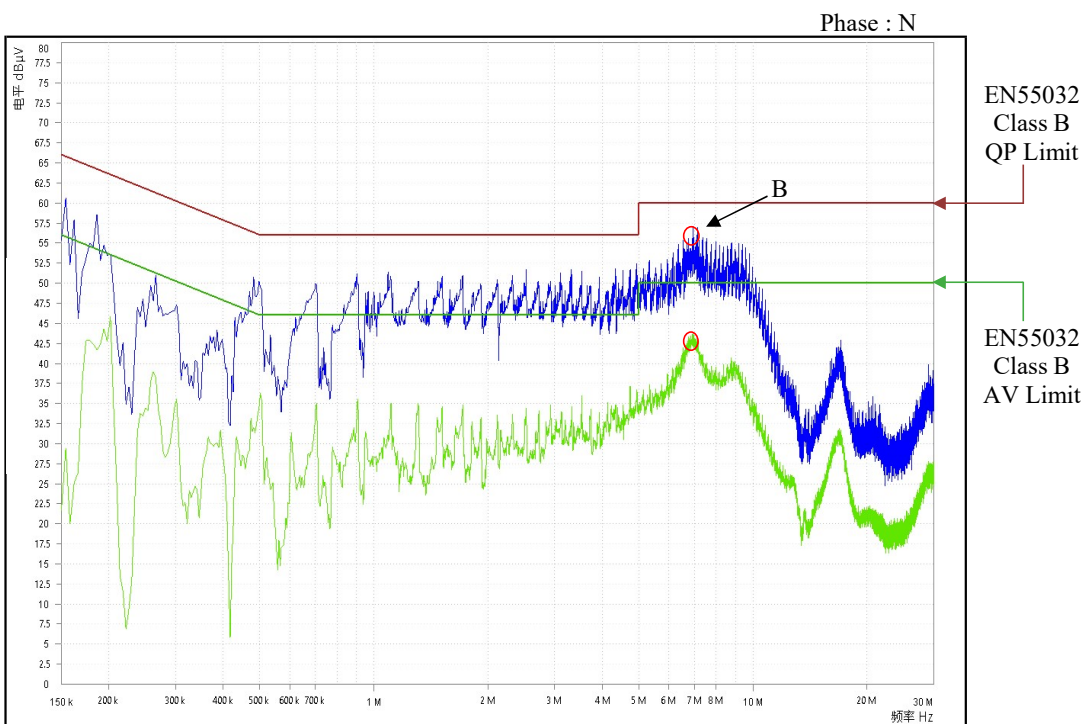
Conducted Emission

24V

Ref. Data	Point A (4.93MHz)	
	Limit (dB)	Measure (dB)
QP	56.0	48.2
AV	46.0	35.5



Ref. Data	Point B (6.962MHz)	
	Limit (dB)	Measure (dB)
QP	60.0	52.5
AV	50.0	42.5



Limit of EN55011-B,FCC-Class B are same as its EN55032-B.

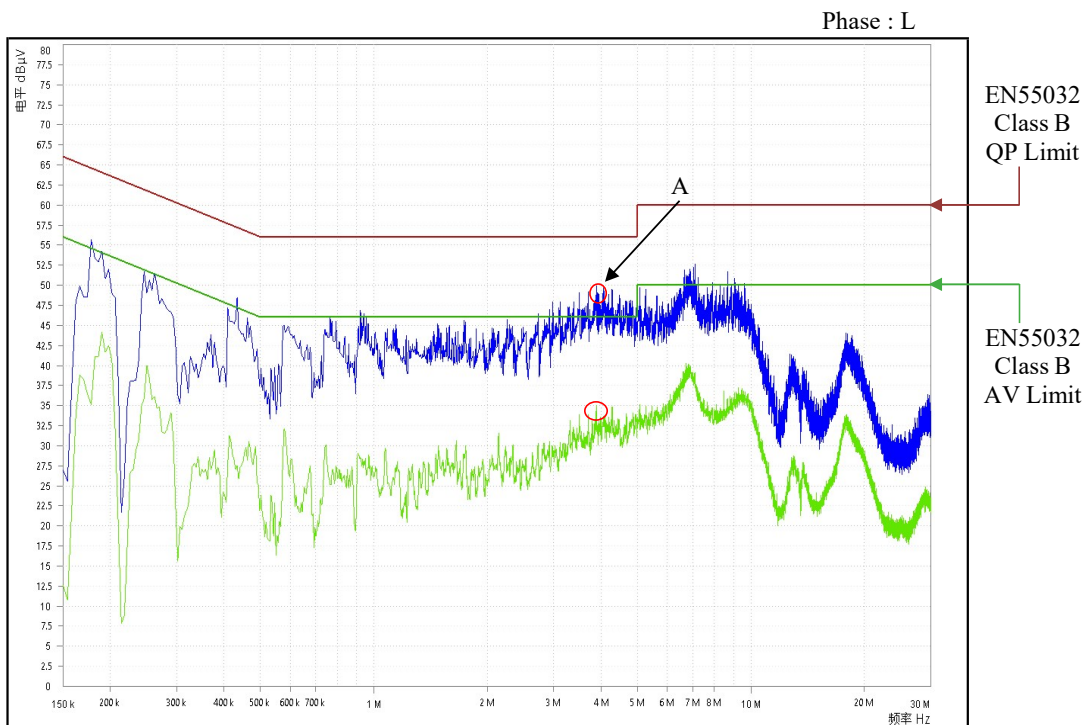
2-15. Electro-Magnetic Interference characteristics

Conditions Vin : 115 VAC
 Iout : 22.2 A (100%)
 Istb : 100 %
 Ta : 25 °C

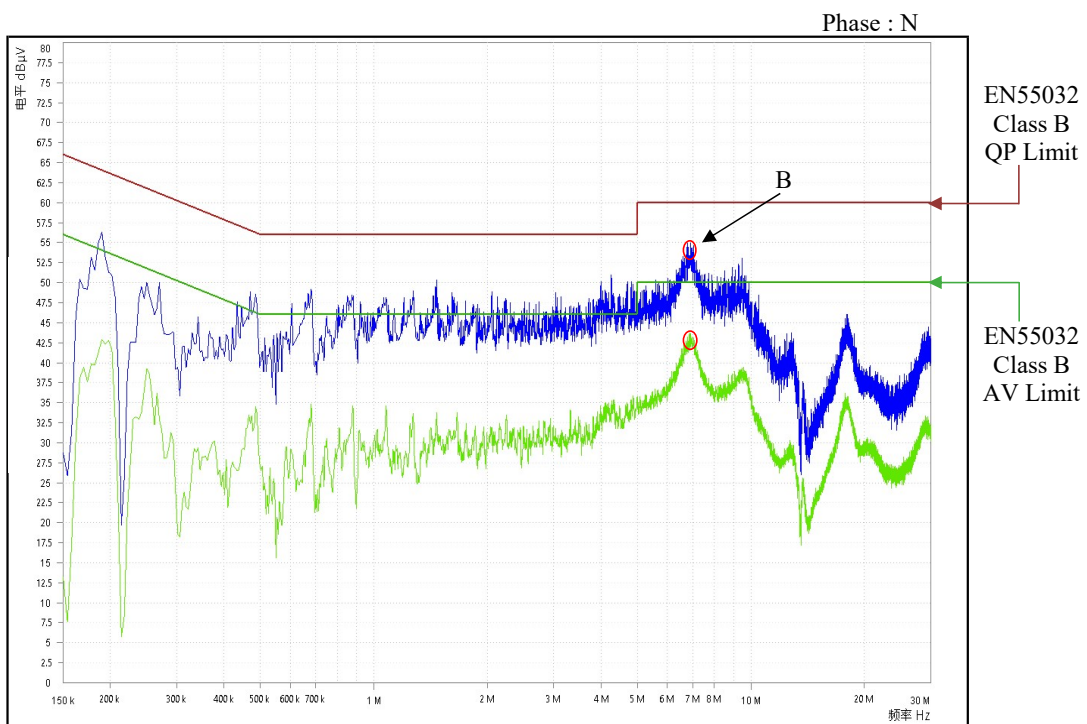
Conducted Emission

36V

Ref. Data	Point A (3.902MHz)	
	Limit (dB)	Measure (dB)
QP	56.0	47.1
AV	46.0	35.1



Ref. Data	Point B (6.922MHz)	
	Limit (dB)	Measure (dB)
QP	60.0	50.1
AV	50.0	42.7



Limit of EN55011-B,FCC-Class B are same as its EN55032-B.

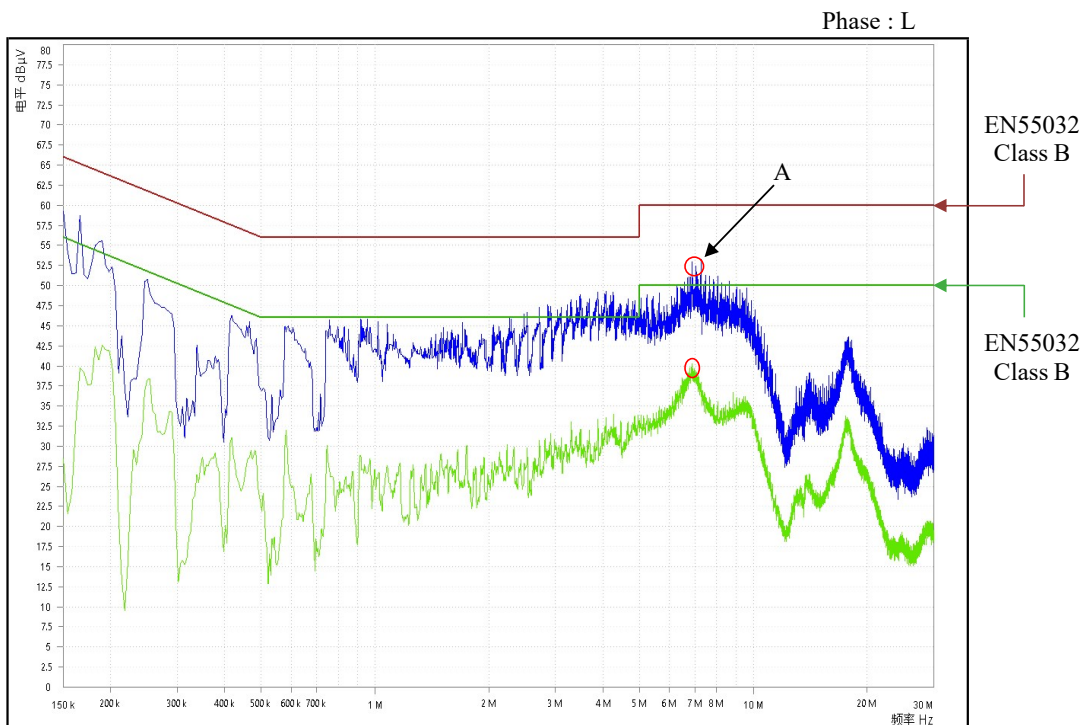
2-15. Electro-Magnetic Interference characteristics

Conditions Vin : 230 VAC
 Iout : 22.2 A (100%)
 Istb : 100 %
 Ta : 25 °C

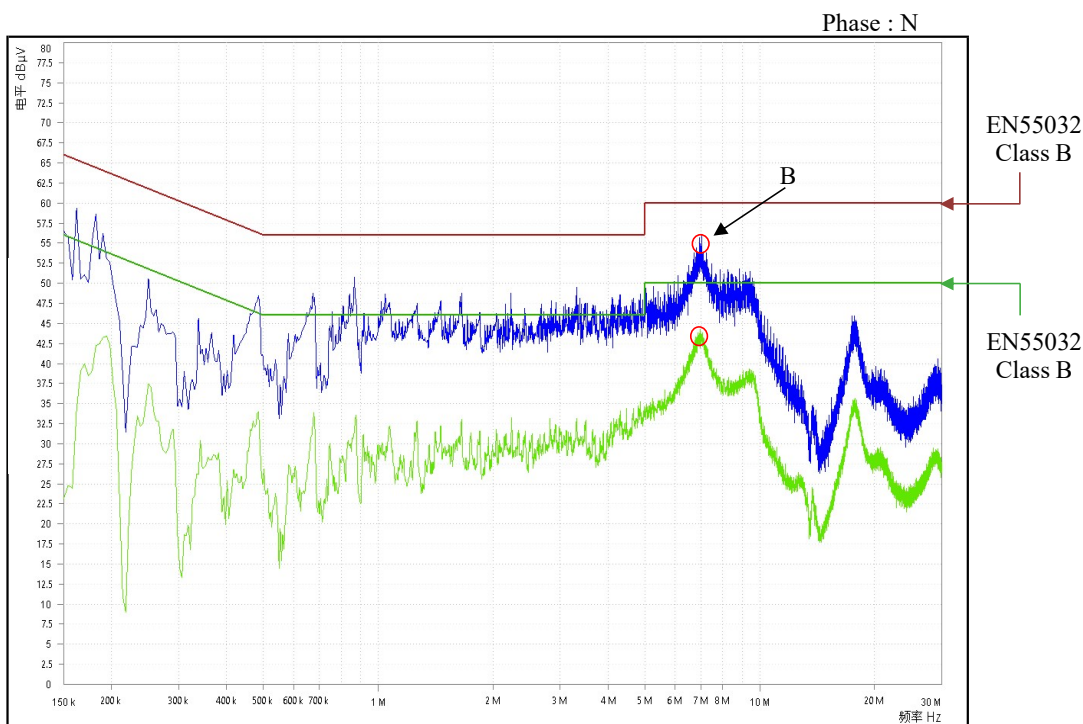
Conducted Emission

36V

Ref. Data	Point A (6.894MHz)	
	Limit (dB)	Measure (dB)
QP	60.0	51.0
AV	50.0	40.2



Ref. Data	Point B (6.982MHz)	
	Limit (dB)	Measure (dB)
QP	60.0	51.6
AV	50.0	42.7



Limit of EN55011-B,FCC-Class B are same as its EN55032-B.

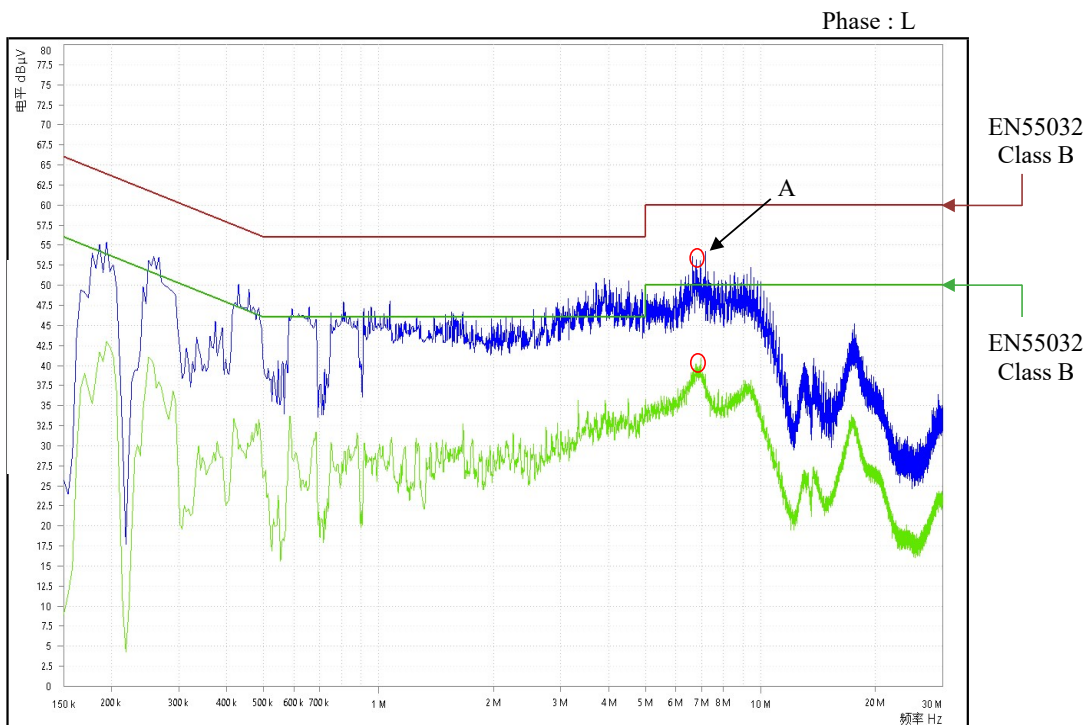
2-15. Electro-Magnetic Interference characteristics

Conditions Vin : 115 VAC
 Iout : 16.7 A (100%)
 Istb : 100 %
 Ta : 25 °C

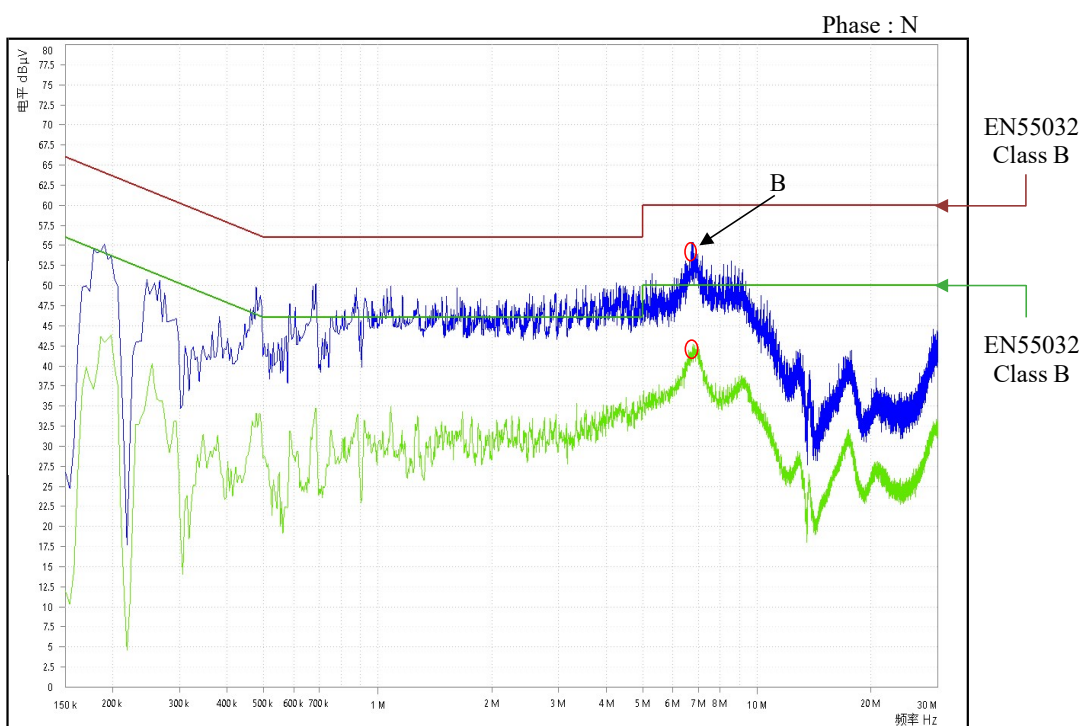
Conducted Emission

48V

Point A (6.974MHz)		
Ref. Data	Limit (dB)	Measure (dB)
QP	60.0	52.2
AV	50.0	39.3



Point B (6.79MHz)		
Ref. Data	Limit (dB)	Measure (dB)
QP	60.0	52.3
AV	50.0	41.8



Limit of EN55011-B,FCC-Class B are same as its EN55032-B.

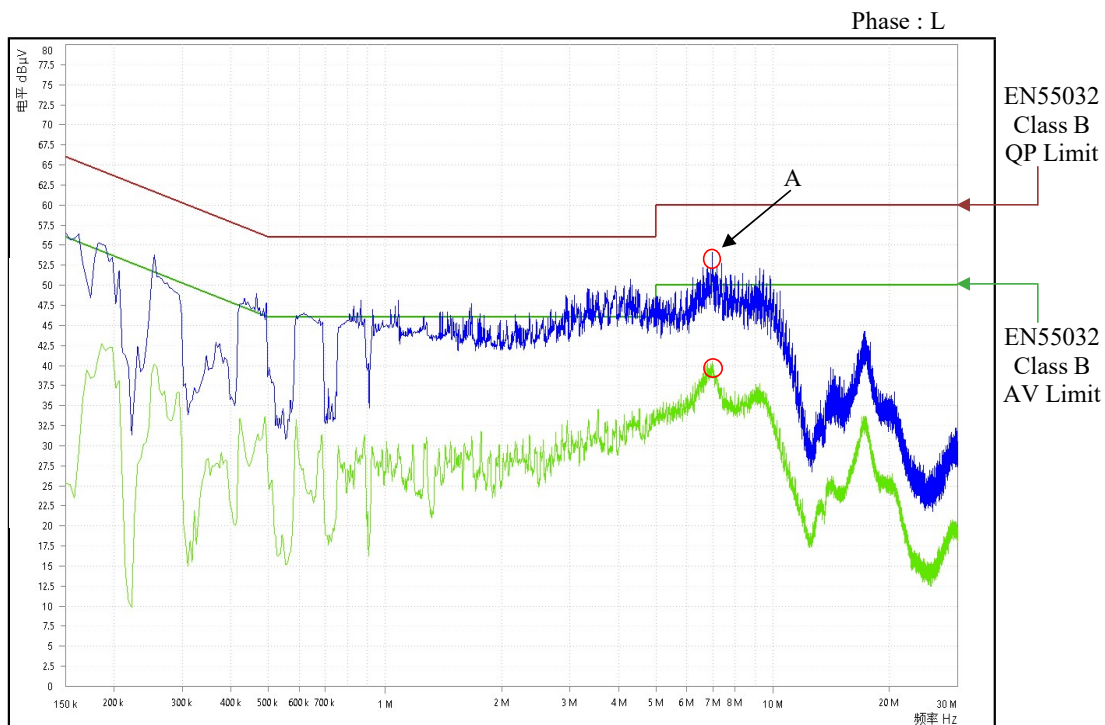
2-15. Electro-Magnetic Interference characteristics

Conditions Vin : 230 VAC
 Iout : 16.7 A (100%)
 Istb : 100 %
 Ta : 25 °C

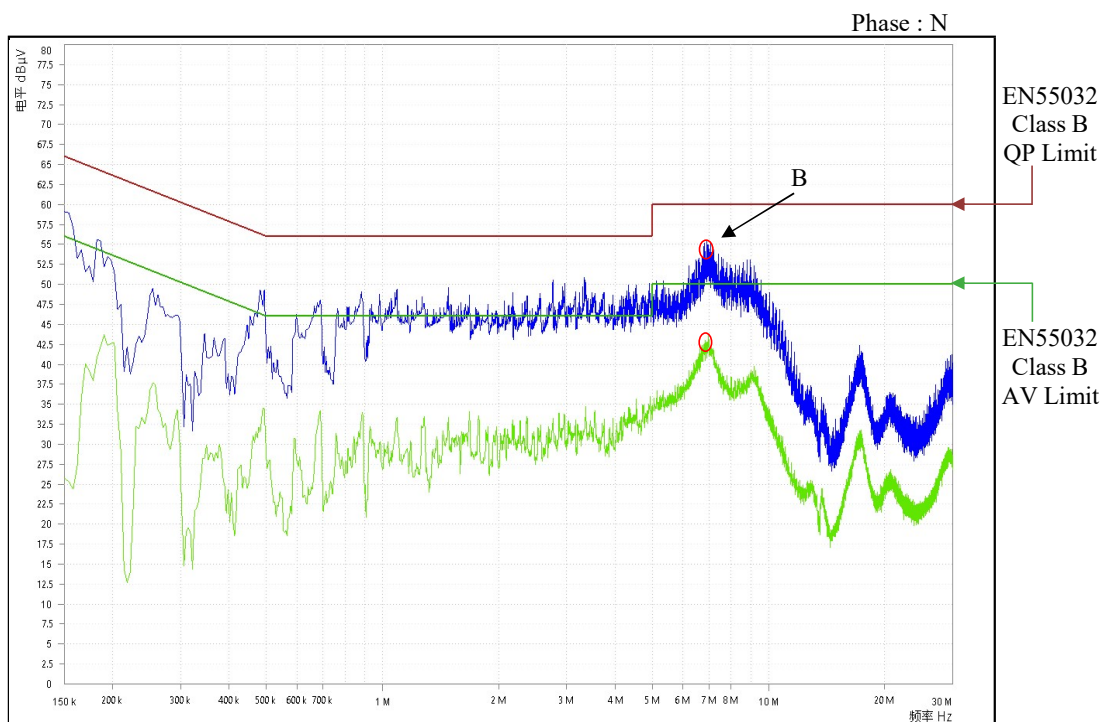
Conducted Emission

48V

Point A (6.998MHz)		
Ref. Data	Limit (dB)	Measure (dB)
QP	60.0	51.6
AV	50.0	39.5



Point B (6.814MHz)		
Ref. Data	Limit (dB)	Measure (dB)
QP	60.0	50.0
AV	50.0	42.3



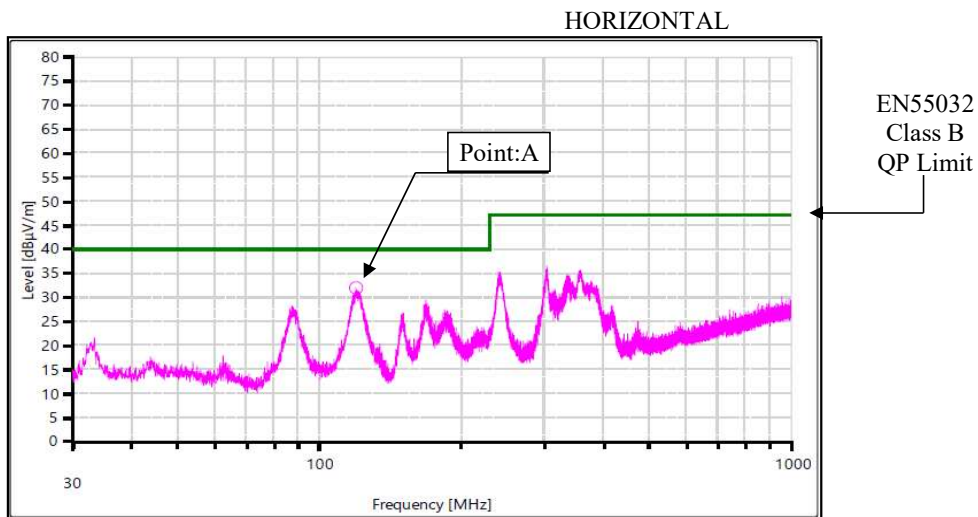
Limit of EN55011-B,FCC-Class B are same as its EN55032-B.

2-15. Electro-Magnetic Interference characteristics

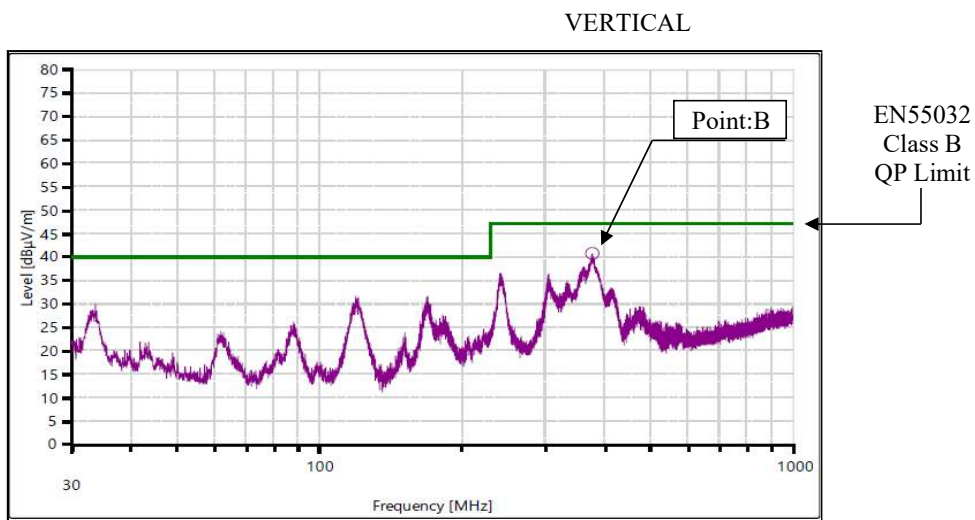
Conditions Vin : 115 VAC
 Iout : 56.7 A (100%)
 Istb : 100 %
 Ta : 25 °C

Radiated Emission

12V



Point A (120MHz)		
Ref.	Data	Measure
QP	40.0	32.0



Point B (378MHz)		
Ref.	Data	Measure
QP	47.0	40.7

Limit of EN55011-B,FCC-Class B are same as its EN55032-B.

Indication is peak values.

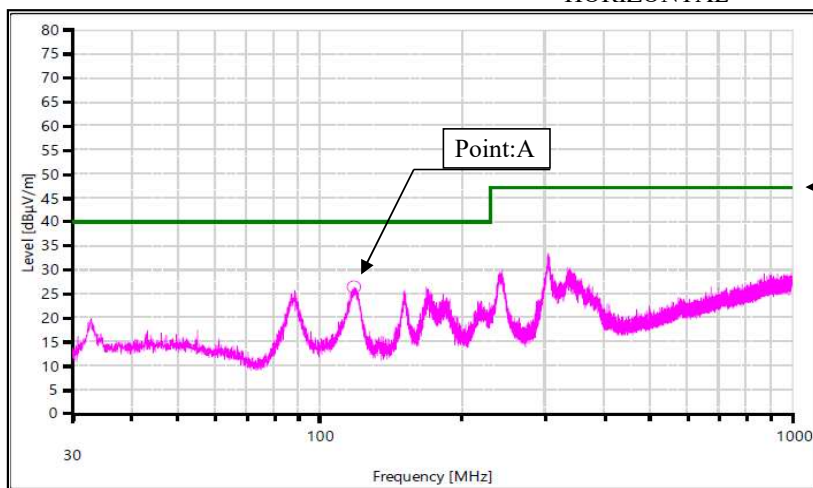
2-15. Electro-Magnetic Interference characteristics

Conditions Vin : 230 VAC
 Iout : 56.7 A (100%)
 Istb : 100 %
 Ta : 25 °C

Radiated Emission

12V

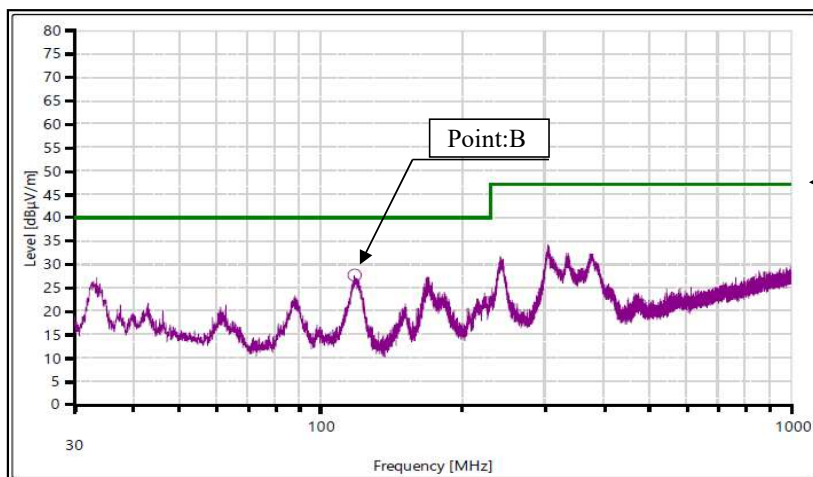
HORIZONTAL



EN55032
 Class B
 QP Limit

Point A (118MHz)		
Ref.	Data	
QP	Limit (dBuV)	Measure (dBuV)
	47.0	26.5

VERTICAL



EN55032
 Class B
 QP Limit

Point B (118MHz)		
Ref.	Data	
QP	Limit (dBuV)	Measure (dBuV)
	40.0	27.7

Limit of EN55011-B,FCC-Class B are same as its EN55032-B.

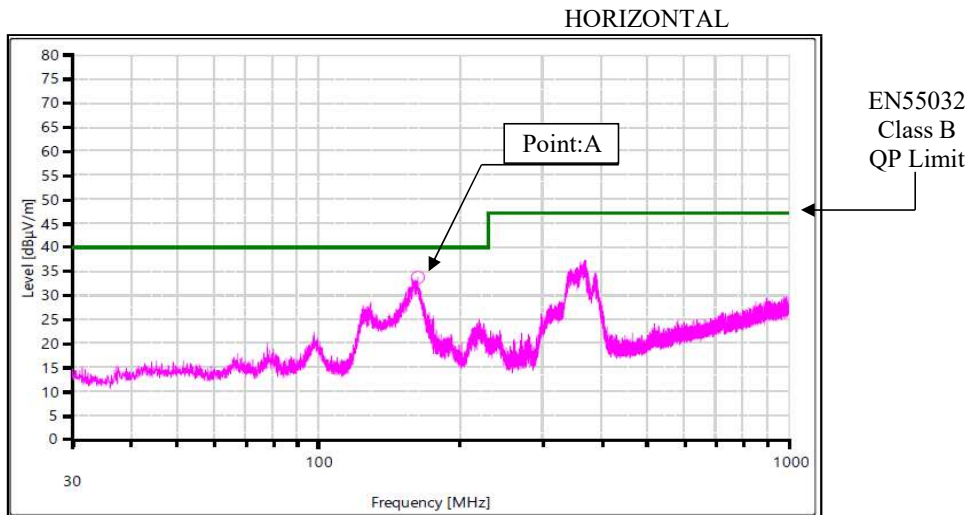
Indication is peak values.

2-15. Electro-Magnetic Interference characteristics

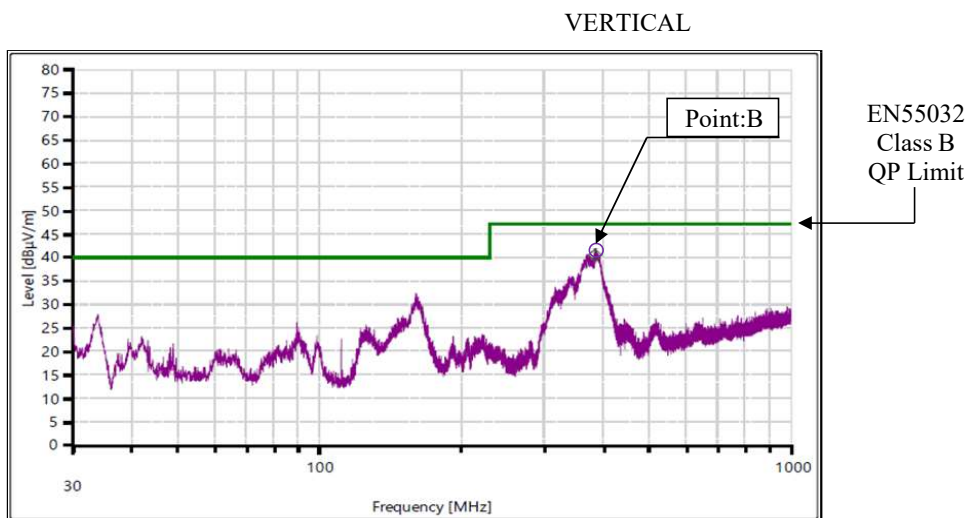
Conditions Vin : 115 VAC
 Iout : 33.4 A (100%)
 Istb : 100 %
 Ta : 25 °C

Radiated Emission

24V



Point A (163MHz)		
Ref.	Data	Measure
QP	40.0	33.7



Point B (386MHz)		
Ref.	Data	Measure
QP	47.0	40.4

Limit of EN55011-B,FCC-Class B are same as its EN55032-B.

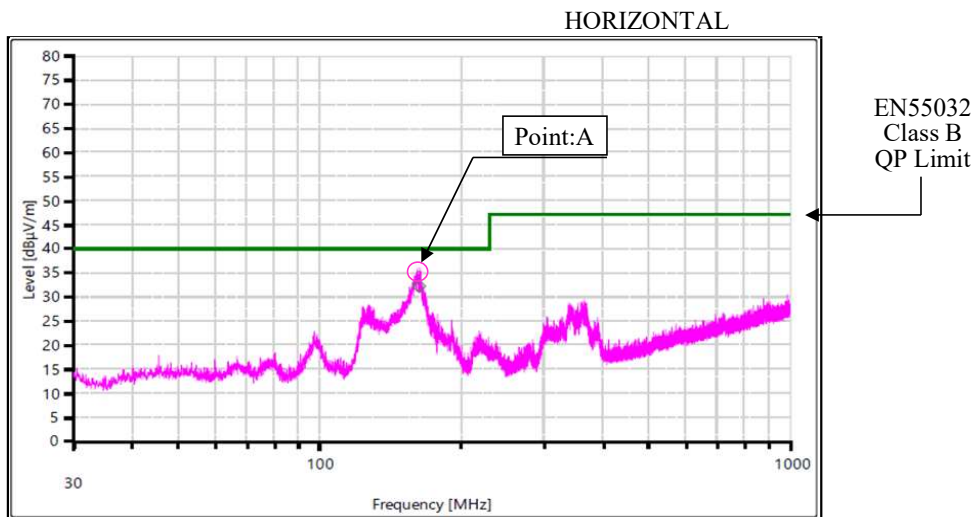
Indication is peak values.

2-15. Electro-Magnetic Interference characteristics

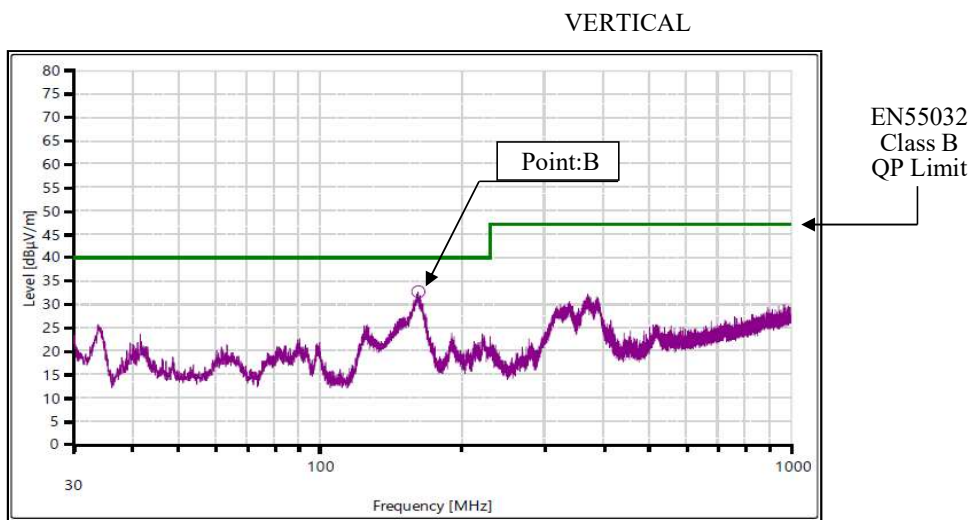
Conditions Vin : 230 VAC
 Iout : 33.4 A (100%)
 Istb : 100 %
 Ta : 25 °C

Radiated Emission

24V



Point A (163MHz)		
Ref.	Data	
QP	Limit (dBµV)	Measure (dBµV)
	40.0	32.3



Point B (162MHz)		
Ref.	Data	
QP	Limit (dBµV)	Measure (dBµV)
	40.0	32.8

Limit of EN55011-B,FCC-Class B are same as its EN55032-B.

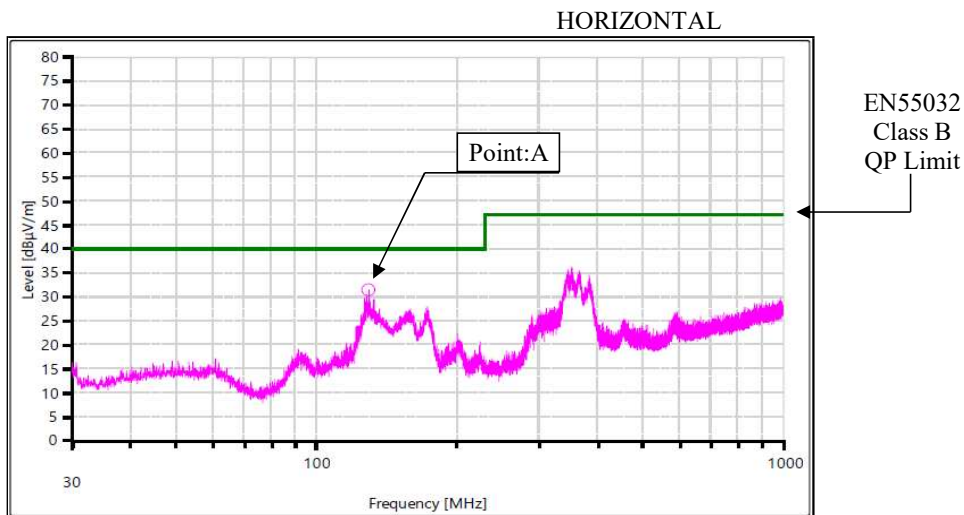
Indication is peak values.

2-15. Electro-Magnetic Interference characteristics

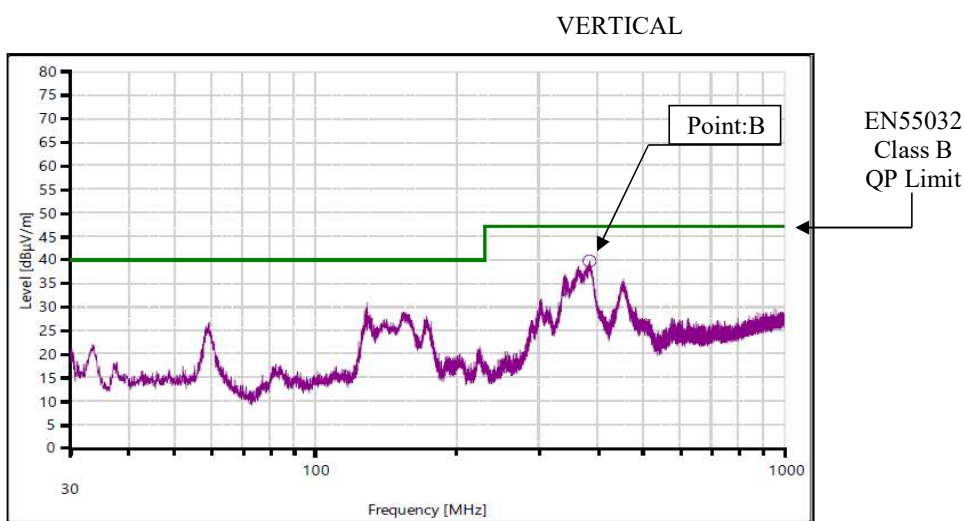
Conditions Vin : 115 VAC
 Iout : 22.2 A (100%)
 Istb : 100 %
 Ta : 25 °C

Radiated Emission

36V



Point A (130MHz)		
Ref.	Data	Limit
QP	40.0	31.4



Point B (386MHz)		
Ref.	Data	Limit
QP	47.0	39.7

Limit of EN55011-B,FCC-Class B are same as its EN55032-B.

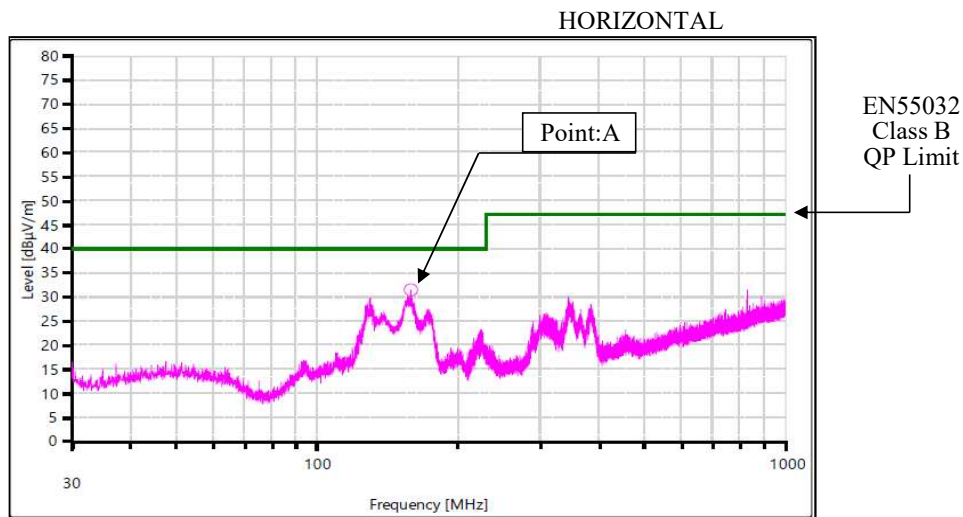
Indication is peak values.

2-15. Electro-Magnetic Interference characteristics

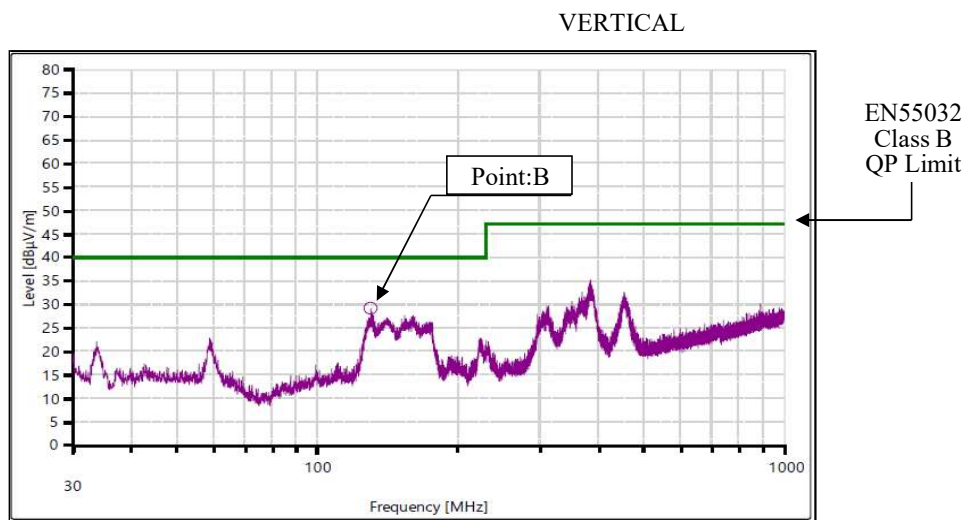
Conditions Vin : 230 VAC
 Iout : 22.2 A (100%)
 Istb : 100 %
 Ta : 25 °C

Radiated Emission

36V



Point A (159MHz)		
Ref.	Limit	Measure
Data	(dBuV)	(dBuV)
QP	40.0	31.6



Point B (130MHz)		
Ref.	Limit	Measure
Data	(dBuV)	(dBuV)
QP	40.0	29.2

Limit of EN55011-B,FCC-Class B are same as its EN55032-B.

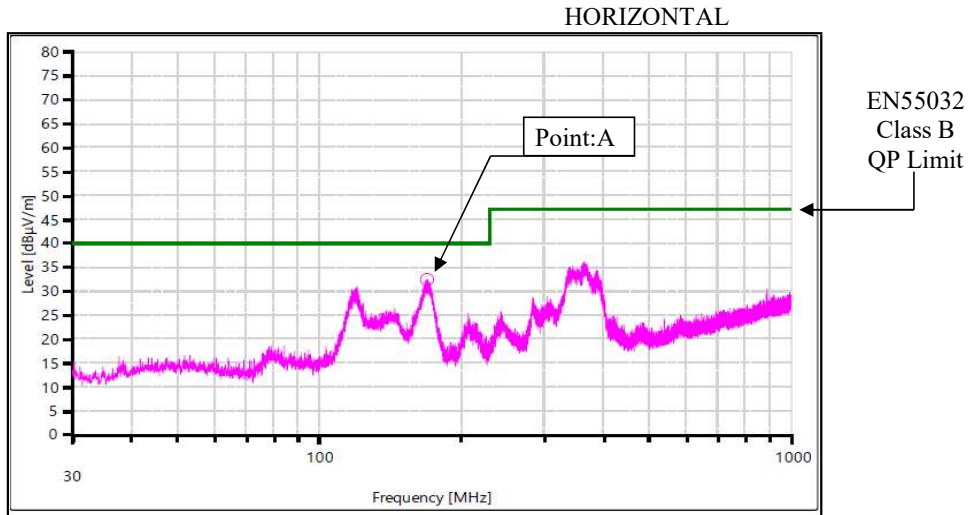
Indication is peak values.

2-15. Electro-Magnetic Interference characteristics

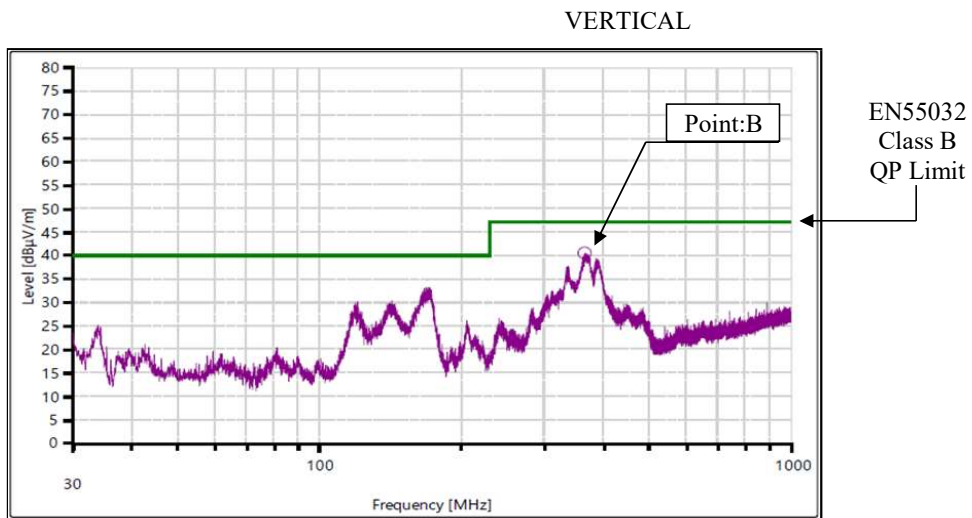
Conditions Vin : 115 VAC
 Iout : 16.7 A (100%)
 Istb : 100 %
 Ta : 25 °C

Radiated Emission

48V



Point A (169MHz)		
Ref.	Data	Limit
QP	40.0	32.5



Point B (367MHz)		
Ref.	Data	Limit
QP	47.0	40.4

Limit of EN55011-B,FCC-Class B are same as its EN55032-B.

Indication is peak values.

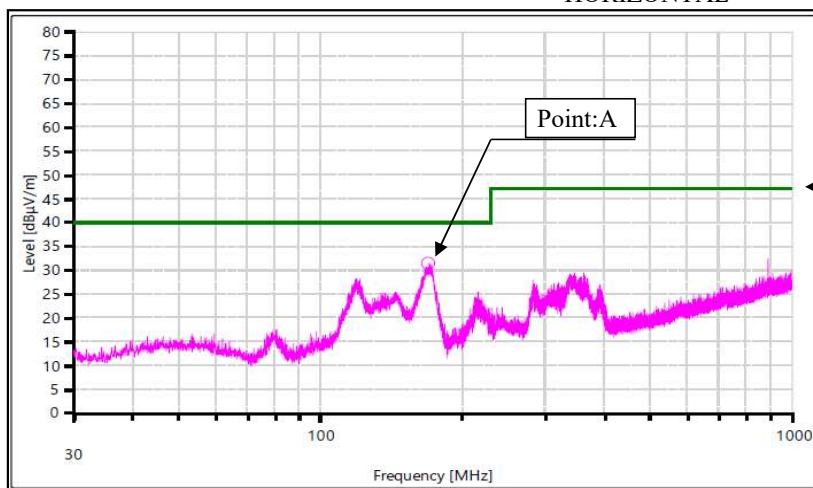
2-15. Electro-Magnetic Interference characteristics

Conditions Vin : 230 VAC
 Iout : 16.7 A (100%)
 Istb : 100 %
 Ta : 25 °C

Radiated Emission

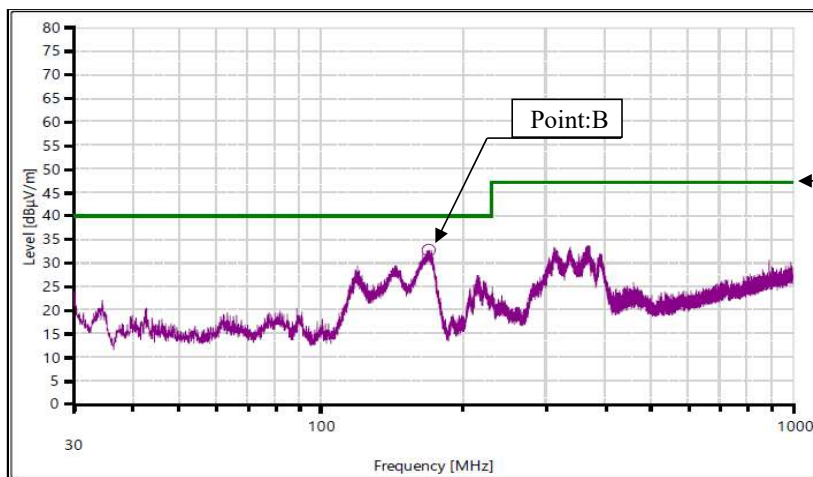
48V

HORIZONTAL



Point A (170MHz)		
Ref.	Data	Limit
QP	40.0	31.5

VERTICAL



Point B (169MHz)		
Ref.	Data	Limit
QP	40.0	32.8

Limit of EN55011-B,FCC-Class B are same as its EN55032-B.

Indication is peak values.

2-16.Audible Noise of FAN

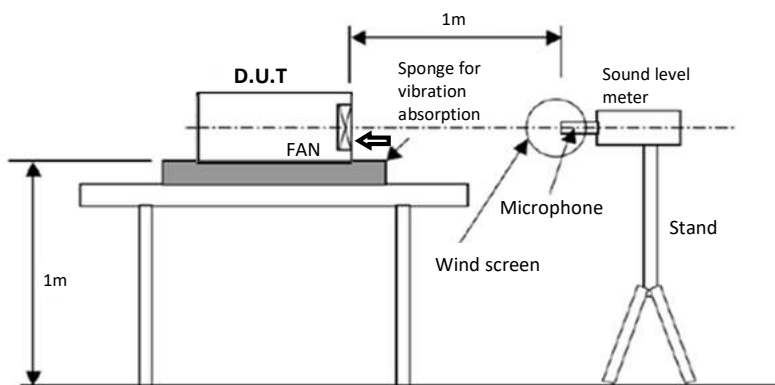
Test condition: Background noise: 23 [dB(A)]
 Test duration: 60 [s]
 Vin: 115VAC @ 60Hz ————
 230VAC @ 50Hz - - - - -
 Iout: 100% (33.4A)
 Istb: 100% (2A)
 Ta: 25°C

Test equipment :

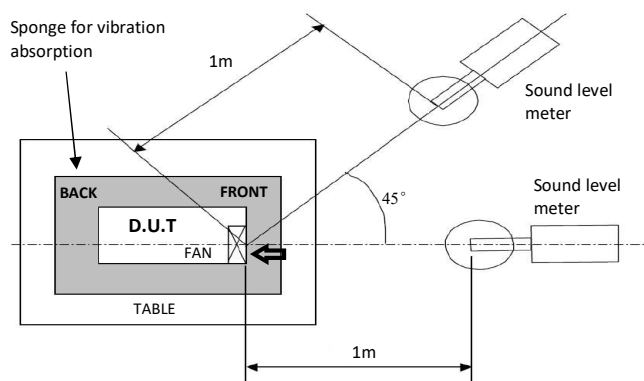
Sound Calibrator: Type 4231 (B&K)

Audio Analyzer: Type 3560-C (B&K)

Test Method :



Basic setting of sound measurements



Position of a sound meter intake surface (air inlet)

Audible Noise Curve of FAN:

