



HWS600/ME

EVALUATION DATA

型式データ

| DWG No. A232-53-01/ME | | |
|--|---|--------------------------------|
| APPD | CHK | DWG |
|  24/Feb/06 |  24. Feb. '06 | H. Kumabara 24. Feb. '06 |

INDEX

| 1. 測定方法 | Evaluation Method | PAGE |
|----------|---|-------|
| 1.1 | 測定回路 Circuit used for determination | T-1 |
| | (1) リーク電流特性 Leakage current characteristics | |
| | (2) EMI特性 Electro-Magnetic Interference characteristics | |
| 1.2 | 使用測定機器 List of equipment used | T-2 |
| | | |
| 2. 特性データ | Characteristics | |
| 2.1 | リーク電流特性 Leakage current characteristics | T-3 |
| 2.2 | EMI特性 Electro-Magnetic Interference characteristics | T-4~5 |
| 2.3 | 入力電圧変化・変動、フリッカ Input voltage changes, Input voltage fluctuations and flicker | T-6 |

※ 他項目の測定方法、特性データは標準品を参照下さい。

Other evaluation method and characteristics refer to EVALUATION DATA of standard model HWS600.

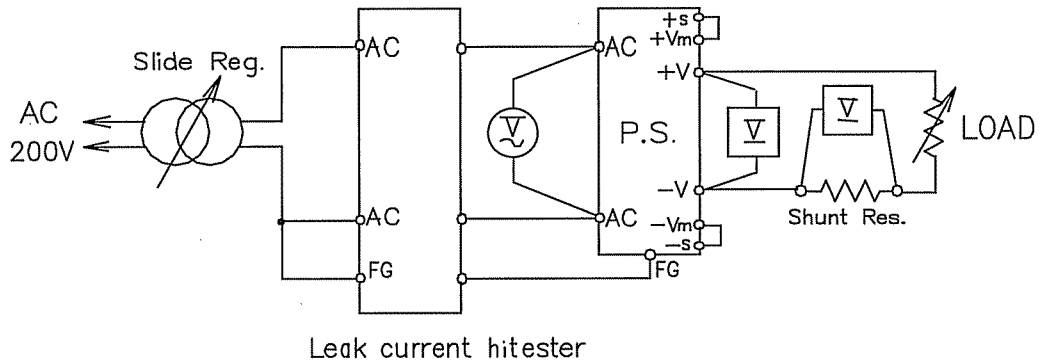
使用記号 Terminology used

| | Definition | |
|-----------|-----------------|---------------------|
| V_{in} | 入力電圧 | Input voltage |
| V_{out} | 出力電圧 | Output voltage |
| I_{in} | 入力電流 | Input current |
| I_{out} | 出力電流 | Output current |
| T_a | 周囲温度 | Ambient temperature |
| f | 周波数 | Frequency |
| FG | フレームグラウンド | Frame GND |

1. 測定方法 Evaluation Method

1.1 測定回路 Circuit used for determination

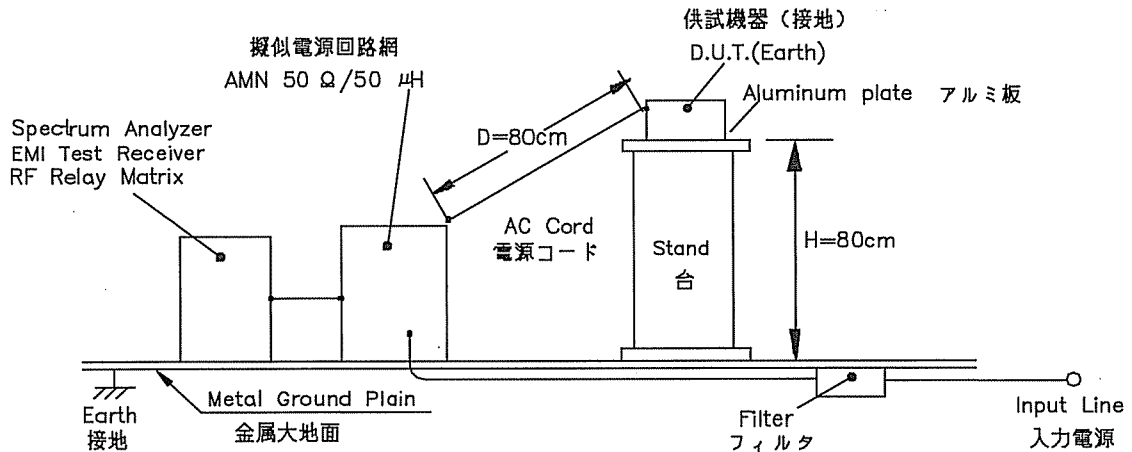
(1)リーク電流特性 Leakage current characteristics



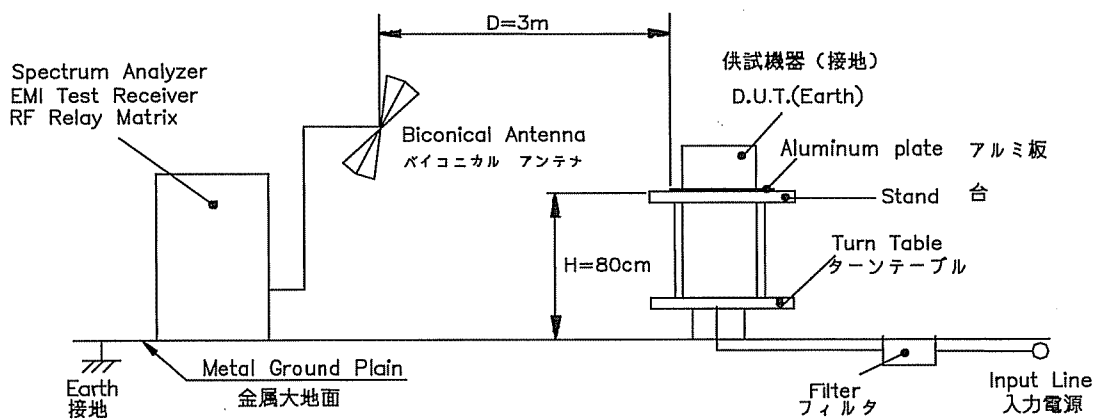
NOTE : Range used ---AC (For HIOKI MODEL 3156)

(2) EMI 特性
Electro-Magnetic Interference

(a) 雑音端子電圧 (帰還ノイズ)
Conducted Emission Noise



(b) 雑音電界強度 (輻射ノイズ)
Radiated Emission Noise



1.2 使用測定機器 List of equipment used

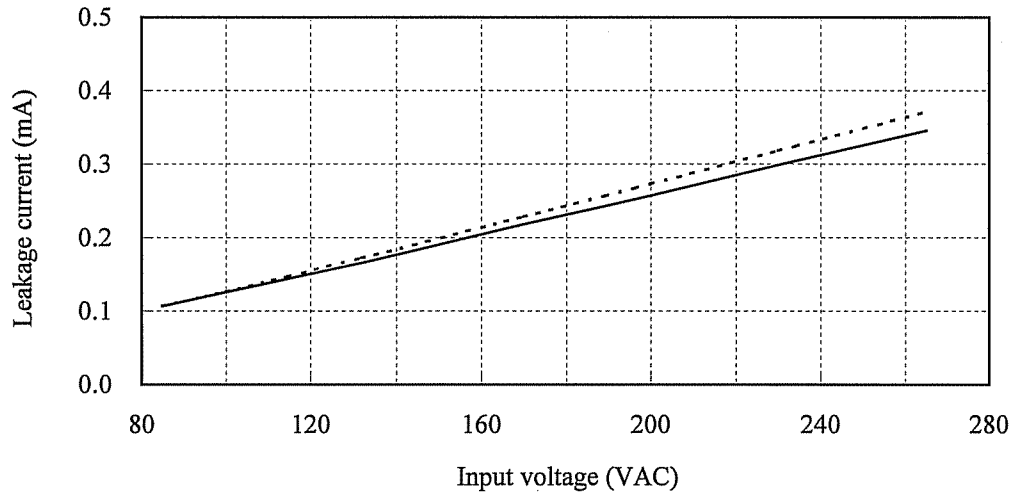
| | EQUIPMENT USED | MANUFACTURER | MODEL NO. |
|----|----------------------------|-----------------|-----------|
| 1 | LEAK CURRENT HITESTER | HIOKI | 3156 |
| 2 | SPECTRUM ANALYZER | ROHDE & SCHWARZ | FSA |
| 3 | EMI TEST RECEIVER | ROHDE & SCHWARZ | ESHS10 |
| 4 | EMI TEST RECEIVER | ROHDE & SCHWARZ | ESVS10 |
| 5 | RF RELAY MATRIX | ROHDE & SCHWARZ | PSU |
| 6 | AMN | KYORITSU DENSHI | KNW-242 |
| 7 | ANTENNA(BICONICAL ANTENNA) | SCHWARZBECK | BBA9106 |
| 8 | CVCF | KIKUSUI | PCR-4000L |
| 9 | SLIDE REGULATOR | MATSUNAGA | SD-2650 |
| 10 | SHUNT RESISTOR | YOKOGAWA ELECT. | 2215 |
| 11 | DYNAMIC DUMMY LOAD | TAKASAGO | FK-1000L |
| 12 | DIGITAL MULTIMETER | AGILENT | 34970A |

2.1 リーク電流特性

Leakage current characteristics

Conditions Iout : 0 % -----
 100 % ———
 Ta : 25 °C
 f_(ACin) : 60 Hz
Equipment used : MODEL 3156
 (HIOKI)

24V



2.2 EMI 特性

Electro-Magnetic Interference characteristics

Conditions Vin : 100VAC

Iout : 100%

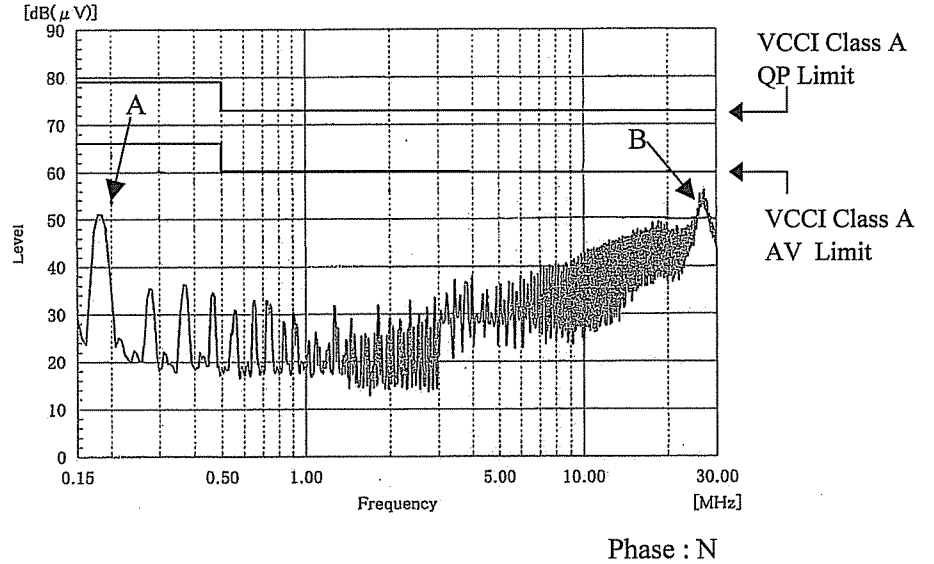
(a) 雑音端子電圧

Conducted Emission

24V

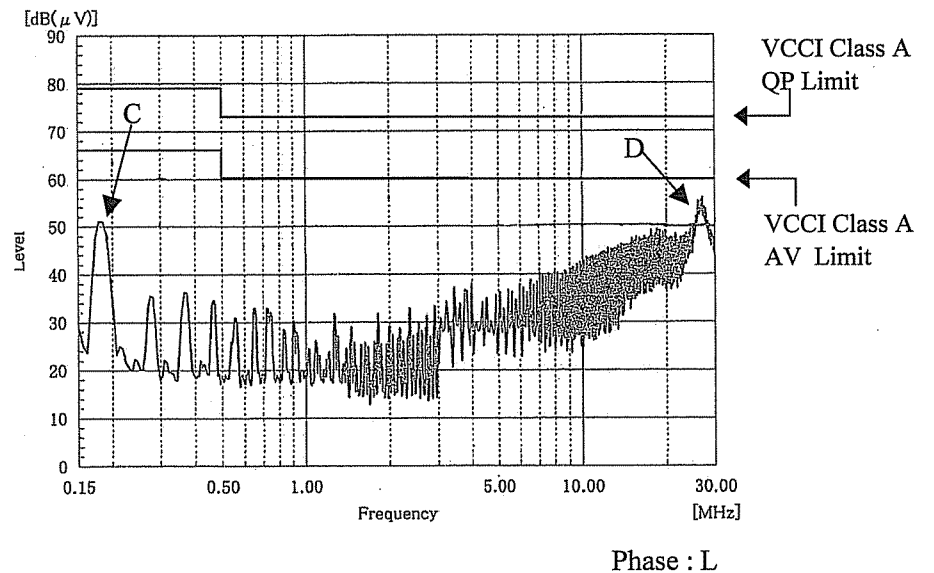
| Point A (182kHz) | | |
|---------------------|--------------|----------------|
| Ref. Data | Limit (dBuV) | Measure (dBuV) |
| QP | 79.0 | 48.9 |
| AV | 66.0 | 47.3 |

| Point B (26.9MHz) | | |
|----------------------|--------------|----------------|
| Ref. Data | Limit (dBuV) | Measure (dBuV) |
| QP | 73.0 | 48.4 |
| AV | 60.0 | 41.3 |



| Point C (182kHz) | | |
|---------------------|--------------|----------------|
| Ref. Data | Limit (dBuV) | Measure (dBuV) |
| QP | 79.0 | 47.8 |
| AV | 66.0 | 45.0 |

| Point D (28.4MHz) | | |
|----------------------|--------------|----------------|
| Ref. Data | Limit (dBuV) | Measure (dBuV) |
| QP | 73.0 | 48.7 |
| AV | 60.0 | 41.9 |



EN55011-A,EN55022-Aの限界値はVCCI class Aの限界値と同じ
Limit of EN55011-A,EN55022-A are same as its VCCI class A.

2.2 EMI 特性

Electro-Magnetic Interference characteristics

Conditions V_{in} : 100VAC

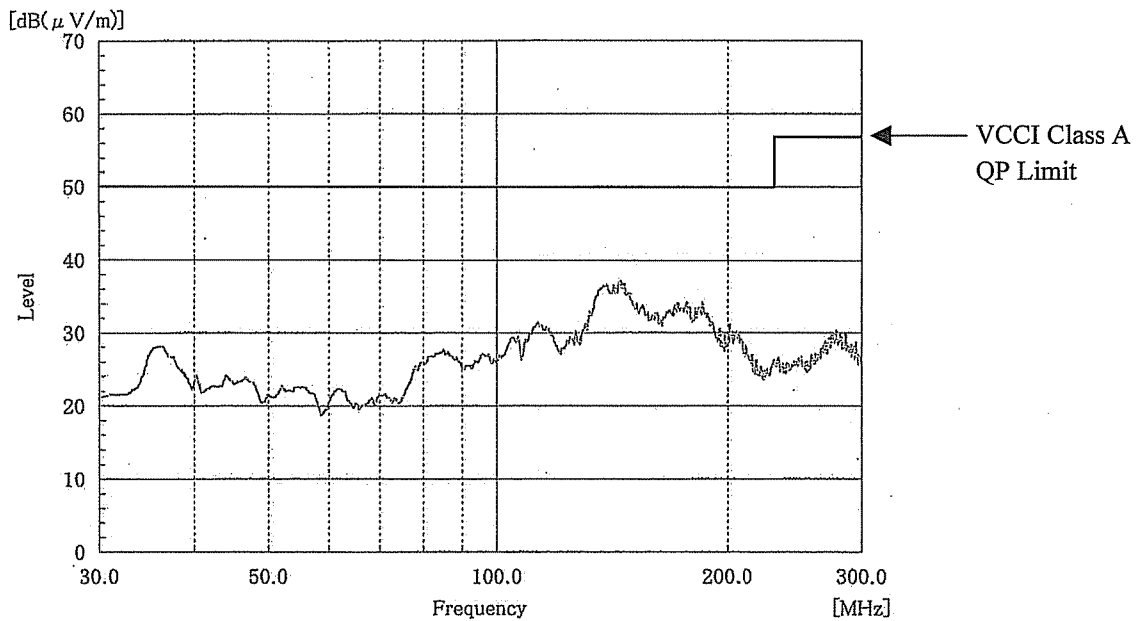
I_{out} : 100%

(b) 雑音電界強度

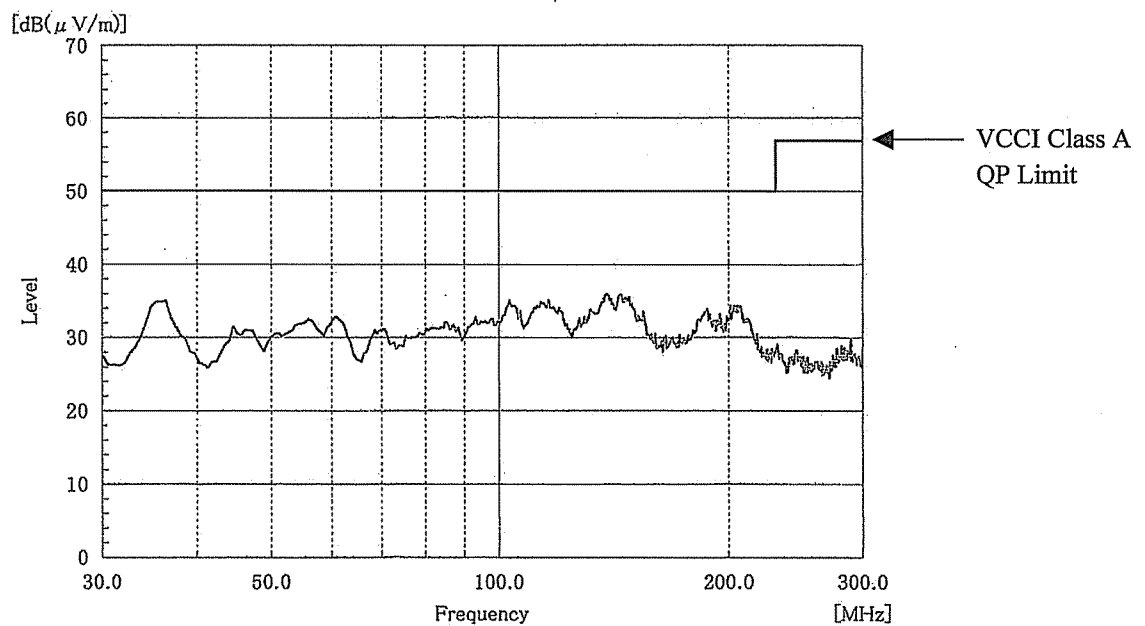
Radiated Emission

24V

HORIZONTAL



VERTICAL



EN55011-A,EN55022-Aの限界値はVCCI class Aの限界値と同じ
Limit of EN55011-A,EN55022-A are same as its VCCI class A.

2.3 入力電圧変化・変動、フリッカ

Input voltage changes, Input voltage fluctuations and flicker

Conditions Vin : 230 VAC

Ta : 25 °C

24V

(1) 入力電圧変化・変動 (IEC61000-3-3)

Input voltage changes and Input voltage fluctuations

限度値 LIMIT

結果 RESULTS

1)相対的な定常状態の電圧変化 dc は、3.3%以下でなければならない。

The relative steady - state voltage change dc, shall not exceed 3.3%.

dc : 0.000 %

2)最大の相対的電圧変化 dmax は、4%以下でなければならない。

The maximum relative voltage change dmax, shall not exceed 4%.

dmax : 0.027 %

3)電圧変化の間の d(t) の値は、500msを超える時間で3.3%以下でなければならない。

The value of d(t) during a voltage change shall not be exceed 3.3% for more than 500ms.

OK

(2) フリッカ (IEC61000-3-3)

Flicker

(2)-1 短時間フリッカ Short term flicker(Pst)

限度値 LIMIT

結果 RESULT

1)Pstの値は、1.0以下でなければならない。

The value of Pst shall not be greater than 1.0.

Pst : 0.038

観測 Observation : 10[min.]

(2)-2 長時間フリッカ Long term flicker(Plt)

限度値 LIMIT

結果 RESULT

1)Pltの値は、0.65以下でなければならない。

The value of Plt shall not be greater than 0.65.

Plt : 0.011

観測 Observation : 12/12(Pst)

観測時間 Observation period : Pst 10[min.]
Plt 2[hr.]