



# Z<sup>+</sup>600 Series

## EMI DATA

| DWG No.: IA712-58-02   |  |                          |
|--|--|--------------------------|
| APPD   | CHK  | DWG                      |
| <br>10/3/13 | <br>10/3/13 | <i>Yanin</i><br>10/03/13 |

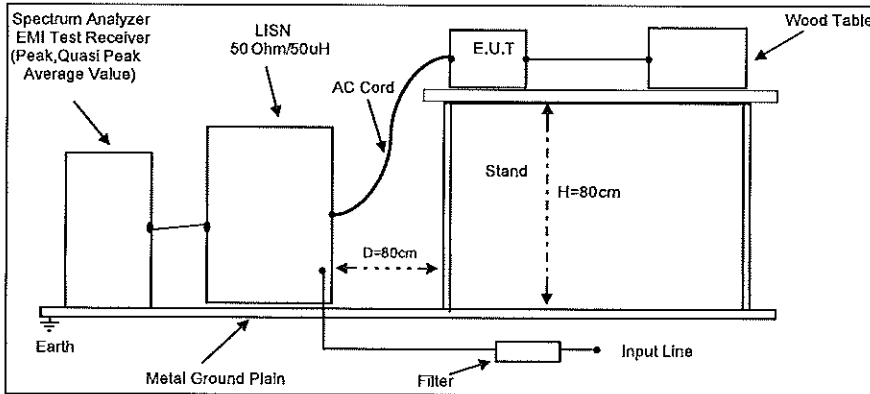
| <b>INDEX</b>           | <b>PAGE</b> |
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| 1.TEST METHOD          | P-1         |
| 2.TEST DATA            |             |
| 2.1 Conducted emission | P2~7        |
| 2.2 Radiated emission  | P8~13       |

The above data is typical value data.

The values are considered to be actual capability data.

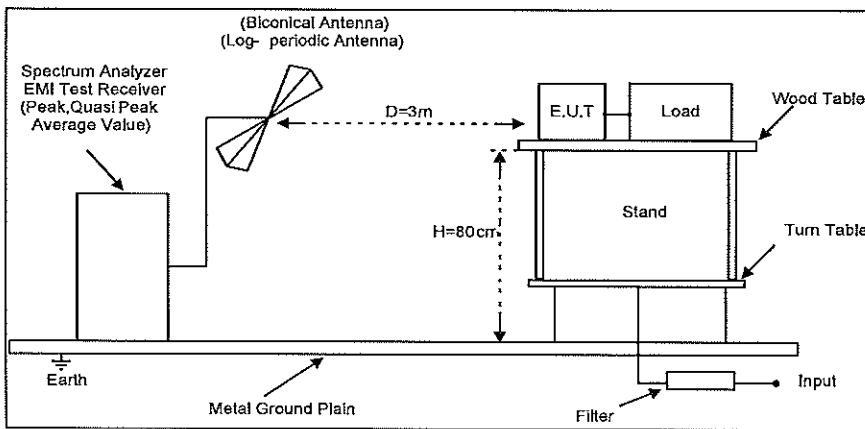
1. Test Method

(1) Conducted Emission



|                   |         |                    |
|-------------------|---------|--------------------|
| SPECTRUM ANALYZER | 8567A   | (HEWLETT. PACKARD) |
| EMI TEST RECEIVER | ESPI    | (ROHDE & SCHWARZ)  |
| LISN              | ENV4200 | (ROHDE & SCHWARZ)  |

(2) Radiated Emission



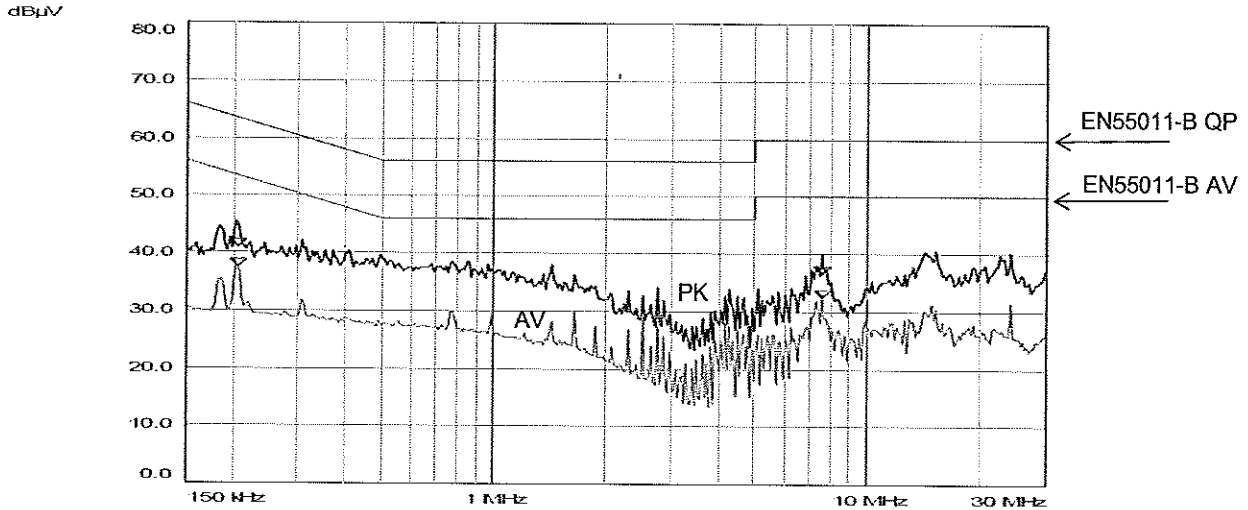
|                      |              |                    |
|----------------------|--------------|--------------------|
| SPECTRUM ANALYZER    | MS2601A      | (ANRITSU)          |
| EMI TEST RECEIVER    | 85462A       | (HEWLETT. PACKARD) |
| BICONICAL ANTENNA    | 3110BA30/200 | (EMCO)             |
| LOG-PERIODIC ANTENNA | LP200000     | (ELECTROMETRIX)    |
|                      | LPA2530      | (ELECTROMETRIX)    |

2. Test Data

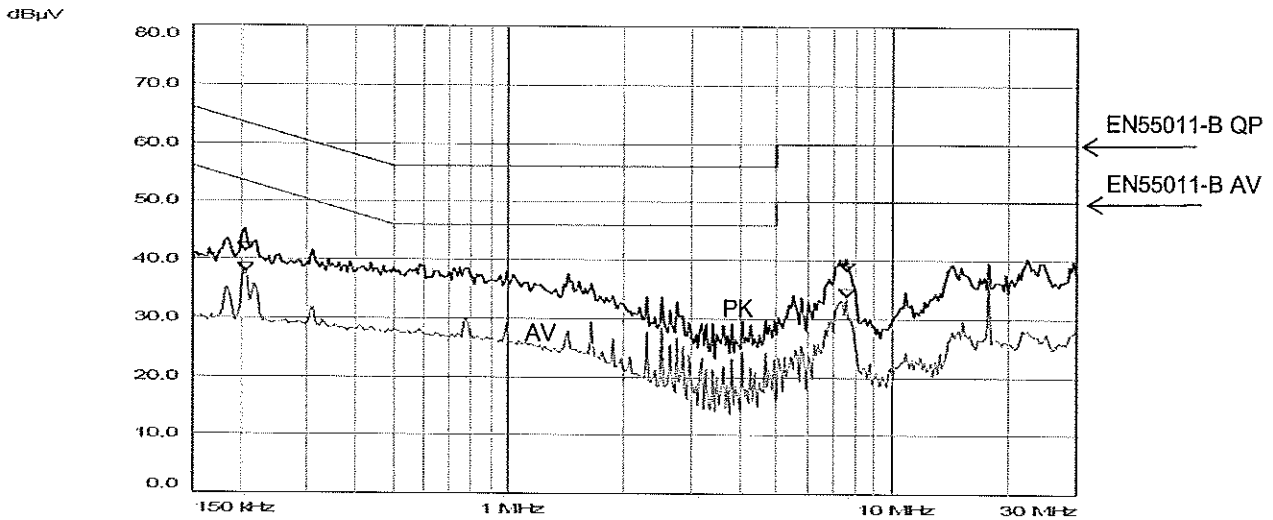
2.1 Conducted Emission

Conditions: Vin:115Vac  
 Vout: 100%  
 Iout: 100%  
 Ta = 25°C

Z10-60



| PHASE | FREQ<br>MHz | RESULT     |            | LIMIT      |            | MARGIN     |            |
|-------|-------------|------------|------------|------------|------------|------------|------------|
|       |             | QP<br>dBµV | AV<br>dBµV | QP<br>dBµV | AV<br>dBµV | QP<br>dBµV | AV<br>dBµV |
| L     | 0.21        | 41.1       | 37.5       | 63.4       | 53.4       | -22.3      | -15.9      |
|       | 7.53        | 36.5       | 32.5       | 60.0       | 50.0       | -23.6      | -17.5      |



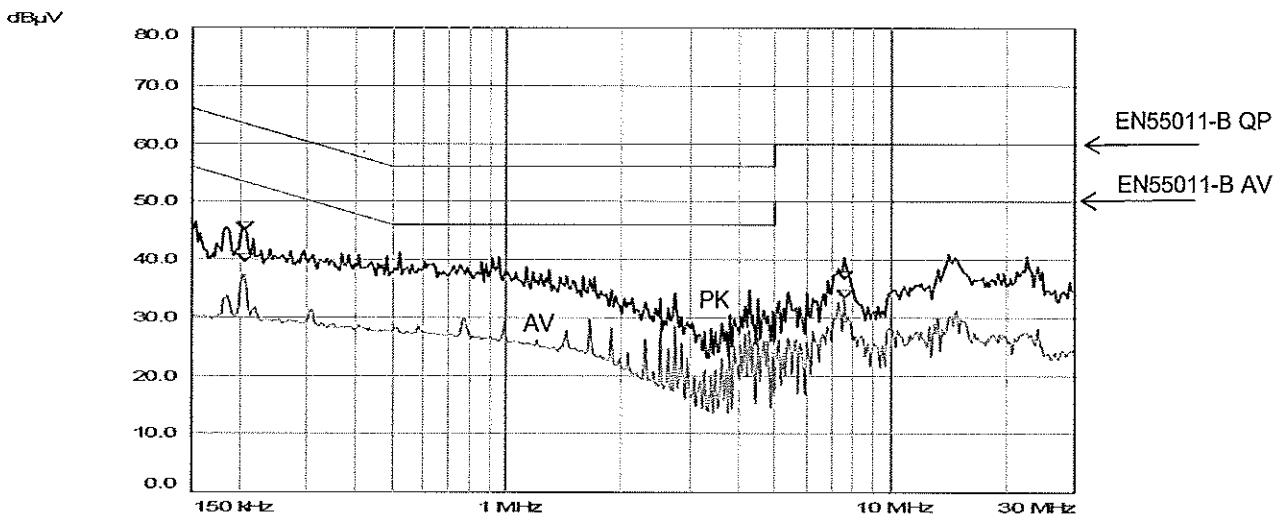
| PHASE | FREQ<br>MHz | RESULT     |            | LIMIT      |            | MARGIN     |            |
|-------|-------------|------------|------------|------------|------------|------------|------------|
|       |             | QP<br>dBµV | AV<br>dBµV | QP<br>dBµV | AV<br>dBµV | QP<br>dBµV | AV<br>dBµV |
| N     | 0.21        | 41.3       | 37.8       | 63.4       | 53.4       | -22.1      | -15.6      |
|       | 7.54        | 38.3       | 33.8       | 60.0       | 50.0       | -21.7      | -16.2      |

Limit of EN55011-B, EN55022-B are the same

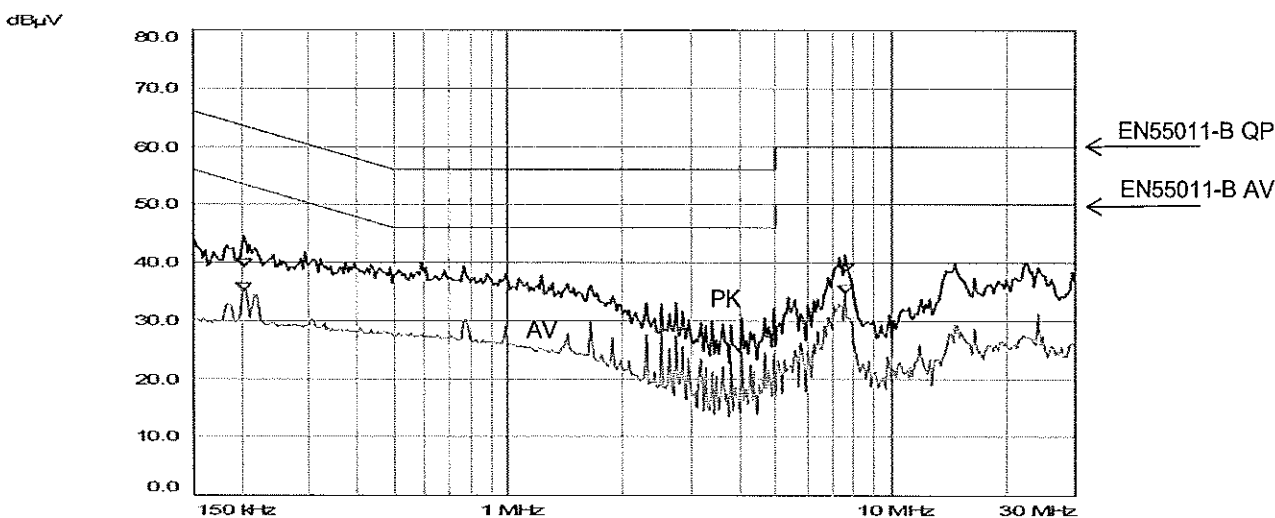
## 2.1 Conducted Emission

Conditions: Vin:230Vac  
 Vout: 100%  
 Iout: 100%  
 Ta = 25°C

**Z10-60**



| PHASE | FREQ<br>MHz | RESULT     |            | LIMIT      |            | MARGIN     |            |
|-------|-------------|------------|------------|------------|------------|------------|------------|
|       |             | QP<br>dBµV | AV<br>dBµV | QP<br>dBµV | AV<br>dBµV | QP<br>dBµV | AV<br>dBµV |
| L     | 0.21        | 45.1       | 39.6       | 63.4       | 53.4       | -18.3      | -13.8      |
|       | 7.54        | 36.6       | 33.4       | 60.0       | 50.0       | -23.4      | -16.6      |



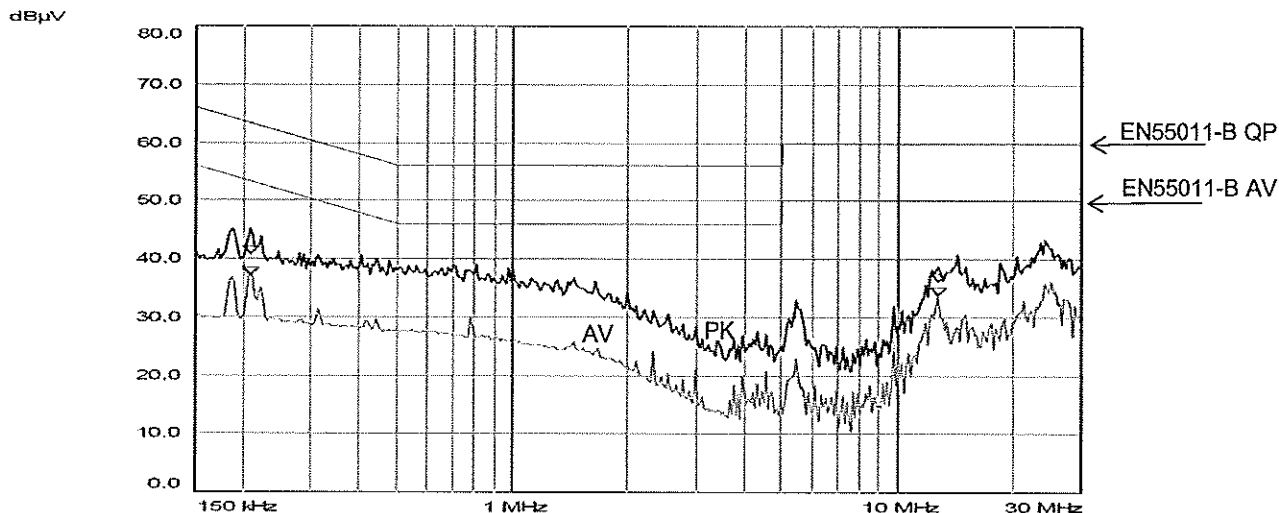
| PHASE | FREQ<br>MHz | RESULT     |            | LIMIT      |            | MARGIN     |            |
|-------|-------------|------------|------------|------------|------------|------------|------------|
|       |             | QP<br>dBµV | AV<br>dBµV | QP<br>dBµV | AV<br>dBµV | QP<br>dBµV | AV<br>dBµV |
| N     | 0.20        | 39.2       | 35.1       | 63.4       | 53.4       | -24.2      | -18.3      |
|       | 7.54        | 38.5       | 34.9       | 60.0       | 50.0       | -21.5      | -15.1      |

Limit of EN55011-B, EN55022-B are the same

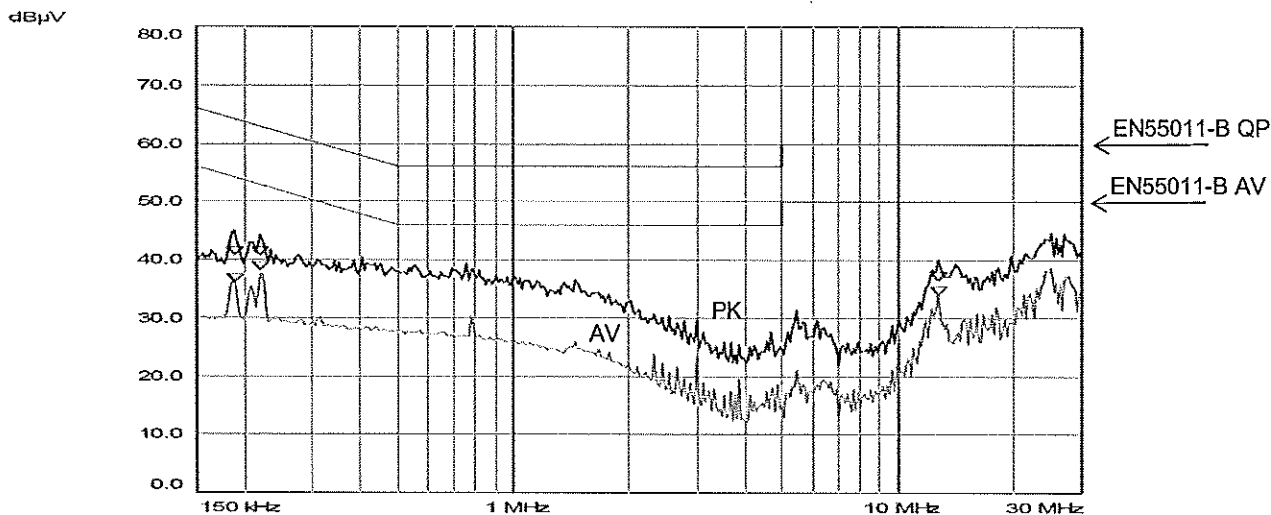
## 2.1 Conducted Emission

Conditions: Vin:115Vac  
 Vout: 100%  
 Iout: 100%  
 Ta = 25°C

**Z36-18**



| PHASE | FREQ<br>MHz | RESULT     |            | LIMIT      |            | MARGIN     |            |
|-------|-------------|------------|------------|------------|------------|------------|------------|
|       |             | QP<br>dBµV | AV<br>dBµV | QP<br>dBµV | AV<br>dBµV | QP<br>dBµV | AV<br>dBµV |
| L     | 0.21        | 40.7       | 37.0       | 63.3       | 53.3       | -22.6      | -16.3      |
|       | 12.74       | 36.1       | 33.8       | 60.0       | 50.0       | -24.0      | -16.3      |



| PHASE | FREQ<br>MHz | RESULT     |            | LIMIT      |            | MARGIN     |            |
|-------|-------------|------------|------------|------------|------------|------------|------------|
|       |             | QP<br>dBµV | AV<br>dBµV | QP<br>dBµV | AV<br>dBµV | QP<br>dBµV | AV<br>dBµV |
| N     | 0.22        | 40.8       | 38.4       | 62.8       | 52.8       | -22.0      | -14.4      |
|       | 12.74       | 36.5       | 34.1       | 60.0       | 50.0       | -23.6      | -16.0      |

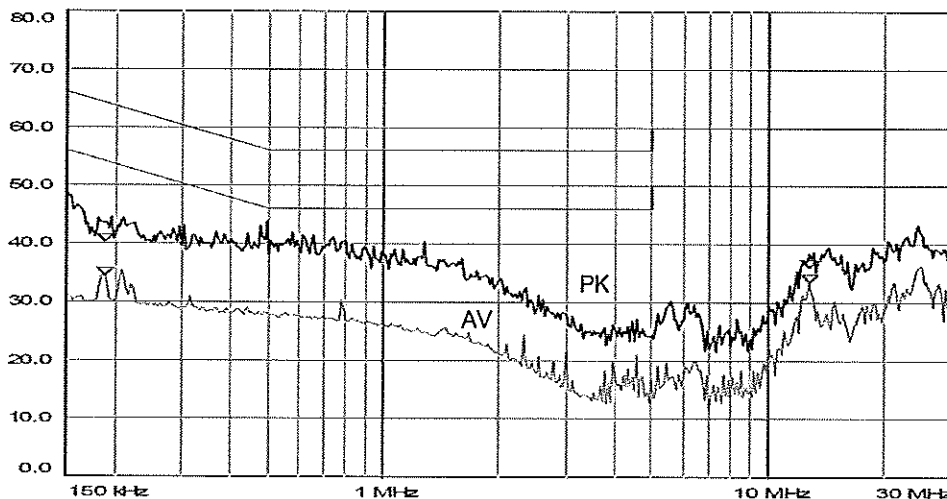
Limit of EN55011-B, EN55022-B are the same

## 2.1 Conducted Emission

Conditions: Vin:230Vac  
 Vout: 100%  
 Iout: 100%  
 Ta = 25°C

**Z36-18**

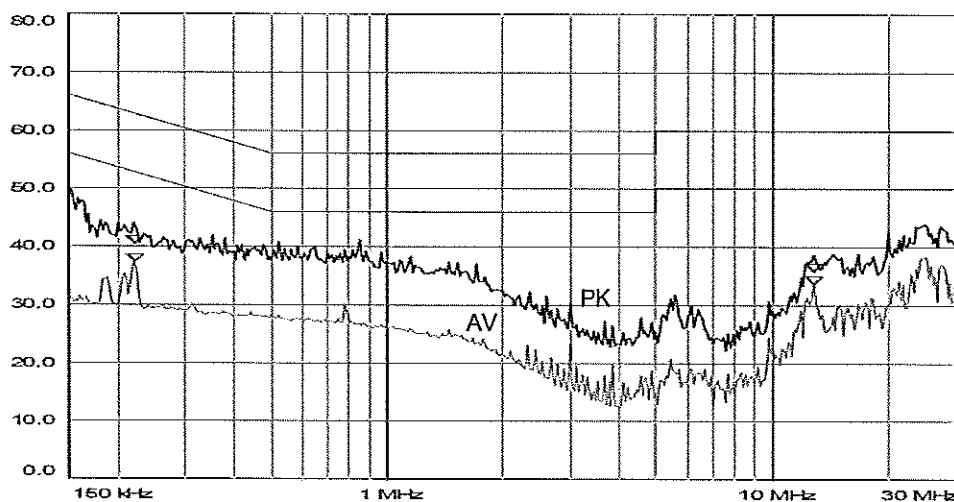
dBμV



← EN55011-B QP  
 ← EN55011-B AV

| PHASE | FREQ<br>MHz | RESULT     |            | LIMIT      |            | MARGIN     |            |
|-------|-------------|------------|------------|------------|------------|------------|------------|
|       |             | QP<br>dBμV | AV<br>dBμV | QP<br>dBμV | AV<br>dBμV | QP<br>dBμV | AV<br>dBμV |
| L     | 0.19        | 40.2       | 34.5       | 64.1       | 54.1       | -23.9      | -19.7      |
|       | 12.74       | 36.0       | 33.5       | 60.0       | 50.0       | -24.1      | -16.5      |

dBμV



← EN55011-B QP  
 ← EN55011-B AV

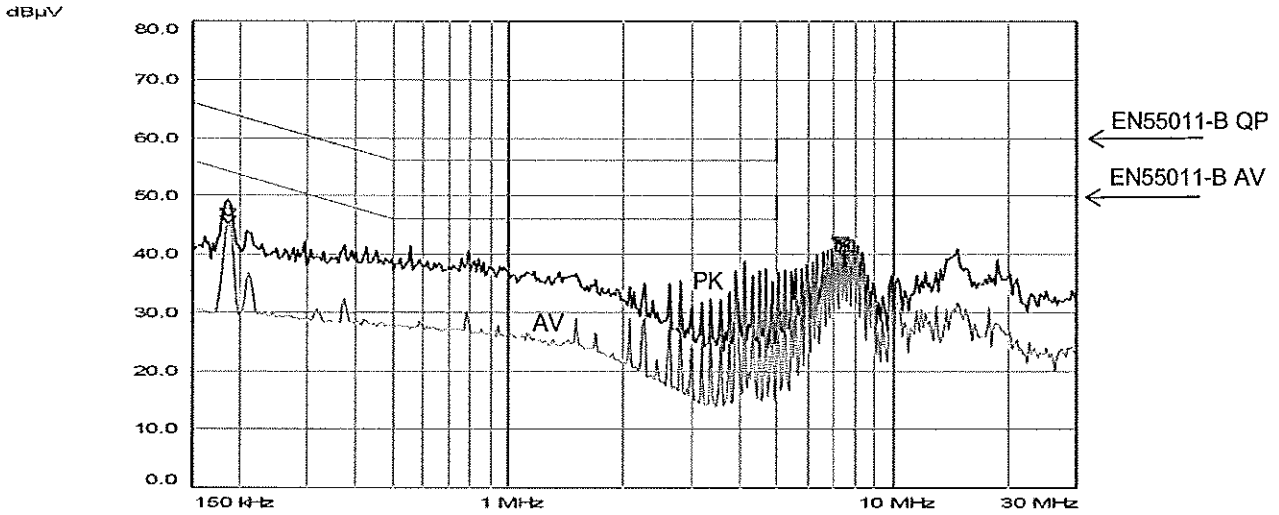
| PHASE | FREQ<br>MHz | RESULT     |            | LIMIT      |            | MARGIN     |            |
|-------|-------------|------------|------------|------------|------------|------------|------------|
|       |             | QP<br>dBμV | AV<br>dBμV | QP<br>dBμV | AV<br>dBμV | QP<br>dBμV | AV<br>dBμV |
| N     | 0.22        | 40.3       | 37.3       | 60.0       | 50.0       | -19.7      | -12.8      |
|       | 12.74       | 35.8       | 33.6       | 60.0       | 50.0       | -24.2      | -16.4      |

Limit of EN55011-B, EN55022-B are the same

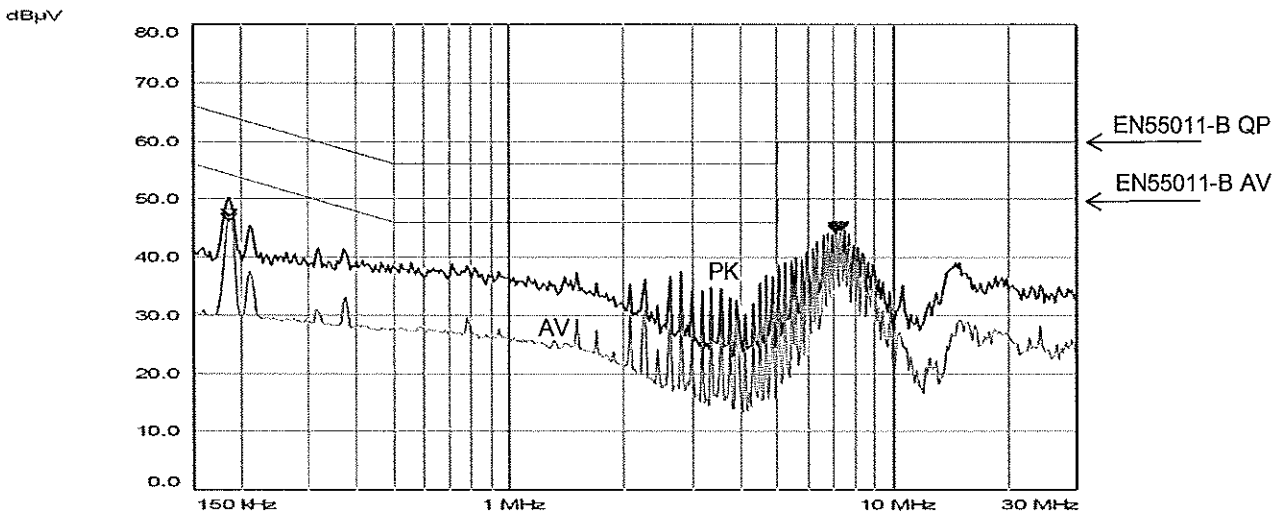
## 2.1 Conducted Emission

Conditions: Vin:115Vac  
 Vout: 100%  
 Iout: 100%  
 Ta = 25°C

**Z100-6**



| PHASE | FREQ<br>MHz | RESULT     |            | LIMIT      |            | MARGIN     |            |
|-------|-------------|------------|------------|------------|------------|------------|------------|
|       |             | QP<br>dBµV | AV<br>dBµV | QP<br>dBµV | AV<br>dBµV | QP<br>dBµV | AV<br>dBµV |
| L     | 0.19        | 46.4       | 45.3       | 64.2       | 54.2       | -17.8      | -8.9       |
|       | 7.30        | 41.1       | 39.4       | 60.0       | 50.0       | -18.9      | -10.6      |



| PHASE | FREQ<br>MHz | RESULT     |            | LIMIT      |            | MARGIN     |            |
|-------|-------------|------------|------------|------------|------------|------------|------------|
|       |             | QP<br>dBµV | AV<br>dBµV | QP<br>dBµV | AV<br>dBµV | QP<br>dBµV | AV<br>dBµV |
| N     | 0.19        | 47.0       | 46.1       | 64.2       | 54.2       | -17.2      | -8.1       |
|       | 7.30        | 44.9       | 44.5       | 60.0       | 50.0       | -15.1      | -5.5       |

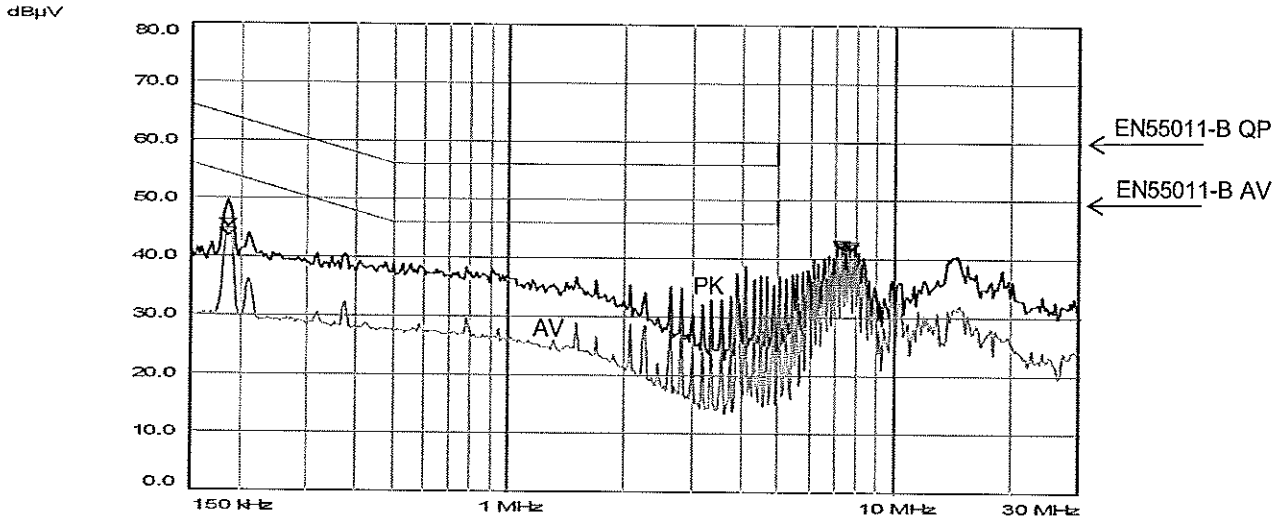
Limit of EN55011-B, EN55022-B are the same



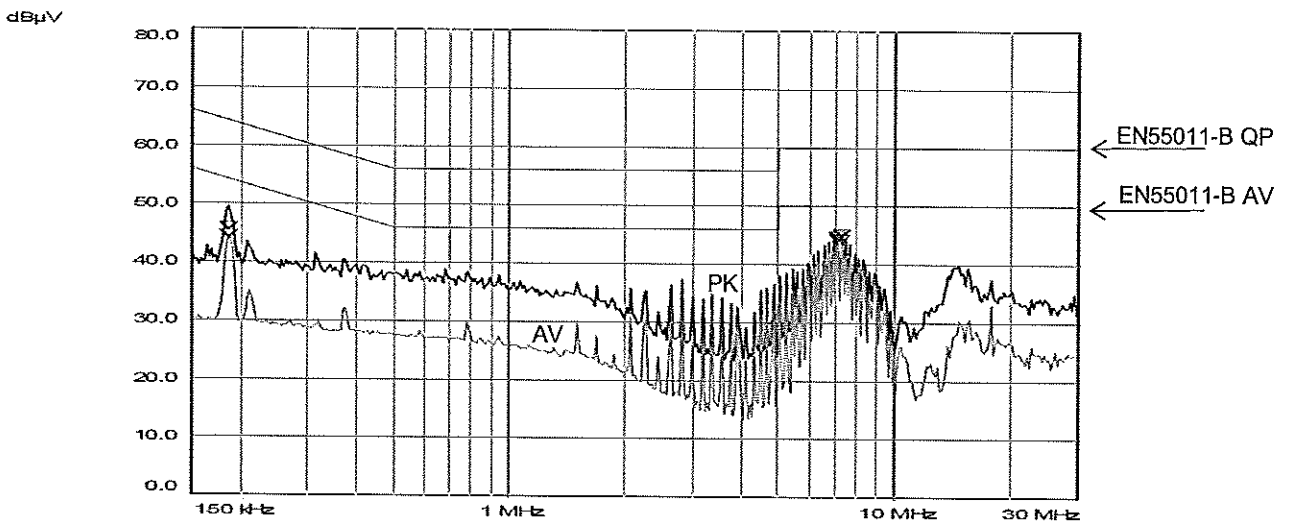
2.1 Conducted Emission

Conditions: Vin:230Vac  
 Vout: 100%  
 Iout: 100%  
 Ta = 25°C

Z100-6



| PHASE | FREQ<br>MHz | RESULT     |            | LIMIT      |            | MARGIN     |            |
|-------|-------------|------------|------------|------------|------------|------------|------------|
|       |             | QP<br>dBµV | AV<br>dBµV | QP<br>dBµV | AV<br>dBµV | QP<br>dBµV | AV<br>dBµV |
| L     | 0.18        | 45.1       | 43.4       | 64.3       | 54.2       | -19.2      | -10.7      |
|       | 7.30        | 41.7       | 41.4       | 60.0       | 50.0       | -18.3      | -8.6       |



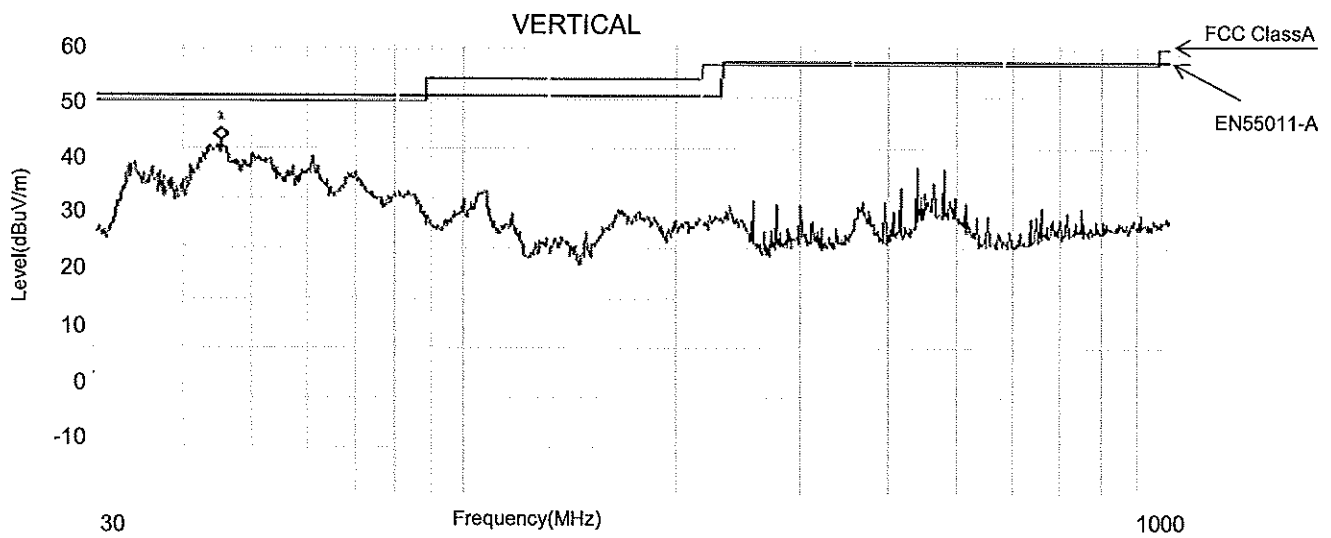
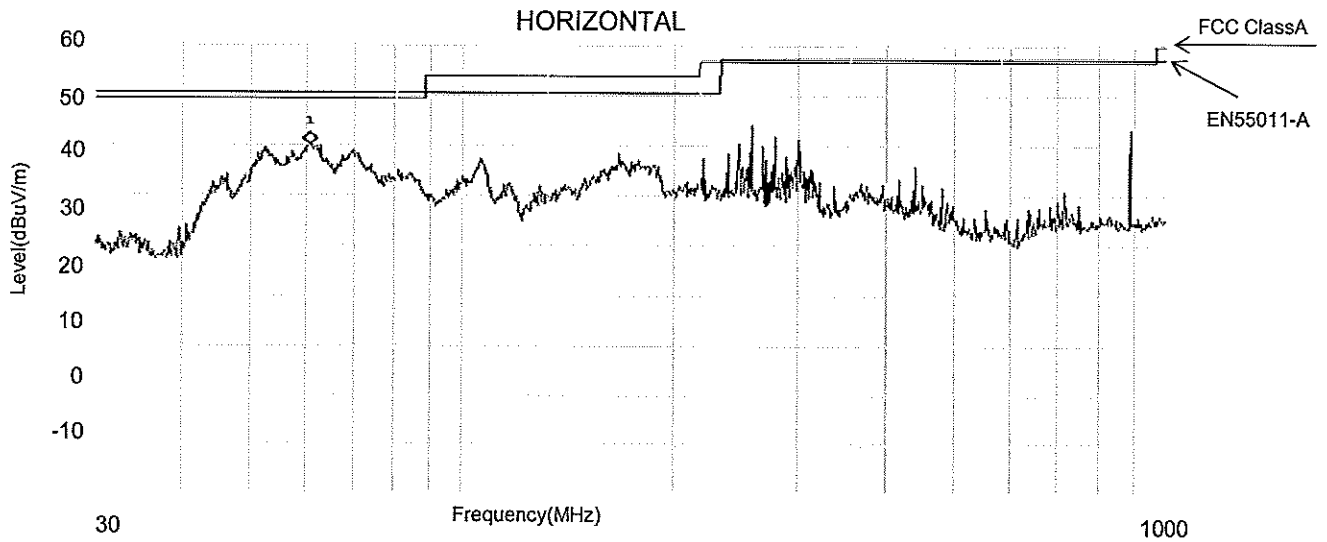
| PHASE | FREQ<br>MHz | RESULT     |            | LIMIT      |            | MARGIN     |            |
|-------|-------------|------------|------------|------------|------------|------------|------------|
|       |             | QP<br>dBµV | AV<br>dBµV | QP<br>dBµV | AV<br>dBµV | QP<br>dBµV | AV<br>dBµV |
| N     | 0.19        | 45.5       | 44.0       | 64.2       | 54.2       | -18.7      | -10.2      |
|       | 7.30        | 44.6       | 43.9       | 60.0       | 50.0       | -15.4      | -6.1       |

Limit of EN55011-B, EN55022-B are the same

## 2.2 Radiated Emission

Z10-60

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



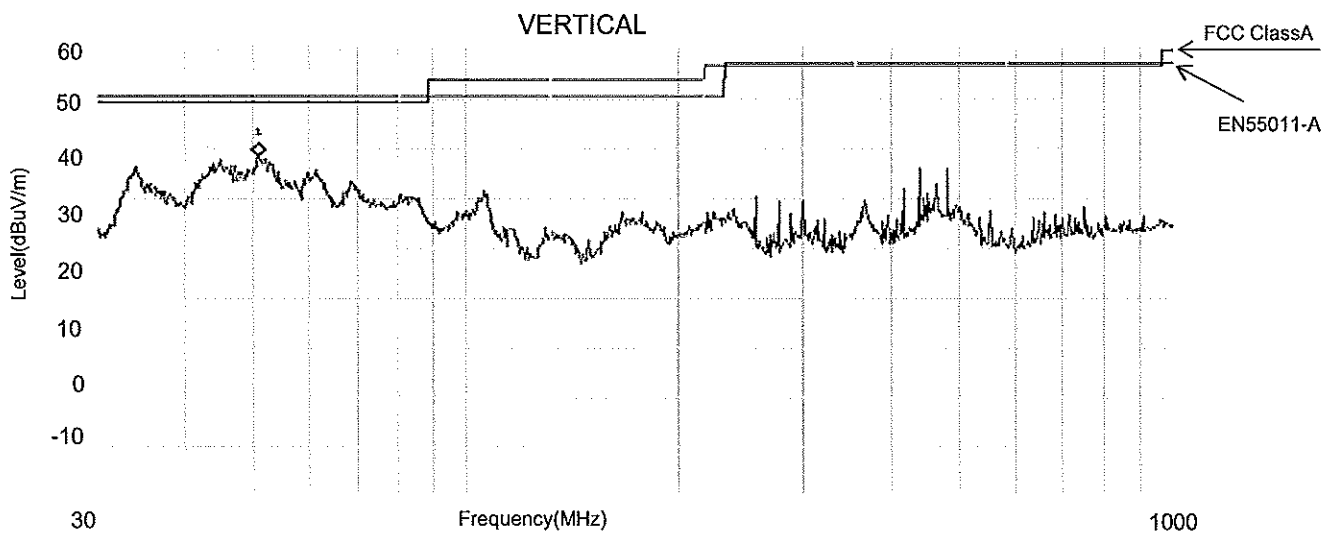
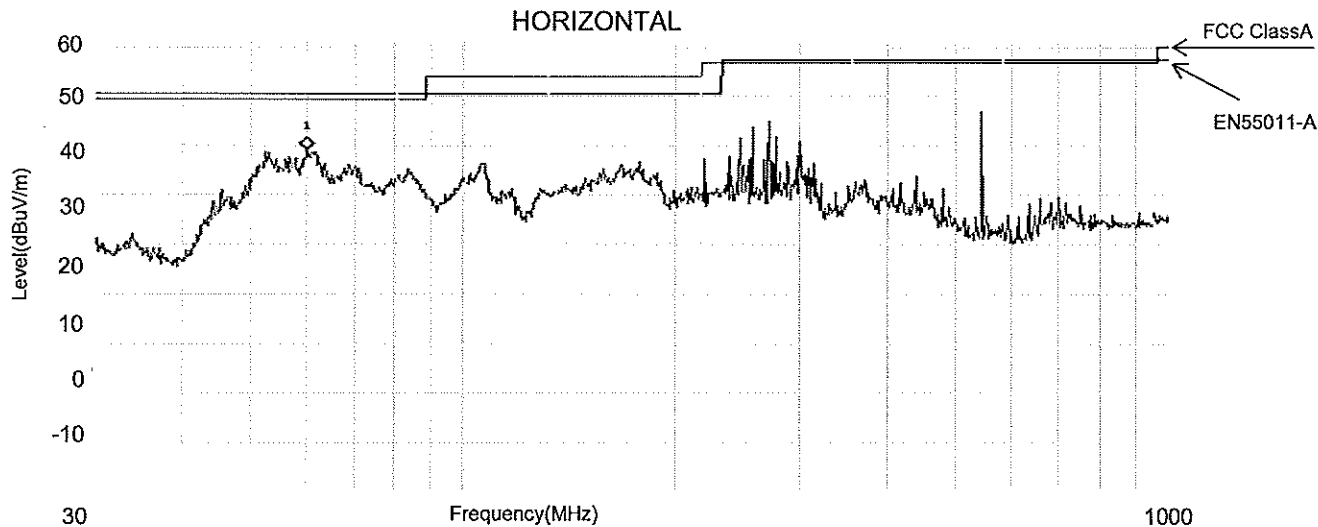
| Freq (MHz) | Peak Amp (dBuV/m) | QP Amp (dBuV/m) | Limit (dBuV/m) | QP margin (dB) | Polariz.   |
|------------|-------------------|-----------------|----------------|----------------|------------|
| 45.0       | 41.3              | 39.1            | 49.5(FCC)      | 10.4           | Vertical   |
| 45.0       | 41.3              | 39.1            | 50.5(EN)       | 11.4           | Vertical   |
| 60.6       | 40.1              | 38.0            | 49.5(FCC)      | 11.5           | Horizontal |
| 60.6       | 40.1              | 38.0            | 50.5(EN)       | 12.5           | Horizontal |

Limit of EN55011-A, EN55022-A are the same

## 2.2 Radiated Emission

**Z10-60**

Conditions: Vin: 230VAC  
 Vout: 100%  
 Iout: 100%  
 Ta: 25°C



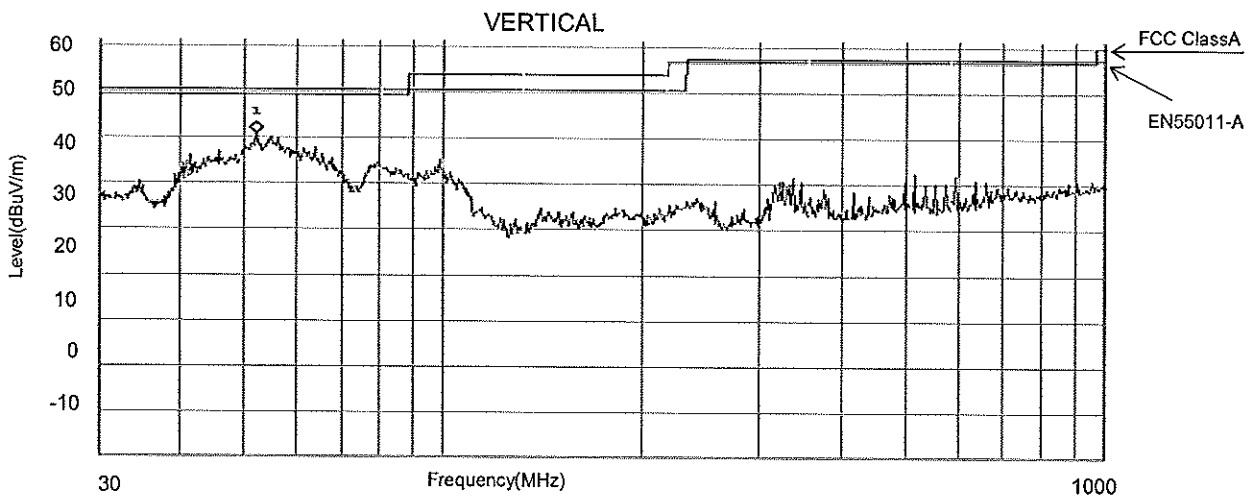
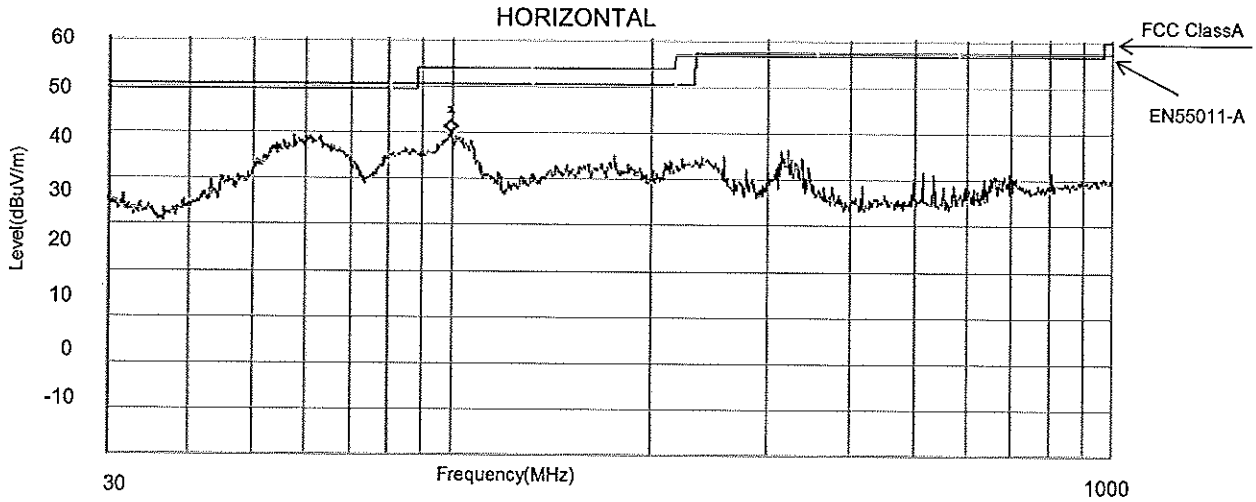
| Freq (MHz) | Peak Amp (dBuV/m) | QP Amp (dBuV/m) | Limit (dBuV/m) | QP margin (dB) | Polariz.   |
|------------|-------------------|-----------------|----------------|----------------|------------|
| 50.7       | 38.4              | 36.1            | 49.5(FCC)      | 13.4           | Vertical   |
| 50.7       | 38.4              | 36.1            | 50.5(EN)       | 14.4           | Vertical   |
| 59.9       | 39.1              | 37.3            | 49.5(FCC)      | 12.2           | Horizontal |
| 59.9       | 39.1              | 37.3            | 50.5(EN)       | 13.2           | Horizontal |

Limit of EN55011-A, EN55022-A are the same

## 2.2 Radiated Emission

Z36-18

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



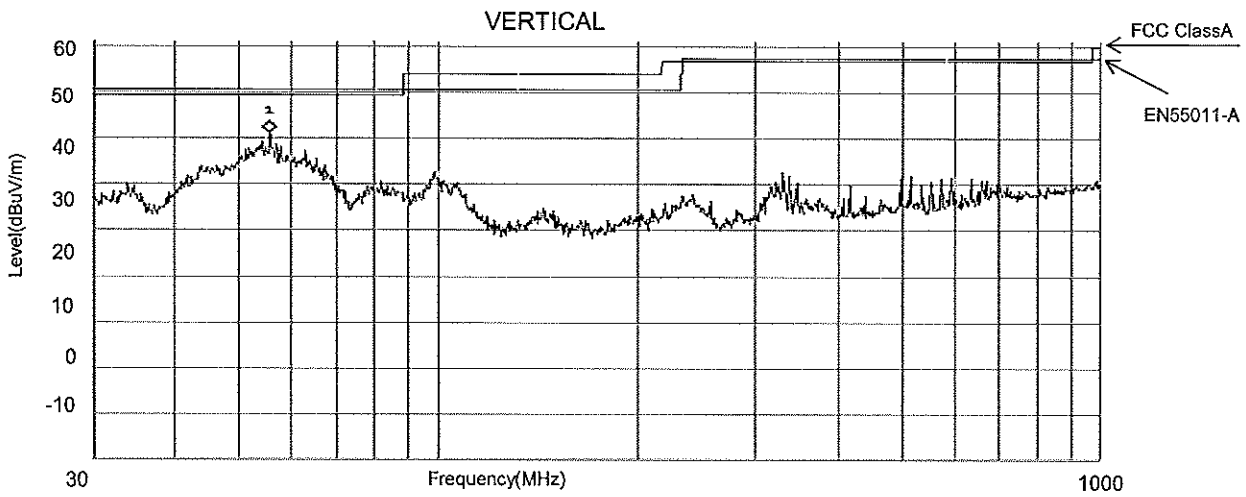
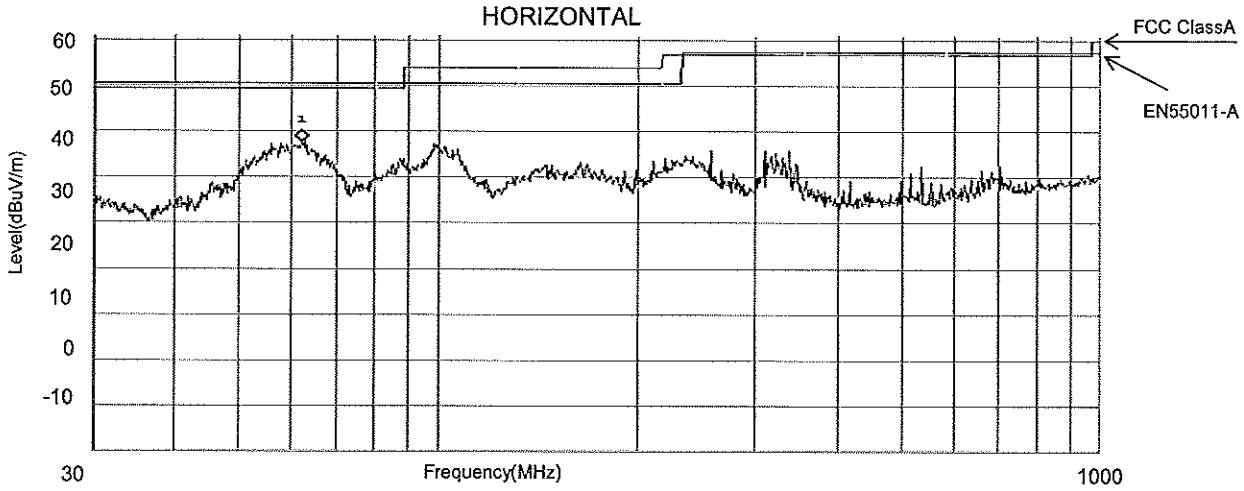
| Freq (MHz) | Peak Amp (dBuV/m) | QP Amp (dBuV/m) | Limit (dBuV/m) | QP margin (dB) | Polariz.   |
|------------|-------------------|-----------------|----------------|----------------|------------|
| 51.9       | 40.8              | 38.4            | 49.5(FCC)      | 11.1           | Vertical   |
| 51.9       | 40.8              | 38.4            | 50.5(EN)       | 12.1           | Vertical   |
| 99.3       | 40.1              | 37.8            | 54(FCC)        | 16.2           | Horizontal |
| 99.3       | 40.1              | 37.8            | 50.5(EN)       | 12.7           | Horizontal |

Limit of EN55011-A, EN55022-A are the same

## 2.2 Radiated Emission

Z36-18

Conditions: Vin: 230VAC  
 Vout: 100%  
 Iout: 100%  
 Ta: 25°C



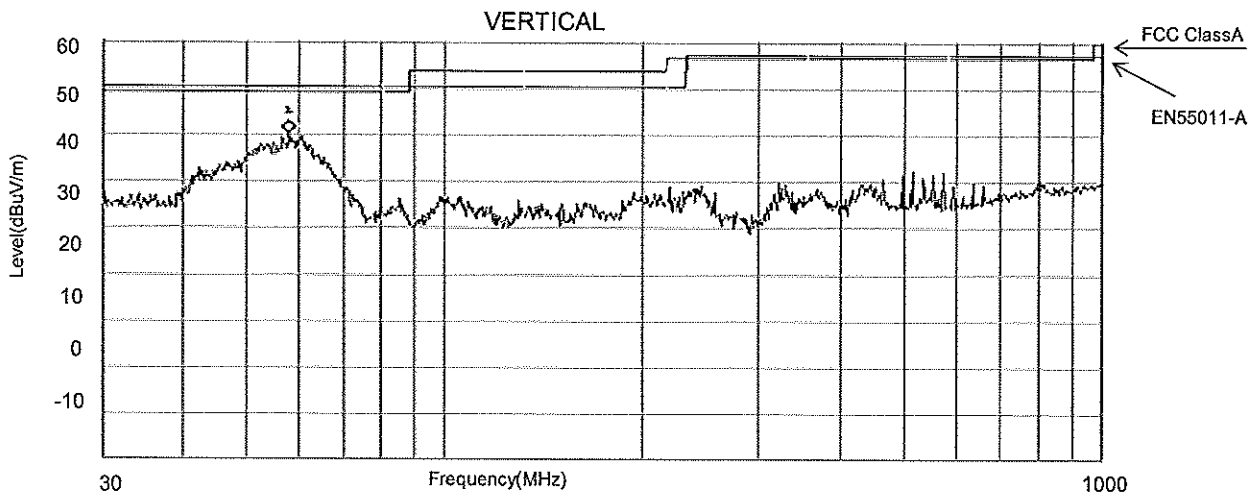
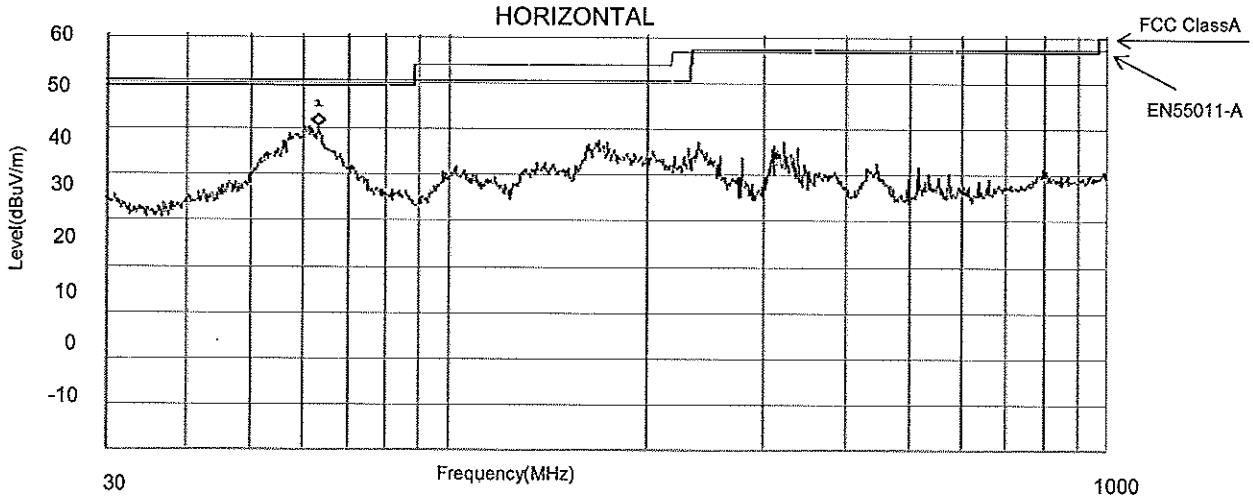
| Freq (MHz) | Peak Amp (dBuV/m) | QP Amp (dBuV/m) | Limit (dBuV/m) | QP margin (dB) | Polariz.   |
|------------|-------------------|-----------------|----------------|----------------|------------|
| 55.4       | 41.1              | 38.6            | 49.5(FCC)      | 10.9           | Vertical   |
| 55.4       | 41.1              | 38.6            | 50.5(EN)       | 11.9           | Vertical   |
| 61.8       | 37.8              | 35.6            | 49.5(FCC)      | 13.9           | Horizontal |
| 61.8       | 37.8              | 35.6            | 50.5(EN)       | 14.9           | Horizontal |

Limit of EN55011-A, EN55022-A are the same

## 2.2 Radiated Emission

Z100-6

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



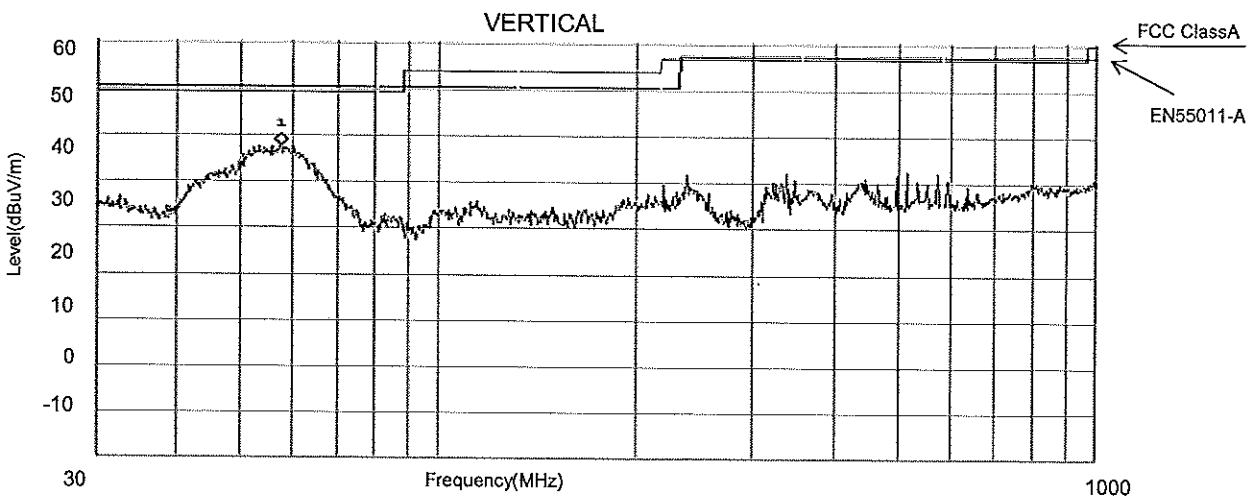
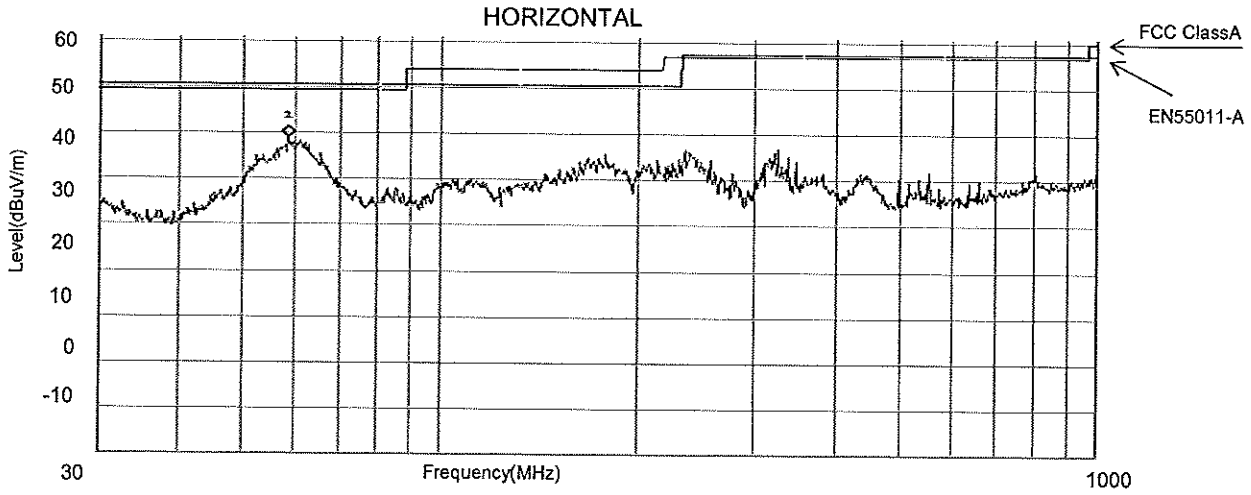
| Freq (MHz) | Peak Amp (dBuV/m) | QP Amp (dBuV/m) | Limit (dBuV/m) | QP margin (dB) | Polariz.   |
|------------|-------------------|-----------------|----------------|----------------|------------|
| 57.8       | 40.5              | 38.1            | 49.5(FCC)      | 11.4           | Vertical   |
| 57.8       | 40.5              | 38.1            | 50.5(EN)       | 12.4           | Vertical   |
| 63.0       | 40.5              | 38.3            | 54(FCC)        | 15.7           | Horizontal |
| 63.0       | 40.5              | 38.3            | 50.5(EN)       | 12.2           | Horizontal |

Limit of EN55011-A, EN55022-A are the same

2.2 Radiated Emission

Z100-6

Conditions: Vin: 230VAC  
 Vout: 100%  
 Iout: 100%  
 Ta: 25°C



| Freq (MHz) | Peak Amp (dBuV/m) | QP Amp (dBuV/m) | Limit (dBuV/m) | QP margin (dB) | Polariz.   |
|------------|-------------------|-----------------|----------------|----------------|------------|
| 57.4       | 37.7              | 35.2            | 49.5(FCC)      | 14.3           | Vertical   |
| 57.4       | 37.7              | 35.2            | 50.5(EN)       | 15.3           | Vertical   |
| 58.3       | 38.9              | 36.8            | 49.5(FCC)      | 12.7           | Horizontal |
| 58.3       | 38.9              | 36.8            | 50.5(EN)       | 13.7           | Horizontal |

Limit of EN55011-A, EN55022-A are the same