



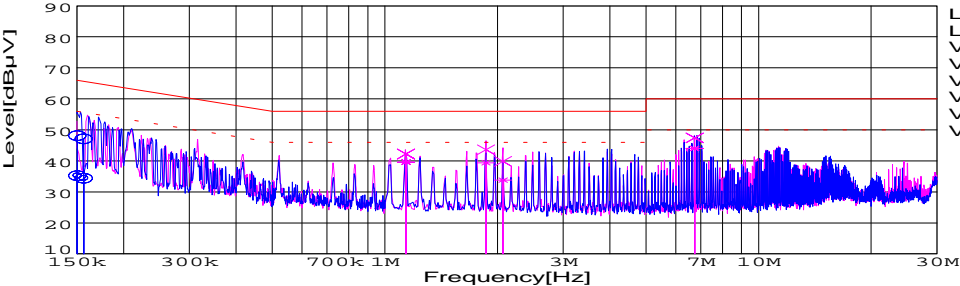
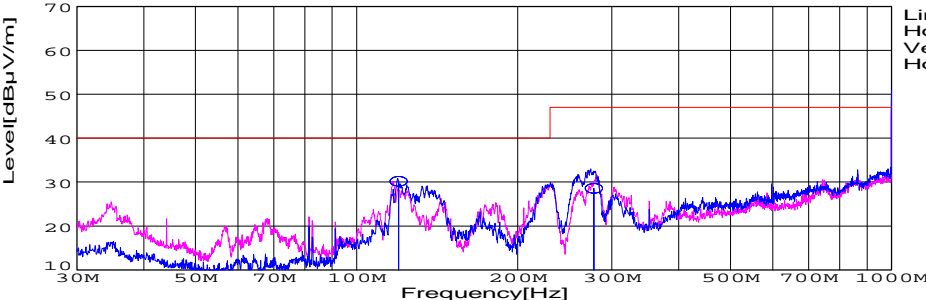
PBA15F EMI/EMS Test result

November 8, 2005
Design engineering dep.

Approved : *K. Hoshino*

Prepared : *Yoshiki Shimizu*

No.	Test item	Conditions	Conditions of Acceptability	Result
1	Line conduction	(1) Rated input(AC100V,120V,230V) (2) Rated load (3) Ambient temp. $25 \pm 10^{\circ}\text{C}$	(1)Meets the undermentioned standard. FCC Part15 classB , VCCI classB CISPR22 classB , EN55022-B EN55011-B	OK
2	Radiated emission	(1) Rated input(AC100V,120V,230V) (2) Rated load (3) Ambient temp. $25 \pm 10^{\circ}\text{C}$	(1)Meets the undermentioned standard. FCC Part15 classB , VCCI classB CISPR22 classB , EN55022-B EN55011-B	OK
3	Harmonic current (EN61000-3-2)	(1) Rated input (AC100V,230V) (2) Load 0 - Rated load (3) Ambient temp. $25 \pm 10^{\circ}\text{C}$	(1)Meets the undermentioned standard. EN61000-3-2 classA	OK
4	Static electricity immunity test (EN61000-4-2)	(1) Rated input (AC230V) (2) Rated load (3) Ambient temp. $25 \pm 10^{\circ}\text{C}$ (4) Contact discharge voltage 8[kV] (Level 4)	(1)No protection circuit failure. (2)No output voltage drop with control circuit failure. (3)No any other function failure	OK
5	Radiated, radio-frequency, electromagnetic field immunity test (EN61000-4-3)	(1) Rated input (AC230V) (2) Rated load (3) Ambient temp. $25 \pm 10^{\circ}\text{C}$ (4)Testing field strength 10[V/m] (Level 3)	(1)No protection circuit failure. (2)No output voltage drop with control circuit failure. (3)No any other function failure	OK
6	Electrical fast transient/ burst immunity test (EN61000-4-4)	(1) Rated input (AC230V) (2) Rated load (3) Ambient temp. $25 \pm 10^{\circ}\text{C}$ (4) Test peak voltage 4[kV] (Level 4)	(1)No protection circuit failure. (2)No output voltage drop with control circuit failure. (3)No any other function failure	OK
7	Surge immunity test (EN61000-4-5)	(1) Rated input (AC230V) (2) Rated load (3) Ambient temp. $25 \pm 10^{\circ}\text{C}$ (4) Test voltage Line to line 2[kV] (Level 3) Line to earth 4[kV] (Level 4)	(1)The power supply is not stop (2)Circuit does not malfunction. (3)No abnormality of the insulation destruction etc. (4)Parts are no damaged.	OK
8	Immunity to conducted disturbances, induced by radio-frequency fields (EN61000-4-6)	(1) Rated input (AC230V) (2) Rated load (3) Ambient temp. $25 \pm 10^{\circ}\text{C}$ (4) Voltage level (e.m.f.) 10[V] (Level 3)	(1)No protection circuit failure. (2)No output voltage drop with control circuit failure. (3)No any other function failure	OK
9	Power frequency magnetic field immunity test (EN61000-4-8)	(1) Rated input (AC230V) (2) Rated load (3) Ambient temp. $25 \pm 10^{\circ}\text{C}$ (4) Magnetic field strength 30[A/m] (Level 4)	(1)No protection circuit failure. (2)No output voltage drop with control circuit failure. (3)No any other function failure	OK
10	Voltage dips, short interruptions and voltage variations immunity test (EN61000-4-11)	(1) Rated input (AC230V) •30% reduction at 10mS min. •60% reduction at 100mS min •95% reduction at 5S min. • $\pm 10\%$ variation at 15 minutes (2) Rated load (3) Ambient temp. $25 \pm 10^{\circ}\text{C}$	(1)No protection circuit failure. (2)No output voltage drop with control circuit failure. (3)No any other function failure	OK

DATA SHEET							Date	06-May-05																																																																															
Model	PBA15F-9						Temp.	25 degreeC																																																																															
Test	EMI Line conduction & Radiated emission						Humid.	45 %RH																																																																															
							Tested by	K.Kosugi																																																																															
LINE CONDUCTION																																																																																							
Model Name : PBA15F-9			Temp. : 25 degreeC																																																																																				
Model No. :			Humi. : 45 %																																																																																				
Serial No. :			Date : 2005/5/6 11:16																																																																																				
Points : 6			Test Equip. : R3132,ESPC																																																																																				
Detector : PEAK/QP/Ave.			Load Line : 50 mm																																																																																				
Line Mode : VA/VB			Comment :																																																																																				
Power Supply : AC 230V 50Hz																																																																																							
Limit1: [EN 55022] Class B(QP)																																																																																							
Limit2: [EN 55022] Class B(Ave.)																																																																																							
							Limit1(QP) Limit2(Ave.) VA(PEAK) VB(PEAK) VA(QP) VA(Ave.) VB(QP) VB(Ave.)																																																																																
							AC230V 50Hz +9V 1.7A																																																																																
<table><tr><th>Frequency [MHz]</th><th>Meter Reading (Ave.)[dBuV]</th><th>Meter Reading (QP)[dBuV]</th><th>Factor [dB]</th><th>Level(Ave.) [dBuV]</th><th>Level(QP) [dBuV]</th><th>Line</th><th>Limit(Ave.) [dBuV]</th><th>Limit(QP) [dBuV]</th><th>Margin(Ave.) [dB]</th><th>Margin(QP) [dB]</th></tr><tr><td>0.1505</td><td>25.2</td><td>38.1</td><td>10</td><td>35.2</td><td>48.1</td><td>VA</td><td>56</td><td>66</td><td>20.8</td><td>17.9</td></tr><tr><td>0.1565</td><td>24.5</td><td>37.1</td><td>10</td><td>34.5</td><td>47.1</td><td>VA</td><td>55.7</td><td>65.7</td><td>21.2</td><td>18.6</td></tr><tr><td>1.1399</td><td>29.5</td><td>32.1</td><td>10.1</td><td>39.6</td><td>42.2</td><td>VB</td><td>46</td><td>56</td><td>6.4</td><td>13.8</td></tr><tr><td>1.8644</td><td>29.2</td><td>33.4</td><td>10.2</td><td>39.4</td><td>43.6</td><td>VB</td><td>46</td><td>56</td><td>6.6</td><td>12.4</td></tr><tr><td>2.072</td><td>23.6</td><td>29.6</td><td>10.2</td><td>33.8</td><td>39.8</td><td>VB</td><td>46</td><td>56</td><td>12.2</td><td>16.2</td></tr><tr><td>6.7355</td><td>33.6</td><td>37</td><td>10.4</td><td>44</td><td>47.4</td><td>VB</td><td>50</td><td>60</td><td>6</td><td>12.6</td></tr></table>											Frequency [MHz]	Meter Reading (Ave.)[dBuV]	Meter Reading (QP)[dBuV]	Factor [dB]	Level(Ave.) [dBuV]	Level(QP) [dBuV]	Line	Limit(Ave.) [dBuV]	Limit(QP) [dBuV]	Margin(Ave.) [dB]	Margin(QP) [dB]	0.1505	25.2	38.1	10	35.2	48.1	VA	56	66	20.8	17.9	0.1565	24.5	37.1	10	34.5	47.1	VA	55.7	65.7	21.2	18.6	1.1399	29.5	32.1	10.1	39.6	42.2	VB	46	56	6.4	13.8	1.8644	29.2	33.4	10.2	39.4	43.6	VB	46	56	6.6	12.4	2.072	23.6	29.6	10.2	33.8	39.8	VB	46	56	12.2	16.2	6.7355	33.6	37	10.4	44	47.4	VB	50	60	6	12.6
Frequency [MHz]	Meter Reading (Ave.)[dBuV]	Meter Reading (QP)[dBuV]	Factor [dB]	Level(Ave.) [dBuV]	Level(QP) [dBuV]	Line	Limit(Ave.) [dBuV]	Limit(QP) [dBuV]	Margin(Ave.) [dB]	Margin(QP) [dB]																																																																													
0.1505	25.2	38.1	10	35.2	48.1	VA	56	66	20.8	17.9																																																																													
0.1565	24.5	37.1	10	34.5	47.1	VA	55.7	65.7	21.2	18.6																																																																													
1.1399	29.5	32.1	10.1	39.6	42.2	VB	46	56	6.4	13.8																																																																													
1.8644	29.2	33.4	10.2	39.4	43.6	VB	46	56	6.6	12.4																																																																													
2.072	23.6	29.6	10.2	33.8	39.8	VB	46	56	12.2	16.2																																																																													
6.7355	33.6	37	10.4	44	47.4	VB	50	60	6	12.6																																																																													
RADIATED EMISSION																																																																																							
Model Name : PBA15F-9			Temp. : 25 degreeC																																																																																				
Model No. :			Humi. : 45 %																																																																																				
Serial No. :			Date : 2005/5/10 18:21																																																																																				
Points : 2			Test Equip. : R3132,ESPC																																																																																				
Detector : PEAK/QP			Load Line : 50 mm																																																																																				
Polarization : Horizontal			Comment :																																																																																				
Power Supply : AC 230V 50Hz																																																																																							
Limit: [EN 55022] Class B<3m>																																																																																							
							Limit(QP) Horizontal(PEAK) Vertical(PEAK) Horizontal(QP)																																																																																
							AC230V 50Hz +9V 1.7A																																																																																
<table><tr><th>Frequency [MHz]</th><th>MeterReading (QP)[dBuV]</th><th>Ant. Type</th><th>Antenna Factor[dB/m]</th><th>Cable & Preamp[dB]</th><th>Level(QP) [dBuV/m]</th><th>Angle [°]</th><th>Height[cm]</th><th>Polar.</th><th>Limit [dBuV/m]</th><th>Margin [dB]</th></tr><tr><td>119.794</td><td>44.3</td><td>BL</td><td>11</td><td>-25.1</td><td>30.2</td><td>237</td><td>151</td><td>Hori.</td><td>40</td><td>9.8</td></tr><tr><td>277.762</td><td>39.9</td><td>BL</td><td>12.4</td><td>-23.7</td><td>28.6</td><td>226</td><td>116</td><td>Hori.</td><td>47</td><td>18.4</td></tr></table>											Frequency [MHz]	MeterReading (QP)[dBuV]	Ant. Type	Antenna Factor[dB/m]	Cable & Preamp[dB]	Level(QP) [dBuV/m]	Angle [°]	Height[cm]	Polar.	Limit [dBuV/m]	Margin [dB]	119.794	44.3	BL	11	-25.1	30.2	237	151	Hori.	40	9.8	277.762	39.9	BL	12.4	-23.7	28.6	226	116	Hori.	47	18.4																																												
Frequency [MHz]	MeterReading (QP)[dBuV]	Ant. Type	Antenna Factor[dB/m]	Cable & Preamp[dB]	Level(QP) [dBuV/m]	Angle [°]	Height[cm]	Polar.	Limit [dBuV/m]	Margin [dB]																																																																													
119.794	44.3	BL	11	-25.1	30.2	237	151	Hori.	40	9.8																																																																													
277.762	39.9	BL	12.4	-23.7	28.6	226	116	Hori.	47	18.4																																																																													