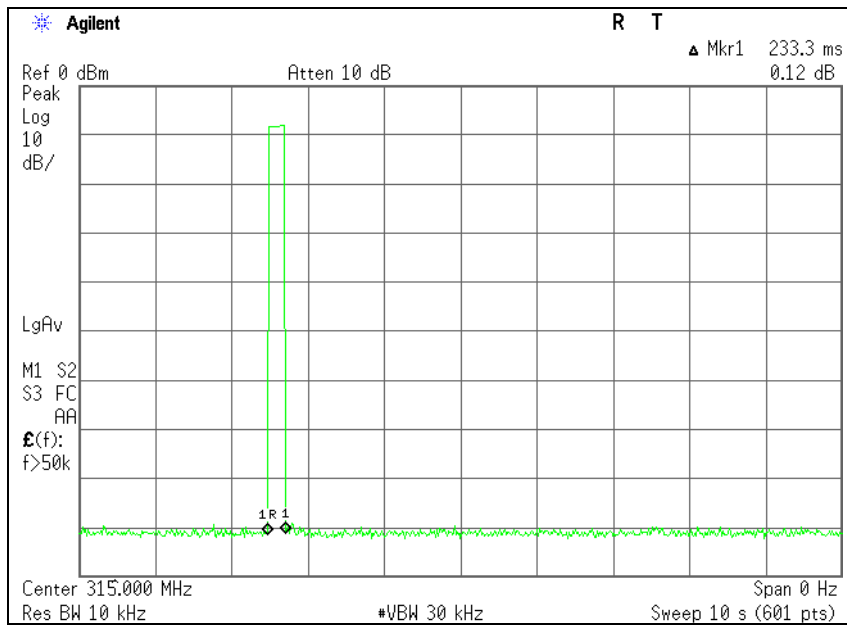


**APPENDIX 2: Data of EMI test**

**Automatically deactivate**

Test place Head Office EMC Lab. No.3 Semi Anechoic Chamber  
 Report No. 30CE0078-HO-01  
 Date 12/14/2009  
 Temperature/ Humidity 25 deg.C./ 32%  
 Engineer Norihisa Hashimoto  
 Mode Normal use mode

Time of Transmitting [sec]	Limit [sec]	Result
0.2333	5.00	Pass



## Radiated Emission (Electric Field Strength of Fundamental and Spurious Emission)

Test place Head Office EMC Lab. No.3 Semi Anechoic Chamber  
Report No. 30CE0078-HO-01  
Date 12/14/2009  
Temperature/ Humidity 25 deg.C./ 32%  
Engineer Norihisa Hashimoto  
Mode Continuous transmitting mode

**PK**

Frequency [MHz]	Detector	Reading [dBuV]		Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]		Limit [dBuV/m]	Margin [dB]		Remark Inside or Outside of Restricted Bands
		Hor	Ver					Hor	Ver		Hor	Ver	
315.000	PK	86.3	81.3	15.1	10.1	32.0	-	79.5	74.5	95.6	16.1	21.1	Carrier
630.000	PK	51.2	51.7	20.4	10.3	28.7	-	53.2	53.7	75.6	22.4	21.9	Outside
945.000	PK	43.8	42.9	23.4	11.5	27.9	-	50.8	49.9	75.6	24.8	25.7	Outside
1260.000	PK	46.3	55.5	25.0	2.1	34.2	-	39.2	48.4	75.6	36.4	27.2	Outside
1575.000	PK	47.5	52.3	25.7	2.3	33.4	-	42.1	46.9	73.9	31.8	27.0	Inside
1890.000	PK	49.7	49.4	26.7	2.5	32.8	-	46.1	45.8	75.6	29.5	29.8	Outside
2205.000	PK	48.4	52.5	27.1	2.6	32.4	-	45.7	49.8	73.9	28.2	24.1	Inside
2520.000	PK	50.6	52.6	27.3	2.8	32.2	-	48.5	50.5	75.6	27.1	25.1	Outside
2835.000	PK	57.7	56.9	27.7	3.0	32.1	-	56.3	55.5	73.9	17.6	18.4	Inside
3150.000	PK	52.7	59.3	28.3	3.1	31.9	-	52.2	58.8	75.6	23.4	16.8	Outside

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter) - Gain(Amplifier)

**PK with Duty factor**

Frequency [MHz]	Detector	Reading [dBuV]		Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]		Limit [dBuV/m]	Margin [dB]		Remark
		Hor	Ver					Hor	Ver		Hor	Ver	
315.000	PK	86.3	81.3	15.1	10.1	32.0	-5.7	73.8	68.8	75.6	1.8	6.8	Carrier
630.000	PK	51.2	51.7	20.4	10.3	28.7	-5.7	47.5	48.0	55.6	8.1	7.6	Outside
945.000	PK	43.8	42.9	23.4	11.5	27.9	-5.7	45.1	44.2	55.6	10.5	11.4	Outside
1260.000	PK	46.3	55.5	25.0	2.1	34.2	-5.7	33.5	42.7	55.6	22.1	12.9	Outside
1575.000	PK	47.5	52.3	25.7	2.3	33.4	-5.7	36.4	41.2	53.9	17.5	12.7	Inside
1890.000	PK	49.7	49.4	26.7	2.5	32.8	-5.7	40.4	40.1	55.6	15.2	15.5	Outside
2205.000	PK	48.4	52.5	27.1	2.6	32.4	-5.7	40.0	44.1	53.9	13.9	9.8	Inside
2520.000	PK	50.6	52.6	27.3	2.8	32.2	-5.7	42.8	44.8	55.6	12.8	10.8	Outside
2835.000	PK	57.7	56.9	27.7	3.0	32.1	-5.7	50.6	49.8	53.9	3.3	4.1	Inside
3150.000	PK	52.7	59.3	28.3	3.1	31.9	-5.7	46.5	53.1	55.6	9.1	2.5	Outside

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter) - Gain(Amplifier) + Duty factor (Refer to Duty factor data sheet)

\*Other frequency noises omitted in this report were not seen or had enough margin (more than 20dB).

- \* The test above 1GHz was performed with PK detect. Average emission measurements were calculated with PK detect and Duty cycle factor.
- \* Duty Factor was calculated with the assumption of the worst condition in 100msec.
- \* All the measured noise was pulse emission.

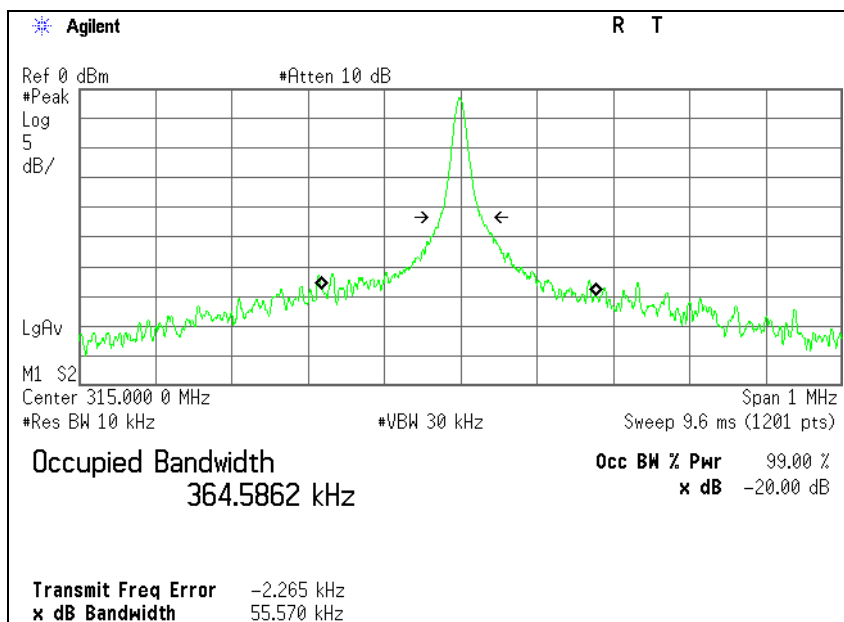
### **-20dB and 99% Occupied Bandwidth**

Test place Head Office EMC Lab. No.3 Semi Anechoic Chamber  
Report No. 30CE0078-HO-01  
Date 12/14/2009  
Temperature/ Humidity 25 deg.C./ 32%  
Engineer Norihisa Hashimoto  
Mode Normal use mode

Bandwidth Limit : Fundamental Frequency  $315 \text{ MHz} \times 0.25\% = 787.50 \text{ kHz}$

-20dB Bandwidth [kHz]	Bandwidth Limit [kHz]	Result
55.57	787.50	Pass

99% Occupied Bandwidth [kHz]	Bandwidth Limit [kHz]	Result
364.59	787.50	Pass



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### Duty Cycle

Test place                      Head Office EMC Lab. No.3 Semi Anechoic Chamber  
Report No.                      30CE0078-HO-01  
Date                              12/14/2009  
Temperature/ Humidity        25 deg.C./ 32%  
Engineer                        Norihisa Hashimoto  
Mode                              Normal use mode

ON Time one pulse		ON time(5ms)	ON time(in 100ms)
Times	[us]	[ms]	[ms]
10	258.3	2.583	51.66

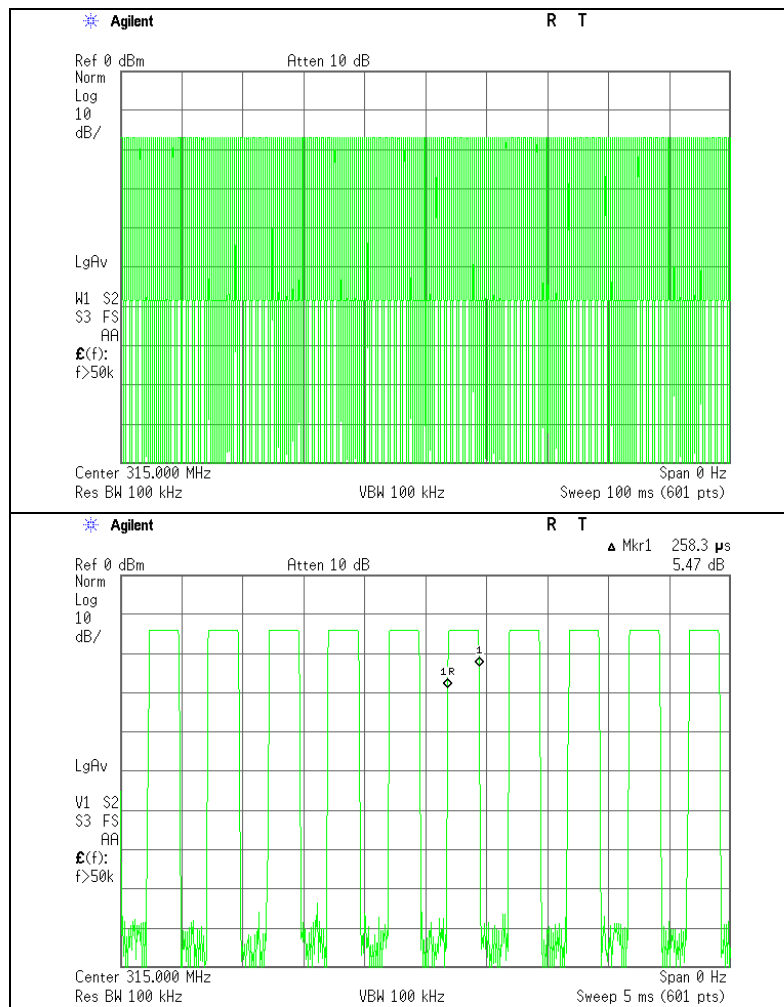
\*1)ON time(in 100ms) = Times \* ON time(One pulse)

\*2)The train of pulses was exceeding 100msec, and that sampled 100msec was the worst case against the puls

**(Total)**

ON time [ms]	Cycle [ms]	Duty (On time/Cycle)	Duty [dB]
51.66	100.00	0.52	-5.7

\*3)ON time = Type A's ON time (in 100ms) + Type B's ON time (in 100ms)



### **APPENDIX 3:Test Instruments**

#### **EMI test equipment**

Control No.	Instrument	Manufacturer	Model No	Serial No	Test Item	Calibration Date * Interval(month)
MAEC-03	Semi Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 3m	DA-10005	RE	2009/02/02 * 12
MOS-13	Thermo-Hygrometer	Custom	CTH-180	-	RE	2009/02/06 * 12
MJM-06	Measure	PROMART	SEN1955	-	RE	-
COTS-MEMI	EMI measurement program	TSJ	TEPTO-DV	-	RE	-
MSA-04	Spectrum Analyzer	Agilent	E4448A	US44300523	RE	2009/08/25 * 12
MTR-08	Test Receiver	Rohde & Schwarz	ESCI	100767	RE	2009/06/30 * 12
MBA-03	Biconical Antenna	Schwarzbeck	BBA9106	1915	RE	2009/01/19 * 12
MLA-03	Logperiodic Antenna	Schwarzbeck	USLP9143	174	RE	2009/01/10 * 12
MCC-51	Coaxial cable	UL Japan	-	-	RE	2009/07/02 * 12
MAT-09	Attenuator(6dB)	Weinschel Corp	2	BK7973	RE	2009/11/12 * 12
MPA-13	Pre Amplifier	SONOMA INSTRUMENT	310	260834	RE	2009/03/18 * 12
MHA-20	Horn Antenna 1-18GHz	Schwarzbeck	BBHA9120D	258	RE	2009/04/30 * 12
MCC-56	Microwave Cable 1G-26.5GHz	Suhner	SUCOFLEX104	174410(1m) / 284655(5m)	RE	2009/01/07 * 12
MPA-11	MicroWave System Amplifier	Agilent	83017A	MY39500779	RE	2009/03/19 * 12
MAEC-02	Semi Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 3m	DA-06902	RE	2009/08/17 * 12
MOS-22	Thermo-Hygrometer	Custom	CTH-201	0003	RE	2009/02/05 * 12
MJM-05	Measure	PROMART	SEN1955	-	RE	-
MSA-03	Spectrum Analyzer	Agilent	E4448A	MY44020357	RE	2009/11/20 * 12
MTR-03	Test Receiver	Rohde & Schwarz	ESCI	100300	RE	2009/04/14 * 12
MLA-02	Logperiodic Antenna	Schwarzbeck	USLP9143	201	RE	2009/10/05 * 12
MCC-13	Coaxial Cable	Fujikura	3D-2W(12m)/5D-2W(5m)/5D-2W(0.8m)/5D-2W(1m)	-	RE	2009/02/16 * 12
MPA-09	Pre Amplifier	Agilent	8447D	2944A10845	RE	2009/09/02 * 12
MAT-07	Attenuator(6dB)	Weinschel Corp	2	BK7970	RE	2009/11/12 * 12

**The expiration date of the calibration is the end of the expired month.**

**All equipment is calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.**

**As for some calibrations performed after the tested dates, those test equipment have been controlled by means of an unbroken chains of calibrations.**

#### **Test Item:**

**RE: Radiated emission, 99% Occupied Bandwidth, -20dB bandwidth , Automatically deactivate and Duty cycle tests**

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