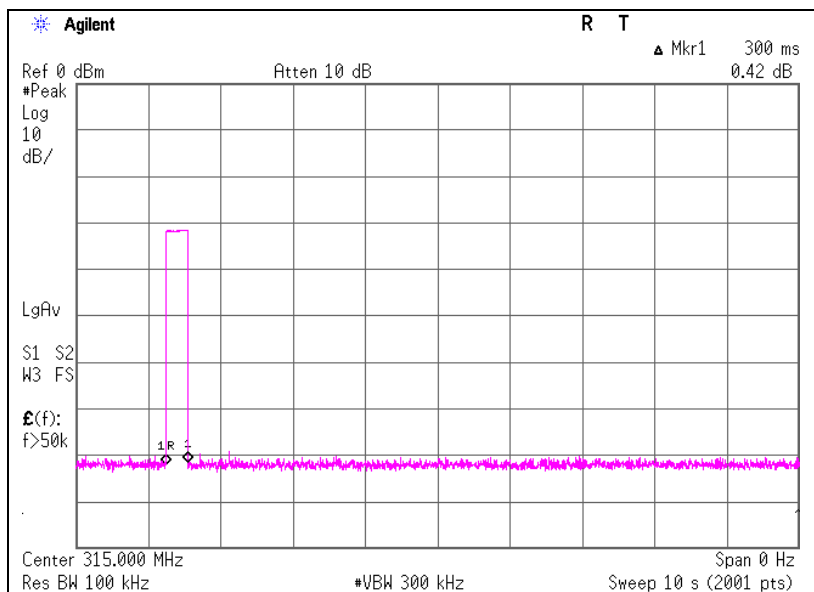


APPENDIX 2: Data of EMI test

Automatically deactivate

Test place : Head Office EMC Lab. No.3 Semi Anechoic Chamber
 Report No. : 31EE0173-HO-01
 Date : 02/17/2011
 Temperature/ Humidity : 23 deg.C./ 31%
 Engineer : Tomohisa Nakagawa
 Mode : Normal use mode

Time of Transmitting [sec]	Limit [sec]	Result
0.300	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. : 31EE0173-HO-01
Date : 02/17/2011
Temperature/ Humidity : 23 deg.C./ 31%
Engineer : Tomohisa Nakagawa
Mode : 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	81.1	76.5	15.6	10.0	31.8	-	74.9	70.3	95.6	20.7	25.3	Carrier
630.000	PK	35.5	31.4	19.7	11.9	32.0	-	35.1	31.0	75.6	40.5	44.6	Outside
945.000	PK	35.2	31.5	22.7	13.5	30.8	-	40.6	36.9	75.6	35.0	38.7	Outside
1260.000	PK	59.0	61.0	26.0	2.0	34.4	-	52.6	54.6	75.6	23.0	21.0	Outside
1575.000	PK	58.2	61.4	27.1	2.0	33.6	-	53.7	56.9	73.9	20.2	17.0	Inside
1890.000	PK	53.5	51.2	27.9	2.1	32.9	-	50.6	48.3	75.6	25.0	27.3	Outside
2205.000	PK	57.3	54.3	27.9	2.2	32.6	-	54.8	51.8	73.9	19.1	22.1	Inside
2520.000	PK	56.4	51.8	27.7	2.3	32.4	-	54.0	49.4	75.6	21.6	26.2	Outside
2835.000	PK	55.0	53.1	28.6	2.5	32.2	-	53.9	52.0	73.9	20.0	21.9	Inside
3150.000	PK	57.0	54.8	29.4	2.6	32.1	-	56.9	54.7	75.6	18.7	20.9	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	81.1	76.5	15.6	10.0	31.8	-5.4	69.5	64.9	75.6	6.1	10.7	Carrier
630.000	PK	35.5	31.4	19.7	11.9	32.0	-5.4	29.7	25.6	55.6	25.9	30.0	Outside
945.000	PK	35.2	31.5	22.7	13.5	30.8	-5.4	35.2	31.5	55.6	20.4	24.1	Outside
1260.000	PK	59.0	61.0	26.0	2.0	34.4	-5.4	47.2	49.2	55.6	8.4	6.4	Outside
1575.000	PK	58.2	61.4	27.1	2.0	33.6	-5.4	48.3	51.5	53.9	5.6	2.4	Inside
1890.000	PK	53.5	51.2	27.9	2.1	32.9	-5.4	45.2	42.9	55.6	10.4	12.7	Outside
2205.000	PK	57.3	54.3	27.9	2.2	32.6	-5.4	49.4	46.4	53.9	4.5	7.5	Inside
2520.000	PK	56.4	51.8	27.7	2.3	32.4	-5.4	48.6	44.0	55.6	7.0	11.6	Outside
2835.000	PK	55.0	53.1	28.6	2.5	32.2	-5.4	48.5	46.6	53.9	5.4	7.3	Inside
3150.000	PK	57.0	54.8	29.4	2.6	32.1	-5.4	51.5	49.3	55.6	4.1	6.3	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.

* The noise measured with PK detect was pulse emission.

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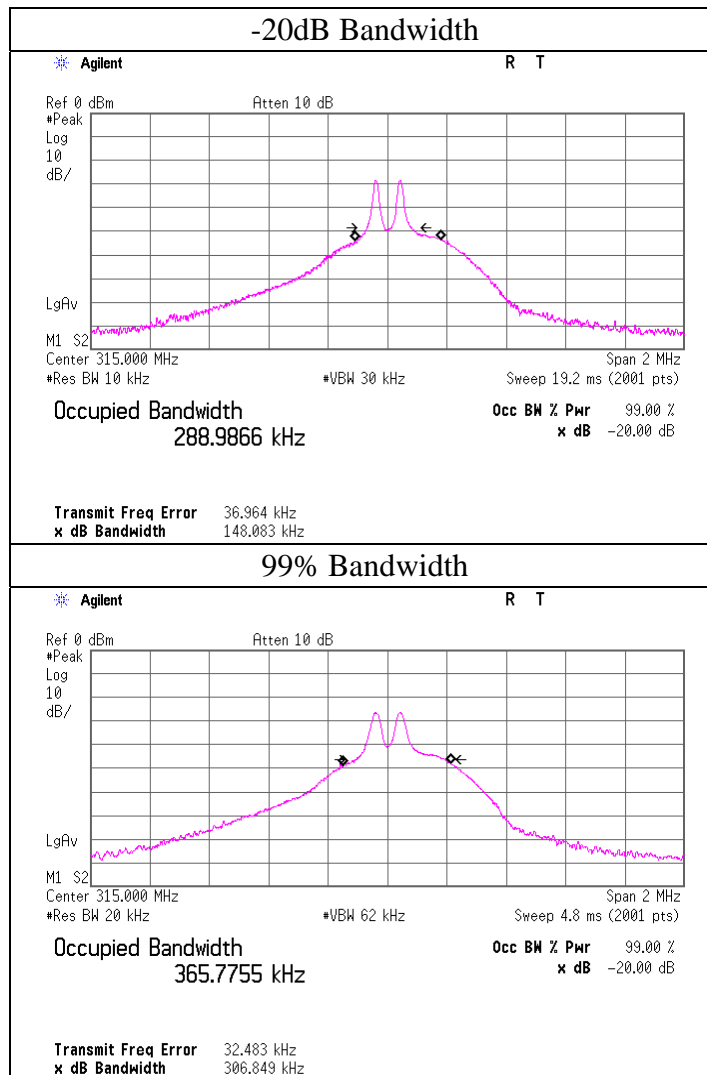
-20dB and 99% Occupied Bandwidth

Test place Head Office EMC Lab. No.3 Semi Anechoic Chamber
 Report No. 31EE0173-HO-01
 Date 02/17/2011
 Temperature/ Humidity 23 deg.C./ 31%
 Engineer Tomohisa Nakagawa
 Mode Transmitting mode

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

-20dB Bandwidth [kHz]	Bandwidth Limit [kHz]	Result
148.08	787.50	Pass

99% Occupied Bandwidth [kHz]	Bandwidth Limit [kHz]	Result
365.78	787.50	Pass



Duty Cycle

Test place Head Office EMC Lab. No.3 Semi Anechoic Chamber
Report No. 31EE0173-HO-01
Date 02/17/2011
Temperature/ Humidity 23 deg.C./ 31%
Engineer Tomohisa Nakagawa
Mode Normal use mode

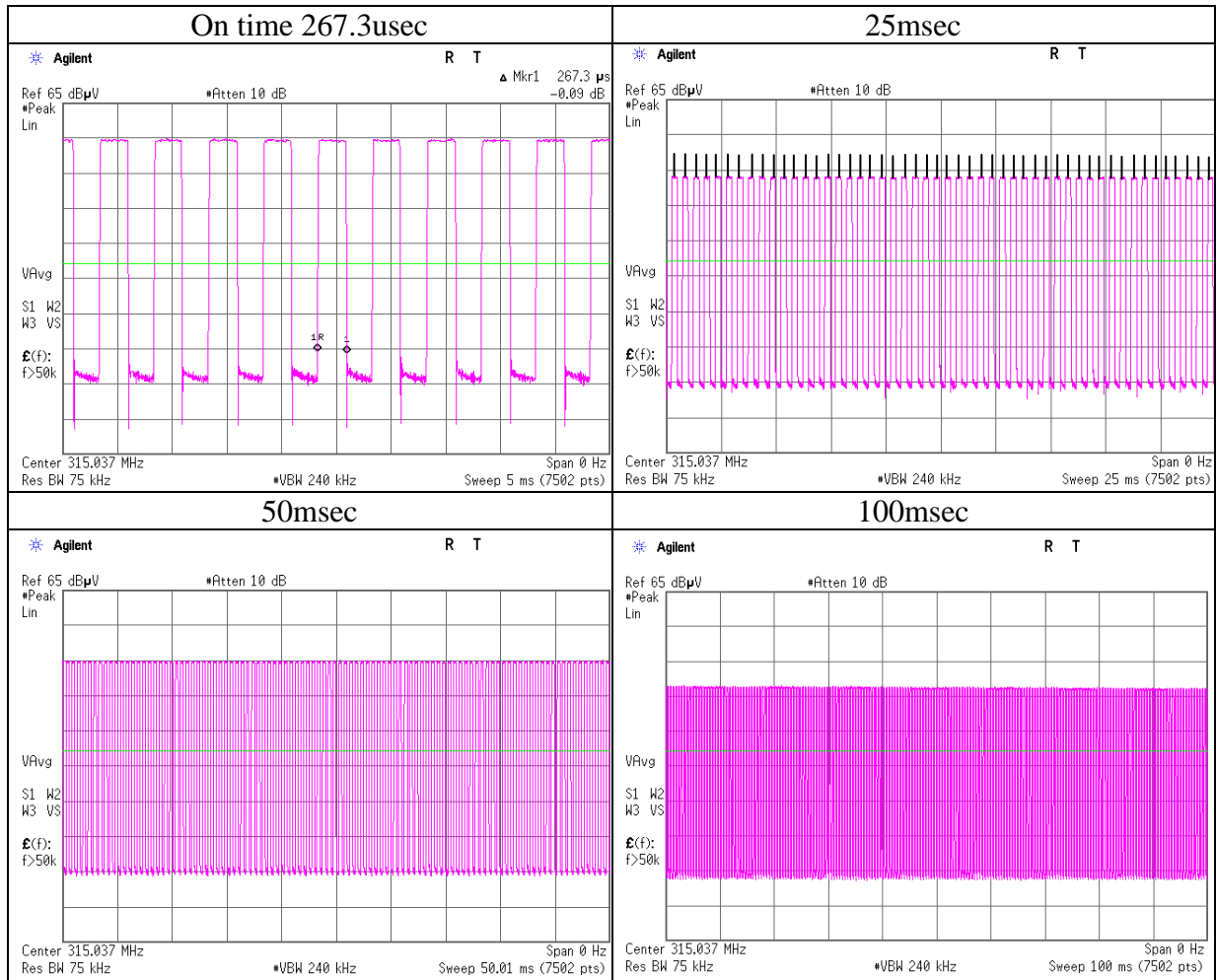
Times (in 25msec)	ON time(One pulse) [ms]	ON time(in 100ms) [ms]
50	0.267	53.460

*1)ON time(in 100ms) = Times * ON time(One pulse) * 4

ON time [ms]	Cycle [ms]	Duty (On time/Cycle)	Duty [dB]
53.460	100.00	0.53	-5.4

*2) Duty = 20 log (On time/Cycle)

Duty Cycle



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	2010/02/01 * 12
MOS-13	Thermo-Hygrometer	Custom	CTH-180	-	RE	2010/02/09 * 12
MJM-06	Measure	PROMART	SEN1955	-	RE	-
COTS-MEMI	EMI measurement program	TSJ	TEPTO-DV	-	RE	-
MSA-03	Spectrum Analyzer	Agilent	E4448A	MY44020357	RE	2010/11/30 * 12
MTR-08	Test Receiver	Rohde & Schwarz	ESCI	100767	RE	2010/08/23 * 12
MBA-03	Biconical Antenna	Schwarzbeck	BBA9106	1915	RE	2010/10/11 * 12
MLA-03	Logperiodic Antenna	Schwarzbeck	USLP9143	174	RE	2010/10/11 * 12
MCC-51	Coaxial cable	UL Japan	-	-	RE	2010/07/06 * 12
MAT-09	Attenuator(6dB)	Weinschel Corp	2	BK7973	RE	2010/11/05 * 12
MPA-13	Pre Amplifier	SONOMA INSTRUMENT	310	260834	RE	2010/03/23 * 12
MHA-20	Horn Antenna 1-18GHz	Schwarzbeck	BBHA9120D	258	RE	2010/05/07 * 12
MCC-58	Microwave Cable	Suhner	SUCOFLEX104	246770(1m) / 250655(5m)	RE	2010/03/03 * 12
MPA-11	MicroWave System Amplifier	Agilent	83017A	MY39500779	RE	2010/03/03 * 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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