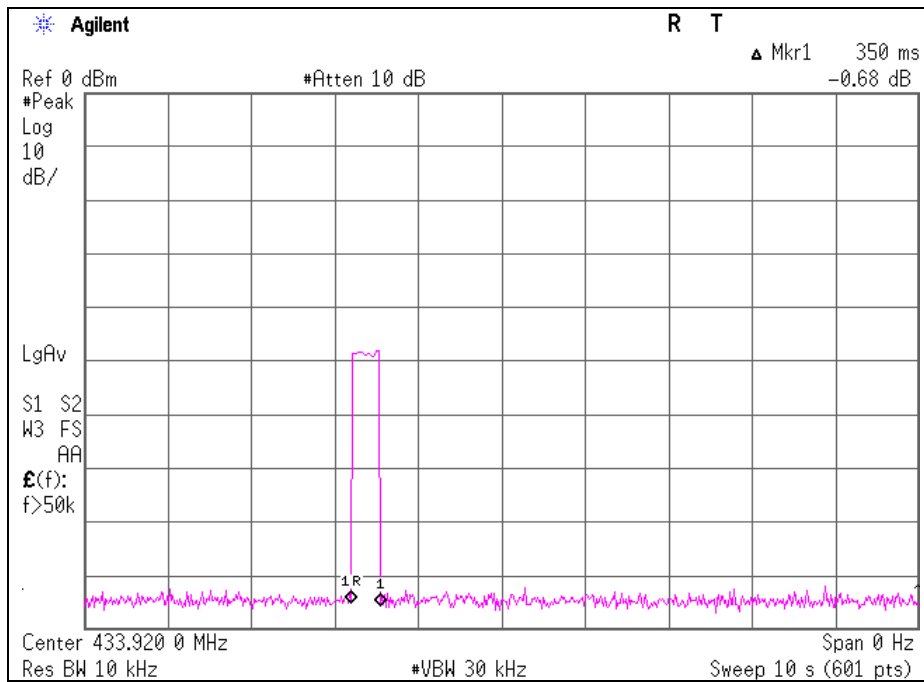


APPENDIX 2: Data of EMI test

Automatically deactivate

Test place Head Office EMC Lab. No.2 Semi Anechoic Chamber
Report No. 30CE0131-HO-01-A
Date 11/06/2009
Temperature/ Humidity 21 deg.C./ 46%
Engineer Takumi Shimada
Mode Normal use mode

Time of Transmitting [sec]	Limit [sec]	Result
0.35	5.00	Pass



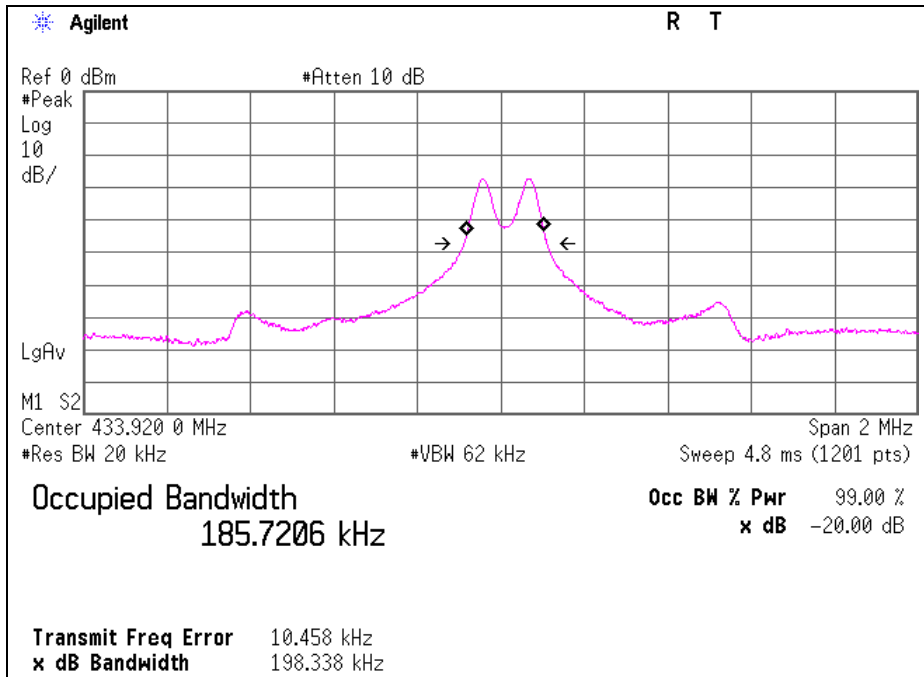
-20dB and 99% Occupied Bandwidth

Test place Head Office EMC Lab. No.2 Semi Anechoic Chamber
Report No. 30CE0131-HO-01-A
Date 11/06/2009
Temperature/ Humidity 21 deg.C./ 46%
Engineer Takumi Shimada
Mode Transmitting mode

Bandwidth Limit : Fundamental Frequency $433.92 \text{ MHz} \times 0.25\% = 1084.80 \text{ kHz}$

-20dB Bandwidth [kHz]	Bandwidth Limit [kHz]	Result
198.34	1084.80	Pass

99 % Occupied Bandwidth [kHz]	Bandwidth Limit [kHz]	Result
185.72	1084.80	Pass



Duty Cycle

Test place	Head Office EMC Lab. No.2 Semi Anechoic Chamber
Report No.	30CE0131-HO-01-A
Date	11/06/2009
Temperature/ Humidity	21 deg.C./ 46%
Engineer	Takumi Shimada
Mode	Transmitting mode

ON time(One pulse)		ON time(in 20ms)	ON time(in 100ms)
Times	[ms]	[ms]	[ms]
50	0.353	17.64	88.2

*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 pulse train.

(Total)

ON time [ms]	Cycle [ms]	Duty (On time/Cycle)	Duty [dB]
88.20	100.00	0.88	-1.1

*3)ON time = ON time (in 100ms)

*4)Duty = $20\log_{10}(\text{ON time}/\text{Cycle})$

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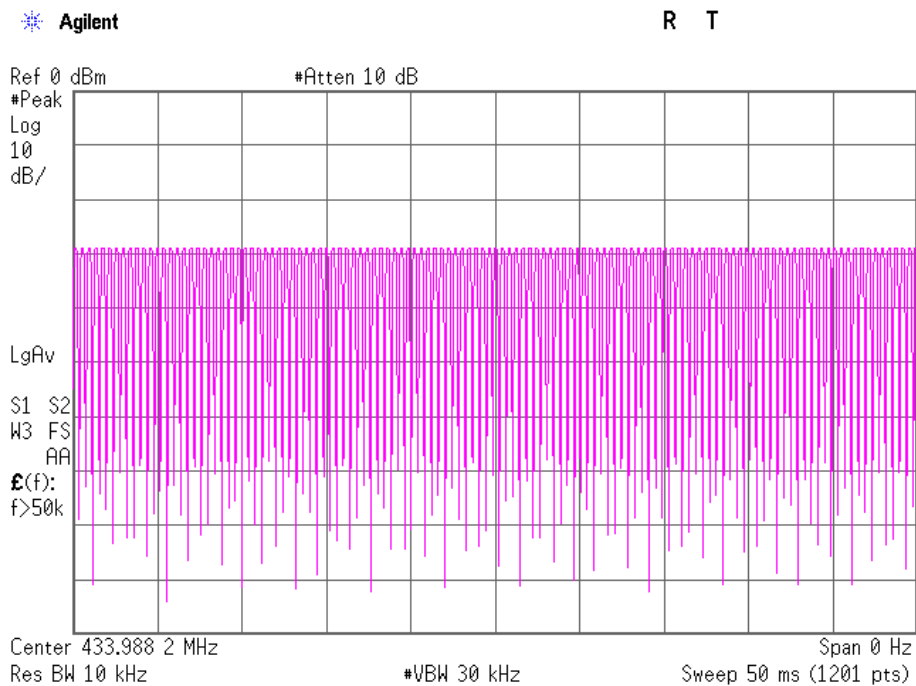
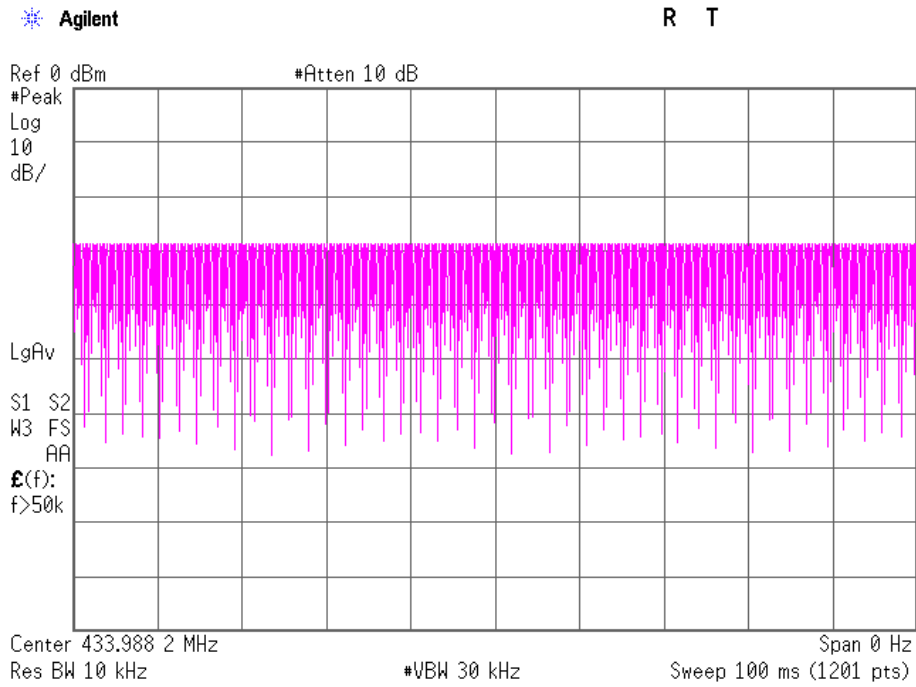
Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8116

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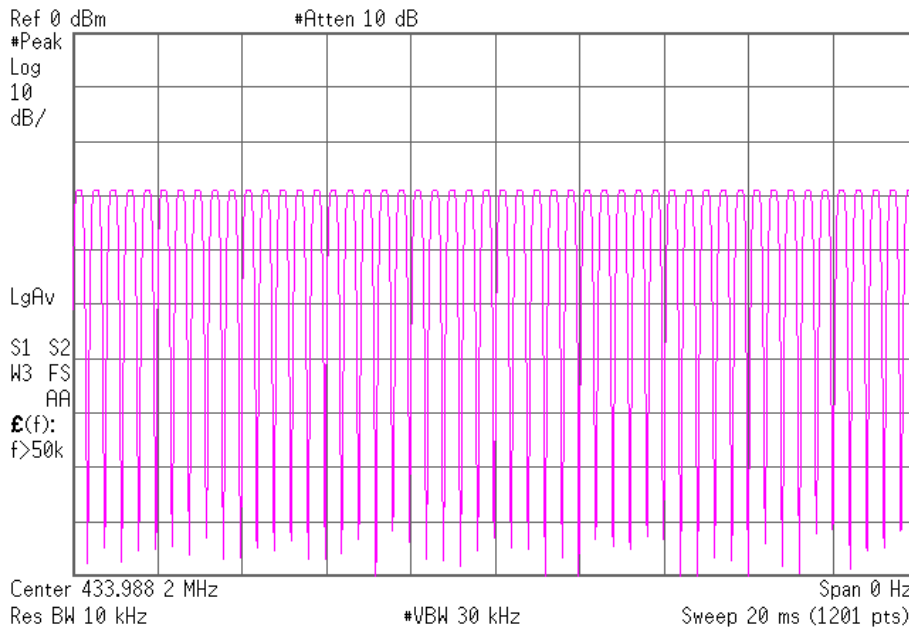
Duty Cycle



Duty Cycle

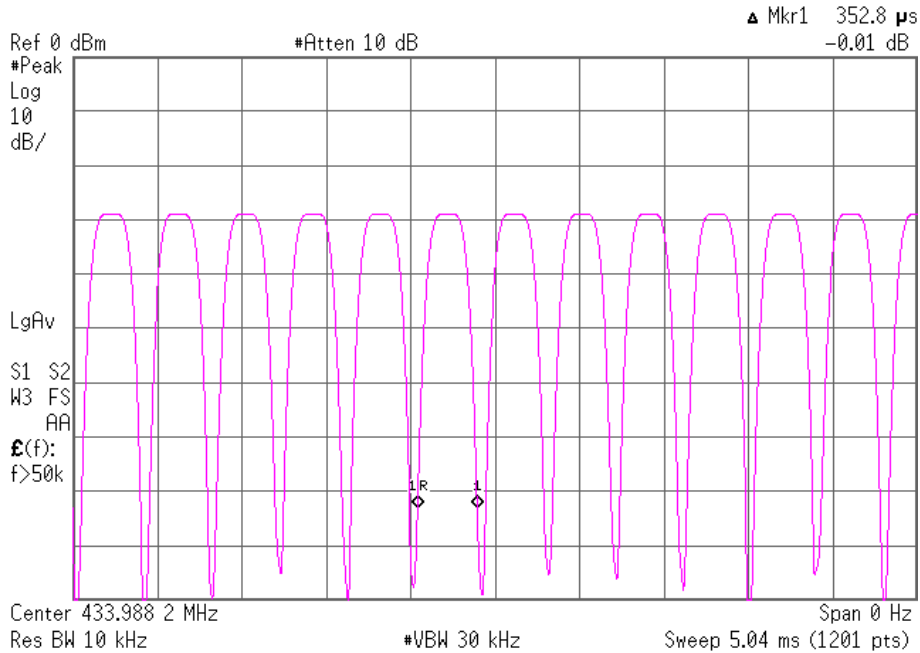
Agilent

R T



Agilent

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Receiver Spurious Emission

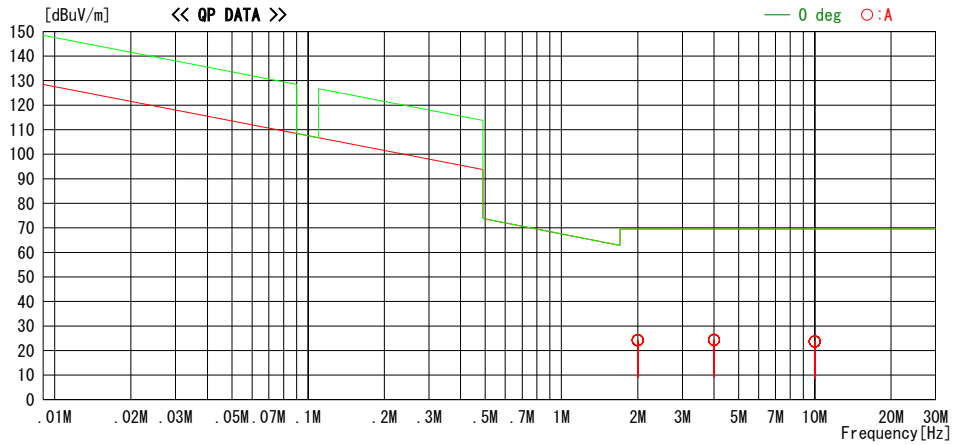
DATA OF RADIATED EMISSION

UL Japan, Inc. Head Office EMC Lab. No.2 Semi Anechoic Chamber
Date : 2009/11/06

Report No. : 30CE0131-HO-01
Power : DC 3.0 V
Operator : Takumi Shimada

Mode / Remarks : LF Receive mode

LIMIT : FCC15.209 (a) 3m, 9-90kHz:AV, 110-490kHz:AV, other:QP
FCC15.209 (a) 3m, 9-90kHz:PK, 110-490kHz:PK, other:QP



Freq.	Reading	DET	Ant. Fac	Loss	Gain	Result	Limit	Margin	Antenna	Table	Comment
[MHz]	[dBuV]		[dB/m]	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	[deg]	[deg]	
2.00000	36.6	QP	19.4	0.4	32.2	24.2	69.5	45.3	0	A	359
2.00000	36.5	QP	19.4	0.4	32.2	24.1	69.5	45.4	45	A	359
2.00000	36.5	QP	19.4	0.4	32.2	24.1	69.5	45.4	90	A	359
2.00000	36.6	QP	19.4	0.4	32.2	24.2	69.5	45.3	135	A	359
2.00000	36.6	QP	19.4	0.4	32.2	24.2	69.5	45.3	0	A	359 Loop Ant Hor
4.00000	36.3	QP	19.7	0.6	32.2	24.4	69.5	45.1	0	A	359
4.00000	36.3	QP	19.7	0.6	32.2	24.4	69.5	45.1	45	A	359
4.00000	36.2	QP	19.7	0.6	32.2	24.3	69.5	45.2	90	A	359
4.00000	36.3	QP	19.7	0.6	32.2	24.4	69.5	45.1	135	A	359
4.00000	36.2	QP	19.7	0.6	32.2	24.3	69.5	45.2	0	A	359 Loop Ant Hor
10.00000	35.3	QP	19.7	0.9	32.2	23.7	69.5	45.8	0	A	359
10.00000	35.3	QP	19.7	0.9	32.2	23.7	69.5	45.8	45	A	359
10.00000	35.2	QP	19.7	0.9	32.2	23.6	69.5	45.9	90	A	359
10.00000	35.2	QP	19.7	0.9	32.2	23.6	69.5	45.9	135	A	359
10.00000	35.3	QP	19.7	0.9	32.2	23.7	69.5	45.8	0	A	359 Loop Ant Hor

CHART : WITH FACTOR , ANT TYPE : LOOP , Except for the data below : adequate margin data below the limits.
CALCULATION : READING + ANT FACTOR + LOSS (CABLE -AMP.)

Receiver Spurious Emission

DATA OF RADIATED EMISSION TEST

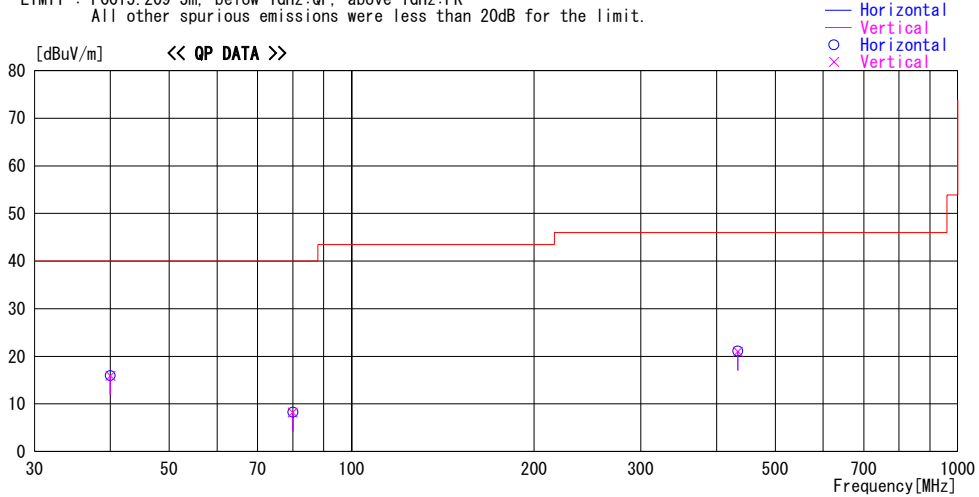
UL Japan, Inc. Head Office EMC Lab. No.2 Semi Anechoic Chamber
Date : 2009/11/06

Report No. : 30CE0131-HO-01
Power : DC 3.0 V

Engineer : Takumi Shimada

Mode / Remarks : LF Receive mode

LIMIT : FCC15.209 3m. below 1GHz:QP, above 1GHz:PK
All other spurious emissions were less than 20dB for the limit.



Frequency [MHz]	Reading [dBuV]	DET	Antenna	Loss&	Level [dBuV/m]	Angle [Deg]	Height [cm]	Polar.	Limit [dBuV/m]	Margin [dB]	Comment
			Factor [dB/m]	Gain [dB]							
40.000	22.7	QP	15.0	-21.8	15.9	0	100	Hori.	40.0	24.1	NS
40.000	22.7	QP	15.0	-21.8	15.9	0	100	Vert.	40.0	24.1	NS
80.000	22.4	QP	7.0	-21.2	8.2	0	100	Hori.	40.0	31.8	NS
80.000	22.4	QP	7.0	-21.2	8.2	0	100	Vert.	40.0	31.8	NS
433.920	22.0	QP	18.1	-19.0	21.1	0	100	Hori.	46.0	24.9	NS
433.920	21.9	QP	18.1	-19.0	21.0	0	100	Vert.	46.0	25.0	NS

CHART: WITH FACTOR ANT TYPE: -30MHz: LOOP, 30-300MHz: BICONICAL, 300MHz-1000MHz: LOGPERIODIC, 1000MHz-: HORN
CALCULATION: RESULT = READING + ANT FACTOR + LOSS (CABLE+ATTEN.) - GAIN (AMP)
NS: No Signal detected

APPENDIX 3:Test Instruments

EMI test equipment

Control No.	Instrument	Manufacturer	Model No	Serial No	Test Item	Calibration Date * Interval(month)
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	-
COTS-MEMI	EMI measurement program	TSJ	TEPTO-DV	-	RE	-
MRENT-62	Spectrum Analyzer	Agilent	E4448A	MY46180856	RE	
MTR-03	Test Receiver	Rohde & Schwarz	ESCI	100300	RE	2009/04/14 * 12
MLPA-02	Loop Antenna	Rohde & Schwarz	HFH2-Z2	836553/009	RE	2008/11/14 * 12
MCC-13	Coaxial Cable	Fujikura	3D-2W(12m)/5D-2W(5m)/5D-2W(0.8m)/5D-2W(1m)	-	RE	2009/02/16 * 12
MCC-31	Coaxial cable	UL Japan	-	-	RE	2009/06/22 * 12
MPA-13	Pre Amplifier	SONOMA INSTRUMENT	310	260834	RE	2009/03/18 * 12
MSA-04	Spectrum Analyzer	Agilent	E4448A	US44300523	RE	2009/08/25 * 12
MBA-02	Biconical Antenna	Schwarzbeck	BBA9106	VHA91032008	RE	2009/10/05 * 12
MLA-02	Logperiodic Antenna	Schwarzbeck	USLP9143	201	RE	2009/10/05 * 12
MCC-12	Coaxial Cable	Fujikura/Agilent	-	-	RE	2009/02/16 * 12
MAT-07	Attenuator(6dB)	Weinschel Corp	2	BK7970	RE	2008/11/14 * 12
MPA-09	Pre Amplifier	Agilent	8447D	2944A10845	RE	2009/09/02 * 12
MHA-06	Horn Antenna 1-18GHz	Schwarzbeck	BBHA9120D	254	RE	2009/01/31 * 12
MCC-47	Microwave Cable 1G-26.5GHz	Suhner	SUCOFLEX104	295123(5m) / 287573(1m)	RE	2008/11/27 * 12
MPA-10	Pre Amplifier	Agilent	8449B	3008A02142	RE	2009/09/14 * 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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