APPENDIX 2: Data of EMI test

Conducted emission

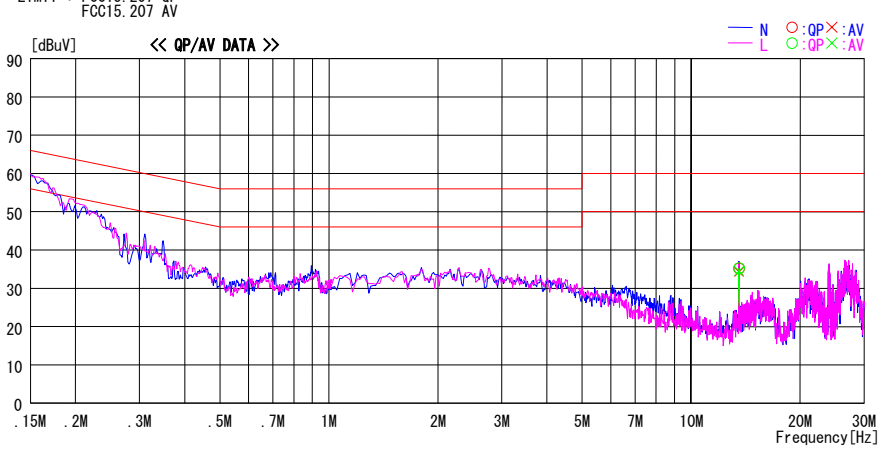
DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.2 Semi Anechoic Chamber
Date : 2009/12/21

Report No. : 30DE0252-HO-01
Temp./Humi. : 22deg.C / 31%
Engineer : Satofumi Matsuyama

Mode / Remarks : Transmitting (Tx and Rx) Without Tag (Antenna:50ohm terminated) mode

LIMIT : FCC15.207 QP
FCC15.207 AV



Frequency	Reading Level		Corr.	Results		Limit		Margin		Phase	Comment
	QP	AV	Factor	QP	AV	QP	AV	QP	AV		
[MHz]	[dBuV]	[dBuV]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dB]	[dB]		
13.56000	33.6	32.6	1.6	35.2	34.2	60.0	50.0	24.8	15.8	N	
13.56000	33.7	32.9	1.6	35.3	34.5	60.0	50.0	24.7	15.5	L	

CHART:WITH FACTOR,Peak hold data. CALCULATION:RESULT[dBuV]=READING[dBuV]+C.F[dB](LISN LOSS+CABLE LOSS)
Except for the above table : adequate margin data below the limits.

Conducted emission

DATA OF CONDUCTED EMISSION TEST

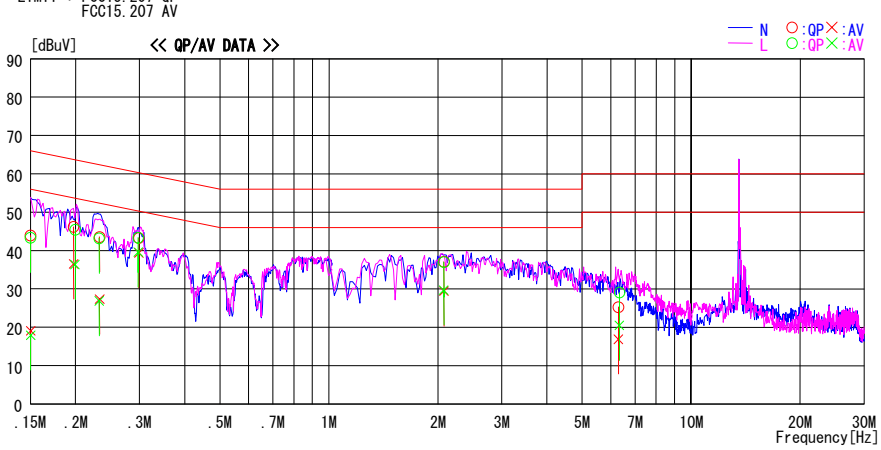
UL Japan, Inc. Head Office EMC Lab. No.3 Semi Anechoic Chamber
Date : 2009/12/18

Report No. : 30DE0252-HO-01

Temp./Humi. : 22deg.C / 34%
Engineer : Satofumi Matsuyama

Mode / Remarks : Transmitting (Tx and Rx) without Tag mode

LIMIT : FCC15.207 QP
FCC15.207 AV



Frequency	Reading Level		Corr.	Results		Limit		Margin		Phase	Comment
	QP	AV	Factor	QP	AV	QP	AV	QP	AV		
[MHz]	[dBuV]	[dBuV]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dB]	[dB]		
0.15000	43.6	18.8	0.3	43.9	19.1	66.0	56.0	22.1	36.9	N	
0.19720	45.9	36.2	0.3	46.2	36.5	63.7	53.7	17.5	17.2	N	
0.23270	43.3	27.0	0.3	43.6	27.3	62.4	52.4	18.8	25.1	N	
0.29864	43.0	39.1	0.3	43.3	39.4	60.3	50.3	17.0	10.9	N	
2.07825	36.7	29.0	0.4	37.1	29.4	56.0	46.0	18.9	16.6	N	
6.29961	24.5	16.1	0.8	25.3	16.9	60.0	50.0	34.7	33.1	N	
0.15000	43.1	17.6	0.3	43.4	17.9	66.0	56.0	22.6	38.1	L	
0.19918	45.2	36.0	0.3	45.5	36.3	63.6	53.6	18.1	17.3	L	
0.23236	42.9	26.6	0.3	43.2	26.9	62.4	52.4	19.2	25.5	L	
0.29744	43.1	39.3	0.3	43.4	39.6	60.3	50.3	16.9	10.7	L	
2.07504	36.6	29.3	0.4	37.0	29.7	56.0	46.0	19.0	16.3	L	
6.33723	28.3	19.7	0.8	29.1	20.5	60.0	50.0	30.9	29.5	L	

CHART:WITH FACTOR,Peak hold data. CALCULATION:RESULT[dBuV]=READING[dBuV]+C.F[dB](LISN LOSS+CABLE LOSS)
Except for the above table : adequate margin data below the limits.

Conducted emission

DATA OF CONDUCTED EMISSION TEST

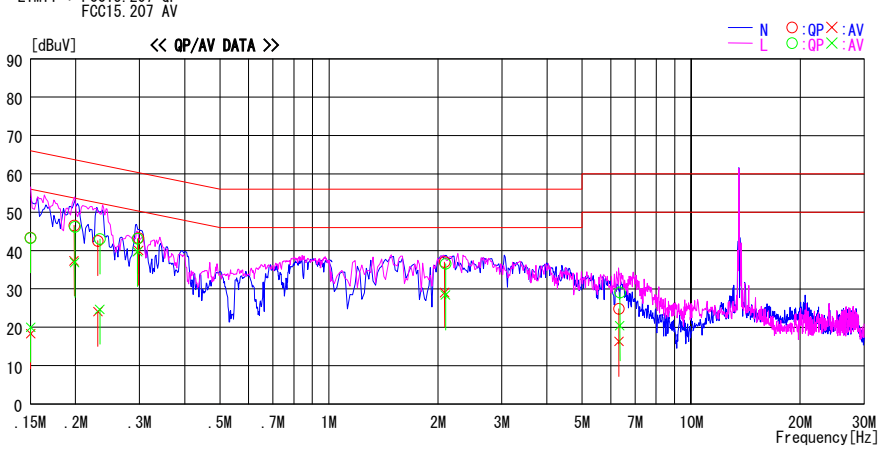
UL Japan, Inc. Head Office EMC Lab. No.3 Semi Anechoic Chamber
Date : 2009/12/18

Report No. : 30DE0252-HO-01

Temp./Humi. : 22deg.C / 34%
Engineer : Satofumi Matsuyama

Mode / Remarks : Transmitting (Tx and Rx) with Tag mode

LIMIT : FCC15.207 QP
FCC15.207 AV



Frequency	Reading Level		Corr.	Results		Limit		Margin		Phase	Comment
	QP	AV	Factor	QP	AV	QP	AV	QP	AV		
[MHz]	[dBuV]	[dBuV]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dB]	[dB]		
0.15000	43.1	18.0	0.3	43.4	18.3	66.0	56.0	22.6	37.7	N	
0.15000	43.0	19.7	0.3	43.3	20.0	66.0	56.0	22.7	36.0	L	
0.19786	46.3	37.0	0.3	46.6	37.3	63.7	53.7	17.1	16.4	N	
0.19872	45.9	36.6	0.3	46.2	36.9	63.7	53.7	17.5	16.8	L	
0.23012	42.3	23.8	0.3	42.6	24.1	62.4	52.4	19.8	28.3	N	
0.23304	42.7	24.4	0.3	43.0	24.7	62.3	52.3	19.3	27.6	L	
0.29592	42.8	39.4	0.3	43.1	39.7	60.4	50.4	17.3	10.7	L	
0.29788	43.0	39.8	0.3	43.3	40.1	60.3	50.3	17.0	10.2	N	
2.08784	36.6	28.7	0.4	37.0	29.1	56.0	46.0	19.0	16.9	N	
2.09872	36.2	28.0	0.4	36.6	28.4	56.0	46.0	19.4	17.6	L	
6.31927	24.0	15.5	0.8	24.8	16.3	60.0	50.0	35.2	33.7	N	
6.35114	28.3	19.6	0.8	29.1	20.4	60.0	50.0	30.9	29.6	L	

CHART:WITH FACTOR,Peak hold data. CALCULATION:RESULT[dBuV]=READING[dBuV]+C.F[dB](LISN LOSS+CABLE LOSS)
Except for the above table : adequate margin data below the limits.

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Conducted emission

DATA OF CONDUCTED EMISSION TEST

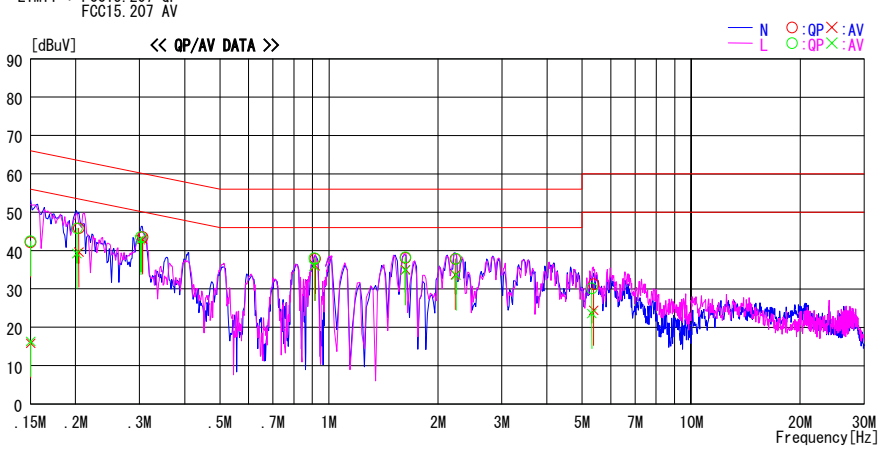
UL Japan, Inc. Head Office EMC Lab. No.3 Semi Anechoic Chamber
Date : 2009/12/18

Report No. : 30DE0252-HO-01

Temp./Humi. : 22deg.C / 34%
Engineer : Satofumi Matsuyama

Mode / Remarks : Standby mode

LIMIT : FCC15.207 QP
FCC15.207 AV



Frequency	Reading Level		Corr.	Results		Limit		Margin		Phase	Comment
	QP	AV	Factor	QP	AV	QP	AV	QP	AV		
[MHz]	[dBuV]	[dBuV]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dB]	[dB]		
0.15000	41.9	15.5	0.3	42.2	15.8	66.0	56.0	23.8	40.2	N	
0.20386	45.5	39.3	0.3	45.8	39.6	63.5	53.5	17.7	13.9	N	
0.30561	43.3	42.7	0.3	43.6	43.0	60.1	50.1	16.5	7.1	N	
0.91633	37.6	35.8	0.3	37.9	36.1	56.0	46.0	18.1	9.9	N	
1.62694	37.7	34.7	0.4	38.1	35.1	56.0	46.0	17.9	10.9	N	
2.23462	37.4	33.3	0.4	37.8	33.7	56.0	46.0	18.2	12.3	N	
5.37981	30.6	23.7	0.7	31.3	24.4	60.0	50.0	28.7	25.6	N	
0.15000	42.2	16.0	0.3	42.5	16.3	66.0	56.0	23.5	39.7	L	
0.20136	45.5	38.9	0.3	45.8	39.2	63.6	53.6	17.8	14.4	L	
0.30234	43.3	42.5	0.3	43.6	42.8	60.2	50.2	16.6	7.4	L	
0.91116	37.7	35.7	0.3	38.0	36.0	56.0	46.0	18.0	10.0	L	
1.62548	37.9	34.5	0.4	38.3	34.9	56.0	46.0	17.7	11.1	L	
2.24512	37.4	33.2	0.4	37.8	33.6	56.0	46.0	18.2	12.4	L	
5.31905	29.5	22.9	0.7	30.2	23.6	60.0	50.0	29.8	26.4	L	

CHART:WITH FACTOR,Peak hold data. CALCULATION:RESULT[dBuV]=READING[dBuV]+C.F[dB](LISN LOSS+CABLE LOSS)
Except for the above table : adequate margin data below the limits.

Fundamental emission and Spectrum Mask

DATA OF RADIATED EMISSION TEST

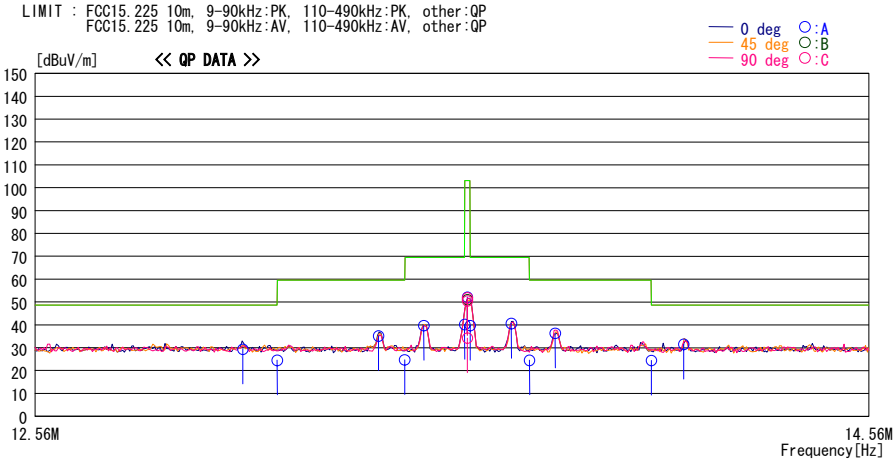
UL Japan, Inc. Head Office EMC Lab. No.1 Semi Anechoic Chamber
Date : 2009/12/20

Report No. : 30DE0252-HO-01

Temp. / Humi. : 25deg.C / 32%
Engineer : Satofumi Matsuyama

Mode / Remarks : Transmitting (Tx and Rx) Without Tag mode

LIMIT : FCC15.225 10m, 9-90kHz:PK, 110-490kHz:PK, other:QP
FCC15.225 10m, 9-90kHz:AV, 110-490kHz:AV, other:QP



Freq. [MHz]	Reading [dBuV]	DET	Ant.Fac [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Antenna [deg]		Table [deg]	Comment
13.03088	40.2	QP	20.1	1.2	32.1	29.4	48.6	19.2	0	A	183	
13.11000	35.3	QP	20.1	1.2	32.1	24.5	48.6	24.1	0	A	183	
13.34832	46.0	QP	20.1	1.2	32.1	35.2	59.5	24.3	0	A	183	
13.41000	35.5	QP	20.1	1.2	32.1	24.7	59.5	34.8	0	A	183	
13.45504	50.5	QP	20.1	1.2	32.1	39.7	69.5	29.8	0	A	183	
13.55300	50.9	QP	20.1	1.2	32.1	40.1	69.5	29.4	0	A	183	
13.56000	61.2	QP	20.1	1.2	32.1	50.4	103.0	52.6	135	C	10	
13.56000	45.1	QP	20.1	1.2	32.1	34.3	103.0	68.7	0	C	79	Loop Antenna Hori.
13.56000	62.9	QP	20.1	1.2	32.1	52.1	103.0	50.9	0	A	183	
13.56000	61.9	QP	20.1	1.2	32.1	51.1	103.0	51.9	45	B	157	
13.56000	62.6	QP	20.1	1.2	32.1	51.8	103.0	51.2	90	C	300	
13.56700	50.5	QP	20.1	1.2	32.1	39.7	69.5	29.8	0	A	183	
13.66629	51.5	QP	20.1	1.2	32.1	40.7	69.5	28.8	0	A	183	
13.71000	35.3	QP	20.1	1.2	32.1	24.5	59.5	35.0	0	A	183	
13.77255	47.2	QP	20.1	1.2	32.1	36.4	59.5	23.1	0	A	183	
14.01000	35.3	QP	20.0	1.2	32.1	24.4	48.6	24.2	0	A	183	
14.09010	42.5	QP	20.0	1.2	32.1	31.6	48.6	17.0	0	A	183	

CHART: WITH FACTOR , ANT TYPE: LOOP , Except for the data below : adequate margin data below the limits.
CALCULATION : RESULT[dBuV] = READING[dBuV] + ANT FACTOR[dB] + LOSS[dB](CABLE + ATTEN.- AMP.)

Fundamental emission and Spectrum Mask

DATA OF RADIATED EMISSION TEST

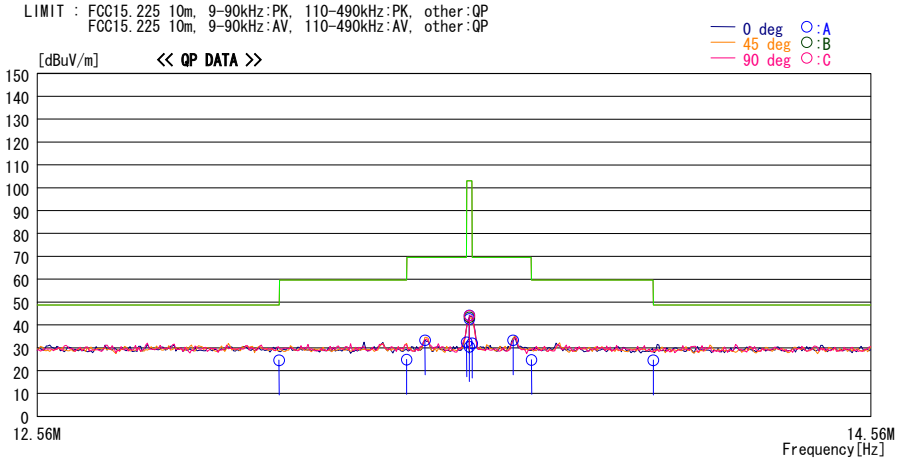
UL Japan, Inc. Head Office EMC Lab. No.1 Semi Anechoic Chamber
Date : 2009/12/20

Report No. : 30DE0252-HO-01

Temp./ Humi. : 25deg.C / 32%
Engineer : Satofumi Matsuyama

Mode / Remarks : Transmitting (Tx and Rx) With Tag mode

LIMIT : FCC15.225 10m, 9-90kHz:PK, 110-490kHz:PK, other:QP
FCC15.225 10m, 9-90kHz:AV, 110-490kHz:AV, 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]	
13.11000	35.4	QP	20.1	1.2	32.1	24.6	48.6	24.0	0	A	182	
13.41000	35.6	QP	20.1	1.2	32.1	24.8	59.5	34.7	0	A	182	
13.45385	44.1	QP	20.1	1.2	32.1	33.3	69.5	36.2	0	A	182	
13.55300	43.2	QP	20.1	1.2	32.1	32.4	69.5	37.1	0	A	182	
13.56000	53.4	QP	20.1	1.2	32.1	42.6	103.0	60.4	135	A	80	
13.56000	41.2	QP	20.1	1.2	32.1	30.4	103.0	72.6	0	A	199	Loop Antenna Hori.
13.56000	55.1	QP	20.1	1.2	32.1	44.3	103.0	58.7	0	A	182	
13.56000	54.1	QP	20.1	1.2	32.1	43.3	103.0	59.7	45	B	102	
13.56000	54.9	QP	20.1	1.2	32.1	44.1	103.0	58.9	90	C	285	
13.56700	42.8	QP	20.1	1.2	32.1	32.0	69.5	37.5	0	A	182	
13.66587	44.1	QP	20.1	1.2	32.1	33.3	69.5	36.2	0	A	182	
13.71000	35.5	QP	20.1	1.2	32.1	24.7	59.5	34.8	0	A	182	
14.01000	35.4	QP	20.0	1.2	32.1	24.5	48.6	24.1	0	A	182	

CHART: WITH FACTOR , ANT TYPE: LOOP , Except for the data below : adequate margin data below the limits.
CALCULATION : RESULT[dBuV] = READING[dBuV] + ANT FACTOR[dB] + LOSS[dB](CABLE + ATTEN.- AMP.)

Spurious emission

DATA OF RADIATED EMISSION TEST

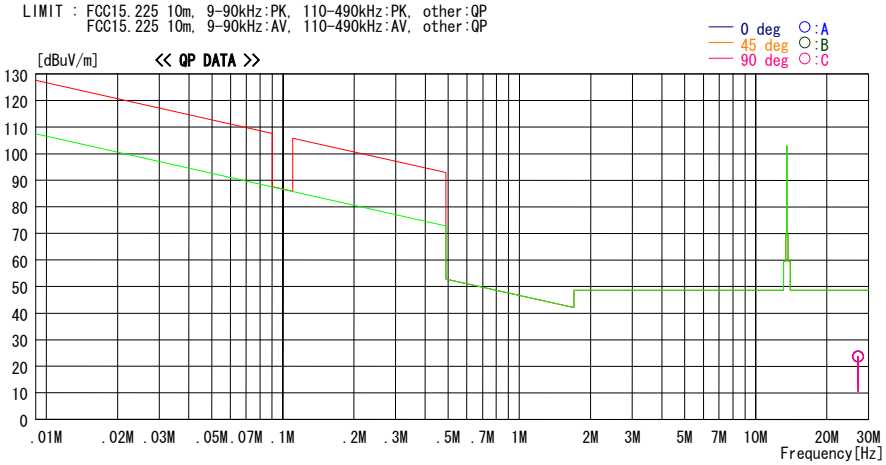
UL Japan, Inc. Head Office EMC Lab. No.1 Semi Anechoic Chamber
Date : 2009/12/20

Report No. : 30DE0252-HO-01

Temp./ Humi. : 25deg.C / 32%
Engineer : Satofumi Matsuyama

Mode / Remarks : Transmitting (Tx and Rx) Without Tag mode

LIMIT : FCC15.225 10m, 9-90kHz:PK, 110-490kHz:PK, other:QP
FCC15.225 10m, 9-90kHz:AV, 110-490kHz:AV, other:QP



Freq. [MHz]	Reading [dBuV]	DET	Ant.Fac [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Antenna [deg]		Table [deg]	Comment
27.12000	34.4	QP	19.7	1.9	32.2	23.8	48.6	24.8	0	A	359	NS
27.12000	34.3	QP	19.7	1.9	32.2	23.7	48.6	24.9	45	B	359	NS
27.12000	34.2	QP	19.7	1.9	32.2	23.6	48.6	25.0	90	C	359	NS
27.12000	34.2	QP	19.7	1.9	32.2	23.6	48.6	25.0	135	C	359	NS

CHART: WITH FACTOR , ANT TYPE: LOOP , Except for the data below : adequate margin data below the limits.
CALCULATION : RESULT[dBuV] = READING[dBuV] + ANT FACTOR[dB] + LOSS[dB](CABLE + ATTEN.- AMP.)

Spurious emission

DATA OF RADIATED EMISSION TEST

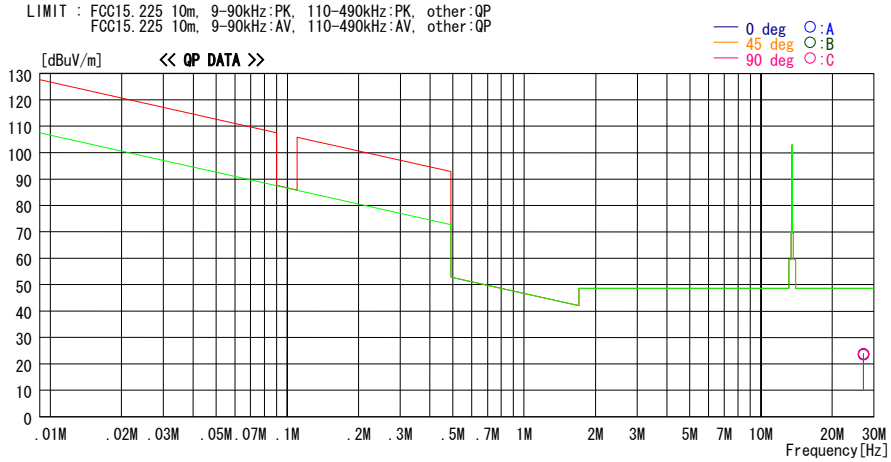
UL Japan, Inc. Head Office EMC Lab. No.1 Semi Anechoic Chamber
Date : 2009/12/20

Report No. : 30DE0252-HO-01

Temp./ Humi. : 25deg.C / 32%
Engineer : Satofumi Matsuyama

Mode / Remarks : Transmitting (Tx and Rx) With Tag mode

LIMIT : FCC15.225 10m, 9-90kHz:PK, 110-490kHz:PK, other:QP
FCC15.225 10m, 9-90kHz:AV, 110-490kHz:AV, 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]	
27.12000	34.4	QP	19.7	1.9	32.2	23.8	48.6	24.8	0	A	359	NS
27.12000	34.3	QP	19.7	1.9	32.2	23.7	48.6	24.9	45	B	359	NS
27.12000	34.1	QP	19.7	1.9	32.2	23.5	48.6	25.1	90	C	359	NS
27.12000	34.2	QP	19.7	1.9	32.2	23.6	48.6	25.0	135	C	359	NS

CHART: WITH FACTOR , ANT TYPE: LOOP , Except for the data below : adequate margin data below the limits.
CALCULATION : RESULT[dBuV] = READING[dBuV] + ANT FACTOR[dB] + LOSS[dB](CABLE + ATTEN.- AMP.)

Spurious emission

DATA OF RADIATED EMISSION TEST

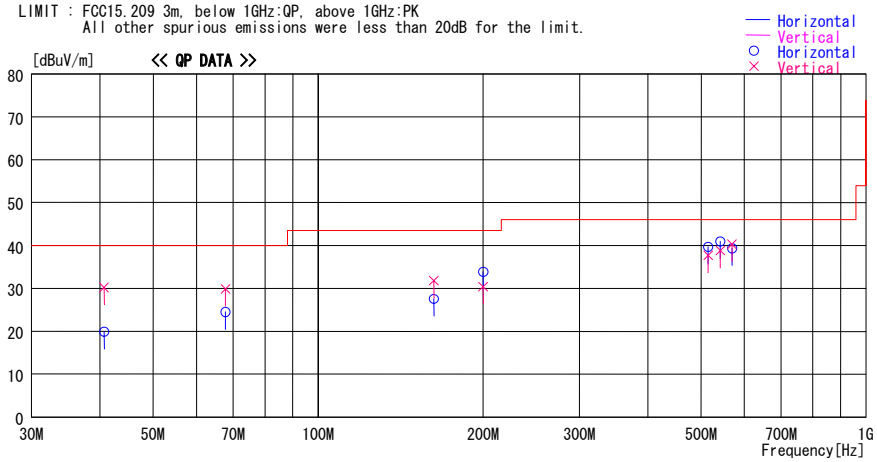
UL Japan, Inc. Head Office EMC Lab. No.2 Semi Anechoic Chamber
Date : 2009/12/21

Report No. : 30DE0252-HO-01

Temp./Humi. : 22deg.C / 31%
Engineer : Satofumi Matsuyama

Mode / Remarks : Transmitting(Tx and Rx) Without Tag 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 Factor [dB/m]	Loss& Gain [dB]	Level [dBuV/m]	Angle [Deg]	Height [cm]	Polar.	Limit [dBuV/m]	Margin [dB]	Comment
40.687	26.9	QP	14.8	-21.8	19.9	294	300	Hori.	40.0	20.1	
40.677	37.2	QP	14.8	-21.8	30.2	10	100	Vert.	40.0	9.8	
67.802	38.5	QP	7.3	-21.3	24.5	182	400	Hori.	40.0	15.5	
67.804	43.9	QP	7.3	-21.3	29.9	156	100	Vert.	40.0	10.1	
162.718	31.7	QP	16.2	-20.3	27.6	354	271	Hori.	43.5	15.9	
162.722	35.9	QP	16.2	-20.3	31.8	110	100	Vert.	43.5	11.7	
200.212	36.4	QP	17.4	-19.9	33.9	255	300	Hori.	43.5	9.6	
200.211	32.9	QP	17.4	-19.9	30.4	11	100	Vert.	43.5	13.1	
515.281	39.9	QP	18.7	-18.9	39.7	202	100	Hori.	46.0	6.3	
515.283	37.9	QP	18.7	-18.9	37.7	158	117	Vert.	46.0	8.3	
542.400	40.6	QP	19.2	-18.8	41.0	199	184	Hori.	46.0	5.0	
542.401	38.4	QP	19.2	-18.8	38.8	113	100	Vert.	46.0	7.2	
569.516	38.5	QP	19.6	-18.7	39.4	190	100	Hori.	46.0	6.6	
569.520	39.4	QP	19.6	-18.7	40.3	84	100	Vert.	46.0	5.7	

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)

Spurious emission

DATA OF RADIATED EMISSION TEST

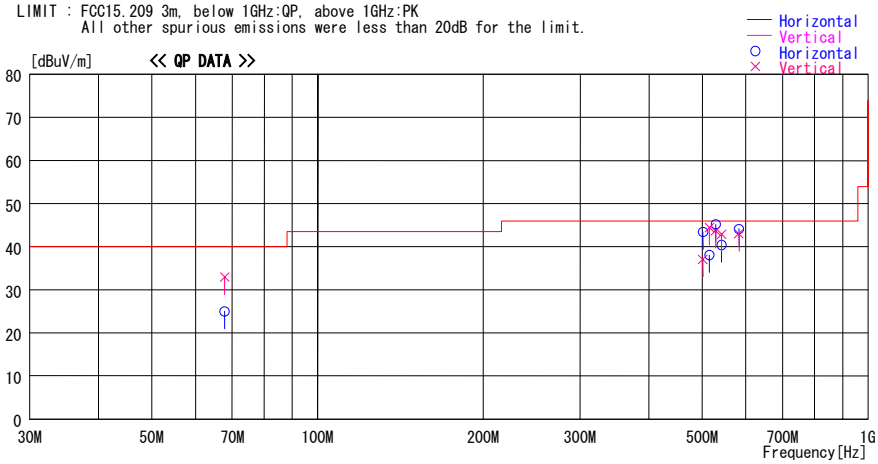
UL Japan, Inc. Head Office EMC Lab. No.3 Semi Anechoic Chamber
Date : 2010/01/18

Report No. : 30DE0252-HO-01

Temp./Humi. : 23deg.C / 36%
Engineer : Takumi Shimada

Mode / Remarks : Transmitting(Tx and Rx) With Tag mode

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



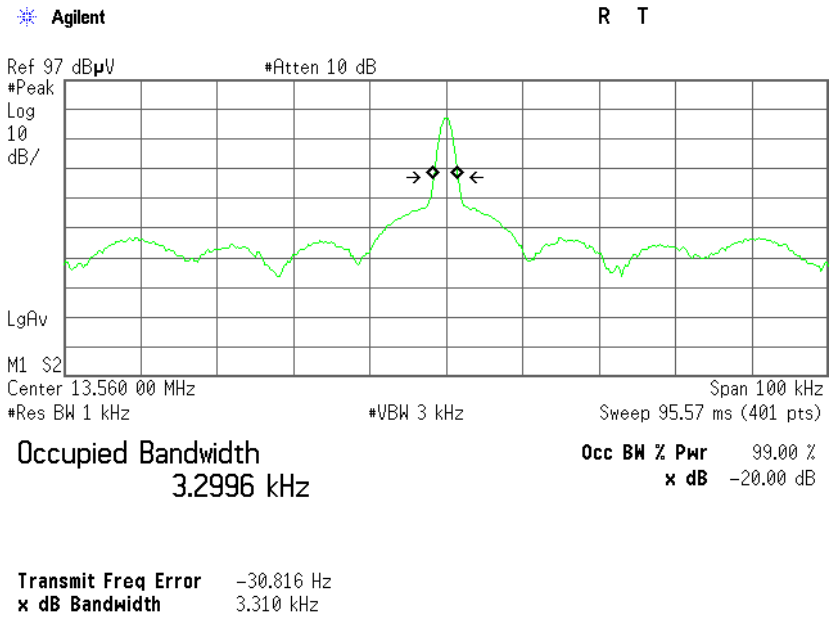
Frequency [MHz]	Reading [dBuV]	DET	Antenna Factor [dB/m]	Loss& Gain [dB]	Level [dBuV/m]	Angle [Deg]	Height [cm]	Polar.	Limit [dBuV/m]	Margin [dB]	Comment
67.796	50.9	QP	6.5	-24.5	32.9	251	100	Vert.	40.0	7.1	
67.804	43.0	QP	6.5	-24.5	25.0	172	305	Hori.	40.0	15.0	
501.718	45.5	QP	18.6	-20.7	43.4	184	100	Hori.	46.0	2.6	
501.718	39.2	QP	18.6	-20.7	37.1	186	100	Vert.	46.0	8.9	
515.280	39.9	QP	18.8	-20.6	38.1	33	100	Hori.	46.0	7.9	
515.280	46.2	QP	18.8	-20.6	44.4	316	100	Vert.	46.0	1.6	
528.838	45.4	QP	18.9	-20.6	43.7	45	116	Vert.	46.0	2.3	
528.838	46.9	QP	18.9	-20.6	45.2	173	100	Hori.	46.0	0.8	
542.398	44.3	QP	19.1	-20.5	42.9	30	100	Vert.	46.0	3.1	
542.406	41.8	QP	19.1	-20.5	40.4	203	162	Hori.	46.0	5.6	
583.083	43.7	QP	19.6	-20.3	43.0	42	100	Vert.	46.0	3.0	
583.078	44.8	QP	19.6	-20.3	44.1	189	160	Hori.	46.0	1.9	

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)

20dB Bandwidth and 99% Occupied Bandwidth

Test place	Head Office EMC Lab. No.4 Semi Anechoic Chamber
Report No.	30DE0252-HO-01
Date	12/16/2009
Temperature/ Humidity	23 deg.C./ 31%
Engineer	Norihisa Hashimoto
Mode	Transmitting (Tx and Rx) with Tag mode

FREQ [MHz]	20dB Bandwidth [kHz]	99% Occupied Bandwidth [kHz]
13.56	3.31	3.30



Frequency Tolerance

Test place	Head Office EMC Lab. No.6 Measurement room
Report No.	30DE0252-HO-01
Date	01/20/2010
Temperature/ Humidity	26 deg.C./ 28%
Engineer	Hiroyuki Furutaka
Mode	Continuous Transmitting mode

Test Condition deg.C	Volts	Test Timing	Measured freq [MHz]	Freq error [MHz]	Result [ppm]	Limit (+/- 0.01%) [+/- ppm]	Margin [ppm]
20deg.C	138V	Power on	13.55999140	-0.00000860	-0.63	100.00	99.37
		on 2min.	13.55998831	-0.00001169	-0.86	100.00	99.14
		on 5min.	13.55998676	-0.00001324	-0.98	100.00	99.02
		on 10min.	13.55998569	-0.00001431	-1.06	100.00	98.94
	120V	Power on	13.56003563	0.00003563	2.63	100.00	97.37
		on 2min.	13.56001245	0.00001245	0.92	100.00	99.08
		on 5min.	13.56000281	0.00000281	0.21	100.00	99.79
		on 10min.	13.55999511	-0.00000489	-0.36	100.00	99.64
	102V	Power on	13.55988717	-0.00011283	-8.32	100.00	91.68
		on 2min.	13.55998580	-0.00001420	-1.05	100.00	98.95
		on 5min.	13.55998561	-0.00001439	-1.06	100.00	98.94
		on 10min.	13.55998431	-0.00001569	-1.16	100.00	98.84
50deg.C.	120V	Power on	13.55997778	-0.00002222	-1.64	100.00	98.36
		on 2min.	13.55994926	-0.00005074	-3.74	100.00	96.26
		on 5min.	13.55993873	-0.00006127	-4.52	100.00	95.48
		on 10min.	13.55993399	-0.00006601	-4.87	100.00	95.13
40deg.C.		Power on	13.56002355	0.00002355	1.74	100.00	98.26
		on 2min.	13.55998854	-0.00001146	-0.85	100.00	99.15
		on 5min.	13.55997213	-0.00002787	-2.06	100.00	97.94
		on 10min.	13.55996234	-0.00003766	-2.78	100.00	97.22
30deg.C.		Power on	13.56008874	0.00008874	6.54	100.00	93.46
		on 2min.	13.56003818	0.00003818	2.82	100.00	97.18
		on 5min.	13.56001588	0.00001588	1.17	100.00	98.83
		on 10min.	13.56000199	0.00000199	0.15	100.00	99.85
20deg.C.		Power on	13.56003563	0.00003563	2.63	100.00	97.37
		on 2min.	13.56001245	0.00001245	0.92	100.00	99.08
		on 5min.	13.56000281	0.00000281	0.21	100.00	99.79
		on 10min.	13.55999511	-0.00000489	-0.36	100.00	99.64
10deg.C.		Power on	13.56016686	0.00016686	12.31	100.00	87.69
		on 2min.	13.56013059	0.00013059	9.63	100.00	90.37
		on 5min.	13.56011103	0.00011103	8.19	100.00	91.81
		on 10min.	13.56009922	0.00009922	7.32	100.00	92.68
0deg.C.		Power on	13.56019067	0.00019067	14.06	100.00	85.94
		on 2min.	13.56016314	0.00016314	12.03	100.00	87.97
		on 5min.	13.56014867	0.00014867	10.96	100.00	89.04
		on 10min.	13.56013554	0.00013554	10.00	100.00	90.00
-10deg.C.		Power on	13.56018973	0.00018973	13.99	100.00	86.01
		on 2min.	13.56018841	0.00018841	13.89	100.00	86.11
		on 5min.	13.56018119	0.00018119	13.36	100.00	86.64
		on 10min.	13.56017223	0.00017223	12.70	100.00	87.30
-20deg.C		Power on	13.56015627	0.00015627	11.52	100.00	88.48
		on 2min.	13.56018911	0.00018911	13.95	100.00	86.05
		on 5min.	13.56019307	0.00019307	14.24	100.00	85.76
		on 10min.	13.56019119	0.00019119	14.10	100.00	85.90
-30deg.C		Power on	13.56011583	0.00011583	8.54	100.00	91.46
		on 2min.	13.56017200	0.00017200	12.68	100.00	87.32
		on 5min.	13.56018543	0.00018543	13.67	100.00	86.33
		on 10min.	13.56018994	0.00018994	14.01	100.00	85.99

Limit : 13.56 13.56 MHz +/-0.01 % (+/- 100ppm) = +/- 0.001356 MHz

APPENDIX 3: Test instruments

EMI test equipment (1/2)

Control No.	Instrument	Manufacturer	Model No	Serial No	Test Item	Calibration Date * Interval(month)
MAEC-04	Semi Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 3m	DA-10005	RE	2009/02/03 * 12
MOS-15	Thermo-Hygrometer	Custom	CTH-180	-	RE	2009/02/06 * 12
MJM-07	Measure	PROMART	SEN1955	-	RE	-
COTS-MEMI	EMI measurement program	TSJ	TEPTO-DV	-	RE/CE	
MSA-10	Spectrum Analyzer	Agilent	E4448A	MY46180655	RE	2009/02/25 * 12
MTR-07	Test Receiver	Rohde & Schwarz	ESCI	100635	RE	2009/10/23 * 12
MLPA-02	Loop Antenna	Rohde & Schwarz	HFH2-Z2	836553/009	RE	2009/11/19 * 12
MCC-113	Coaxial cable	Fujikura/Suhner/TSJ	5D-2W(10m)/ SFM141(5m)/ 421-010(1m)/ sucoform141-PE(1m)/ RFM-E121(Switcher)	-/04178	RE	2009/07/01 * 12
MCC-31	Coaxial cable	UL Japan	-	-	RE	2009/06/22 * 12
MPA-14	Pre Amplifier	SONOMA INSTRUMENT	310	260833	RE	2009/03/18 * 12
MAEC-03	Semi Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 3m	DA-10005	CE/RE	2009/02/02 * 12
MOS-13	Thermo-Hygrometer	Custom	CTH-180	-	CE/RE	2009/02/06 * 12
MJM-06	Measure	PROMART	SEN1955	-	CE/RE	-
MTR-08	Test Receiver	Rohde & Schwarz	ESCI	100767	CE/RE	2009/06/30 * 12
MLS-06	LISN(AMN)	Schwarzbeck	NSLK8127	8127363	CE	2009/02/18 * 12
MCC-112	Coaxial cable	Fujikura/Suhner/TSJ	5D-2W(10m)/ SFM141(3m)/ sucoform141-PE(1m)/ 421-010(1.5m)/ RFM-E321(Switcher)	-/00640	CE	2009/07/02 * 12
MAEC-01	Semi Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 10m	DA-06881	RE	2009/06/26 * 12
MOS-01	Digital Humidity Indicator	N.T	NT-1800	MOS01	RE	2009/02/06 * 12
MJM-01	Measure	KDS	ES19-55	-	RE	-
MTR-01	Test Receiver	Rohde & Schwarz	ESI40	100084	RE	2009/12/17 * 12
MCC-03	Coaxial Cable	Fujikura/Suhner/TSJ	5D-2W(20m)/3D-2W(7.5m)/RG400u(1.5m) /RFM-E421(Switcher)	-/01068(Switcher)	RE	2008/12/16 * 12 *1)
MAEC-02	Semi Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 3m	DA-06902	CE/RE	2009/08/17 * 12
MOS-22	Thermo-Hygrometer	Custom	CTH-201	0003	CE/RE	2009/02/05 * 12
MJM-05	Measure	PROMART	SEN1955	-	CE/RE	-
MTR-03	Test Receiver	Rohde & Schwarz	ESCI	100300	CE/RE	2009/04/14 * 12
MCC-13	Coaxial Cable	Fujikura	3D-2W(12m)/5D-2W(5m)/5D-2W(0.8m)/5D-2W(1m)	-	CE	2009/02/16 * 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	2009/11/12 * 12
MPA-09	Pre Amplifier	Agilent	8447D	2944A10845	RE	2009/09/02 * 12

EMI test equipment (2/2)

Control No.	Instrument	Manufacturer	Model No	Serial No	Test Item	Calibration Date * Interval(month)
MSA-09	Spectrum Analyzer	Advantest	R3273	95090115	RE	2009/12/11 * 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
MUC-01	Universal Counter	Agilent	53132A	MY40008906	FT	2009/07/06 * 12
MCH-04	Temperature and Humidity Chamber	Espec	PL-2KP	14015723	FT	2009/08/21 * 12
MOS-14	Thermo-Hygrometer	Custom	CTH-180	-	FT	2009/02/04 * 12

***1) This test equipment was used for the tests before the expiration date of the calibration.**

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: CE: Conducted Emission
RE: Radiated Emission
FT: Frequency Tolerance