APPENDIX 2: Data of EMI test

Radiated Emission

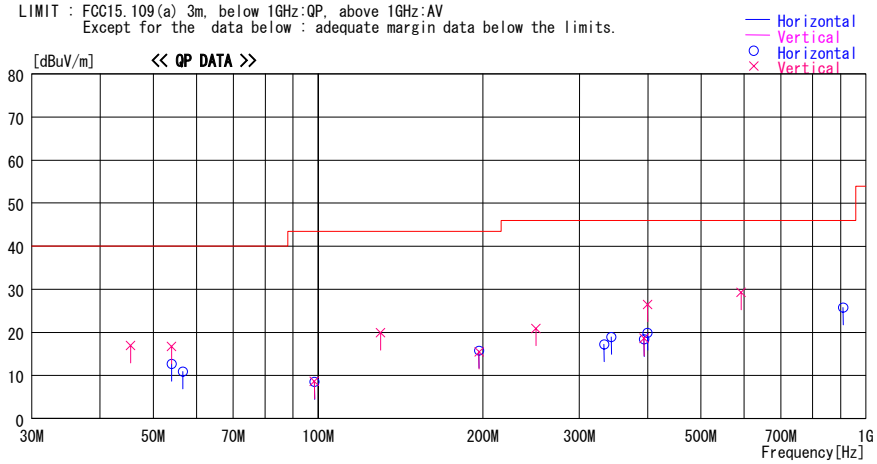
DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.3 Semi Anechoic Chamber
Date : 2008/09/29

Company : Mitsubishi Electric Corporation Sanda works
Kind of EUT : Car Navigation system
Model No. : NR-212-6U
Serial No. : ME395084170028
Report No. : 28JE0209-HO-01
Power : DC12.0V
Temp./Humi. : 24deg.C / 54%
Engineer : Kazufumi Nakai

Mode / Remarks : FM Receiving(87.7MHz) + GPS Receiving(1575.42MHz) + Bluetooth Communication mode

LIMIT : FCC15.109(a) 3m, below 1GHz:QP, above 1GHz:AV
Except for the data below : adequate margin data below the limits.



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
45.446	30.1	QP	11.5	-24.7	16.9	301	100	Vert.	40.0	23.1	
54.001	28.1	QP	9.1	-24.5	12.7	198	397	Hori.	40.0	27.3	
54.002	32.1	QP	9.1	-24.5	16.7	293	100	Vert.	40.0	23.3	
56.630	26.9	QP	8.5	-24.5	10.9	219	400	Hori.	40.0	29.1	
98.450	22.8	QP	9.7	-23.9	8.6	0	100	Vert.	43.5	34.9	
98.450	22.7	QP	9.7	-23.9	8.5	359	300	Hori.	43.5	35.0	
129.985	29.9	QP	13.5	-23.5	19.9	124	100	Vert.	43.5	23.6	
196.900	22.2	QP	16.3	-23.0	15.5	0	100	Vert.	43.5	28.0	
196.900	22.5	QP	16.3	-23.0	15.8	359	300	Hori.	43.5	27.7	
250.002	26.9	QP	16.5	-22.5	20.9	333	100	Vert.	46.0	25.1	
332.663	23.5	QP	15.5	-21.8	17.2	235	283	Hori.	46.0	28.8	
343.401	24.7	QP	15.9	-21.7	18.9	235	349	Hori.	46.0	27.1	
393.800	22.5	QP	17.2	-21.3	18.4	0	100	Hori.	46.0	27.6	
393.800	22.7	QP	17.2	-21.3	18.6	359	100	Vert.	46.0	27.4	
399.596	23.9	QP	17.3	-21.3	19.9	269	231	Hori.	46.0	26.1	
399.622	30.5	QP	17.3	-21.3	26.5	350	163	Vert.	46.0	19.5	
592.720	30.3	QP	19.2	-20.2	29.3	348	100	Vert.	46.0	16.7	
909.211	21.9	QP	21.4	-17.5	25.8	184	100	Hori.	46.0	20.2	

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)

*The limit is rounded down to one decimal place.
*The test result is rounded off to one or two decimal places, so some differences might be observed.

Radiated Emission

DATA OF RADIATED EMISSION TEST

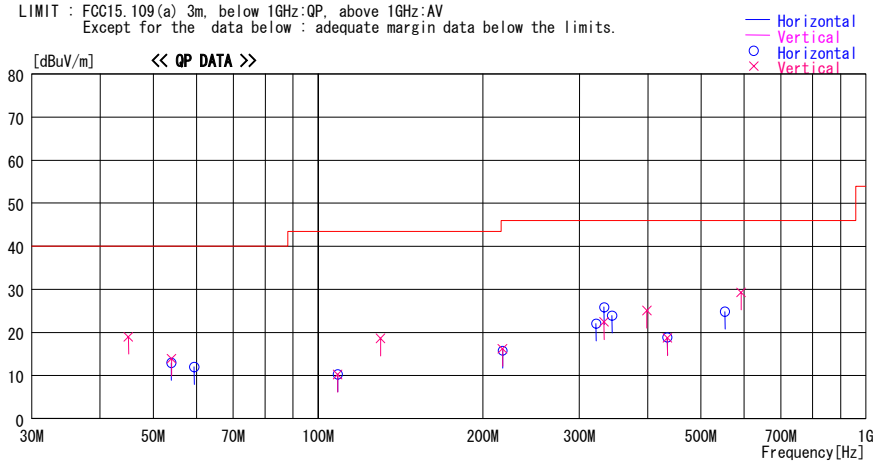
UL Japan, Inc. Head Office EMC Lab. No.3 Semi Anechoic Chamber
Date : 2008/09/29

Company : Mitsubishi Electric Corporation Sanda works
Kind of EUT : Car Navigation system
Model No. : NR-212-6U
Serial No. : ME395084170028

Report No. : 28JE0209-HO-01
Power : DC12.0V
Temp./Humi. : 24deg.C / 54%
Engineer : Kazufumi Nakai

Mode / Remarks : FM Receiving(97.9MHz) + GPS Receiving(1575.42MHz) + Bluetooth Communication mode

LIMIT : FCC15.109(a) 3m, below 1GHz:QP, above 1GHz:AV
Except for the data below : adequate margin data below the limits.



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
45.070	32.1	QP	11.6	-24.7	19.0	236	100	Vert.	40.0	21.0	
53.990	28.3	QP	9.1	-24.5	12.9	172	400	Hori.	40.0	27.1	
53.993	29.3	QP	9.1	-24.5	13.9	285	100	Vert.	40.0	26.1	
59.382	28.5	QP	7.9	-24.4	12.0	195	300	Hori.	40.0	28.0	
108.600	22.9	QP	11.1	-23.8	10.2	0	100	Vert.	43.5	33.3	
108.600	23.0	QP	11.1	-23.8	10.3	0	300	Hori.	43.5	33.2	
130.012	28.6	QP	13.5	-23.5	18.6	147	100	Vert.	43.5	24.9	
217.200	22.6	QP	16.3	-22.7	16.2	0	100	Vert.	46.0	29.8	
217.200	22.2	QP	16.3	-22.7	15.8	0	300	Hori.	46.0	30.2	
321.782	28.7	QP	15.2	-21.8	22.1	302	100	Hori.	46.0	23.9	
333.074	32.1	QP	15.6	-21.8	25.9	271	100	Hori.	46.0	20.1	
333.074	28.6	QP	15.6	-21.8	22.4	88	142	Vert.	46.0	23.6	
344.371	29.7	QP	15.9	-21.7	23.9	270	100	Hori.	46.0	22.1	
398.618	29.1	QP	17.3	-21.3	25.1	357	136	Vert.	46.0	20.9	
434.400	22.2	QP	17.6	-21.1	18.7	359	100	Vert.	46.0	27.3	
434.400	22.3	QP	17.6	-21.1	18.8	0	100	Hori.	46.0	27.2	
553.297	26.5	QP	18.7	-20.4	24.8	16	100	Hori.	46.0	21.2	
592.724	30.3	QP	19.2	-20.2	29.3	1	121	Vert.	46.0	16.7	

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)

*The limit is rounded down to one decimal place.
*The test result is rounded off to one or two decimal places, so some differences might be observed.

Radiated Emission

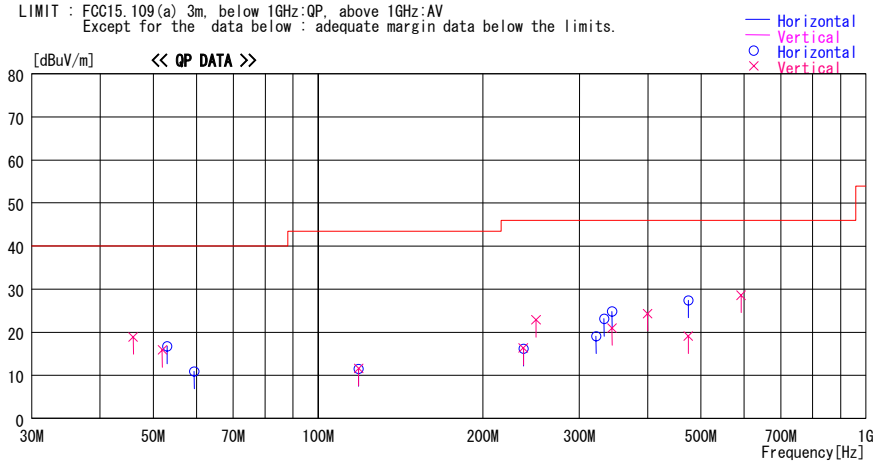
DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.3 Semi Anechoic Chamber
Date : 2008/09/29

Company	: Mitsubishi Electric Corporation Sanda works	Report No.	: 28JE0209-HO-01
Kind of EUT	: Car Navigation system	Power	: DC12.0V
Model No.	: NR-212-6U	Temp./Humi.	: 24deg.C / 54%
Serial No.	: ME395084170028	Engineer	: Kazufumi Nakai

Mode / Remarks : FM Receiving(107.9MHz) + GPS Receiving(1575.42MHz) + Bluetooth Communication mode

LIMIT : FCC15.109(a) 3m, below 1GHz:QP, above 1GHz:AV
Except for the data below : adequate margin data below the limits.



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
46.010	32.3	QP	11.3	-24.7	18.9	257	100	Vert.	40.0	21.1	
51.952	30.8	QP	9.6	-24.5	15.9	264	100	Vert.	40.0	24.1	
53.040	31.8	QP	9.4	-24.5	16.7	165	400	Hori.	40.0	23.3	
59.370	27.4	QP	7.9	-24.4	10.9	201	400	Hori.	40.0	29.1	
118.600	22.9	QP	12.4	-23.7	11.6	0	100	Vert.	43.5	31.9	
118.600	22.8	QP	12.4	-23.7	11.5	0	300	Hori.	43.5	32.0	
237.200	22.6	QP	16.4	-22.6	16.4	0	100	Vert.	46.0	29.6	
237.200	22.4	QP	16.4	-22.6	16.2	0	300	Hori.	46.0	29.8	
250.156	28.9	QP	16.5	-22.5	22.9	354	100	Vert.	46.0	23.1	
321.789	25.7	QP	15.2	-21.8	19.1	289	158	Hori.	46.0	26.9	
333.077	29.3	QP	15.6	-21.8	23.1	288	100	Hori.	46.0	22.9	
344.367	30.6	QP	15.9	-21.7	24.8	235	100	Hori.	46.0	21.2	
344.379	26.8	QP	15.9	-21.7	21.0	0	100	Vert.	46.0	25.0	
399.623	28.3	QP	17.3	-21.3	24.3	357	100	Vert.	46.0	21.7	
474.400	30.3	QP	17.9	-20.8	27.4	143	100	Hori.	46.0	18.6	
474.400	22.0	QP	17.9	-20.8	19.1	0	100	Vert.	46.0	26.9	
592.709	29.6	QP	19.2	-20.2	28.6	357	100	Vert.	46.0	17.4	

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)

*The limit is rounded down to one decimal place.
*The test result is rounded off to one or two decimal places, so some differences might be observed.

Radiated Emission

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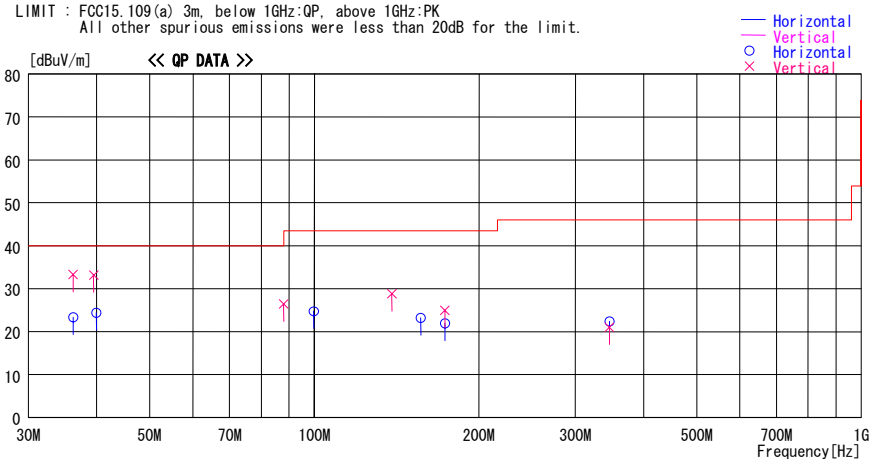
DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.1 Semi Anechoic Chamber
Date : 2008/10/28

Company : Mitsubishi Electric Corporation Sanda works
Kind of EUT : Navigation system
Model No. : NR-212-6U
Serial No. : ME395084170028
Report No. : 28JE0209-HO-01
Power : DC12.0V
Temp./Humi. : 22deg.C. / 40%
Engineer : Akio Hayashi

Mode / Remarks : WB Receiving(162.475MHz) + GPS Receiving(1575.42MHz) + Bluetooth Communication mode

LIMIT : FCC15.109(a) 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
36.219	38.6	QP	16.0	-21.3	33.3	109	100	Vert.	40.0	6.7	
36.231	28.7	QP	16.0	-21.3	23.4	166	277	Hori.	40.0	16.6	
39.495	40.3	QP	14.0	-21.1	33.2	181	100	Vert.	40.0	6.8	
39.965	31.7	QP	13.8	-21.1	24.4	173	306	Hori.	40.0	15.6	
87.912	38.7	QP	8.0	-20.2	26.5	221	100	Vert.	40.0	13.6	
99.808	34.7	QP	10.1	-20.0	24.8	187	304	Hori.	43.5	18.7	
138.603	34.0	QP	14.2	-19.4	28.8	87	100	Vert.	43.5	14.7	
156.513	27.1	QP	15.3	-19.2	23.2	236	303	Hori.	43.5	20.3	
173.175	27.6	QP	16.1	-18.8	24.9	167	100	Vert.	43.5	18.6	
173.175	24.6	QP	16.1	-18.8	21.9	290	338	Hori.	43.5	21.6	
346.350	23.8	QP	14.3	-17.1	21.0	69	100	Vert.	46.0	25.0	
346.350	25.2	QP	14.3	-17.1	22.4	90	100	Hori.	46.0	23.6	

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)

*The limit is rounded down to one decimal place.
*The test result is rounded off to one or two decimal places, so some differences might be observed.

Radiated Emission

DATA OF RADIATED EMISSION TEST

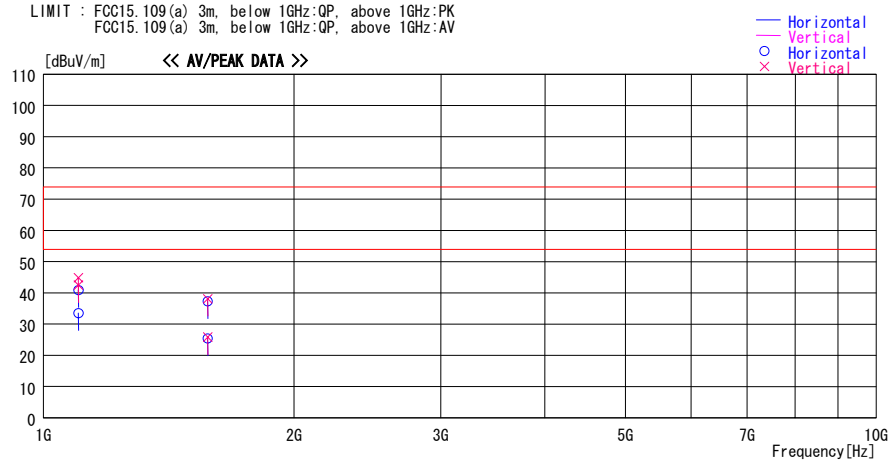
UL Japan, Inc. Head Office EMC Lab. No.3 Semi Anechoic Chamber
Date : 2008/09/29

Company : Mitsubishi Electric Corporation Sanda works
Kind of EUT : Navigation system
Model No. : NR-212-GU
Serial No. : ME395084170028

Report No. : 28JE0209-HO-01
Power : DC12.0V
Temp./Humi. : 24deg.C / 54%
Engineer : Kazufumi Nakai

Mode / Remarks : FM Receiving(87.7MHz) + GPS Receiving(1575.42MHz) + Bluetooth Communication mode

LIMIT : FCC15.109(a) 3m, below 1GHz:QP, above 1GHz:PK
FCC15.109(a) 3m, below 1GHz:QP, above 1GHz:AV



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
1101.823	49.6	PK	24.5	-33.2	40.9	171	100	Hori.	73.9	33.0	
1101.580	53.5	PK	24.5	-33.2	44.8	189	100	Vert.	73.9	29.1	
1101.823	42.3	AV	24.5	-33.2	33.6	171	100	Hori.	53.9	20.3	
1101.580	51.2	AV	24.5	-33.2	42.5	189	100	Vert.	53.9	11.4	
1575.420	43.1	PK	25.7	-31.5	37.3	66	100	Hori.	73.9	36.6	
1575.420	43.9	PK	25.7	-31.5	38.1	161	100	Vert.	73.9	35.8	
1575.420	31.3	AV	25.7	-31.5	25.5	66	100	Hori.	53.9	28.4	
1575.420	31.6	AV	25.7	-31.5	25.8	161	100	Vert.	53.9	28.1	

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)

*The limit is rounded down to one decimal place.
*The test result is rounded off to one or two decimal places, so some differences might be observed.

UL Japan, Inc.
Head Office EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN
Telephone : +81 596 24 8116
Facsimile : +81 596 24 8124

Radiated Emission

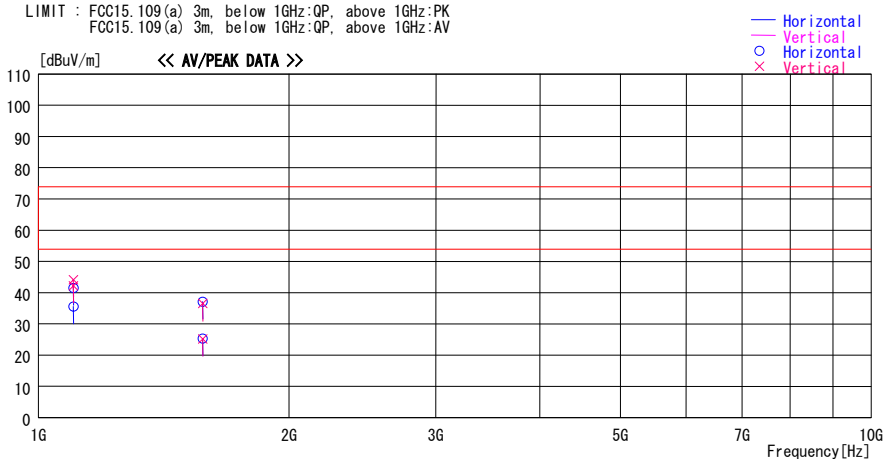
DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.3 Semi Anechoic Chamber
Date : 2008/09/29

Company : Mitsubishi Electric Corporation Sanda works
Kind of EUT : Navigation system
Model No. : NR-212-6U
Serial No. : ME395084170028
Report No. : 28JE0209-HO-01
Power : DC12.0V
Temp./Humi. : 24deg.C / 54%
Engineer : Kazufumi Nakai

Mode / Remarks : FM Receiving(97.9MHz) + GPS Receiving(1575.42MHz) + Bluetooth Communication mode

LIMIT : FCC15.109(a) 3m, below 1GHz:QP, above 1GHz:AV
FCC15.109(a) 3m, below 1GHz:QP, above 1GHz:AV



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
1101.561	50.3	PK	24.5	-33.2	41.6	260	100	Hori.	73.9	32.3	
1101.677	52.9	PK	24.5	-33.2	44.2	178	100	Vert.	73.9	29.7	
1101.561	44.3	AV	24.5	-33.2	35.6	260	100	Hori.	53.9	18.3	
1101.677	50.9	AV	24.5	-33.2	42.2	178	100	Vert.	53.9	11.7	
1575.420	42.9	PK	25.7	-31.5	37.1	71	100	Hori.	73.9	36.8	
1575.420	42.3	PK	25.7	-31.5	36.5	65	100	Vert.	73.9	37.4	
1575.420	31.1	AV	25.7	-31.5	25.3	71	100	Hori.	53.9	28.6	
1575.420	31.0	AV	25.7	-31.5	25.2	65	100	Vert.	53.9	28.7	

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)

*The limit is rounded down to one decimal place.
*The test result is rounded off to one or two decimal places, so some differences might be observed.

Radiated Emission

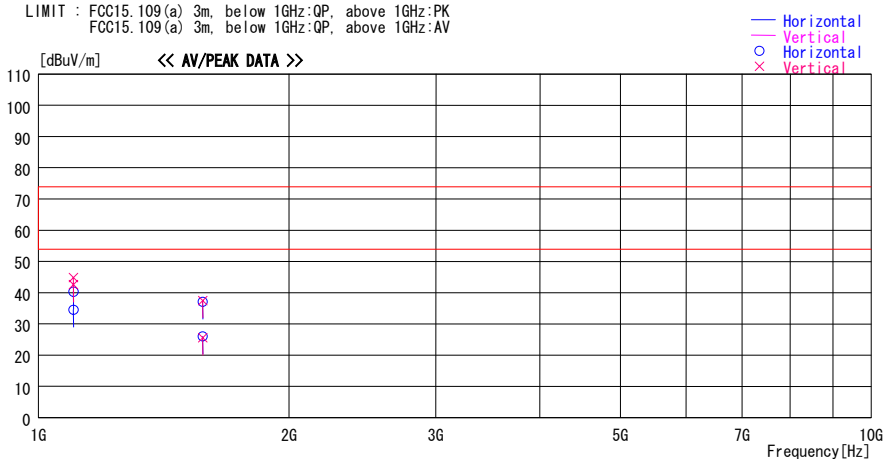
DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.3 Semi Anechoic Chamber
Date : 2008/09/29

Company : Mitsubishi Electric Corporation Sanda works
Kind of EUT : Navigation system
Model No. : NR-212-6U
Serial No. : ME395084170028
Report No. : 28JE0209-HO-01
Power : DC12.0V
Temp./Humi. : 24deg.C / 54%
Engineer : Kazufumi Nakai

Mode / Remarks : FM Receiving(107.9MHz) + GPS Receiving(1575.42MHz) + Bluetooth Communication mode

LIMIT : FCC15.109(a) 3m, below 1GHz:QP, above 1GHz:PK
FCC15.109(a) 3m, below 1GHz:QP, above 1GHz:AV



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
1101.520	49.0	PK	24.5	-33.2	40.3	171	100	Hori.	73.9	33.6	
1101.622	53.6	PK	24.5	-33.2	44.9	185	100	Vert.	73.9	29.0	
1101.520	43.3	AV	24.5	-33.2	34.6	171	100	Hori.	53.9	19.3	
1101.622	51.3	AV	24.5	-33.2	42.6	185	100	Vert.	53.9	11.3	
1575.420	42.9	PK	25.7	-31.5	37.1	225	100	Hori.	73.9	36.8	
1575.420	43.4	PK	25.7	-31.5	37.6	332	100	Vert.	73.9	36.4	
1575.420	31.8	AV	25.7	-31.5	26.0	225	100	Hori.	53.9	27.9	
1575.420	31.4	AV	25.7	-31.5	25.6	332	100	Vert.	53.9	28.3	

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)

*The limit is rounded down to one decimal place.
*The test result is rounded off to one or two decimal places, so some differences might be observed.

Radiated Emission

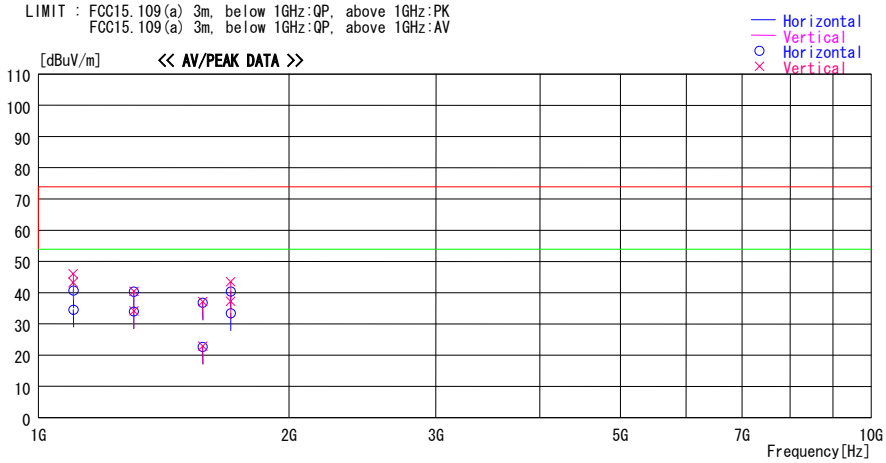
DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.1 Semi Anechoic Chamber
Date : 2008/10/29

Company : Mitsubishi Electric Corporation Sanda works
Kind of EUT : Navigation system
Model No. : NR-212-6U
Serial No. : ME395084170028
Report No. : 28JE0209-HO-01
Power : DC12.0V
Temp./Humi. : 22deg.C. / 40%
Engineer : Akio Hayashi

Mode / Remarks : WB Receiving(162.475MHz) + GPS Receiving(1575.42MHz) + Bluetooth Communication mode

LIMIT : FCC15.109(a) 3m, below 1GHz:QP, above 1GHz:PK
FCC15.109(a) 3m, below 1GHz:QP, above 1GHz:AV



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
1101.560	56.5	PK	24.6	-35.0	46.1	178	124	Vert.	73.9	27.8	
1101.560	53.7	AV	24.6	-35.0	43.3	178	124	Vert.	53.9	10.6	
1101.562	51.0	PK	24.6	-35.0	40.6	75	100	Hori.	73.9	33.3	
1101.562	45.0	AV	24.6	-35.0	34.6	75	100	Hori.	53.9	19.3	
1301.844	43.8	AV	24.9	-34.7	34.0	68	100	Hori.	53.9	19.9	
1301.844	50.1	PK	24.9	-34.7	40.3	68	100	Hori.	73.9	33.6	
1301.850	50.2	PK	24.9	-34.7	40.4	152	100	Vert.	73.9	33.5	
1301.850	44.0	AV	24.9	-34.7	34.2	152	100	Vert.	53.9	19.8	
1575.420	45.9	PK	25.2	-34.3	36.8	0	100	Hori.	73.9	37.1	
1575.420	31.8	AV	25.2	-34.3	22.7	0	100	Hori.	53.9	31.3	
1575.420	46.2	PK	25.2	-34.3	37.1	0	100	Vert.	73.9	36.8	
1575.420	32.0	AV	25.2	-34.3	22.9	0	100	Vert.	53.9	31.0	
1702.410	42.2	AV	25.4	-34.2	33.4	154	100	Hori.	53.9	20.5	
1702.410	49.3	PK	25.4	-34.2	40.5	154	100	Hori.	73.9	33.4	
1702.413	52.4	PK	25.4	-34.2	43.6	351	100	Vert.	73.9	30.3	
1702.413	46.1	AV	25.4	-34.2	37.3	351	100	Vert.	53.9	16.6	

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)

*The limit is rounded down to one decimal place.
*The test result is rounded off to one or two decimal places, so some differences might be observed.

Antenna Terminal

DATA OF ANTENNA TERMINAL TEST

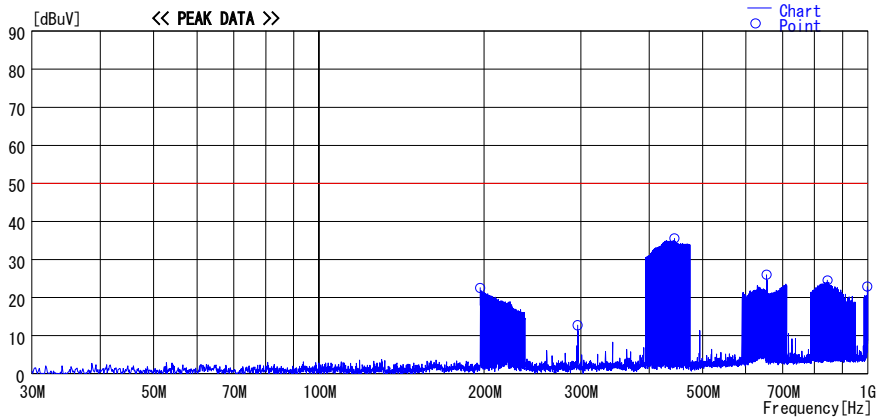
UL Japan, Inc. Head Office EMC Lab. No. 3 Semi Anechoic Chamber
Date : 2008/09/29

Company : Mitsubishi Electric Corporation Sanda works
Kind of EUT : Navigation system
Model No : NR-212-6U
Serial No. : ME395084170028

Report No. : 28JE0209-HO-01
Power : DC 12.0V
Temp./Humi. : 24deg.C. / 54%
Engineer : Kazufumi Nakai

Mode / Remarks : FM searching mode, Antenna Port Up, RBW/VBW: 100kHz/100kHz(below 1GHz), 1MHz/1MHz(above 1GHz)

LIMIT : FCC15.111 Antenna terminal measurement
Except for the data below : adequate margin data below the limits.



Frequency [MHz]	Reading [dBuV]	DET	Antenna Factor [dB/m]	Loss& Gain [dB]	Level [dBuV]	Polar.	Limit [dBuV]	Margin [dB]	Comment
196.901	48.5	PK	-	-25.9	22.6	-	50.0	27.4	
296.358	38.4	PK	-	-25.7	12.7	-	50.0	37.3	
444.809	61.2	PK	-	-25.6	35.6	-	50.0	14.4	
654.206	51.5	PK	-	-25.5	26.0	-	50.0	24.0	
844.809	49.1	PK	-	-24.5	24.6	-	50.0	25.4	
999.062	46.8	PK	-	-23.9	22.9	-	50.0	27.1	

CHART:WITH FACTOR
CALCULATION:RESULT = READING + LOSS(CABLE+ATTEN.) - GAIN(AMP)

*The limit is rounded down to one decimal place.
*The test result is rounded off to one or two decimal places, so some differences might be observed.

Antenna Terminal

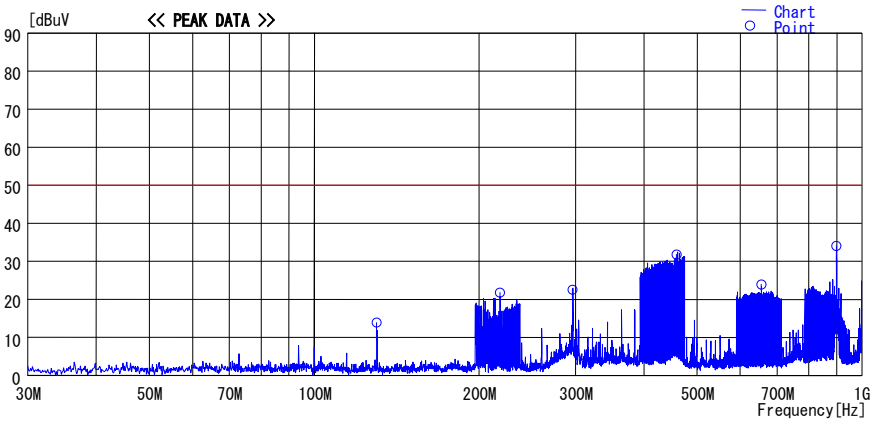
DATA OF ANTENNA TERMINAL TEST

UL Japan, Inc. Head Office EMC Lab. No. 3 Semi Anechoic Chamber
Date : 2008/09/29

Company	: Mitsubishi Electric Corporation Sanda works	Report No.	: 28JE0209-HO-01
Kind of EUT	: Navigation system	Power	: DC 12.0V
Model No	: NR-212-6U	Temp./Humi.	: 24deg.C. / 54%
Serial No.	: ME395084170028	Engineer	: Kazufumi Nakai

Mode / Remarks : FM searching mode, Antenna Port Down, RBW/VBW: 100kHz/100kHz(below 1GHz), 1MHz/1MHz(above 1GHz)

LIMIT : FCC15.111 Antenna terminal measurement
Except for the data below : adequate margin data below the limits.



Frequency [MHz]	Reading [dBuV]	DET	Antenna Factor [dB/m]	Loss& Gain [dB]	Level [dBuV]	Polar.	Limit [dBuV]	Margin [dB]	Comment
130.010	39.8	PK	-	-25.9	13.9	-	50.0	36.1	
218.395	47.6	PK	-	-25.8	21.8	-	50.0	28.2	
296.369	48.3	PK	-	-25.7	22.6	-	50.0	27.4	
459.205	57.4	PK	-	-25.6	31.8	-	50.0	18.2	
655.202	49.4	PK	-	-25.5	23.9	-	50.0	26.1	
899.164	58.4	PK	-	-24.3	34.1	-	50.0	15.9	

CHART:WITH FACTOR
CALCULATION:RESULT = READING + LOSS(CABLE+ATTEN.) - GAIN(AMP)

*The limit is rounded down to one decimal place.
*The test result is rounded off to one or two decimal places, so some differences might be observed.

Antenna Terminal

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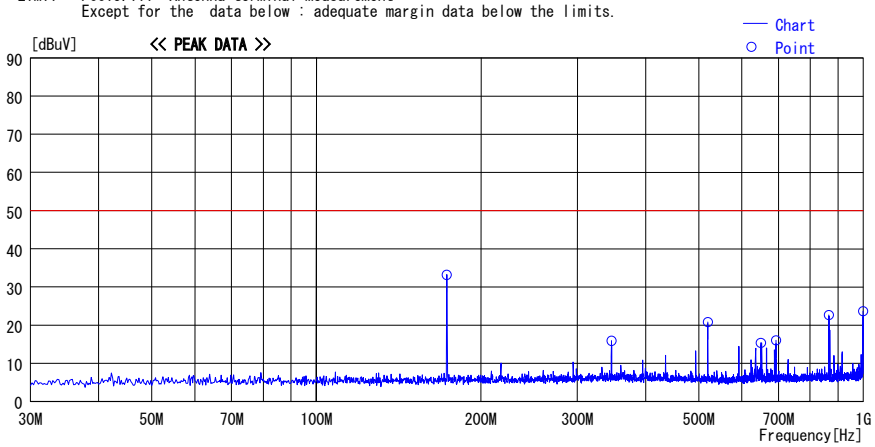
DATA OF ANTENNA TERMINAL TEST

UL Japan, Inc. Head Office EMC Lab. No.1 Semi Anechoic Chamber
Date : 2008/10/29

Company	: Mitsubishi Electric Corporation Sanda works	Report No.	: 28JE0209-HO-01
Kind of EUT	: Car Navigation system	Power	: DC 12.0V
Model No	: NR-212-6U	Temp./Humi.	: 22deg.C. / 40%
Serial No.	: ME395084170028	Engineer	: Akio Hayashi

Mode / Remarks : WB searching mode,Antenna Port up, RBW/VBW: 100kHz/100kHz(below 1GHz), 1MHz/1MHz(above 1GHz)

LIMIT : FCC15.111 Antenna terminal measurement
Except for the data below : adequate margin data below the limits.



Frequency [MHz]	Reading [dBuV]	DET	Antenna Factor [dB/m]	Loss& Gain [dB]	Level [dBuV]	Polar.	Limit [dBuV]	Margin [dB]	Comment
173.000	54.9	PK	-	-21.7	33.2	-	50.0	16.8	
346.335	37.3	PK	-	-21.4	15.9	-	50.0	34.1	
519.583	43.2	PK	-	-22.3	20.9	-	50.0	29.1	
650.007	37.5	PK	-	-22.2	15.3	-	50.0	34.7	
692.509	38.1	PK	-	-22.1	16.0	-	50.0	34.0	
865.839	44.2	PK	-	-21.5	22.7	-	50.0	27.3	
999.179	44.6	PK	-	-20.9	23.7	-	50.0	26.3	

CHART:WITH FACTOR
CALCULATION:RESULT = READING + LOSS(CABLE+ATTEN.) - GAIN(AMP)

*The limit is rounded down to one decimal place.
*The test result is rounded off to one or two decimal places, so some differences might be observed.

Antenna Terminal

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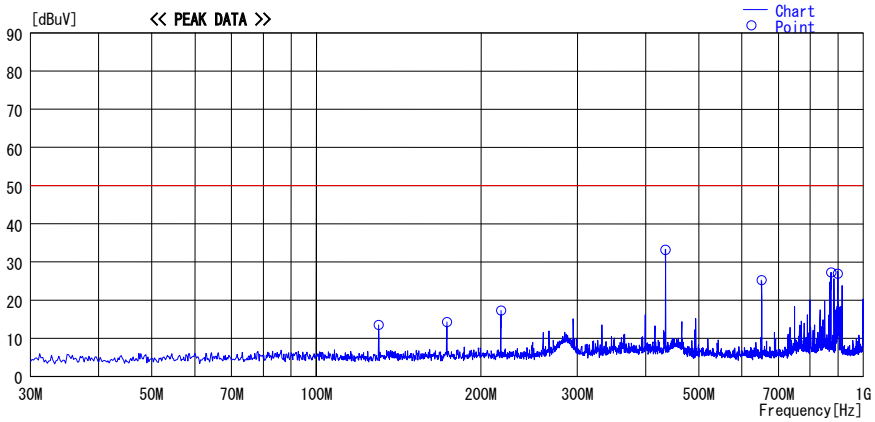
DATA OF ANTENNA TERMINAL TEST

UL Japan, Inc. Head Office EMC Lab. No.1 Semi Anechoic Chamber
Date : 2008/10/29

Company	: Mitsubishi Electric Corporation Sanda works	Report No.	: 28JE0209-HO-01
Kind of EUT	: Car Navigation system	Power	: DC 12.0V
Model No	: NR-212-6U	Temp./Humi.	: 22deg.C. / 40%
Serial No.	: ME395084170028	Engineer	: Akio Hayashi

Mode / Remarks : WB searching mode,Antenna Port down, RBW/VBW: 100kHz/100kHz(below 1GHz), 1MHz/1MHz(above 1GHz)

LIMIT : FCC15.111 Antenna terminal measurement
Except for the data below : adequate margin data below the limits.



Frequency [MHz]	Reading [dBuV]	DET	Antenna Factor [dB/m]	Loss& Gain [dB]	Level [dBuV]	Polar.	Limit [dBuV]	Margin [dB]	Comment
129.999	35.6	PK	-	-22.0	13.6	-	50.0	36.4	
173.250	36.0	PK	-	-21.7	14.3	-	50.0	35.7	
217.500	38.8	PK	-	-21.5	17.3	-	50.0	32.7	
434.671	55.0	PK	-	-21.8	33.2	-	50.0	16.8	
652.090	47.4	PK	-	-22.2	25.2	-	50.0	24.8	
873.756	48.8	PK	-	-21.5	27.3	-	50.0	22.7	
899.174	48.3	PK	-	-21.4	26.9	-	50.0	23.1	

CHART:WITH FACTOR
CALCULATION:RESULT = READING + LOSS(CABLE+ATTEN.) - GAIN(AMP)

*The limit is rounded down to one decimal place.
*The test result is rounded off to one or two decimal places, so some differences might be observed.

Antenna Terminal

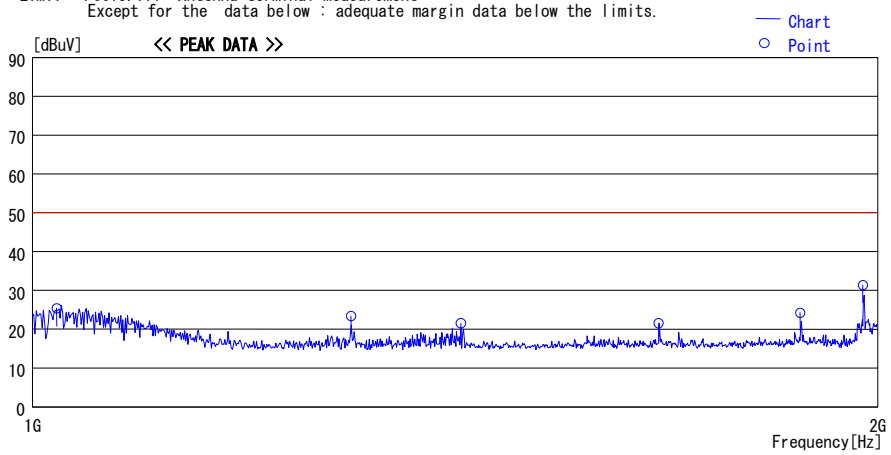
DATA OF ANTENNA TERMINAL TEST

UL Japan, Inc. Head Office EMC Lab. No. 3 Semi Anechoic Chamber
Date : 2008/09/29

Company	: Mitsubishi Electric Corporation Sanda works	Report No.	: 28JE0209-HO-01
Kind of EUT	: Navigation system	Power	: DC 12.0V
Model No	: NR-212-6U	Temp./Humi.	: 24deg.C. / 54%
Serial No.	: ME395084170028	Engineer	: Kazufumi Nakai

Mode / Remarks: FM searching mode, Antenna Port Up, RBW/VBW: 100kHz/100kHz(below 1GHz), 1MHz/1MHz(above 1GHz)

LIMIT : FCC15.111 Antenna terminal measurement
Except for the data below : adequate margin data below the limits.



Frequency [MHz]	Reading [dBuV]	DET	Antenna Factor [dB/m]	Loss& Gain [dB]	Level [dBuV]	Polar.	Limit [dBuV]	Margin [dB]	Comment
1019.961	52.6	PK	-	-27.2	25.4	-	50.0	24.6	
1298.490	49.4	PK	-	-26.0	23.4	-	50.0	26.6	
1420.714	47.1	PK	-	-25.5	21.6	-	50.0	28.4	
1671.188	46.4	PK	-	-24.8	21.6	-	50.0	28.4	
1877.104	48.7	PK	-	-24.4	24.3	-	50.0	25.7	
1975.870	55.5	PK	-	-24.1	31.4	-	50.0	18.6	

CHART:WITH FACTOR
CALCULATION:RESULT = READING + LOSS(CABLE+ATTEN.) - GAIN(AMP)

*The limit is rounded down to one decimal place.
*The test result is rounded off to one or two decimal places, so some differences might be observed.

Antenna Terminal

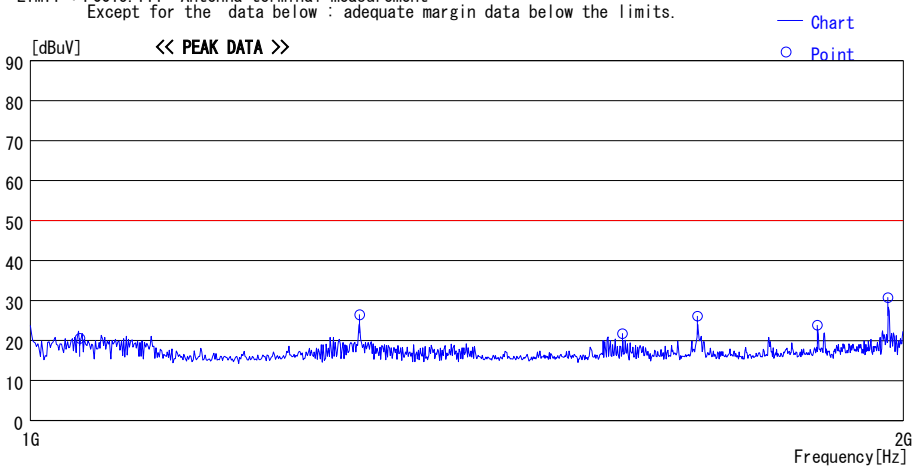
DATA OF ANTENNA TERMINAL TEST

UL Japan, Inc. Head Office EMC Lab. No. 3 Semi Anechoic Chamber
Date : 2008/09/29

Company	: Mitsubishi Electric Corporation Sanda works	Report No.	: 28JE0209-HO-01
Kind of EUT	: Navigation system	Power	: DC 12.0V
Model No	: NR-212-6U	Temp./Humi.	: 24deg.C. / 54%
Serial No.	: ME395084170028	Engineer	: Kazufumi Nakai

Mode / Remarks : FM searching mode, Antenna Port Down, RBW/VBW: 100kHz/100kHz(below 1GHz), 1MHz/1MHz(above 1GHz)

LIMIT : FCC15.111 Antenna terminal measurement
Except for the data below : adequate margin data below the limits.



Frequency [MHz]	Reading [dBuV]	DET	Antenna Factor [dB/m]	Loss& Gain [dB]	Level [dBuV]	Polar.	Limit [dBuV]	Margin [dB]	Comment
1040.082	47.7	PK	-	-27.1	20.6	-	50.0	29.4	
1298.766	52.5	PK	-	-26.0	26.5	-	50.0	23.5	
1600.183	46.7	PK	-	-25.0	21.7	-	50.0	28.3	
1698.495	50.9	PK	-	-24.8	26.1	-	50.0	23.9	
1867.946	48.2	PK	-	-24.4	23.8	-	50.0	26.2	
1975.608	54.8	PK	-	-24.1	30.7	-	50.0	19.3	

CHART:WITH FACTOR
CALCULATION:RESULT = READING + LOSS(CABLE+ATTEN.) - GAIN(AMP)

*The limit is rounded down to one decimal place.
*The test result is rounded off to one or two decimal places, so some differences might be observed.

Antenna Terminal

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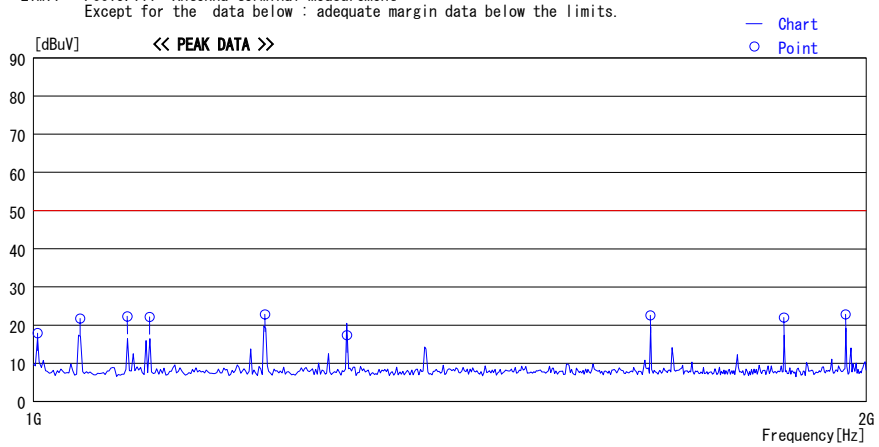
DATA OF ANTENNA TERMINAL TEST

UL Japan, Inc. Head Office EMC Lab. No.1 Semi Anechoic Chamber
Date : 2008/10/29

Company	: Mitsubishi Electric Corporation Sanda works	Report No.	: 28JE0209-HO-01
Kind of EUT	: Car Navigation system	Power	: DC 12.0V
Model No	: NR-212-6U	Temp./Humi.	: 22deg.C. / 40%
Serial No.	: ME395084170028	Engineer	: Akio Hayahshi

Mode / Remarks : WB searching mode,Antenna Port Up, RBW/VBW: 100kHz/100kHz(below 1GHz), 1MHz/1MHz(above 1GHz)

LIMIT : FCC15.111 Antenna terminal measurement
Except for the data below : adequate margin data below the limits.



Frequency [MHz]	Reading [dBuV]	DET	Antenna Factor [dB/m]	Loss& Gain [dB]	Level [dBuV]	Polar.	Limit [dBuV]	Margin [dB]	Comment
1003.333	46.9	PK	-	-29.0	17.9	-	50.0	32.1	
1039.562	50.6	PK	-	-28.9	21.7	-	50.0	28.3	
1081.423	51.2	PK	-	-28.9	22.3	-	50.0	27.7	
1101.616	50.9	PK	-	-28.7	22.2	-	50.0	27.8	
1212.568	51.3	PK	-	-28.5	22.8	-	50.0	27.2	
1298.327	45.7	PK	-	-28.3	17.4	-	50.0	32.6	
1671.168	50.3	PK	-	-27.7	22.6	-	50.0	27.4	
1867.804	49.6	PK	-	-27.6	22.0	-	50.0	28.0	
1966.119	50.2	PK	-	-27.4	22.8	-	50.0	27.2	

CHART:WITH FACTOR
CALCULATION:RESULT = READING + LOSS(CABLE+ATTEN.) - GAIN(AMP)

*The limit is rounded down to one decimal place.
*The test result is rounded off to one or two decimal places, so some differences might be observed.

Antenna Terminal

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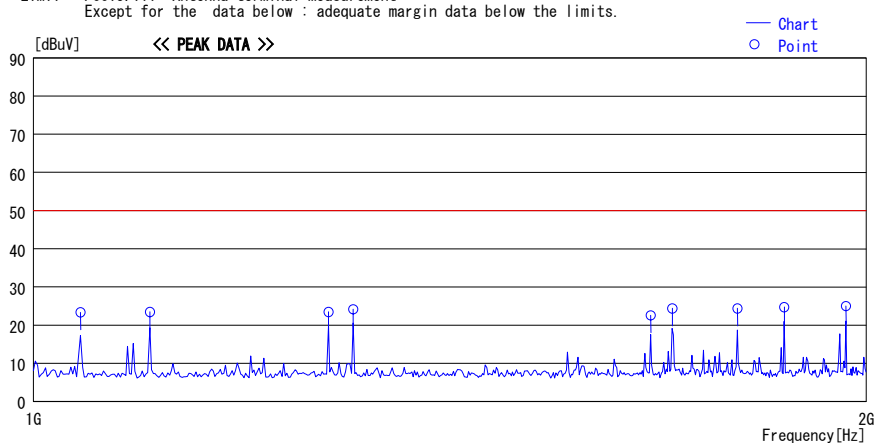
DATA OF ANTENNA TERMINAL TEST

UL Japan, Inc. Head Office EMC Lab. No.1 Semi Anechoic Chamber
Date : 2008/10/29

Company	: Mitsubishi Electric Corporation Sanda works	Report No.	: 28JE0209-HO-01
Kind of EUT	: Car Navigation system	Power	: DC 12.0V
Model No	: NR-212-6U	Temp./Humi.	: 22deg.C. / 40%
Serial No.	: ME395084170028	Engineer	: Akio Hayahshi

Mode / Remarks : WB searching mode,Antenna Port Down, RBW/VBW: 100kHz/100kHz(below 1GHz), 1MHz/1MHz(above 1GHz)

LIMIT : FCC15.111 Antenna terminal measurement
Except for the data below : adequate margin data below the limits.



Frequency [MHz]	Reading [dBuV]	DET	Antenna Factor [dB/m]	Loss& Gain [dB]	Level [dBuV]	Polar.	Limit [dBuV]	Margin [dB]	Comment
1040.000	52.3	PK	-	-28.9	23.4	-	50.0	26.6	
1101.665	52.2	PK	-	-28.7	23.5	-	50.0	26.5	
1278.327	51.8	PK	-	-28.4	23.4	-	50.0	26.6	
1304.993	52.5	PK	-	-28.3	24.2	-	50.0	25.8	
1671.651	50.2	PK	-	-27.7	22.5	-	50.0	27.5	
1701.650	52.1	PK	-	-27.7	24.4	-	50.0	25.6	
1796.648	52.0	PK	-	-27.6	24.4	-	50.0	25.6	
1868.313	52.4	PK	-	-27.6	24.8	-	50.0	25.2	
1966.644	52.4	PK	-	-27.4	25.0	-	50.0	25.0	

CHART:WITH FACTOR
CALCULATION:RESULT = READING + LOSS(CABLE+ATTEN.) - GAIN(AMP)

*The limit is rounded down to one decimal place.
*The test result is rounded off to one or two decimal places, so some differences might be observed.

APPENDIX 3: Test instruments

EMI test equipment

Control No.	Instrument	Manufacturer	Model No	Test Item	Calibration Date * Interval(month)
MAEC-03	Anechoic Chamber	TDK	Semi Anechoic Chamber 3m	RE	2008/03/25 * 12
MOS-13	Thermo-Hygrometer	Custom	CTH-180	RE	2008/01/10 * 12
MJM-06	Measure	PROMART	SEN1955	RE	-
MSTW-14	EMI measurement program	TSJ	TEPTO-DV	RE/AT	-
MSA-09	Spectrum Analyzer	Advantest	R3273	RE	2007/12/21 * 12
MTR-08	Test Receiver	Rohde & Schwarz	ESCI	RE	2008/06/12 * 12
MBA-03	Biconical Antenna	Schwarzbeck	BBA9106	RE	2008/01/12 * 12
MLA-03	Logperiodic Antenna	Schwarzbeck	USLP9143	RE	2008/01/12 * 12
MCC-51	Coaxial cable	UL Japan	-	RE	2008/07/18 * 12
MAT-30	Attenuator(6dB)	TME	UFA-01	RE	2008/03/10 * 12
MPA-13	Pre Amplifier	SONOMA INSTRUMENT	310	RE	2008/03/06 * 12
MHA-20	Horn Antenna 1-18GHz	Schwarzbeck	BBHA9120D	RE	2008/04/23 * 12
MCC-56	Microwave Cable 1G-26.5GHz	Suhner	SUCOFLEX104	RE/AT	2008/03/12 * 12
MPA-11	MicroWave System Amplifier	Agilent	83017A	RE/AT	2008/03/13 * 12
MMP-01	Matching Pad Anritsu	Anritsu	MB-009	AT	2008/06/23 * 12
MCC-64	Coaxial Cable	TOYO Technica Corporation	-	AT	2008/03/11 * 12
MAEC-01	Anechoic Chamber	TDK	Semi Anechoic Chamber 10m	RE	2007/11/23 * 12
MBA-01	Biconical Antenna	Schwarzbeck	BBA9106	RE	2008/10/18 * 12
MLA-09	Logperiodic Antenna	Schwarzbeck	USLP9143B	RE	2008/10/18 * 12
MAT-06	Attenuator(6dB)	Weinschel Corp	2	RE	2007/11/14 * 12
MCC-01	Coaxial Cable 0.1-3000MHz	Suhner/storm/Agilent/ TSJ	-	RE	2008/10/02 * 12
MPA-04	Pre Amplifier	Agilent	8447D	RE/AT	2008/07/23 * 12
MTR-01	Test Receiver	Rohde & Schwarz	ESI40	RE	2007/10/19 * 12
MOS-01	Digital Humidity Indicator	N.T	NT-1800	RE/AT	2007/11/12 * 12
MJM-01	Measure	KDS	ES19-55	RE	-
MHA-05	Horn Antenna 1-18GHz	Schwarzbeck	BBHA9120D	RE	2008/01/19 * 12
MCC-18	Microwave Cable 1G-26.5GHz	Suhner	SUCOFLEX 104	RE/AT	2008/09/09 * 12
MPA-01	Pre Amplifier	Agilent	8449B	RE/AT	2008/02/12 * 12
MSA-10	Spectrum Analyzer	Agilent	E4448A	RE/AT	2008/02/27 * 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
AT: Antenna Terminal test