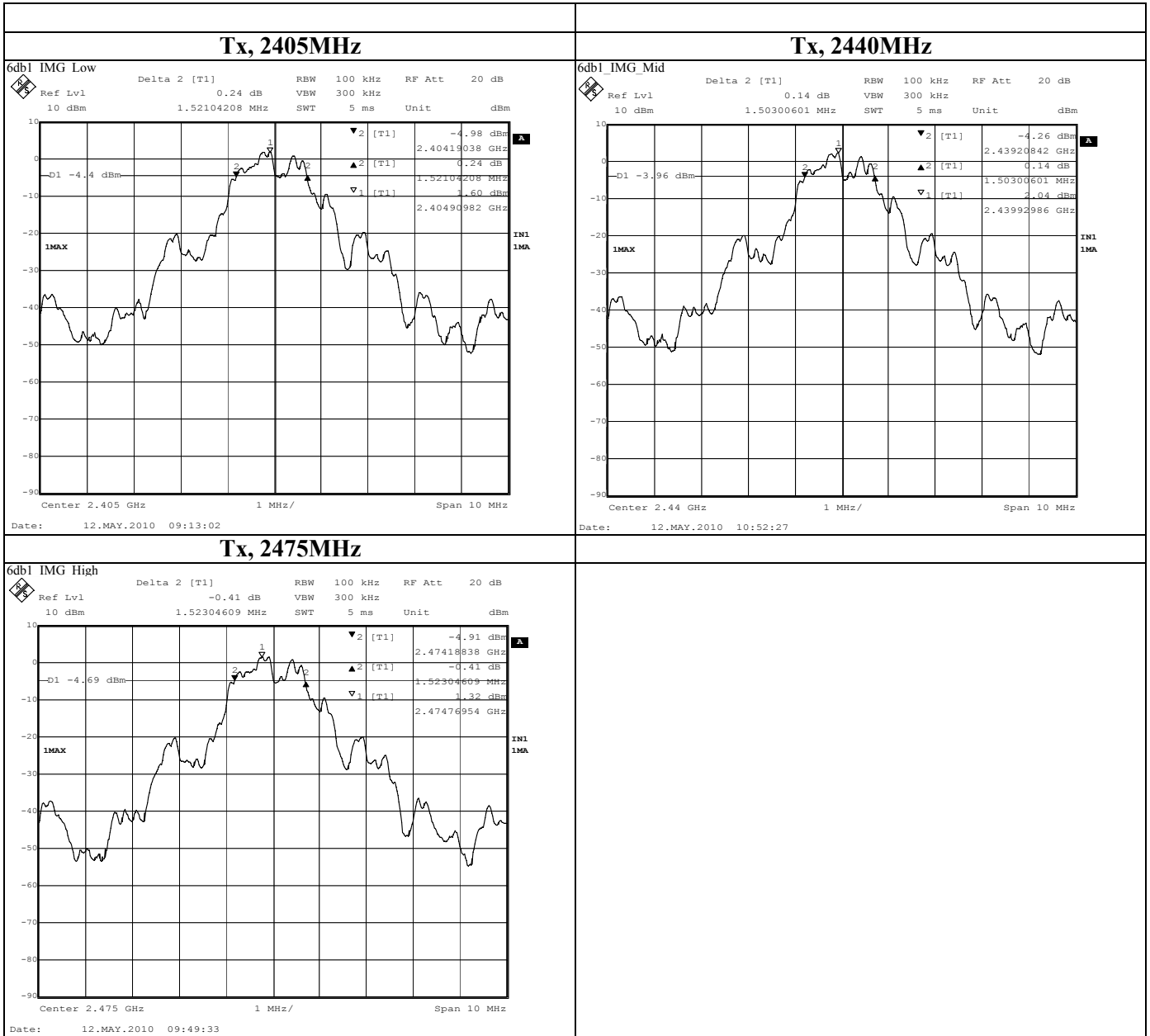

APPENDIX 2: Data of EMI test

6dB Bandwidth

Test place UL Japan, Inc. Shonan EMC Lab. No.3 Shielded Room
Date May 12, 2010
Temperature / Humidity 23deg.C. , 57%
Engineer Kenichi Adachi
Mode Tx,

Frequency [MHz]	6dB Bandwidth [MHz]	Limit [kHz]
2405	1.521	>500
2440	1.503	>500
2475	1.523	>500

6dB Bandwidth



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Peak Output Power (Conducted)

Test place UL Japan, Inc. Shonan EMC Lab. No.3 Shielded Room
Date May 12, 2010
Temperature / Humidity 23deg.C. , 57%
Engineer Kenichi Adachi
Mode Tx,

Ch	Freq. [MHz]	P/M Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		Limit		Margin [dB]
					[dBm]	[mW]	[dBm]	[mW]	
Low	2405.0	-2.54	0.38	9.98	7.82	6.05	30.00	1000	22.18
Mid	2440.0	-2.98	0.41	9.98	7.41	5.51	30.00	1000	22.59
High	2475.0	-3.35	0.46	9.98	7.09	5.12	30.00	1000	22.91

Sample Calculation:

Result = Reading + Cable Loss (supplied by customer) + Atten. Loss

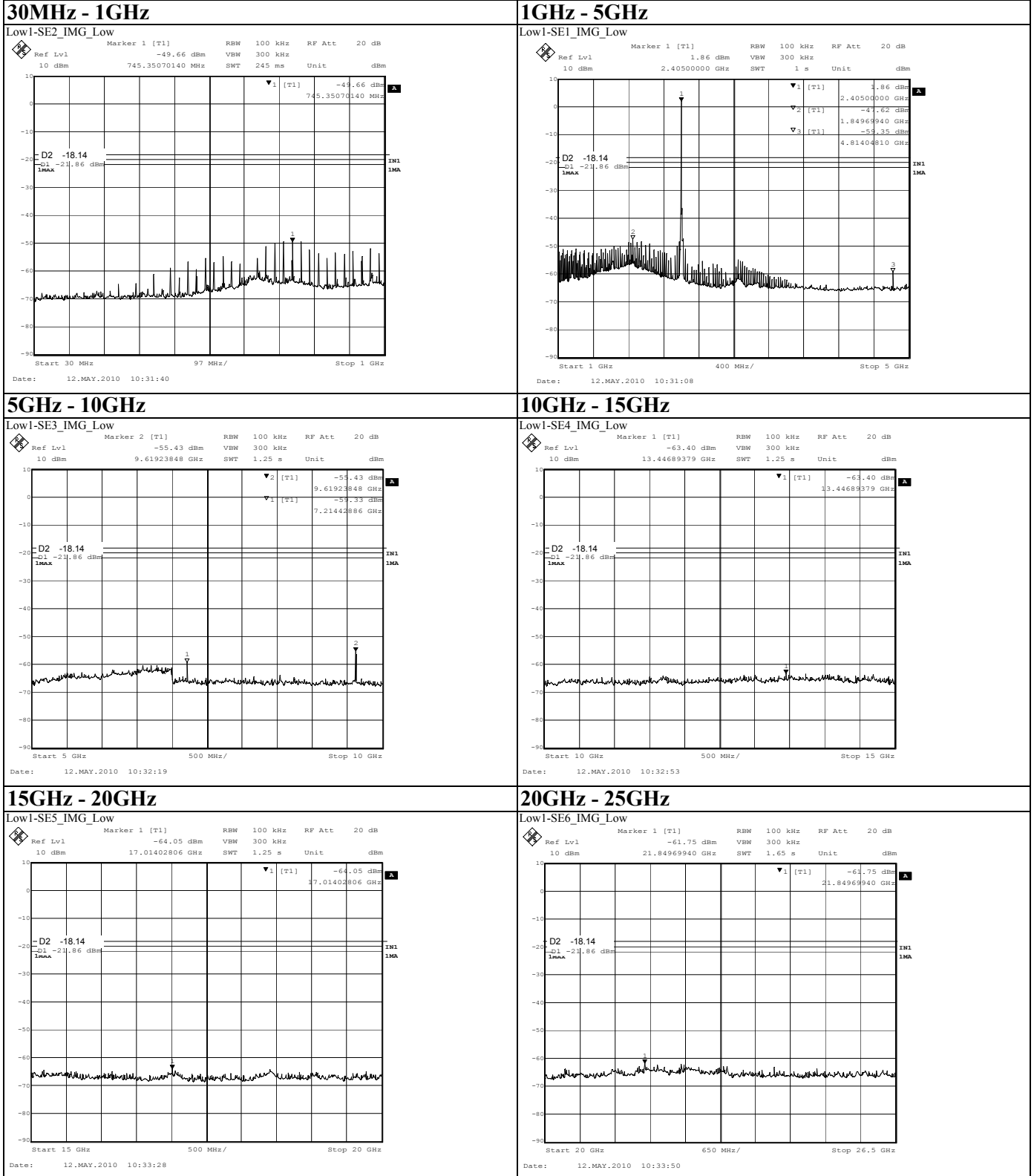
*All comparison were carried out on same frequency and measurement factors.

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Spurious emission (Conducted)(Reference chart)

Tx, 2405MHz

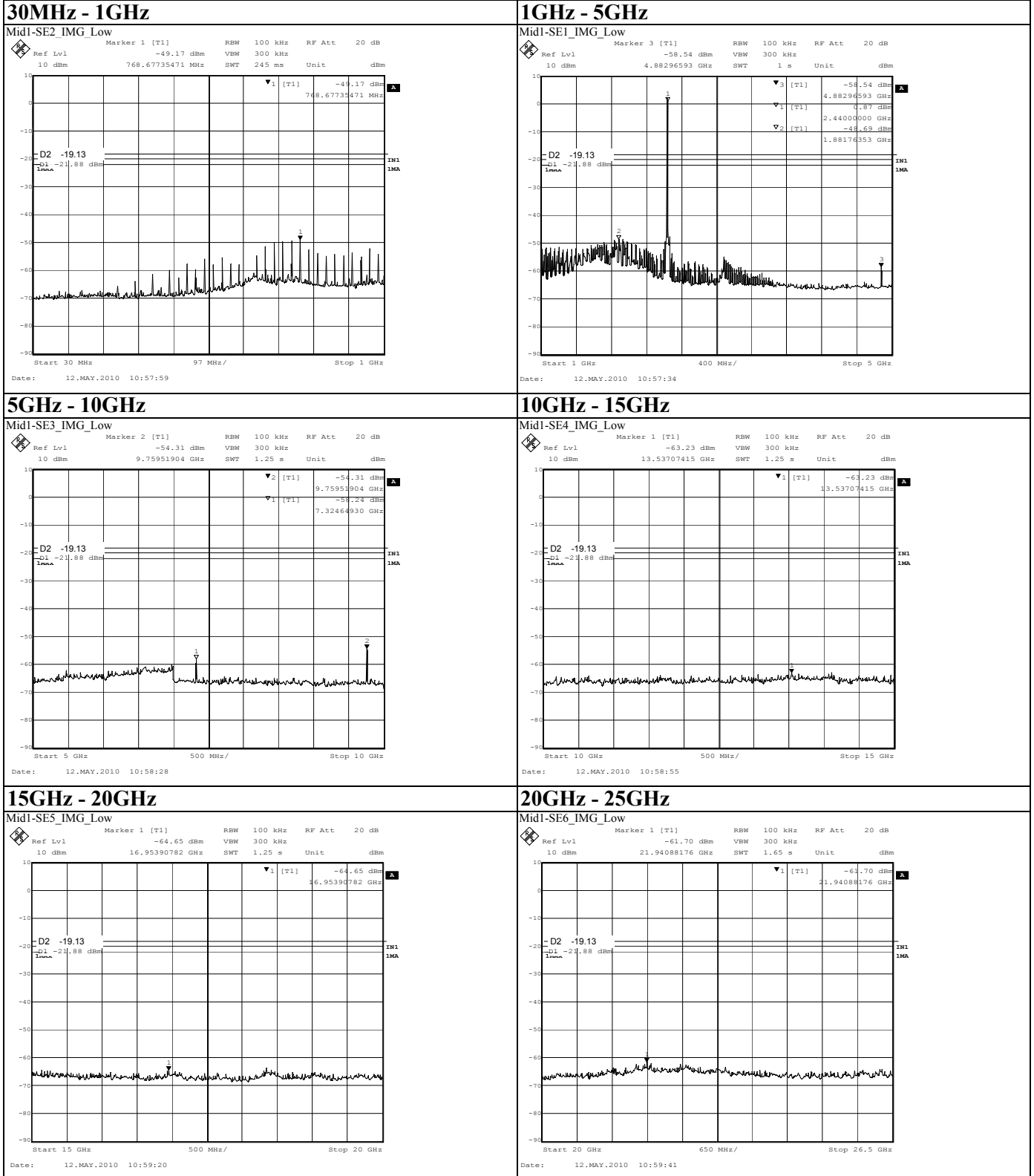


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Spurious emission (Conducted)(Reference chart)

Tx, 2440MHz

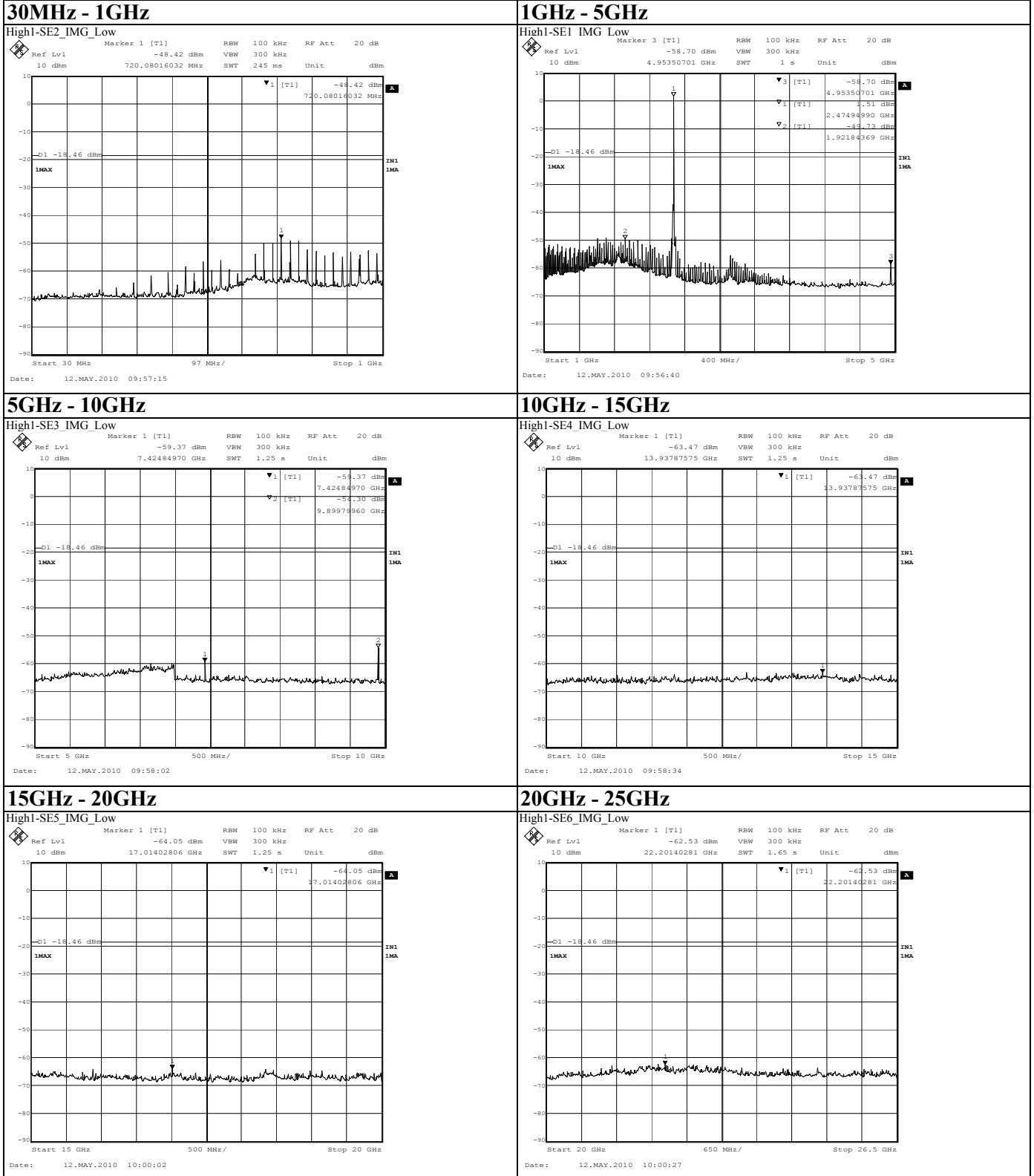


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Spurious emission (Conducted)(Reference chart)

Tx, 2475MHz

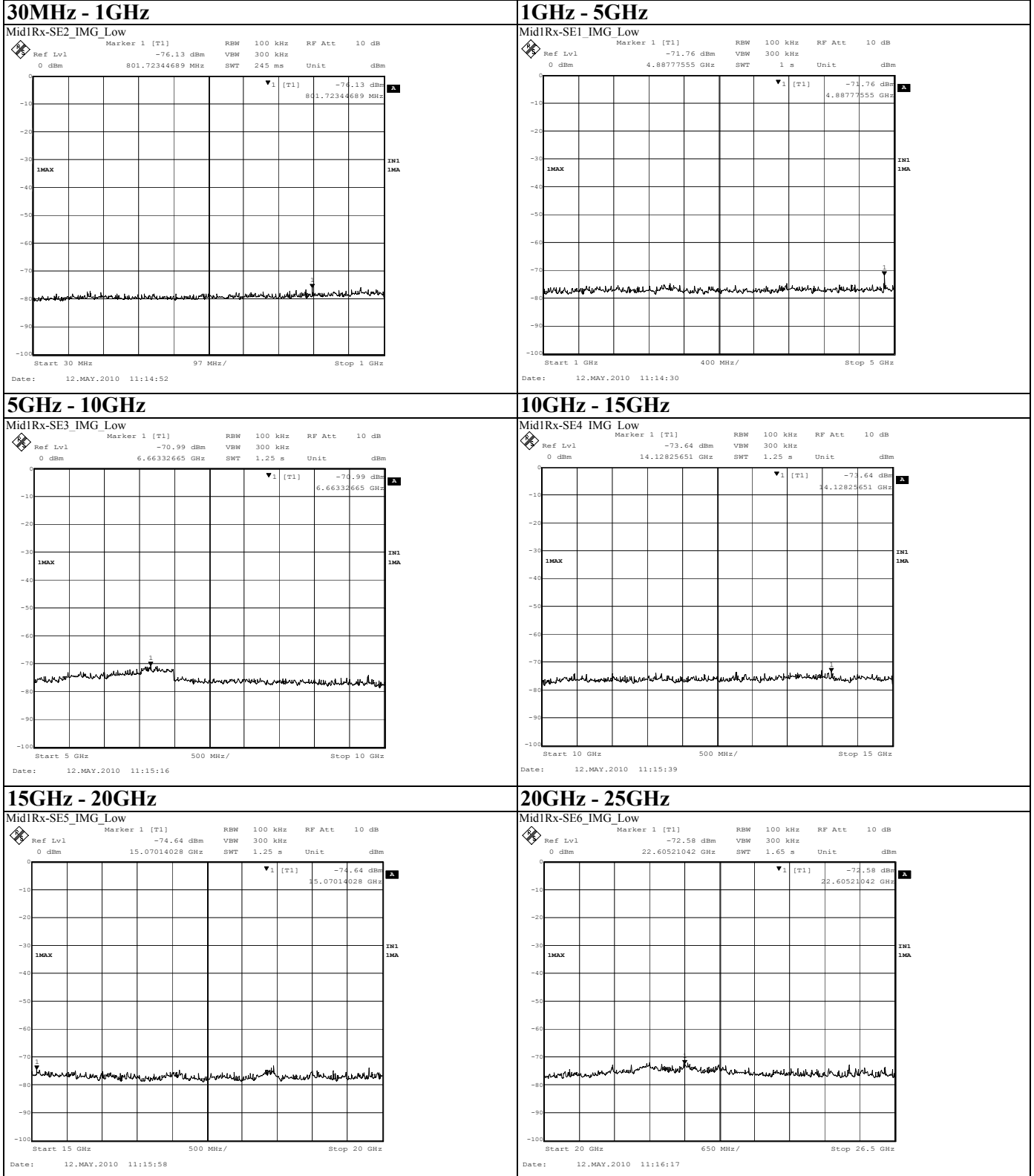


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Spurious emission (Conducted)(Reference chart)

Rx, 2440MHz



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Radiated Emission

Test place : UL Japan, Inc. Shonan EMC Lab. No.3 Semi-Anechoic Chamber
 Date : June 7, 2010
 Temperature / Humidity : 25deg.C., 56%
 Engineer : Kenichi Adachi

Mode : Tx, 2405 MHz
 Worst EUT module-axis : above1GHz H: Y-axis, V: Z-axis below1GHz H: Y-axis, V: Z-axis
 Worst EUT antenna-axis : H: Y-axis, V: Z-axis H: Y-axis, V: Y-axis

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty factor[dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori	647.983	QP	41.8	19.6	9.8	31.9	-	39.3	46.0	-	133	131	reference data (20dBc is final result)
Hori	839.994	QP	42.0	21.1	10.5	31.4	-	42.2	46.0	-	100	139	reference data (20dBc is final result)
Hori	983.985	QP	36.9	22.7	10.9	30.3	-	40.2	53.9	13.7	149	153	
Vert	647.983	QP	35.4	19.6	9.8	31.9	-	32.9	46.0	-	100	68	reference data (20dBc is final result)
Vert	839.994	QP	35.8	21.1	10.5	31.4	-	36.0	46.0	-	100	108	reference data (20dBc is final result)
Vert	983.985	QP	28.7	22.7	10.9	30.3	-	32.0	53.9	21.9	100	287	
Hori	1708.887	PK	69.2	25.5	2.8	40.2	-	57.3	73.9	16.6	124	158	
Hori	2380.541	PK	69.4	27.6	3.3	40.2	-	60.1	73.9	13.8	113	182	
Hori	2390.000	PK	64.5	27.6	3.3	40.2	-	55.2	73.9	18.7	113	182	
Hori	2400.000	PK	77.6	27.6	3.3	40.2	-	68.3	73.9	-	113	182	reference data (20dBc is final result)
Hori	4810.000	PK	69.8	30.6	5.5	40.1	-	65.8	73.9	8.1	135	294	
Hori	7215.000	PK	64.1	36.0	6.7	38.3	-	68.5	73.9	5.4	134	354	
Hori	9620.000	PK	59.0	38.4	7.8	37.3	-	67.9	73.9	6.0	127	80	
Hori	24050.000	PK	44.9	39.7	-1.7	45.0	-	37.9	73.9	36.0	100	0	noise floor level
Vert	1708.887	PK	63.6	25.5	2.8	40.2	-	51.7	73.9	22.2	121	162	
Vert	2380.541	PK	67.2	27.6	3.3	40.2	-	57.9	73.9	16.0	109	200	
Vert	2390.000	PK	63.2	27.6	3.3	40.2	-	53.9	73.9	20.0	109	200	
Vert	2400.000	PK	76.4	27.6	3.3	40.2	-	67.1	73.9	-	109	200	reference data (20dBc is final result)
Vert	4810.000	PK	70.7	30.6	5.5	40.1	-	66.7	73.9	7.2	101	94	
Vert	7215.000	PK	58.3	36.0	6.7	38.3	-	62.7	73.9	11.2	100	300	
Vert	9620.000	PK	57.7	38.4	7.8	37.3	-	66.6	73.9	7.3	100	285	
Vert	24050.000	PK	45.0	39.7	-1.7	45.0	-	38.0	73.9	35.9	100	0	noise floor level
Hori	1708.887	AV	69.2	25.5	2.8	40.2	30.5	26.8	53.9	27.1	124	158	
Hori	2380.541	AV	69.4	27.6	3.3	40.2	30.5	29.6	53.9	24.3	113	182	
Hori	2390.000	AV	64.5	27.6	3.3	40.2	30.5	24.7	53.9	29.2	113	182	
Hori	2400.000	AV	77.6	27.6	3.3	40.2	30.5	37.8	53.9	-	113	182	reference data (20dBc is final result)
Hori	4810.000	AV	69.8	30.6	5.5	40.1	30.5	35.3	53.9	18.6	135	294	
Hori	7215.000	AV	64.1	36.0	6.7	38.3	30.5	38.0	53.9	15.9	134	354	
Hori	9620.000	AV	59.0	38.4	7.8	37.3	30.5	37.4	53.9	16.5	127	80	
Hori	24050.000	AV	44.9	39.7	-1.7	45.0	30.5	7.4	53.9	46.5	100	0	noise floor level
Vert	1708.887	AV	63.6	25.5	2.8	40.2	30.5	21.2	53.9	32.7	121	162	
Vert	2380.541	AV	67.2	27.6	3.3	40.2	30.5	27.4	53.9	26.5	109	200	
Vert	2390.000	AV	63.2	27.6	3.3	40.2	30.5	23.4	53.9	30.5	109	200	
Vert	2400.000	AV	76.4	27.6	3.3	40.2	30.5	36.6	53.9	-	109	200	reference data (20dBc is final result)
Vert	4810.000	AV	70.7	30.6	5.5	40.1	30.5	36.2	53.9	17.7	101	94	
Vert	7215.000	AV	58.3	36.0	6.7	38.3	30.5	32.2	53.9	21.7	100	300	
Vert	9620.000	AV	57.7	38.4	7.8	37.3	30.5	36.1	53.9	17.8	100	285	
Vert	24050.000	AV	45.0	39.7	-1.7	45.0	30.5	7.5	53.9	46.4	100	0	noise floor level

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 13GHz)) - Duty factor(AV only) - Gain(Amplifier)

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

*The 10th harmonic was not seen so the result was its base noise level.

(*PK/AV: RBW1MHz,VBW3MHz)

*Duty factor = 20 x log ((worst on times = 4.096 [ms]) / (worst 1 slot times = 136.5333[ms]))(-1) = 30.46 dB

Distance factor: 13GHz-40GHz 20log(3.0m/1.0m)= 9.5dB

20dBc Data Sheet (RBW 100kHz, VBW 300kHz)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	647.983	PK	42.9	19.6	9.8	31.9	-	40.4	82.8	42.4
Hori	839.994	PK	43.1	21.1	10.5	31.4	-	43.3	82.8	39.5
Hori	2405.000	PK	112.1	27.6	3.3	40.2	-	102.8	-	Carrier
Hori	2400.000	PK	70.4	27.6	3.3	40.2	-	61.1	82.8	21.7
Vert	647.983	PK	36.6	19.6	9.8	31.9	-	34.1	81.5	47.4
Vert	839.994	PK	36.7	21.1	10.5	31.4	-	36.9	81.5	44.6
Vert	2405.000	PK	110.8	27.6	3.3	40.2	-	101.5	-	Carrier
Vert	2400.000	PK	69.6	27.6	3.3	40.2	-	60.3	81.5	21.2

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 13GHz)) - Gain(Amplifier)

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Radiated Emission

Test place UL Japan, Inc. Shonan EMC Lab. No.3 Semi-Anechoic Chambe
 Date June 7, 2010
 Temperature / Humidity 25deg.C., 56%
 Engineer Kenichi Adachi

Mode Tx, 2440 MHz
 Worst EUT module-axis above1GHz H: Y-axis, V: Z-axis below1GHz H: Y-axis, V: Z-axis
 Worst EUT antenna-axis H: Y-axis, V: Z-axis H: Y-axis, V: Y-axis

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty factor[dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori	647.986	QP	41.6	19.6	9.8	31.9	-	39.1	46.0	-	135	30	reference data (20dBc is final result)
Hori	887.985	QP	40.0	21.7	10.6	31.1	-	41.2	46.0	-	100	148	reference data (20dBc is final result)
Hori	983.986	QP	38.1	22.7	10.9	30.3	-	41.4	53.9	12.5	144	157	
Vert	647.986	QP	35.2	19.6	9.8	31.9	-	32.7	46.0	-	100	69	reference data (20dBc is final result)
Vert	887.985	QP	33.5	21.7	10.6	31.1	-	34.7	46.0	-	151	112	reference data (20dBc is final result)
Vert	983.986	QP	33.7	22.7	10.9	30.3	-	37.0	53.9	16.9	114	111	
Hori	1695.885	PK	64.2	25.5	2.8	40.2	-	52.3	73.9	21.6	128	156	
Hori	2392.475	PK	64.2	27.6	3.3	40.2	-	54.9	73.9	19.0	112	181	
Hori	4880.000	PK	68.9	30.8	5.6	40.0	-	65.3	73.9	8.6	137	293	
Hori	7320.000	PK	61.8	36.0	6.9	38.5	-	66.2	73.9	7.7	131	351	
Hori	9760.000	PK	58.7	38.4	7.8	37.4	-	67.5	73.9	6.4	128	238	
Hori	24400.000	PK	45.1	40.1	-1.8	45.4	-	38.0	73.9	35.9	100	0	noise floor level
Vert	1695.885	PK	63.0	25.5	2.8	40.2	-	51.1	73.9	22.8	144	266	
Vert	2392.475	PK	61.9	27.6	3.3	40.2	-	52.6	73.9	21.3	111	214	
Vert	4880.000	PK	69.5	30.8	5.6	40.0	-	65.9	73.9	8.0	151	88	
Vert	7320.000	PK	58.1	36.0	6.9	38.5	-	62.5	73.9	11.4	134	294	
Vert	9760.000	PK	57.6	38.4	7.8	37.4	-	66.4	73.9	7.5	113	278	
Vert	24400.000	PK	45.0	40.1	-1.8	45.4	-	37.9	73.9	36.0	100	0	noise floor level
Hori	1695.885	AV	64.2	25.5	2.8	40.2	30.5	21.8	53.9	32.1	128	156	
Hori	2392.475	AV	64.2	27.6	3.3	40.2	30.5	24.4	53.9	29.5	112	181	
Hori	4880.000	AV	68.9	30.8	5.6	40.0	30.5	34.8	53.9	19.1	137	293	
Hori	7320.000	AV	61.8	36.0	6.9	38.5	30.5	35.7	53.9	18.2	131	351	
Hori	9760.000	AV	58.7	38.4	7.8	37.4	30.5	37.0	53.9	16.9	128	238	
Hori	24400.000	AV	32.7	40.1	-1.8	45.4	30.5	-4.9	53.9	58.8	100	0	noise floor level
Vert	1695.885	AV	63.0	25.5	2.8	40.2	30.5	20.6	53.9	33.3	144	266	
Vert	2392.475	AV	61.9	27.6	3.3	40.2	30.5	22.1	53.9	31.8	111	214	
Vert	4880.000	AV	69.5	30.8	5.6	40.0	30.5	35.4	53.9	18.5	151	88	
Vert	7320.000	AV	58.1	36.0	6.9	38.5	30.5	32.0	53.9	21.9	134	294	
Vert	9760.000	AV	57.6	38.4	7.8	37.4	30.5	35.9	53.9	18.0	113	278	
Vert	24400.000	AV	32.6	40.1	-1.8	45.4	30.5	-5.0	53.9	58.9	100	0	noise floor level

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 13GHz)) - Duty factor(AV only) - Gain(Amplifier)

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

*The 10th harmonic was not seen so the result was its base noise level.

(*PK/AV: RBW1MHz,VBW3MHz)

*Duty factor = 20 x log ((worst on times = 4.096 [ms]) / (worst 1 slot times = 136.5333[ms]))(-1) = 30.46 dB

Distance factor: 13GHz-40GHz 20log(3.0m/1.0m)= 9.5dB

20dBc Data Sheet (RBW 100kHz, VBW 300kHz)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	647.986	PK	42.8	19.6	9.8	31.9	40.3	81.6	41.3	
Hori	887.985	PK	41.1	21.7	10.6	31.1	42.3	81.6	39.3	
Hori	2440.000	PK	110.9	27.6	3.3	40.2	101.6	-	-	Carrier
Vert	647.986	PK	36.3	19.6	9.8	31.9	33.8	79.0	45.2	
Vert	887.985	PK	34.7	21.7	10.6	31.1	35.9	79.0	43.1	
Vert	2440.000	PK	108.3	27.6	3.3	40.2	99.0	-	-	Carrier

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 13GHz)) - Gain(Amplifier)

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Radiated Emission

Test place : UL Japan, Inc. Shonan EMC Lab. No.3 Semi-Anechoic Chamber
 Date : June 7, 2010
 Temperature / Humidity : 25deg.C., 56%
 Engineer : Kenichi Adachi

Mode : Tx, 2475 MHz
 Worst EUT module-axis : above1GHz H: Y-axis, V: Z-axis below1GHz H: Y-axis, V: Z-axis
 Worst EUT antenna-axis : H: Y-axis, V: Z-axis H: Y-axis, V: Y-axis

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty factor[dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori	647.986	QP	42.0	19.6	9.8	31.9	-	39.5	46.0	-	134	121	reference data (20dBc is final result)
Hori	887.986	QP	40.2	21.7	10.6	31.1	-	41.4	46.0	-	100	152	reference data (20dBc is final result)
Hori	983.985	QP	38.5	22.7	10.9	30.3	-	41.8	53.9	12.1	143	146	
Vert	647.986	QP	35.2	19.6	9.8	31.9	-	32.7	46.0	-	100	71	reference data (20dBc is final result)
Vert	887.986	QP	35.4	21.7	10.6	31.1	-	36.6	46.0	-	156	113	reference data (20dBc is final result)
Vert	983.985	QP	34.1	22.7	10.9	30.3	-	37.4	53.9	16.5	116	112	
Hori	1682.938	PK	67.8	25.4	2.8	40.2	-	55.8	73.9	18.1	122	163	
Hori	2483.500	PK	58.9	27.9	3.4	40.1	-	50.1	73.9	23.8	115	180	
Hori	2484.789	PK	69.1	27.9	3.4	40.1	-	60.3	73.9	13.6	115	180	
Hori	4950.000	PK	67.8	31.0	5.6	40.0	-	64.4	73.9	9.5	132	304	
Hori	7425.000	PK	60.3	35.9	7.1	38.6	-	64.7	73.9	9.2	128	353	
Hori	9900.000	PK	58.3	38.3	8.0	37.5	-	67.1	73.9	6.8	122	83	
Hori	24750.000	PK	44.0	40.5	-1.9	45.7	-	36.9	73.9	37.0	100	0	noise floor level
Vert	1682.938	PK	65.8	25.4	2.8	40.2	-	53.8	73.9	20.1	127	168	
Vert	2483.500	PK	60.9	27.9	3.4	40.1	-	52.1	73.9	21.8	104	204	
Vert	2484.789	PK	68.4	27.9	3.4	40.1	-	59.6	73.9	14.3	104	204	
Vert	4950.000	PK	71.0	31.0	5.6	40.0	-	67.6	73.9	6.3	103	89	
Vert	7425.000	PK	57.6	35.9	7.1	38.6	-	62.0	73.9	11.9	102	303	
Vert	9900.000	PK	56.7	38.3	8.0	37.5	-	65.5	73.9	8.4	100	283	
Vert	24750.000	PK	43.9	40.5	-1.9	45.7	-	36.8	73.9	37.1	100	0	noise floor level
Hori	1682.938	AV	67.8	25.4	2.8	40.2	30.5	25.3	53.9	28.6	122	163	
Hori	2483.500	AV	58.9	27.9	3.4	40.1	30.5	19.6	53.9	34.3	115	180	
Hori	2484.789	AV	69.1	27.9	3.4	40.1	30.5	29.8	53.9	24.1	115	180	
Hori	4950.000	AV	67.8	31.0	5.6	40.0	30.5	33.9	53.9	20.0	132	304	
Hori	7425.000	AV	60.3	35.9	7.1	38.6	30.5	34.2	53.9	19.7	128	353	
Hori	9900.000	AV	58.3	38.3	8.0	37.5	30.5	36.6	53.9	17.3	122	83	
Hori	24750.000	AV	31.4	40.5	-1.9	45.7	30.5	-6.2	53.9	60.1	100	0	noise floor level
Vert	1682.938	AV	65.8	25.4	2.8	40.2	30.5	23.3	53.9	30.6	127	168	
Vert	2483.500	AV	60.9	27.9	3.4	40.1	30.5	21.6	53.9	32.3	104	204	
Vert	2484.789	AV	68.4	27.9	3.4	40.1	30.5	29.1	53.9	24.8	104	204	
Vert	4950.000	AV	71.0	31.0	5.6	40.0	30.5	37.1	53.9	16.8	103	89	
Vert	7425.000	AV	57.6	35.9	7.1	38.6	30.5	31.5	53.9	22.4	102	303	
Vert	9900.000	AV	56.7	38.3	8.0	37.5	30.5	35.0	53.9	18.9	100	283	
Vert	24750.000	AV	31.3	40.5	-1.9	45.7	30.5	-6.3	53.9	60.2	100	0	noise floor level

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 13GHz)) - Duty factor(AV only) - Gain(Amplifier)

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

*The 10th harmonic was not seen so the result was its base noise level.

(*PK/AV: RBW1MHz,VBW3MHz)

*Duty factor = 20 x log ((worst on times = 4.096 [ms]) / (worst 1 slot times = 136.5333[ms]))^(-1)) = 30.46 dB

Distance factor: 13GHz-40GHz 20log(3.0m/1.0m)= 9.5dB

20dBc Data Sheet (RBW 100kHz, VBW 300kHz)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	647.986	PK	43.1	19.6	9.8	31.9	40.6	82.9	42.3	
Hori	887.986	PK	41.4	21.7	10.6	31.1	42.6	82.9	40.3	
Hori	2475.000	PK	111.7	27.9	3.4	40.1	102.9	-	-	Carrier
Vert	647.986	PK	36.3	19.6	9.8	31.9	33.8	80.7	46.9	
Vert	887.986	PK	36.6	21.7	10.6	31.1	37.8	80.7	42.9	
Vert	2475.000	PK	109.5	27.9	3.4	40.1	100.7	-	-	Carrier

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 13GHz)) - Gain(Amplifier)

UL Japan, Inc.

Shonan EMC Lab.

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Radiated Emission

Test place UL Japan, Inc. Shonan EMC Lab. No.3 Semi-Anechoic Chambe
 Date June 7, 2010
 Temperature / Humidity 25deg.C., 56%
 Engineer Kenichi Adachi

Mode Rx, 2440 MHz
 Worst EUT module-axis above1GHz H: Y-axis, V: Z-axis below1GHz H: Y-axis, V: Z-axis
 Worst EUT antenna-axis H: Y-axis, V: Z-axis H: Y-axis, V: Y-axis

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]		Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori	480.071	QP	23.0	17.0	9.2	31.9	-	17.3	46.0	28.7	212	276	
Hori	887.985	QP	22.9	21.7	10.6	31.1	-	24.1	46.0	21.9	150	0	
Hori	983.986	QP	22.8	22.7	10.9	30.3	-	26.1	53.9	27.8	100	0	
Vert	480.071	QP	23.0	17.0	9.2	31.9	-	17.3	46.0	28.7	100	182	
Vert	887.985	QP	22.9	21.7	10.6	31.1	-	24.1	46.0	21.9	100	0	
Vert	983.986	QP	22.8	22.7	10.9	30.3	-	26.1	53.9	27.8	100	0	
Hori	2440.000	PK	45.8	24.9	2.8	40.0	-	33.5	73.9	40.4	100	0	noise floor level
Vert	2440.000	PK	45.9	24.9	2.8	40.0	-	33.6	73.9	40.3	100	0	noise floor level
Hori	2440.000	AV	33.7	24.9	2.8	40.0	-	21.4	53.9	32.5	100	0	noise floor level
Vert	2440.000	AV	33.7	24.9	2.8	40.0	-	21.4	53.9	32.5	100	0	noise floor level

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 13GHz)) - Gain(Amplifier)

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

*The 10th harmonic was not seen so the result was its base noise level.

(*PK: RBW1MHz,VBW3MHz, AV: RBW1MHz, VBW10Hz)

Distance factor: 13GHz-40GHz 20log(3.0m/1.0m)= 9.5dB

UL Japan, Inc.

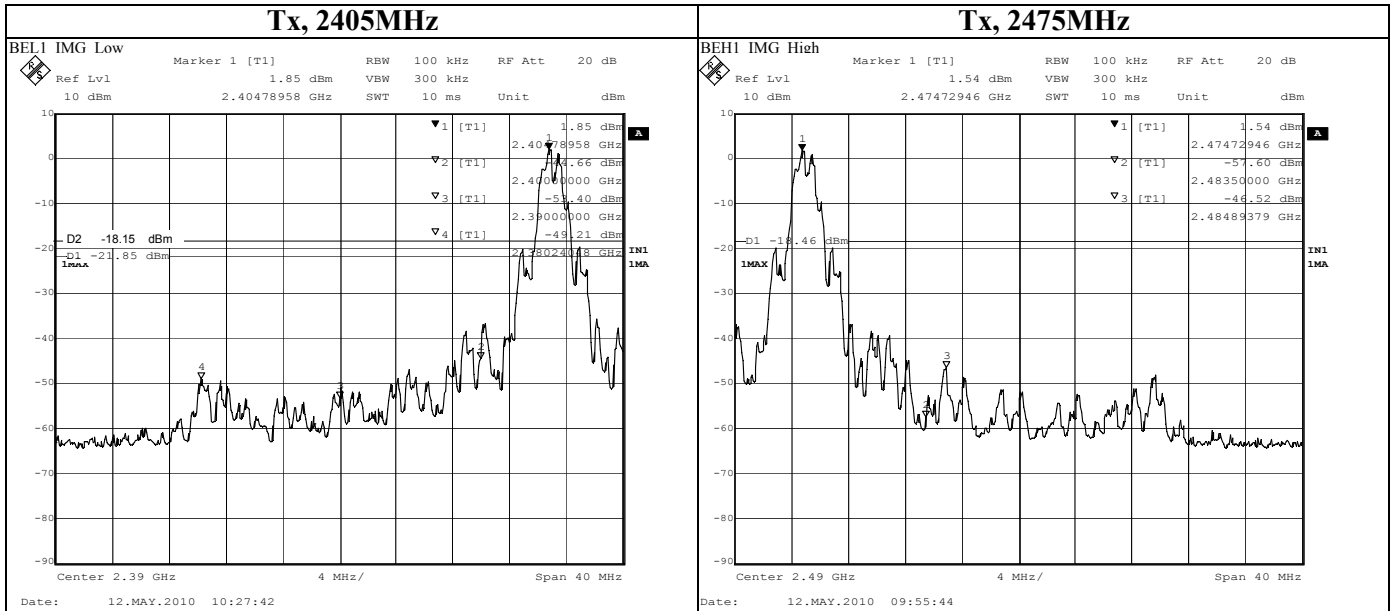
Shonan EMC Lab.

1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN

Telephone : +81 463 50 6400

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Spurious emission (Conducted)
 Band Edge compliance



Power Density

Test place UL Japan, Inc. Shonan EMC Lab. No.3 Shielded Room
Date May 12, 2010
Temperature / Humidity 23deg.C. , 57%
Engineer Kenichi Adachi
Mode Tx,

Ch. Freq.	Freq.	Reading	Cable Loss	Atten.	Result	Limit	Margin
[MHz]	[MHz]	[dBm]	[dB]	[dB]	[dBm]	[dBm]	[dB]
2405	2404.94	-3.46	0.63	0.00	-2.83	8.00	10.83
2440	2439.94	-3.25	0.63	0.00	-2.62	8.00	10.62
2475	2474.94	-3.69	0.66	0.00	-3.03	8.00	11.03

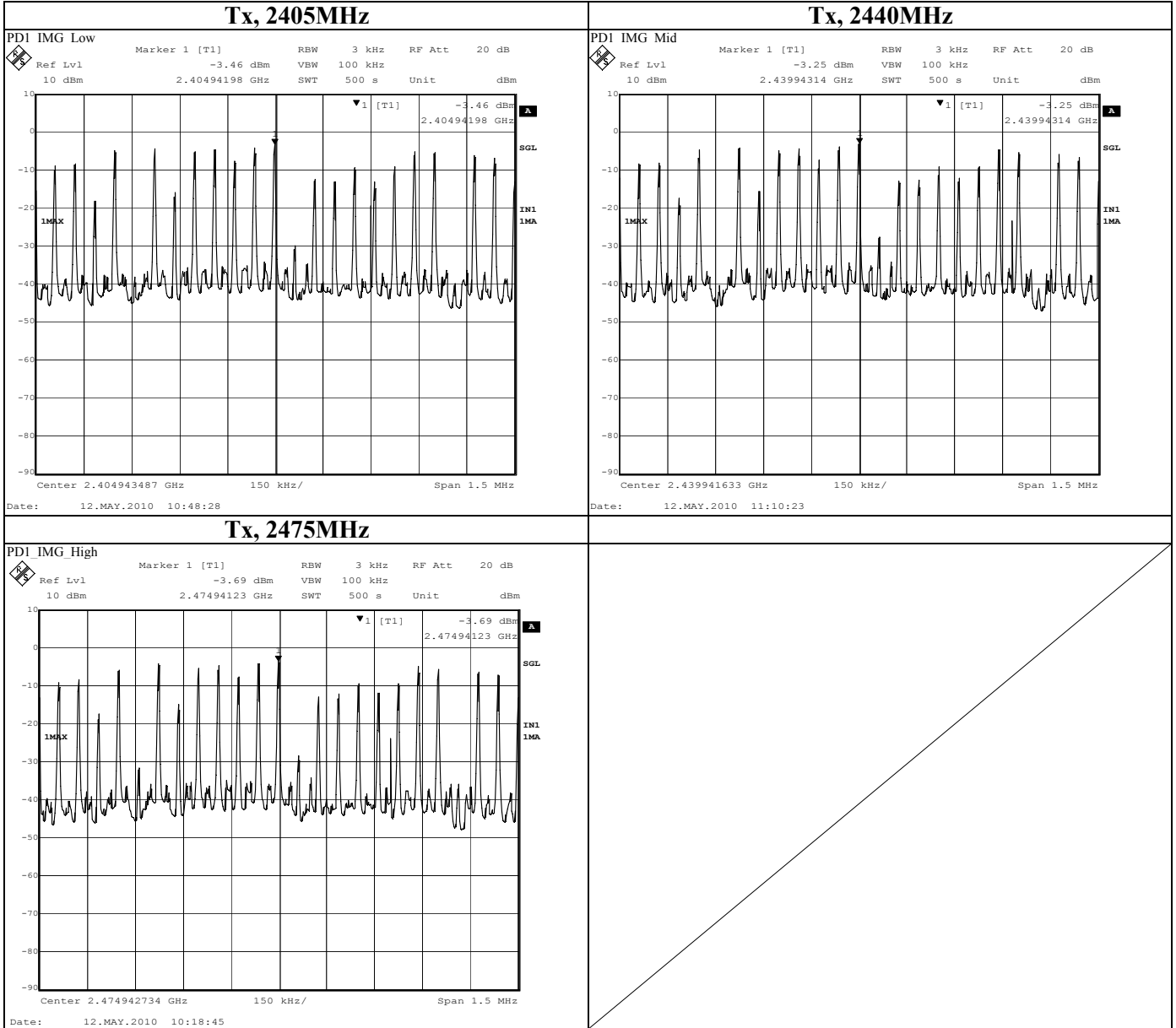
Sample Calculation:

Result = Reading + Cable Loss (Including customer's cable loss)+ Attenuator

UL Japan, Inc.
Shonan EMC Lab.

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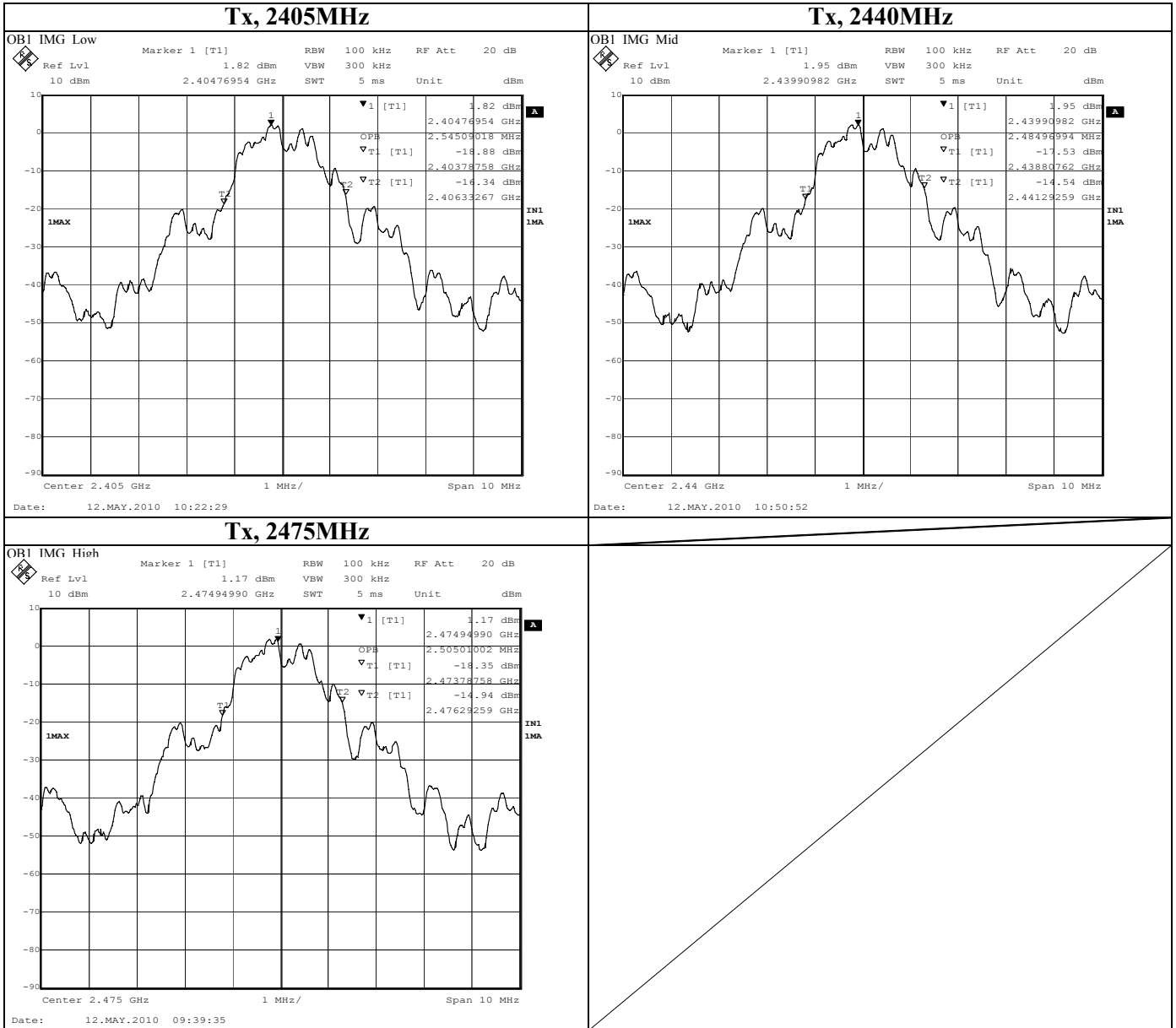
Power Density



UL Japan, Inc.
Shonan EMC Lab.

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 Telephone : +81 463 50 6400
 Facsimile : +81 463 50 6401

99% Occupied Bandwidth



DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Shonan EMC Lab. No.1 Shielded Room
Date : 2010/04/08

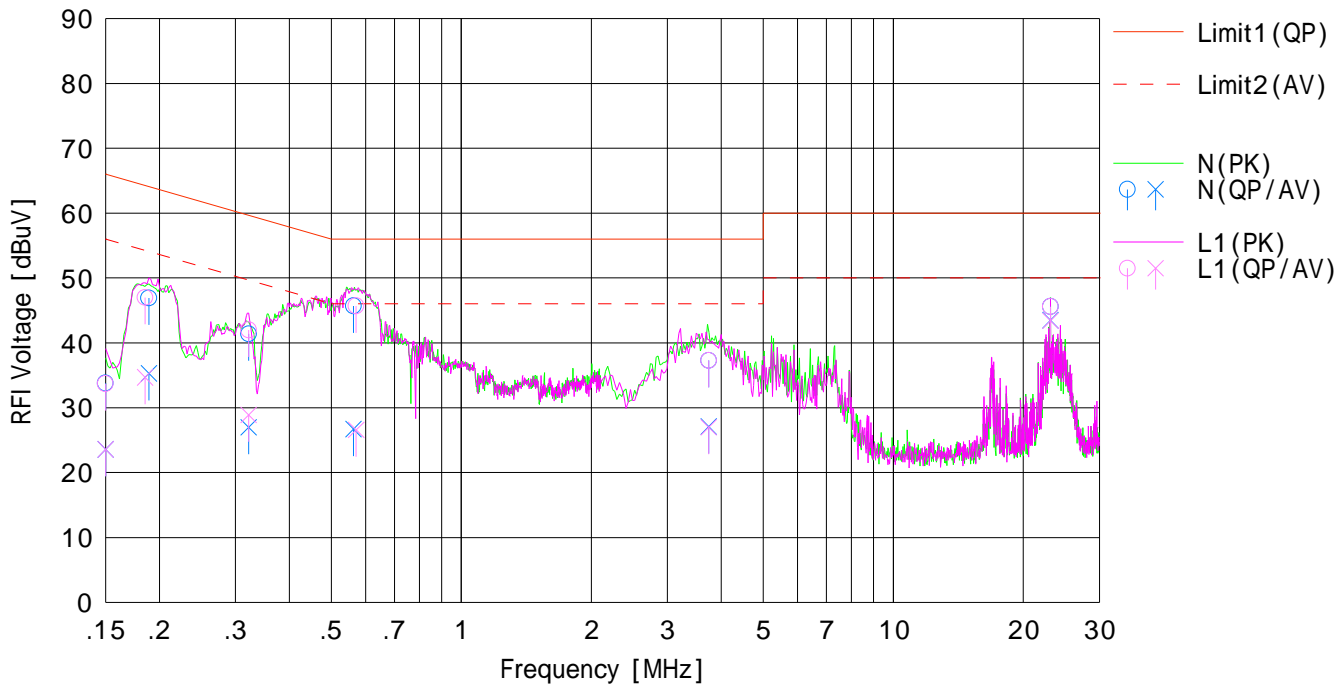
Company : Yokogawa Electric Corporation
Kind of EUT : VN210 Module
Model No. : VN210
Serial No. : 0022-FF00-0002-046E

Mode : Communication mode
Report No. : 30JE0035-SH-C-R2
Power : AC100V/60Hz (EUT input DC 3.3V)
Temp./Humi. : 22deg.C / 45%

Remarks :

Limit1 : FCC 15C(15.207) QP
Limit2 : FCC 15C(15.207) AV

Engineer : Akio Hayashi



No.	Freq. [MHz]	Reading		C.Fac [dB]	Results		Limit		Margin		Phase	Comment
		<QP>	<AV>		<QP>	<AV>	<QP>	<AV>	<QP>	<AV>		
		[dBuV]	[dBuV]		[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dB]	[dB]		
1	0.15000	20.9	10.7	12.9	33.8	23.6	66.0	56.0	32.2	32.4	N	
2	0.18900	34.0	22.4	12.9	46.9	35.3	64.1	54.1	17.2	18.8	N	
3	0.32185	28.5	14.1	12.9	41.4	27.0	59.7	49.7	18.3	22.7	N	
4	0.56304	32.8	13.8	12.9	45.7	26.7	56.0	46.0	10.3	19.3	N	
5	3.73846	24.2	14.0	13.1	37.3	27.1	56.0	46.0	18.7	18.9	N	
6	23.12970	31.5	29.4	14.1	45.6	43.5	60.0	50.0	14.4	6.5	N	
7	0.15000	20.8	10.7	12.9	33.7	23.6	66.0	56.0	32.3	32.4	L1	
8	0.18529	34.1	21.8	12.9	47.0	34.7	64.2	54.2	17.2	19.5	L1	
9	0.32177	29.1	16.0	12.9	42.0	28.9	59.7	49.7	17.7	20.8	L1	
10	0.57080	32.8	13.7	12.9	45.7	26.6	56.0	46.0	10.3	19.4	L1	
11	3.73970	24.2	13.9	13.1	37.3	27.0	56.0	46.0	18.7	19.0	L1	
12	23.12968	31.5	29.3	14.1	45.6	43.4	60.0	50.0	14.4	6.6	L1	

Calculation: Result [dBuV] = Reading [dBuV] + C.Fac (LISN+Cable+ATT) [dB]

Test Report No :30JE0035-SH-C-R2

APPENDIX 3 Test Instruments

EMI test equipment (1/3)

Control No.	Instrument	Manufacturer	Model No	Serial No	Test Item	Calibration Date * Interval(month)
STR-01	Test Receiver	Rohde & Schwarz	ESU40	100093	CE	2009/04/02 * 12
SJM-05	Measure	KOMELON	KMC-36	-	CE	-
SCC-A12/A13/ SRSE-01	Coaxial Cable&RF Selector	Suhner/Suhner/TOYO	RG223U/141PE/N S4906	-/0901-269(RF Selector)	CE	2010/04/02 * 12
SLS-01	LISN	Rohde & Schwarz	ENV216	100511	CE (EUT)	2010/02/09 * 12
SLS-02	LISN	Rohde & Schwarz	ENV216	100512	CE (AE)	2010/02/09 * 12
SAT3-04	Attenuator	JFW	50HF-003N	-	CE	2010/02/06 * 12
SOS-02	Humidity Indicator	A&D	AD-5681	4063343	CE	2010/02/17 * 12
STM-01	Terminator	TME	CT-01 BP	-	CE	2010/01/08 * 12

The expiration date of the calibration is the end of the expired month .
As for some calibrations performed after the tested dates , those test equipment have been controlled by means of an unbroken chains of calibrations .

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

Test Item :

CE: Conducted emission ,
RE: Radiated emission ,

Test Report No :30JE0035-SH-C-R2

APPENDIX 3 Test Instruments

EMI test equipment (2/3)

Control No.	Instrument	Manufacturer	Model No	Serial No	Test Item	Calibration Date * Interval(month)
STR-03	Test Receiver	Rohde & Schwarz	ESI40	100054/040	AT	2010/04/12 * 24
SCC-G23	Coaxial Cable	Suhner	SUCOFLEX 104	297342/4	AT	2009/05/27 * 12
SPM-06	Power Meter	Anritsu	ML2495A	0850009	AT	2010/04/01 * 12
SPSS-01	Power Sensor	Anritsu	MA2444D	0738366	AT	2010/04/01 * 12
SAT10-04	Attenuator(above1GHz)	Agilent	8493C-010	74863	AT	2010/03/05 * 12
SOS-06	Humidity Indicator	A&D	AD-5681	4062118	AT	2010/02/17 * 12

The expiration date of the calibration is the end of the expired month .
As for some calibrations performed after the tested dates , those test equipment have been controlled by means of an unbroken chains of calibrations .

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

Test Item :

AT: Antenna terminal conducted tests ,
RE: Radiated emission ,

Test Report No :30JE0035-SH-C-R2

APPENDIX 3 Test Instruments

EMI test equipment (3/3)

Control No.	Instrument	Manufacturer	Model No	Serial No	Test Item	Calibration Date * Interval(month)
SAF-06	Pre Amplifier	TOYO Corporation	TPA0118-36	1440491	RE	2010/03/09 * 12
SCC-G03	Coaxial Cable	Suhner	SUCOFLEX 104A	46499/4A	RE	2010/04/16 * 12
SCC-G23	Coaxial Cable	Suhner	SUCOFLEX 104	297342/4	RE	2010/05/27 * 12
SFL-02	Highpass Filter	MICRO-TRONICS	HPM50111	051	RE	2009/12/04 * 12
SHA-03	Horn Antenna	Schwarzbeck	BBHA9120D	9120D-739	RE	2009/08/23 * 12
SOS-05	Humidity Indicator	A&D	AD-5681	4062518	RE	2010/02/09 * 12
STR-03	Test Receiver	Rohde & Schwarz	ES140	100054/040	RE	2010/04/12 * 24
SJM-03	Measure	KOMELON	KMC-36	-	RE	-
COTS-SEMI-1	EMI Software	TSJ	TEPTO-DV	-	RE	-
SCC-G18	Coaxial Cable	Suhner	SUCOFLEX 104A	46292/4A	RE	2010/03/02 * 12
SPA-09	RF Power Amplifier	PRANA	AP32 MT225	0805-875	RS	2010/04/23 * 12
SHA-05	Horn Antenna	ETS LINDGREN	3160-09	LM4210	RE	2010/03/29 * 12
SAF-03	Pre Amplifier	SONOMA	310N	290213	RE	2010/02/06 * 12
SAT6-03	Attenuator	JFW	50HF-006N	-	RE	2010/02/06 * 12
SBA-03	Biconical Antenna	Schwarzbeck	BBA9106	91032666	RE	2010/03/22 * 12
SCC-C1/C2/C3/C4/C5/C10/SRSE-03	Coaxial Cable&RF Selector	Fujikura/Fujikura/Suhner/Suhner/Suhner/TOYO	8D2W/12DSFA/141PE/141PE/141PE/141PE/NS4906	-/0901-271 (RF Selector)	RE	2010/04/02 * 12
SLA-03	Logperiodic Antenna	Schwarzbeck	UHALP9108A	UHALP 9108-A0901	RE	2010/03/22 * 12
SAEC-03(NSA)	Semi-Anechoic Chamber	TDK	SAEC-03(NSA)	3	RE	2009/09/18 * 12

The expiration date of the calibration is the end of the expired month .
As for some calibrations performed after the tested dates , those test equipment have been controlled by means of an unbroken chains of calibrations .

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

Test Item :

AT: Antenna terminal disturbance voltage ,
RE: Radiated emission ,

APPENDIX 4

Duty cycle specification

Maximum transmitter duty cycle in Nivis ISA system: 3%

Maximum "ON" time – 4.096ms

Minimum timeslot duration –136.5333ms

Yokogawa Electric Corporation
 Tomoyuki.Kamoshita
 2010.5.27

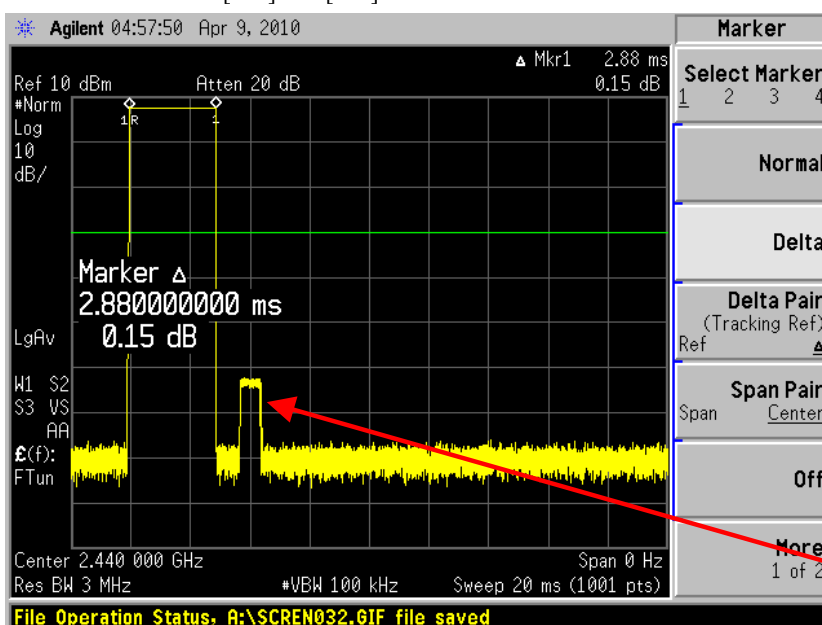
(Reference data)

Yokogawa Electric Corporation

Measurement date April 12, 2010

by Tomoyuki Kamoshita

$$0.00288[\text{sec.}] / 1.0[\text{sec.}] = 0.288 \%$$



from other party
of communication
equipment

