

Revised date: June 18, 2013

Radiated Emission

Test place	No.2 Semi Anechoic Chamber	No.1 Semi Anechoic Chamber	No.1 Semi Anechoic Chamber	No.1 Semi Anechoic Chamber
Date	May 5, 2013	May 7, 2013	May 9, 2013	May 10, 2013
Temperature / Humidity	19 deg.C, 45 %RH	22 deg.C, 43 %RH	25 deg.C, 40 %RH	24 deg.C, 41 %RH
Engineer	Hikaru Shirasawa	Makoto Hosaka	Makoto Hosaka	Makoto Hosaka
Mode	Tx, 5700 MHz Tx, IEEE802.11n HT20			

(above 1GHz Inside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

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.	3800.000	PK	44.8	29.3	15.8	37.9	52	73.9	21.9	100	358	
Hori.	7600.000	PK	47.7	36.5	8.6	39.6	53.2	73.9	20.7	128	97	
Hori.	11400.000	PK	43.9	39.8	9.8	38.7	54.8	73.9	19.1	100	0	
Hori.	3800.000	AV	32.1	29.3	15.8	37.9	39.3	53.9	14.6	100	358	VBW:10Hz
Hori.	7600.000	AV	36.6	36.5	8.6	39.6	42.1	53.9	11.8	128	97	VBW:10Hz
Hori.	11400.000	AV	30.5	39.8	9.8	38.7	41.4	53.9	12.5	100	0	VBW:10Hz
Vert.	3800.000	PK	44.8	29.3	15.8	37.9	52	73.9	21.9	124	290	
Vert.	7600.000	PK	47.1	36.5	8.6	39.6	52.6	73.9	21.3	100	348	
Vert.	11400.000	PK	43.4	39.8	9.8	38.7	54.3	73.9	19.6	100	0	
Vert.	3800.000	AV	31.6	29.3	15.8	37.9	38.8	53.9	15.1	124	290	VBW:10Hz
Vert.	7600.000	AV	35.2	36.5	8.6	39.6	40.7	53.9	13.2	100	348	VBW:10Hz
Vert.	11400.000	AV	30.4	39.8	9.8	38.7	41.3	53.9	12.6	100	0	VBW:10Hz

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - 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.

Distance factor: 15GHz-40GHz 20log(3.0m/1.0m)= 9.5dB

(Calculation) (above 1GHz Outside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5725.000	PK	44.6	32.3	17.1	37.7	56.3	-38.93	-27.00	11.9	100	0	
Vert.	5725.000	PK	44.2	32.3	17.1	37.7	55.9	-39.33	-27.00	12.3	100	359	

Result[dBuV/m] = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amplifier)

Result(EIRP[dBm])=10*LOG (({ 10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance:3[m]) ^ 2 } / 30) *10^3)

*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.

Distance factor: 15GHz-40GHz 20log(3.0m/1.0m)= 9.5dB

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Radiated Emission

Test place	No.2 Semi Anechoic Chamber	No.1 Semi Anechoic Chamber	No.1 Semi Anechoic Chamber	No.1 Semi Anechoic Chamber
Date	May 4, 2013	May 8, 2013	May 9, 2013	May 10, 2013
Temperature / Humidity	20 deg.C, 41 %RH	22 deg.C, 30 %RH	25 deg.C, 40 %RH	24 deg.C, 41 %RH
Engineer	Makoto Hosaka	Makoto Hosaka	Makoto Hosaka	Makoto Hosaka
Mode	Tx, 5190 MHz Tx, IEEE802.11n HT40			

(above 1GHz Inside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

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.	5150.000	PK	47.2	31.5	16.8	37.2	58.3	73.9	15.6	100	346	VBW:3.9kHz
Hori.	5150.000	AV	35.9	31.5	16.8	37.2	47	53.9	6.9	100	346	
Vert.	5150.000	PK	47.3	31.5	16.8	37.2	58.4	73.9	15.5	100	23	
Vert.	5150.000	AV	35.7	31.5	16.8	37.2	46.8	53.9	7.1	100	23	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - 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.

Distance factor: 15GHz-40GHz 20log(3.0m/1.0m)= 9.5dB

(Calculation) (above 1GHz Outside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	3460.000	PK	46.2	29	15.5	38.1	52.6	-42.63	-27.00	15.6	100	115	
Hori.	6920.000	PK	48	35.8	8.1	39.2	52.7	-42.53	-27.00	15.5	100	31	
Hori.	10380.000	PK	44.8	38.8	9.6	37.9	55.3	-39.93	-27.00	12.9	135	263	
Vert.	3460.000	PK	46.2	29	15.5	38.1	52.6	-42.63	-27.00	15.6	100	6	
Vert.	6920.000	PK	48.8	35.8	8.1	39.2	53.5	-41.73	-27.00	14.7	100	103	
Vert.	10380.000	PK	47.3	38.8	9.6	37.9	57.8	-37.43	-27.00	10.4	147	284	

Result[dBuV/m] = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amplifier)

Result(EIRP[dBm])=10*LOG (({ 10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance:3[m]) ^ 2 } / 30) *10^3)

*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.

Distance factor: 15GHz-40GHz 20log(3.0m/1.0m)= 9.5dB

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Radiated Emission

Test place	No.2 Semi Anechoic Chamber	No.1 Semi Anechoic Chamber	No.1 Semi Anechoic Chamber	No.1 Semi Anechoic Chamber
Date	May 4, 2013	May 8, 2013	May 9, 2013	May 10, 2013
Temperature / Humidity	20 deg.C, 41 %RH	22 deg.C, 30 %RH	25 deg.C, 40 %RH	24 deg.C, 41 %RH
Engineer	Makoto Hosaka	Makoto Hosaka	Makoto Hosaka	Makoto Hosaka
Mode	Tx, 5230 MHz Tx, IEEE802.11n HT40			

(Calculation) (above 1GHz Outside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	3486.670	PK	46.2	29	15.5	38.1	52.6	-42.63	-27.00	15.6	100	337	
Hori.	6973.330	PK	47.9	36	8.2	39.2	52.9	-42.33	-27.00	15.3	112	6	
Hori.	10460.000	PK	44.1	38.8	9.7	37.9	54.7	-40.53	-27.00	13.5	145	8	
Vert.	3486.670	PK	46.1	29	15.5	38.1	52.5	-42.73	-27.00	15.7	100	5	
Vert.	6973.330	PK	48.8	36	8.2	39.2	53.8	-41.43	-27.00	14.4	103	288	
Vert.	10460.000	PK	47.7	38.8	9.7	37.9	58.3	-36.93	-27.00	9.9	141	283	

Result[dBuV/m] = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amplifier)

Result(EIRP[dBm])=10*LOG (({ 10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance:3[m]) ^ 2 } / 30) *10^3)

*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.

Distance factor: 15GHz-40GHz 20log(3.0m/1.0m)= 9.5dB

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Radiated Emission

Test place	No.2 Semi Anechoic Chamber	No.1 Semi Anechoic Chamber	No.1 Semi Anechoic Chamber	No.1 Semi Anechoic Chamber
Date	May 4, 2013	May 8, 2013	May 9, 2013	May 10, 2013
Temperature / Humidity	20 deg.C, 41 %RH	22 deg.C, 30 %RH	25 deg.C, 40 %RH	24 deg.C, 41 %RH
Engineer	Makoto Hosaka	Makoto Hosaka	Makoto Hosaka	Makoto Hosaka
Mode	Tx, 5310 MHz Tx, IEEE802.11n HT40			

(above 1GHz Inside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

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.	5350.000	PK	47.7	31.6	17	37.2	59.1	73.9	14.8	100	269	
Hori.	10620.000	PK	45.4	39.1	9.7	38	56.2	73.9	17.7	134	262	
Hori.	5350.000	AV	35.8	31.6	17	37.2	47.2	53.9	6.7	100	269	VBW:3.9kHz
Hori.	10620.000	AV	33.8	39.1	9.7	38	44.6	53.9	9.3	134	262	VBW:3.9kHz
Vert.	5350.000	PK	47.8	31.6	17	37.2	59.2	73.9	14.7	100	5	
Vert.	10620.000	PK	46.9	39.1	9.7	38	57.7	73.9	16.2	143	284	
Vert.	5350.000	AV	35.8	31.6	17	37.2	47.2	53.9	6.7	100	5	VBW:3.9kHz
Vert.	10620.000	AV	34.4	39.1	9.7	38	45.2	53.9	8.7	143	284	VBW:3.9kHz

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - 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.

Distance factor: 15GHz-40GHz 20log(3.0m/1.0m)= 9.5dB

(Calculation) (above 1GHz Outside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	3540.000	PK	45.1	29.1	15.5	38.1	51.6	-43.63	-27.00	16.6	110	340	
Hori.	7080.000	PK	47	36.1	8.2	39.3	52	-43.23	-27.00	16.2	100	245	
Vert.	3540.000	PK	46.1	29.1	15.5	38.1	52.6	-42.63	-27.00	15.6	113	272	
Vert.	7080.000	PK	48.1	36.1	8.2	39.3	53.1	-42.13	-27.00	15.1	100	283	

Result[dBuV/m] = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amplifier)

Result(EIRP[dBm])=10*LOG (({ 10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance:3[m]) ^ 2 } / 30) *10^3)

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

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Distance factor: 15GHz-40GHz 20log(3.0m/1.0m)= 9.5dB

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Radiated Emission

Test place	No.2 Semi Anechoic Chamber	No.1 Semi Anechoic Chamber	No.1 Semi Anechoic Chamber	No.1 Semi Anechoic Chamber
Date	May 4, 2013	May 8, 2013	May 9, 2013	May 10, 2013
Temperature / Humidity	20 deg.C, 41 %RH	22 deg.C, 30 %RH	25 deg.C, 40 %RH	24 deg.C, 41 %RH
Engineer	Makoto Hosaka	Makoto Hosaka	Makoto Hosaka	Makoto Hosaka
Mode	Tx, 5510 MHz Tx, IEEE802.11n HT40			

(above 1GHz Inside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

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.	3673.340	PK	44.5	29.2	15.7	38	51.4	73.9	22.5	100	0	
Hori.	7346.680	PK	46.1	36.3	8.4	39.6	51.2	73.9	22.7	100	311	
Hori.	11020.000	PK	44.9	39.8	9.7	38.1	56.3	73.9	17.6	100	10	
Hori.	3673.340	AV	32.2	29.2	15.7	38	39.1	53.9	14.8	100	0	VBW:10Hz
Hori.	7346.680	AV	36.1	36.3	8.4	39.6	41.2	53.9	12.7	100	311	VBW:10Hz
Hori.	11020.000	AV	33.3	39.8	9.7	38.1	44.7	53.9	9.2	100	10	VBW:3.9kHz
Vert.	3673.340	PK	44.8	29.2	15.7	38	51.7	73.9	22.2	116	276	
Vert.	7346.680	PK	46.7	36.3	8.4	39.6	51.8	73.9	22.1	100	88	
Vert.	11020.000	PK	45	39.8	9.7	38.1	56.4	73.9	17.5	136	281	
Vert.	3673.340	AV	32.7	29.2	15.7	38	39.6	53.9	14.3	116	276	VBW:10Hz
Vert.	7346.680	AV	36.6	36.3	8.4	39.6	41.7	53.9	12.2	100	88	VBW:10Hz
Vert.	11020.000	AV	33.7	39.8	9.7	38.1	45.1	53.9	8.8	136	281	VBW:3.9kHz

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - 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.

Distance factor: 15GHz-40GHz 20log(3.0m/1.0m)= 9.5dB

(Calculation) (above 1GHz Outside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5470.000	PK	45.3	31.7	17.1	37.3	56.8	-38.43	-27.00	11.4	100	189	
Vert.	5470.000	PK	45.2	31.7	17.1	37.3	56.7	-38.53	-27.00	11.5	100	0	

Result[dBuV/m] = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amplifier)

Result(EIRP[dBm])=10*LOG (({ 10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance:3[m]) ^ 2 } / 30) *10^3)

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Date	May 4, 2013	May 8, 2013	May 9, 2013	May 10, 2013
Temperature / Humidity	20 deg.C, 41 %RH	22 deg.C, 30 %RH	25 deg.C, 40 %RH	24 deg.C, 41 %RH
Engineer	Makoto Hosaka	Makoto Hosaka	Makoto Hosaka	Makoto Hosaka
Mode	Tx, 5550 MHz Tx, IEEE802.11n HT40			

(above 1GHz Inside of the restricted band)

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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.	3700.000	PK	43.6	29.2	15.7	38	50.5	73.9	23.4	112	343	
Hori.	7400.000	PK	46.3	36.3	8.5	39.7	51.4	73.9	22.5	100	310	
Hori.	11100.000	PK	44.3	39.8	9.7	38.3	55.5	73.9	18.4	142	10	
Hori.	3700.000	AV	32.6	29.2	15.7	38	39.5	53.9	14.4	112	343	VBW:10Hz
Hori.	7400.000	AV	35.4	36.3	8.5	39.7	40.5	53.9	13.4	100	310	VBW:10Hz
Hori.	11100.000	AV	33.4	39.8	9.7	38.3	44.6	53.9	9.3	142	10	VBW:3.9Hz
Vert.	3700.000	PK	45.1	29.2	15.7	38	52	73.9	21.9	100	274	
Vert.	7400.000	PK	46.2	36.3	8.5	39.7	51.3	73.9	22.6	100	85	
Vert.	11100.000	PK	45.2	39.8	9.7	38.3	56.4	73.9	17.5	133	283	
Vert.	3700.000	AV	33	29.2	15.7	38	39.9	53.9	14.0	100	274	VBW:10Hz
Vert.	7400.000	AV	37.1	36.3	8.5	39.7	42.2	53.9	11.7	100	85	VBW:10Hz
Vert.	11100.000	AV	33.6	39.8	9.7	38.3	44.8	53.9	9.1	133	283	VBW:3.9Hz

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amplifier)

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Date	May 4, 2013	May 8, 2013	May 9, 2013	May 10, 2013
Temperature / Humidity	20 deg.C, 41 %RH	22 deg.C, 30 %RH	25 deg.C, 40 %RH	24 deg.C, 41 %RH
Engineer	Makoto Hosaka	Makoto Hosaka	Makoto Hosaka	Makoto Hosaka
Mode	Tx, 5670 MHz Tx, IEEE802.11n HT40			

(above 1GHz Inside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

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.	3780.000	PK	44.4	29.3	15.7	37.9	51.5	73.9	22.4	106	345	
Hori.	7560.000	PK	47.5	36.5	8.6	39.7	52.9	73.9	21.0	128	98	
Hori.	11340.000	PK	43.7	39.8	9.8	38.6	54.7	73.9	19.2	142	254	
Hori.	3780.000	AV	33.3	29.3	15.7	37.9	40.4	53.9	13.5	106	345	VBW:10Hz
Hori.	7560.000	AV	37.7	36.5	8.6	39.7	43.1	53.9	10.8	128	98	VBW:10Hz
Hori.	11340.000	AV	33.3	39.8	9.8	38.6	44.3	53.9	9.6	142	254	VBW:3.9kHz
Vert.	3780.000	PK	44.8	29.3	15.7	37.9	51.9	73.9	22.0	100	279	
Vert.	7560.000	PK	46.9	36.5	8.6	39.7	52.3	73.9	21.6	117	344	
Vert.	11340.000	PK	44.3	39.8	9.8	38.6	55.3	73.9	18.6	118	346	
Vert.	3780.000	AV	33.1	29.3	15.7	37.9	40.2	53.9	13.7	100	279	VBW:10Hz
Vert.	7560.000	AV	36.3	36.5	8.6	39.7	41.7	53.9	12.2	117	344	VBW:10Hz
Vert.	11340.000	AV	33.6	39.8	9.8	38.6	44.6	53.9	9.3	118	346	VBW:3.9kHz

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amplifier)

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Distance factor: 15GHz-40GHz 20log(3.0m/1.0m)= 9.5dB

(Calculation) (above 1GHz Outside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5725.000	PK	44.6	32.3	17.1	37.7	56.3	-38.93	-27.00	11.9	100	0	
Vert.	5725.000	PK	44.2	32.3	17.1	37.7	55.9	-39.33	-27.00	12.3	100	291	

Result[dBuV/m] = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 15GHz)) - Gain(Amplifier)

Result(EIRP[dBm])=10*LOG (({ 10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance:3[m]) ^ 2 } / 30) *10^3)

*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.

Distance factor: 15GHz-40GHz 20log(3.0m/1.0m)= 9.5dB

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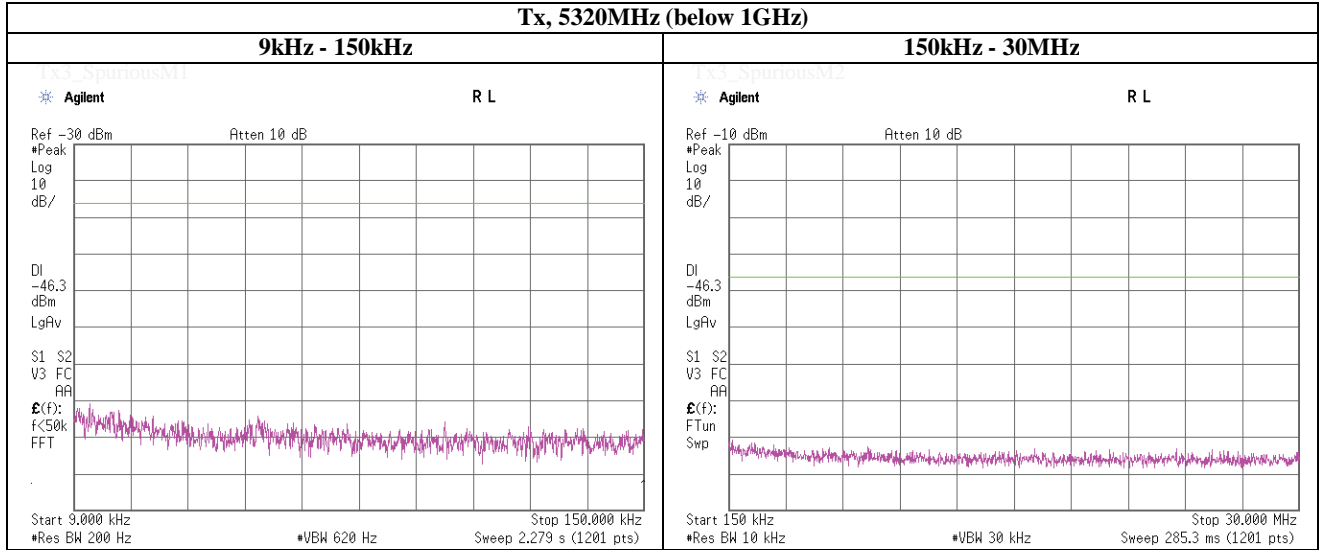
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Facsimile : +81 463 50 6401

Spurious emission (Conducted)

Tx, IEEE802.11a, PN9, worst antenna port 2, worst data mode 48Mbps

Tx, 5320MHz (below 1GHz)



Specified value in the Regulation - Cable Loss (including the cable(s) customer supplied) - Atten. Loss - Antenna Gain = Limit line

FREQ	Regulation	Cable Loss	Atten. Loss	Antenna Gain	Limit line
[MHz]	[dBm]	[dB]	[dB]	[dBi]	[dBm]
30.00	-27.00	0.15	20.14	-0.98	-46.31

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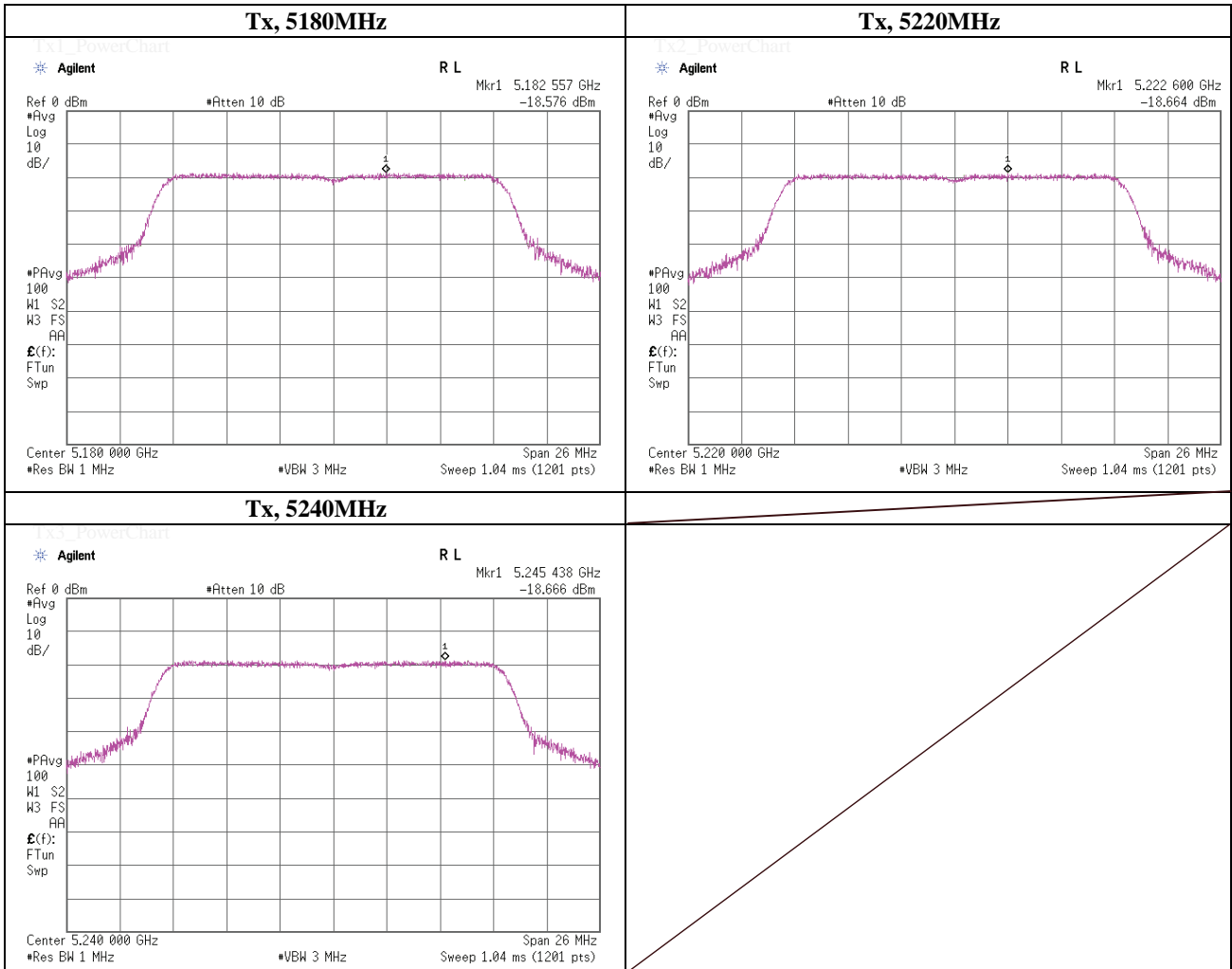
Peak Power Spectral Density

(Method: SA-2)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	May 8, 2013	
Temperature / Humidity	25deg.C , 38%RH	
Engineer	Tatsuya Arai	
Mode	Tx, IEEE802.11a, PN9, worst antenna port 2, worst data mode 48Mbps	

Ch. Freq. [MHz]	Freq. Reading [MHz]	Reading [dBm/MHz]	Cable Loss [dB]	Atten. Loss [dB]	Duty factor [dB]		Result [dBm/MHz]	Limit [dBm]	Margin [dB]
5180.0000	5182.56	-18.58	2.19	20.10	0.14		3.85	4.00	0.15
5220.0000	5222.60	-18.66	2.20	20.09	0.14		3.77	4.00	0.23
5240.0000	5245.44	-18.67	2.29	20.09	0.14		3.85	4.00	0.15

Sample Calculation:
 Result = Reading + Cable Loss + Atten.Loss + Duty factor



Peak Power Spectral Density

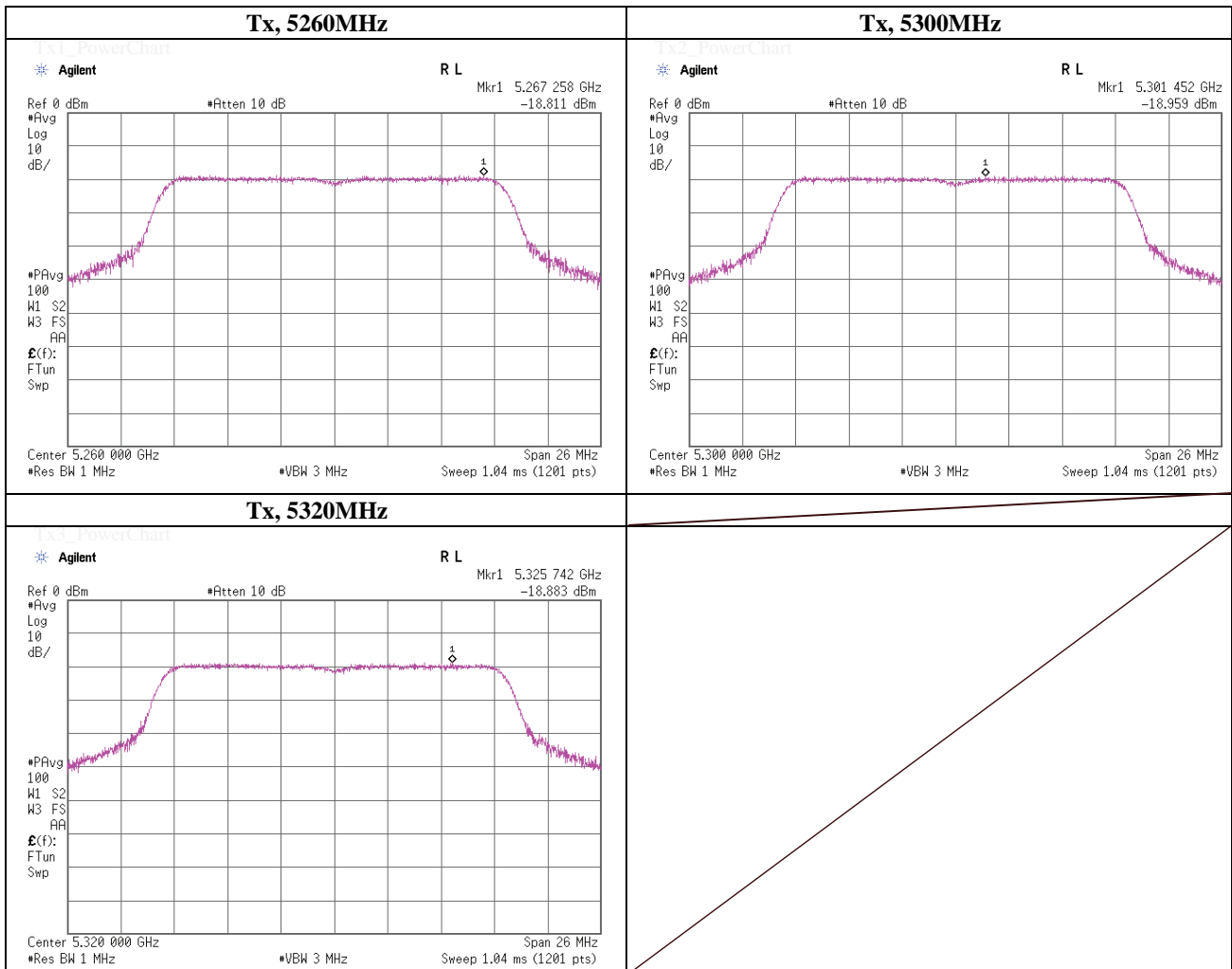
(Method: SA-2)

Test place UL Japan, Inc. Shonan EMC Lab. No.5 Shielded Room
 Date May 8, 2013
 Temperature / Humidity 25deg.C , 38%RH
 Engineer Tatsuya Arai
 Mode Tx, IEEE802.11a, PN9, worst antenna port 2, worst data mode 48Mbps

Ch. Freq. [MHz]	Freq. Reading [MHz]	Reading [dBm/MHz]	Cable Loss [dB]	Atten. Loss [dB]	Duty factor [dB]		Result [dBm/MHz]	Limit [dBm]	Margin [dB]
5260.0000	5267.26	-18.81	2.32	20.09	0.14		3.74	11.00	7.26
5300.0000	5301.45	-18.96	2.32	20.09	0.14		3.59	11.00	7.41
5320.0000	5325.74	-18.88	2.41	20.08	0.14		3.75	11.00	7.25

Sample Calculation:

Result = Reading + Cable Loss + Atten.Loss + Duty factor



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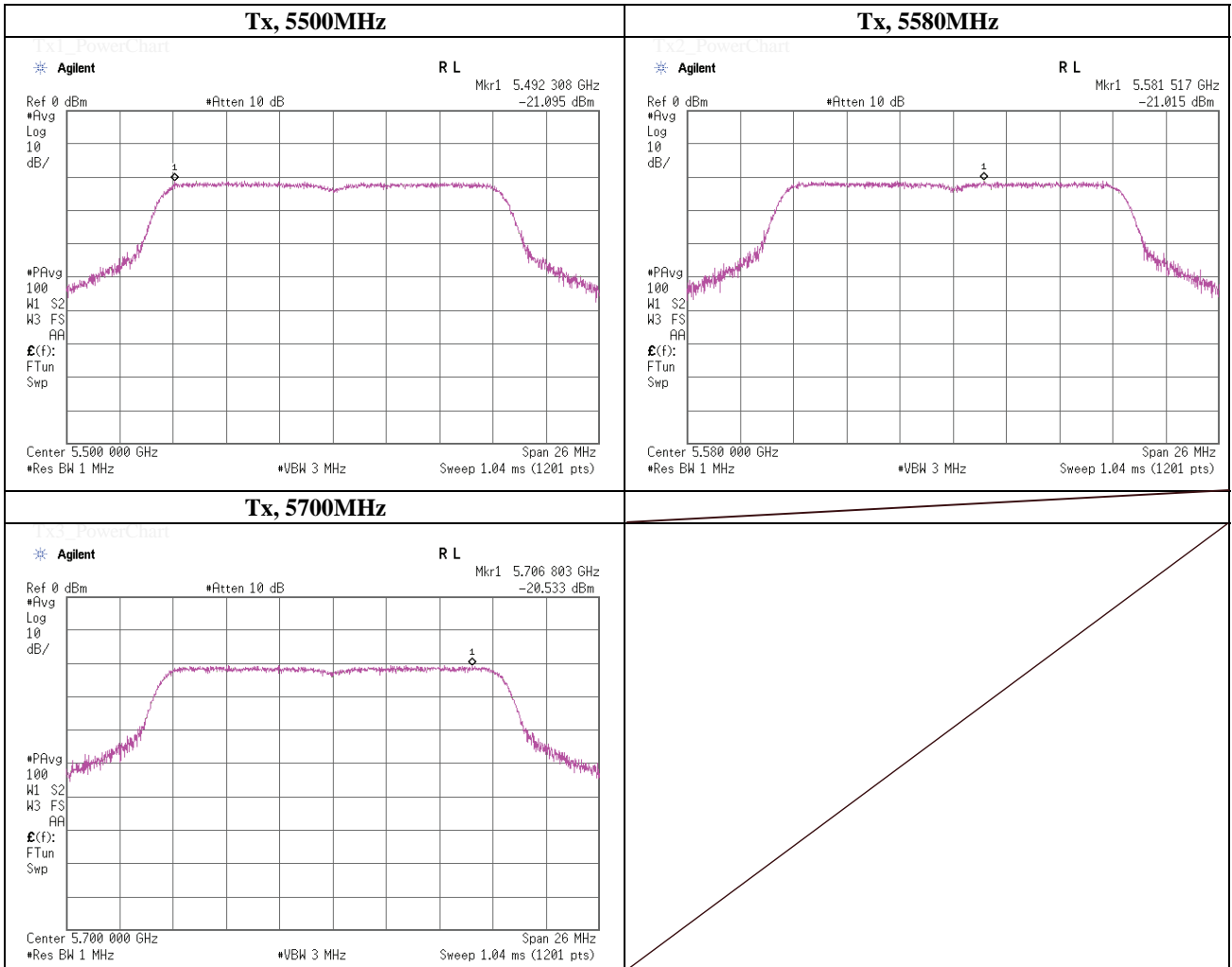
Peak Power Spectral Density

(Method: SA-2)

Test place UL Japan, Inc. Shonan EMC Lab. No.5 Shielded Room
 Date May 8, 2013
 Temperature / Humidity 25deg.C , 38%RH
 Engineer Tatsuya Arai
 Mode Tx, IEEE802.11a, PN9, worst antenna port 2, worst data mode 48Mbps

Ch. Freq. [MHz]	Freq. Reading [MHz]	Reading [dBm/MHz]	Cable Loss [dB]	Atten. Loss [dB]	Duty factor [dB]		Result [dBm/MHz]	Limit [dBm]	Margin [dB]
5500.0000	5492.31	-21.10	2.45	20.07	0.14		1.57	11.00	9.44
5580.0000	5581.52	-21.02	2.48	20.08	0.14		1.69	11.00	9.32
5700.0000	5706.80	-20.53	2.33	20.09	0.14		2.03	11.00	8.97

Sample Calculation:
 Result = Reading + Cable Loss + Atten.Loss + Duty factor



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Peak Power Spectral Density

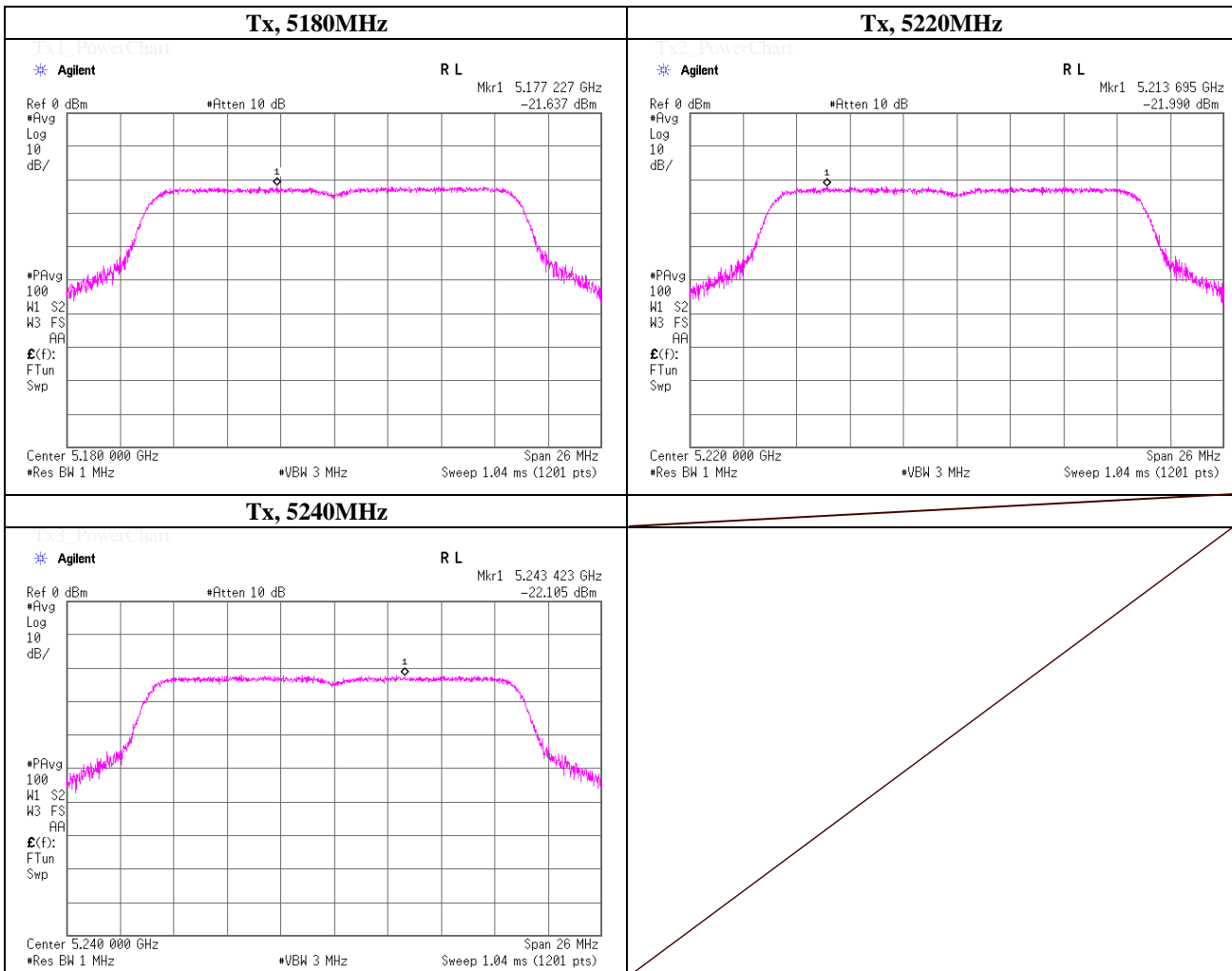
(Method: SA-2)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	May 8, 2013	
Temperature / Humidity	25deg.C , 38%RH	
Engineer	Tatsuya Arai	
Mode	Tx, IEEE802.11n(HT20), PN9, worst antenna port 1, worst data mode 5(MCS)	

Ch. Freq. [MHz]	Freq. Reading [MHz]	Reading [dBm/MHz]	Cable Loss [dB]	Atten. Loss [dB]	Duty factor [dB]		Result [dBm/MHz]	Limit [dBm]	Margin [dB]
5180.0000	5177.23	-21.64	2.17	20.10	0.15		0.78	4.00	3.22
5220.0000	5213.70	-21.99	2.17	20.09	0.15		0.42	4.00	3.58
5240.0000	5243.42	-22.11	2.36	20.09	0.15		0.49	4.00	3.51

Sample Calculation:

Result = Reading + Cable Loss + Atten.Loss + Duty factor



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Peak Power Spectral Density

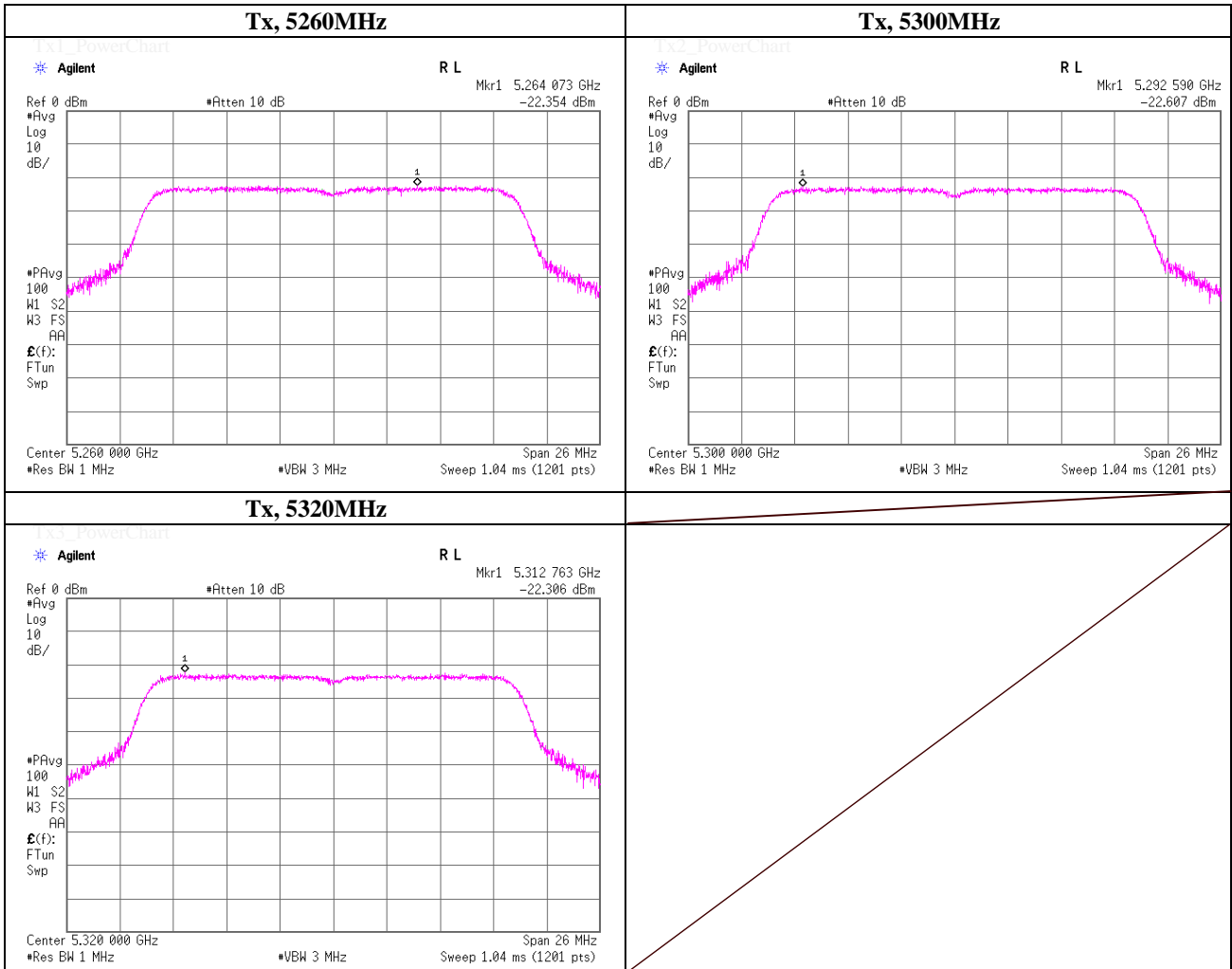
(Method: SA-2)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	May 8, 2013	
Temperature / Humidity	25deg.C , 38%RH	
Engineer	Tatsuya Arai	
Mode	Tx, IEEE802.11n(HT20), PN9, worst antenna port 1, worst data mode 5(MCS)	

Ch. Freq. [MHz]	Freq. Reading [MHz]	Reading [dBm/MHz]	Cable Loss [dB]	Atten. Loss [dB]	Duty factor [dB]		Result [dBm/MHz]	Limit [dBm]	Margin [dB]
5260.0000	5264.07	-22.35	2.36	20.09	0.15		0.25	11.00	10.75
5300.0000	5292.59	-22.61	2.36	20.09	0.15		-0.01	11.00	11.01
5320.0000	5312.76	-22.31	2.23	20.08	0.15		0.15	11.00	10.85

Sample Calculation:

Result = Reading + Cable Loss + Atten.Loss + Duty factor



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Peak Power Spectral Density

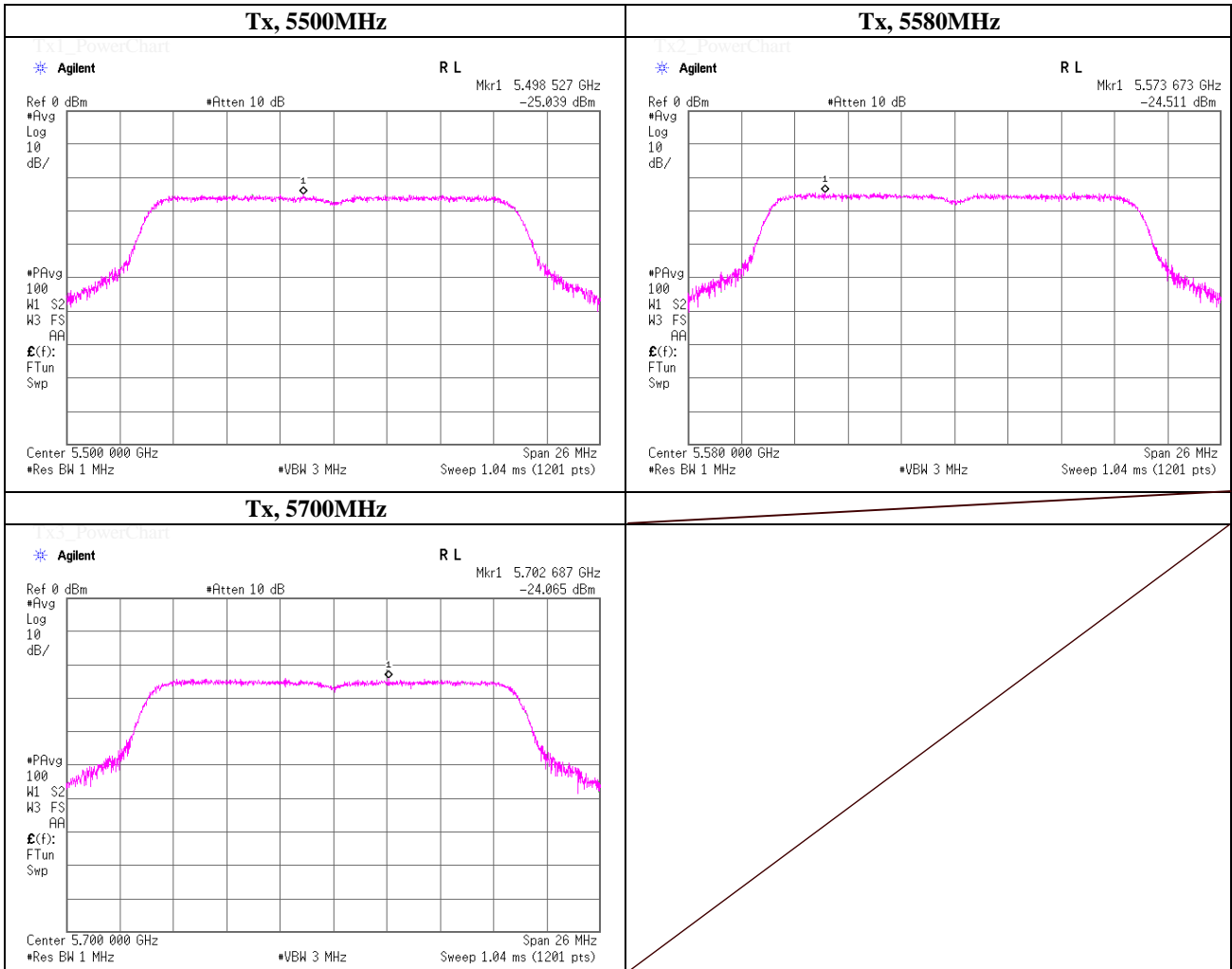
(Method: SA-2)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	May 8, 2013	
Temperature / Humidity	25deg.C , 38%RH	
Engineer	Tatsuya Arai	
Mode	Tx, IEEE802.11n(HT20), PN9, worst antenna port 1, worst data mode 5(MCS)	

Ch. Freq. [MHz]	Freq. Reading [MHz]	Reading [dBm/MHz]	Cable Loss [dB]	Atten. Loss [dB]	Duty factor [dB]		Result [dBm/MHz]	Limit [dBm]	Margin [dB]
5500.0000	5498.53	-25.04	2.20	20.07	0.15		-2.62	11.00	13.62
5580.0000	5573.67	-24.51	2.23	20.08	0.15		-2.05	11.00	13.05
5700.0000	5702.69	-24.07	2.29	20.09	0.15		-1.54	11.00	12.54

Sample Calculation:

Result = Reading + Cable Loss + Atten.Loss + Duty factor



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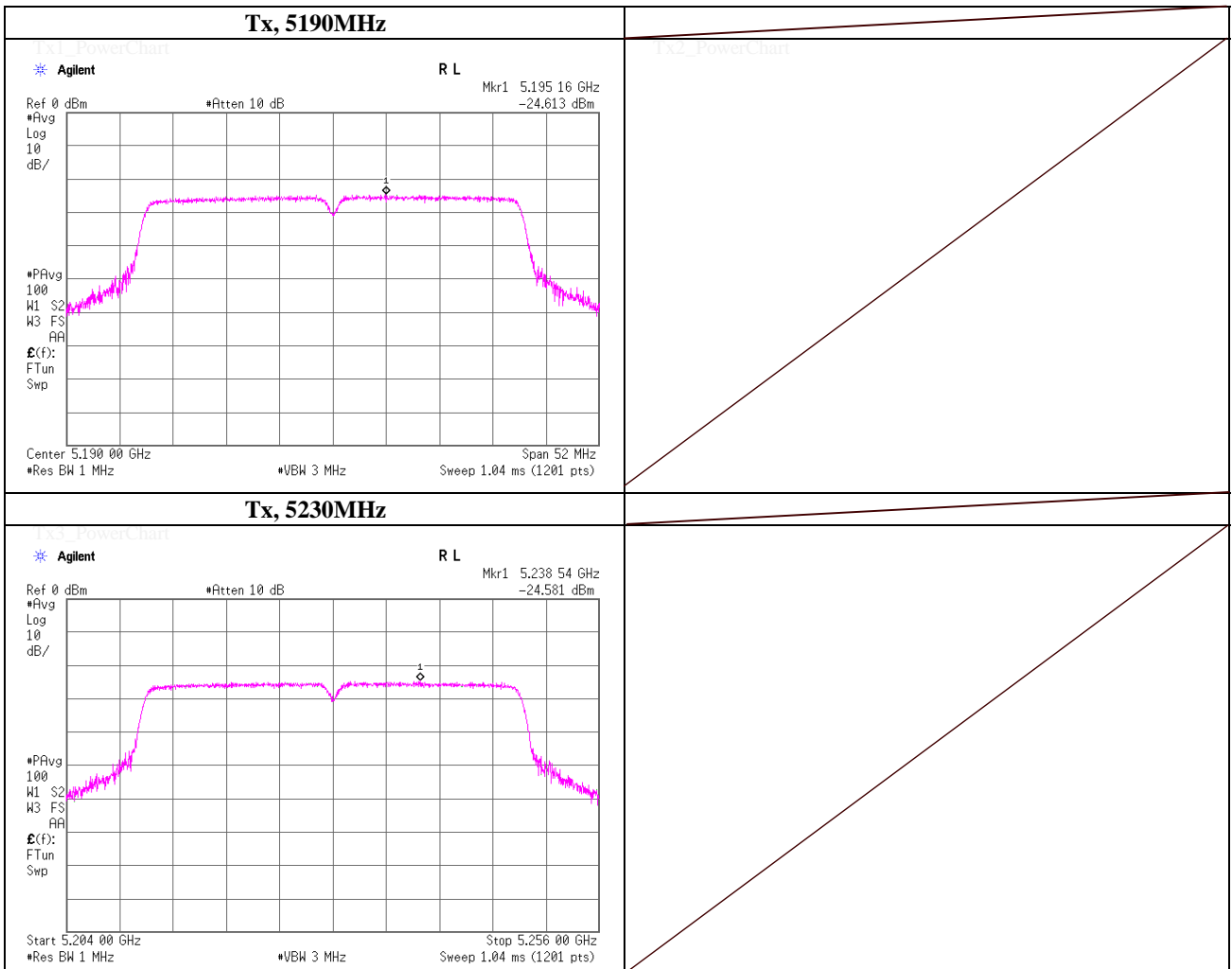
Peak Power Spectral Density

(Method: SA-2)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	May 8, 2013	
Temperature / Humidity	25deg.C , 38%RH	
Engineer	Tatsuya Arai	
Mode	Tx, IEEE802.11n(HT40), PN9, worst antenna port 1, worst data mode 0(MCS)	

Ch. Freq. [MHz]	Freq. Reading [MHz]	Reading [dBm/MHz]	Cable Loss [dB]	Atten. Loss [dB]	Duty factor [dB]		Result [dBm/MHz]	Limit [dBm]	Margin [dB]
5190.0000	5195.16	-24.61	2.17	20.09	0.04		-2.31	4.00	6.31
5230.0000	5238.54	-24.58	2.17	20.09	0.04		-2.28	4.00	6.28

Sample Calculation:
 Result = Reading + Cable Loss + Atten.Loss + Duty factor



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Peak Power Spectral Density

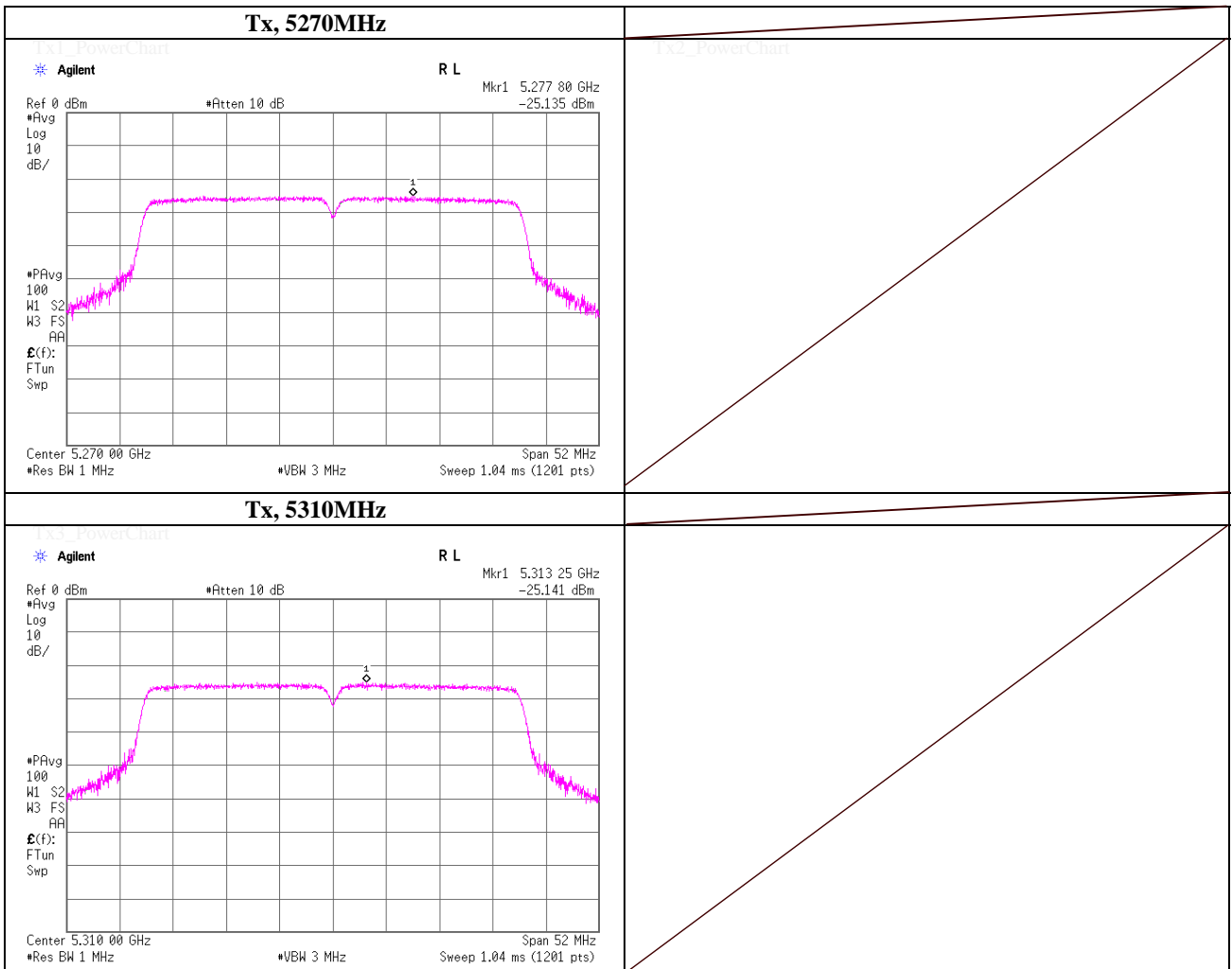
(Method: SA-2)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	May 8, 2013	
Temperature / Humidity	25deg.C , 38%RH	
Engineer	Tatsuya Arai	
Mode	Tx, IEEE802.11n(HT40), PN9, worst antenna port 1, worst data mode 0(MCS)	

Ch. Freq. [MHz]	Freq. Reading [MHz]	Reading [dBm/MHz]	Cable Loss [dB]	Atten. Loss [dB]	Duty factor [dB]		Result [dBm/MHz]	Limit [dBm]	Margin [dB]
5270.0000	5277.80	-25.14	2.36	20.09	0.04		-2.65	11.00	13.65
5310.0000	5313.25	-25.14	2.37	20.09	0.04		-2.64	11.00	13.64

Sample Calculation:

Result = Reading + Cable Loss + Atten.Loss + Duty factor



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Peak Power Spectral Density

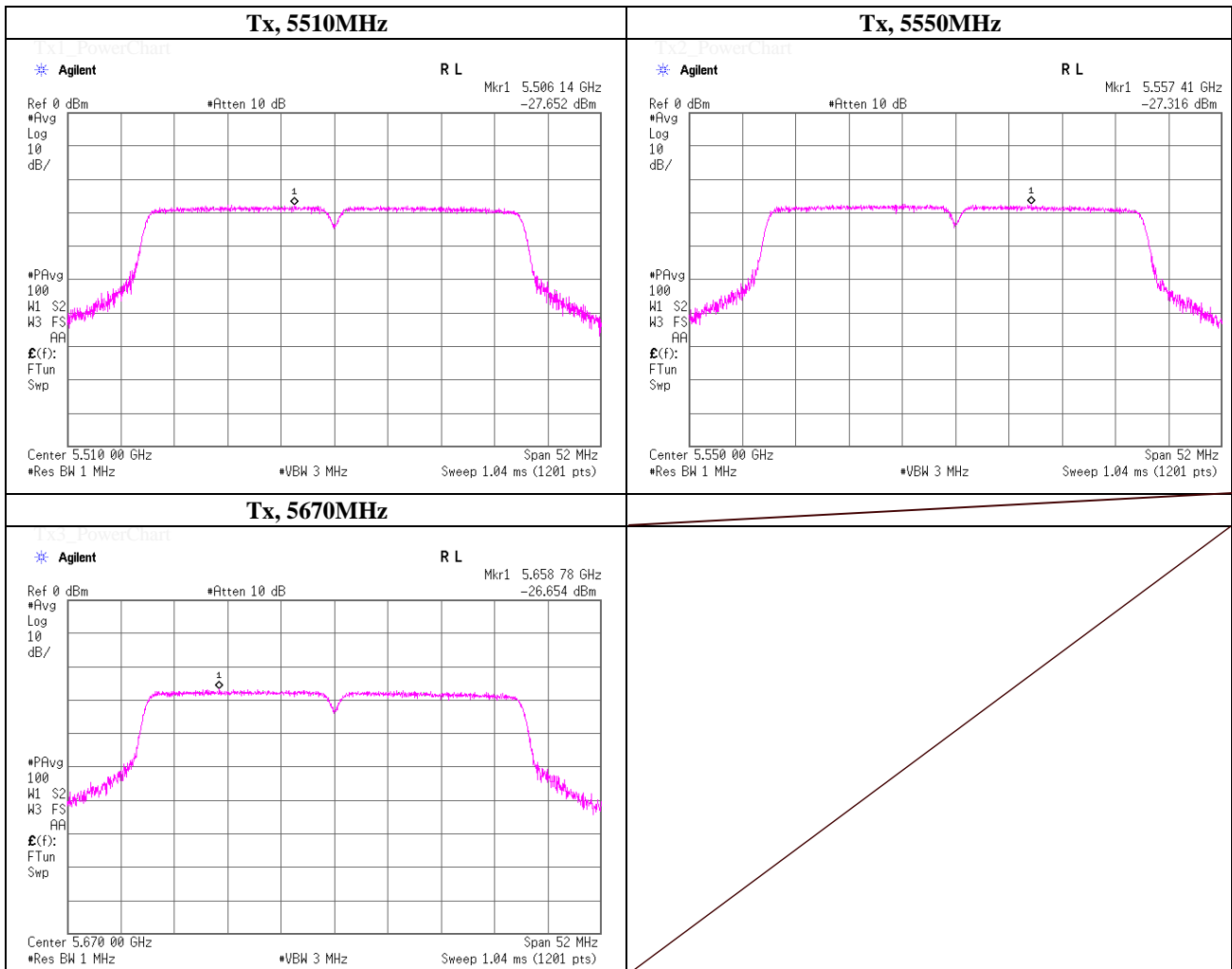
(Method: SA-2)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	May 8, 2013	
Temperature / Humidity	25deg.C , 38%RH	
Engineer	Tatsuya Arai	
Mode	Tx, IEEE802.11n(HT40), PN9, worst antenna port 1, worst data mode 0(MCS)	

Ch. Freq. [MHz]	Freq. Reading [MHz]	Reading [dBm/MHz]	Cable Loss [dB]	Atten. Loss [dB]	Duty factor [dB]		Result [dBm/MHz]	Limit [dBm]	Margin [dB]
5510.0000	5506.14	-27.65	2.21	20.07	0.04		-5.33	11.00	16.33
5550.0000	5557.41	-27.32	2.22	20.07	0.04		-4.99	11.00	15.99
5670.0000	5658.78	-26.65	2.41	20.08	0.04		-4.12	11.00	15.12

Sample Calculation:

Result = Reading + Cable Loss + Atten.Loss + Duty factor



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Power Density

(Method: SA-2)

Test place UL Japan, Inc. Shonan EMC Lab. No.5 Shielded Room
Date May 8, 2013
Temperature / Humidity 25deg.C , 38%RH
Engineer Tatsuya Arai
Mode Tx, IEEE802.11n(HT20), PN9, worst data mode 8 (MCS)

Antenna 1

Ch. Freq. [MHz]	Freq. Reading [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Duty factor [dB]		10log (N _{ANT})* [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
5180.0000	5185.35	-21.67	2.17	20.10	0.04		3.01	3.65	4.00	0.35
5220.0000	5224.90	-22.10	2.17	20.09	0.04		3.01	3.21	4.00	0.79
5240.0000	5244.79	-21.94	2.36	20.09	0.04		3.01	3.56	4.00	0.44

Sample Calculation:

Result = Reading + Cable Loss + Atten. Loss + Duty factor + Antenna Gain + 10log(NANT)

Antenna 2

Ch. Freq. [MHz]	Freq. Reading [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Duty factor [dB]		10log (N _{ANT})* [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
5180.0000	5277.23	-21.90	2.19	20.10	0.04		3.01	3.44	4.00	0.56
5220.0000	5221.41	-22.18	2.29	20.09	0.04		3.01	3.25	4.00	0.75
5240.0000	5235.39	-22.29	2.41	20.09	0.04		3.01	3.26	4.00	0.74

Sample Calculation:

Result = Reading + Cable Loss + Atten. Loss + Duty factor + Antenna Gain + 10log(NANT)

*) This test was measured based on Method In-Band Power Spectral Density (PSD) Measurements (2) of
"Emissions Testing of Transmitters with Multiple Outputs in the Same Band (KDB662911 D1)"

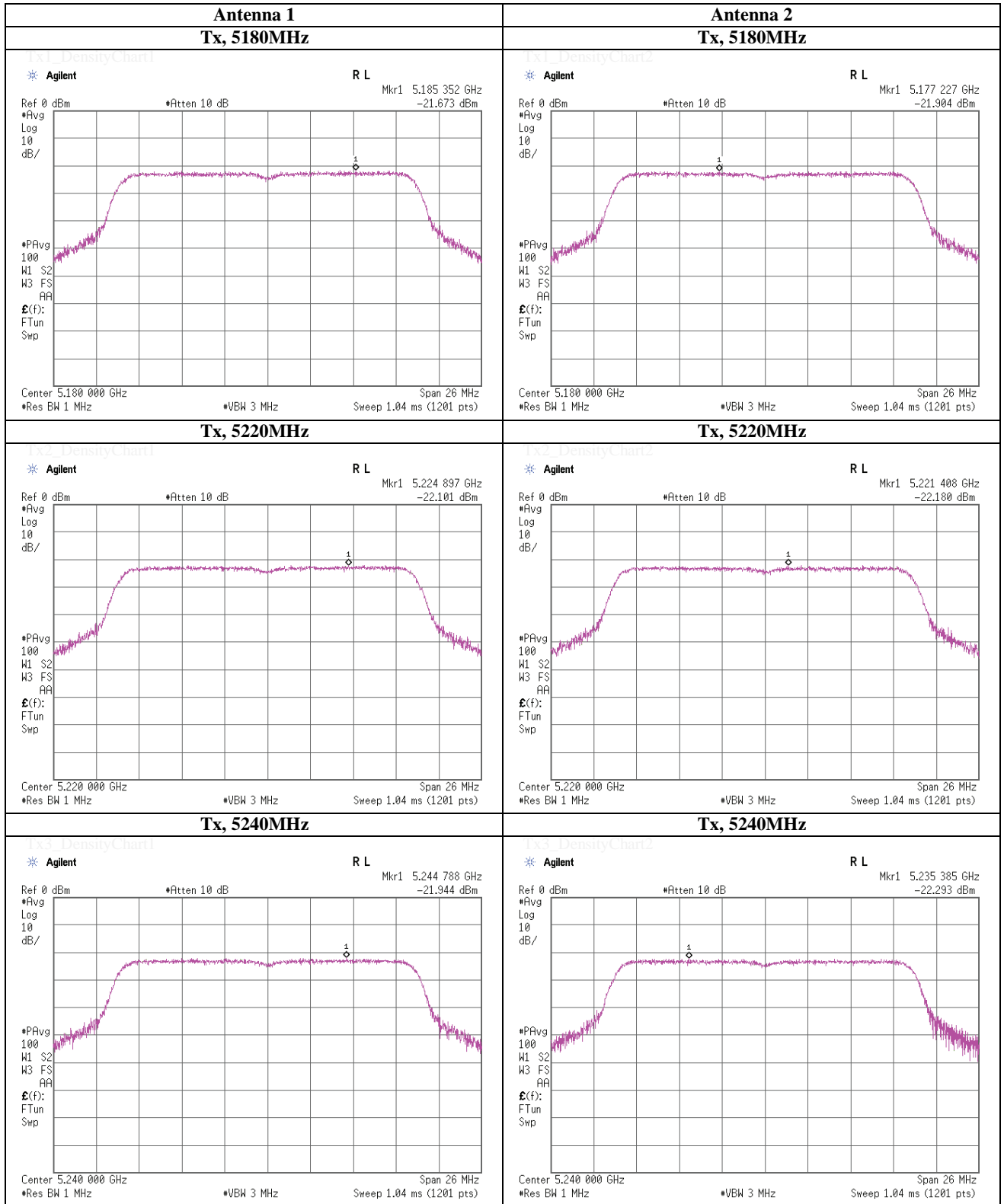
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Power Density



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Power Density

(Method: SA-2)

Test place UL Japan, Inc. Shonan EMC Lab. No.5 Shielded Room
Date May 8, 2013
Temperature / Humidity 25deg.C , 38%RH
Engineer Tatsuya Arai
Mode Tx, IEEE802.11n(HT20), PN9, worst data mode 8 (MCS)

Antenna 1

Ch. Freq. [MHz]	Freq. Reading [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Duty factor [dB]		10log (N _{ANT})* [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
5260.0000	5265.44	-22.03	2.36	20.09	0.04		3.01	3.47	11.00	7.53
5300.0000	5294.74	-22.30	2.36	20.09	0.04		3.01	3.20	11.00	7.80
5320.0000	5314.32	-22.56	2.23	20.08	0.04		3.01	2.80	11.00	8.20

Sample Calculation:

Result = Reading + Cable Loss + Atten. Loss + Duty factor + 10log(NANT)

Antenna 2

Ch. Freq. [MHz]	Freq. Reading [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Duty factor [dB]		10log (N _{ANT})* [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
5260.0000	5252.09	-22.09	2.19	20.09	0.04		3.01	3.24	11.00	7.76
5300.0000	5294.24	-22.43	2.29	20.09	0.04		3.01	3.00	11.00	8.00
5320.0000	5326.72	-22.46	2.41	20.08	0.04		3.01	3.08	11.00	7.92

Sample Calculation:

Result = Reading + Cable Loss + Atten. Loss + Duty factor + 10log(NANT)

*) This test was measured based on Method In-Band Power Spectral Density (PSD) Measurements (2) of
"Emissions Testing of Transmitters with Multiple Outputs in the Same Band (KDB662911 D1)"

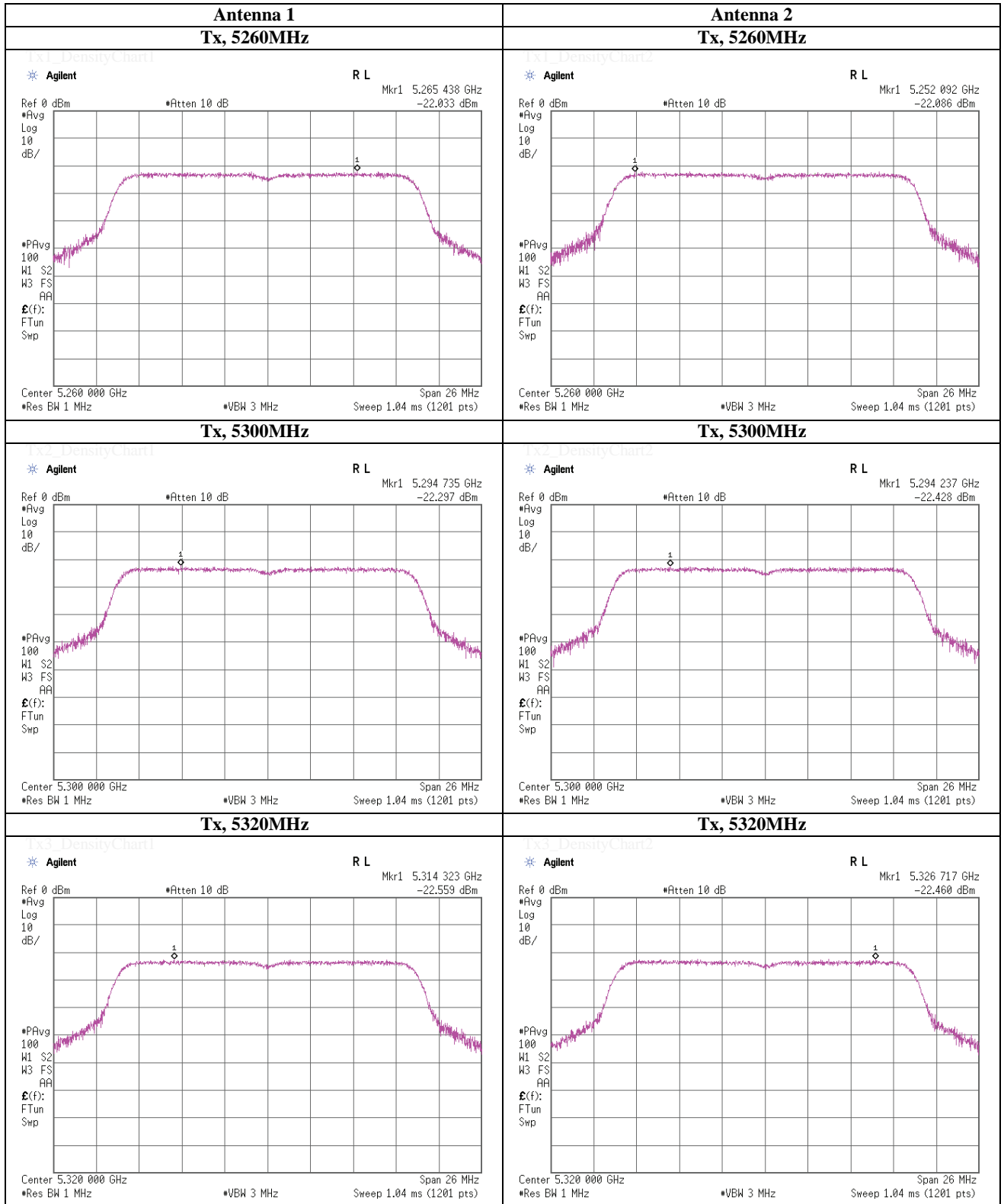
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Power Density

(Method: SA-2)

Test place UL Japan, Inc. Shonan EMC Lab. No.5 Shielded Room
Date May 8, 2013
Temperature / Humidity 25deg.C , 38%RH
Engineer Tatsuya Arai
Mode Tx, IEEE802.11n(HT20), PN9, worst data mode 8 (MCS)

Antenna 1

Ch. Freq. [MHz]	Freq. Reading [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Duty factor [dB]		10log (N _{ANT})* [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
5500.0000	5492.63	-24.95	2.20	20.07	0.04		3.01	0.37	11.00	10.63
5580.0000	5572.37	-24.18	2.23	20.08	0.04		3.01	1.18	11.00	9.82
5700.0000	5692.89	-24.14	2.29	20.09	0.04		3.01	1.30	11.00	9.70

Sample Calculation:

Result = Reading + Cable Loss + Atten. Loss + Duty factor + 10log(NANT)

Antenna 2

Ch. Freq. [MHz]	Freq. Reading [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Duty factor [dB]		10log (N _{ANT})* [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
5500.0000	5493.48	-24.49	2.45	20.07	0.04		3.01	1.08	11.00	9.92
5580.0000	5572.81	-23.86	2.48	20.08	0.04		3.01	1.75	11.00	9.25
5700.0000	5705.59	-23.52	2.33	20.09	0.04		3.01	1.95	11.00	9.05

Sample Calculation:

Result = Reading + Cable Loss + Atten. Loss + Duty factor + 10log(NANT)

*) This test was measured based on Method In-Band Power Spectral Density (PSD) Measurements (2) of
"Emissions Testing of Transmitters with Multiple Outputs in the Same Band (KDB662911 D1)"

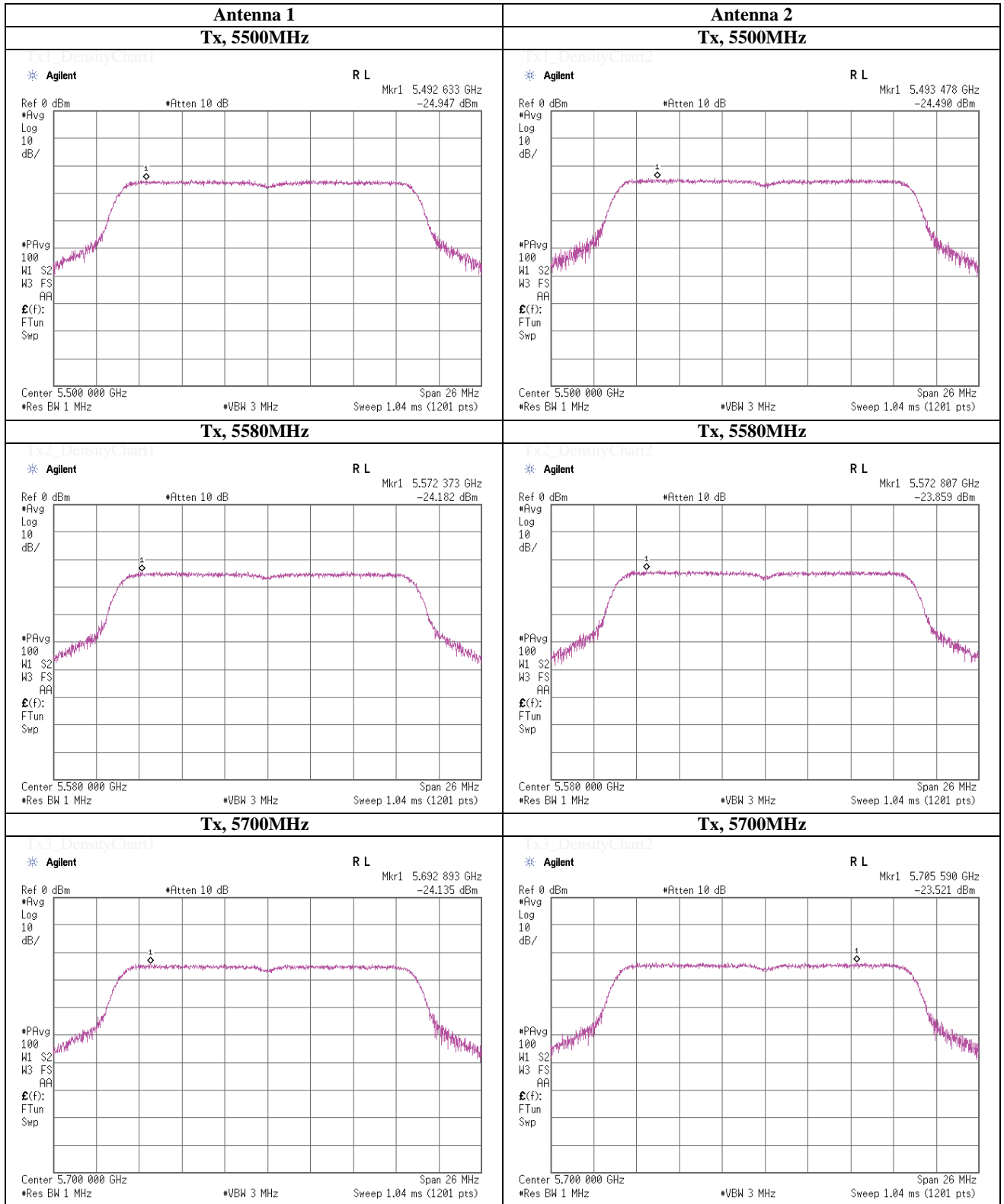
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Power Density

(Method: SA-2)

Test place UL Japan, Inc. Shonan EMC Lab. No.5 Shielded Room
Date May 8, 2013
Temperature / Humidity 25deg.C , 38%RH
Engineer Tatsuya Arai
Mode Tx, IEEE802.11n(HT40), PN9, worst data mode 10 (MCS)

Antenna 1

Ch. Freq. [MHz]	Freq. Reading [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Duty factor [dB]		10log (N _{ANT})* [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
5190.0000	5203.61	-24.68	2.17	20.09	0.21		3.01	0.80	4.00	3.20
5230.0000	5232.99	-24.58	2.17	20.09	0.21		3.01	0.90	4.00	3.10

Sample Calculation:

Result = Reading + Cable Loss + Atten. Loss + Duty factor + 10log(NANT)

Antenna 2

Ch. Freq. [MHz]	Freq. Reading [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Duty factor [dB]		10log (N _{ANT})* [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
5190.0000	5184.11	-24.55	2.19	20.09	0.21		3.01	0.95	4.00	3.05
5230.0000	5217.43	-25.13	2.32	20.09	0.21		3.01	0.50	4.00	3.50

Sample Calculation:

Result = Reading + Cable Loss + Atten. Loss + Duty factor + 10log(NANT)

*) This test was measured based on Method In-Band Power Spectral Density (PSD) Measurements (2) of
"Emissions Testing of Transmitters with Multiple Outputs in the Same Band (KDB662911 D1)"

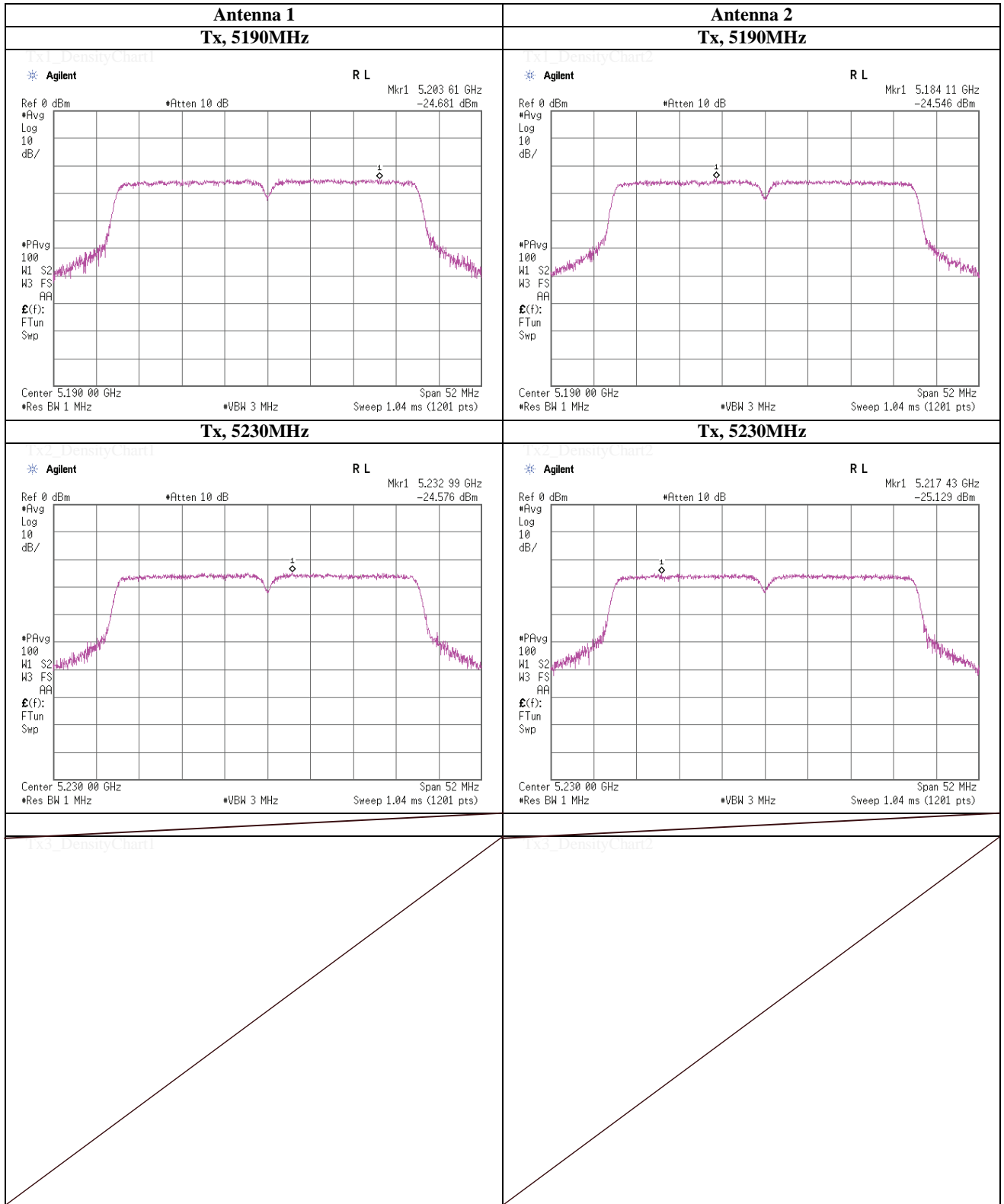
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Power Density



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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Power Density

(Method: SA-2)

Test place UL Japan, Inc. Shonan EMC Lab. No.5 Shielded Room
Date May 8, 2013
Temperature / Humidity 25deg.C , 38%RH
Engineer Tatsuya Arai
Mode Tx, IEEE802.11n(HT40), PN9, worst data mode 10 (MCS)

Antenna 1

Ch. Freq. [MHz]	Freq. Reading [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Duty factor [dB]		10log (N _{ANT})* [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
5270.0000	5264.80	-24.83	2.36	20.09	0.21		3.01	0.84	11.00	10.16
5310.0000	5302.68	-25.43	2.37	20.09	0.21		3.01	0.25	11.00	10.75

Sample Calculation:

Result = Reading + Cable Loss + Atten. Loss + Duty factor + 10log(NANT)

Antenna 2

Ch. Freq. [MHz]	Freq. Reading [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Duty factor [dB]		10log (N _{ANT})* [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
5270.0000	5258.21	-24.91	2.19	20.09	0.21		3.01	0.59	11.00	10.41
5310.0000	5302.03	-25.45	2.32	20.09	0.21		3.01	0.18	11.00	10.82

Sample Calculation:

Result = Reading + Cable Loss + Atten. Loss + Duty factor + 10log(NANT)

*) This test was measured based on Method In-Band Power Spectral Density (PSD) Measurements (2) of
"Emissions Testing of Transmitters with Multiple Outputs in the Same Band (KDB662911 D1)"

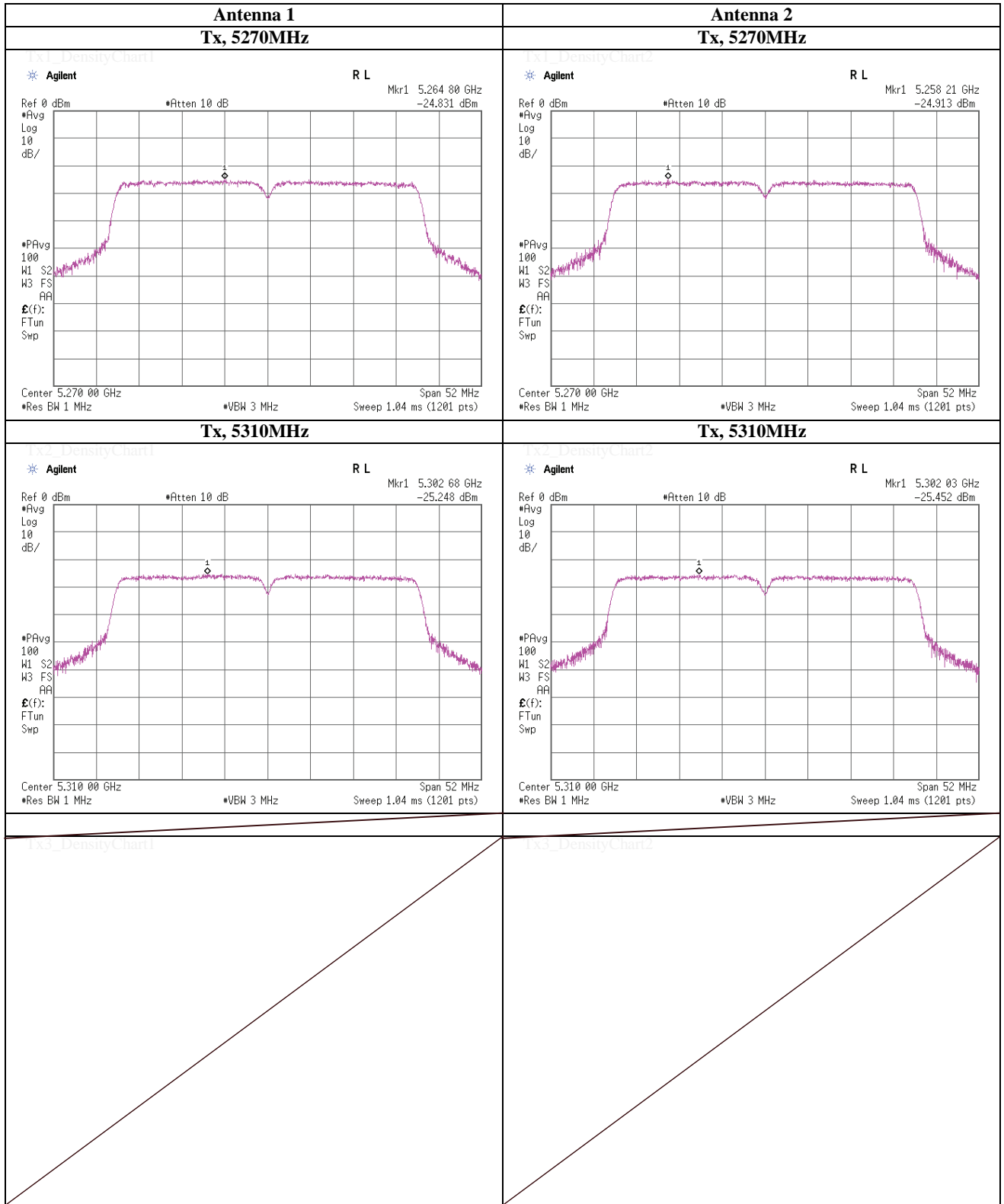
UL Japan, Inc.**Shonan EMC Lab.**

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Power Density

(Method: SA-2)

Test place UL Japan, Inc. Shonan EMC Lab. No.5 Shielded Room
Date May 8, 2013
Temperature / Humidity 25deg.C , 38%RH
Engineer Tatsuya Arai
Mode Tx, IEEE802.11n(HT40), PN9, worst data mode 10 (MCS)

Antenna 1

Ch. Freq. [MHz]	Freq. Reading [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Duty factor [dB]		10log (N _{ANT})* [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
5510.0000	5507.62	-27.79	2.21	20.07	0.21		3.01	-2.29	11.00	13.29
5550.0000	5545.49	-27.64	2.22	20.07	0.21		3.01	-2.13	11.00	13.13
5670.0000	5661.16	-26.56	2.41	20.08	0.21		3.01	-0.85	11.00	11.85

Sample Calculation:

Result = Reading + Cable Loss + Atten. Loss + Duty factor + 10log(NANT)

Antenna 2

Ch. Freq. [MHz]	Freq. Reading [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Duty factor [dB]		10log (N _{ANT})* [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
5510.0000	5507.14	-27.53	2.46	20.07	0.21		3.01	-1.77	11.00	12.77
5550.0000	5542.37	-27.02	2.47	20.07	0.21		3.01	-1.26	11.00	12.26
5670.0000	5654.49	-26.33	2.42	20.08	0.21		3.01	-0.61	11.00	11.61

Sample Calculation:

Result = Reading + Cable Loss + Atten. Loss + Duty factor + 10log(NANT)

*) This test was measured based on Method In-Band Power Spectral Density (PSD) Measurements (2) of
"Emissions Testing of Transmitters with Multiple Outputs in the Same Band (KDB662911 D1)"

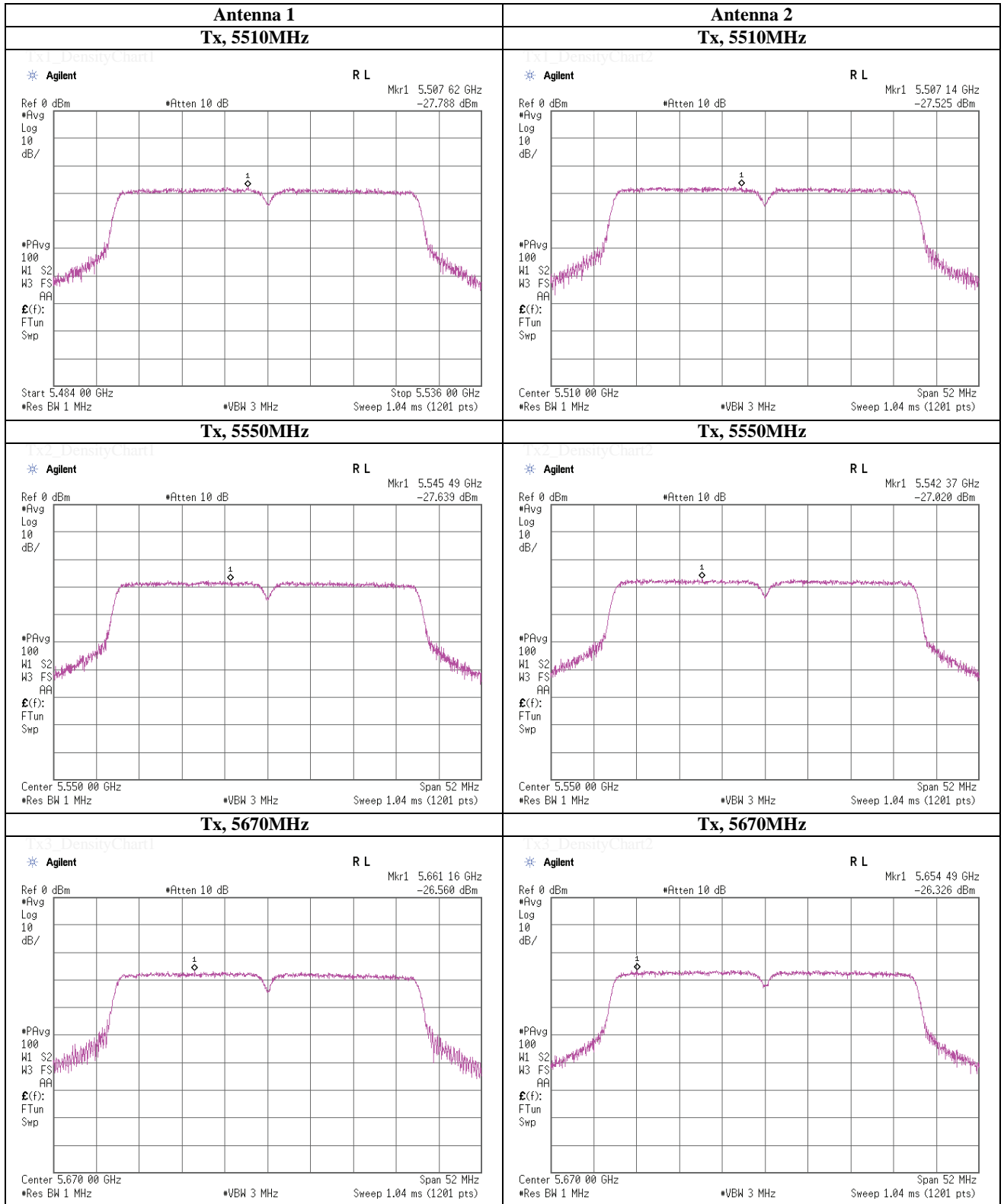
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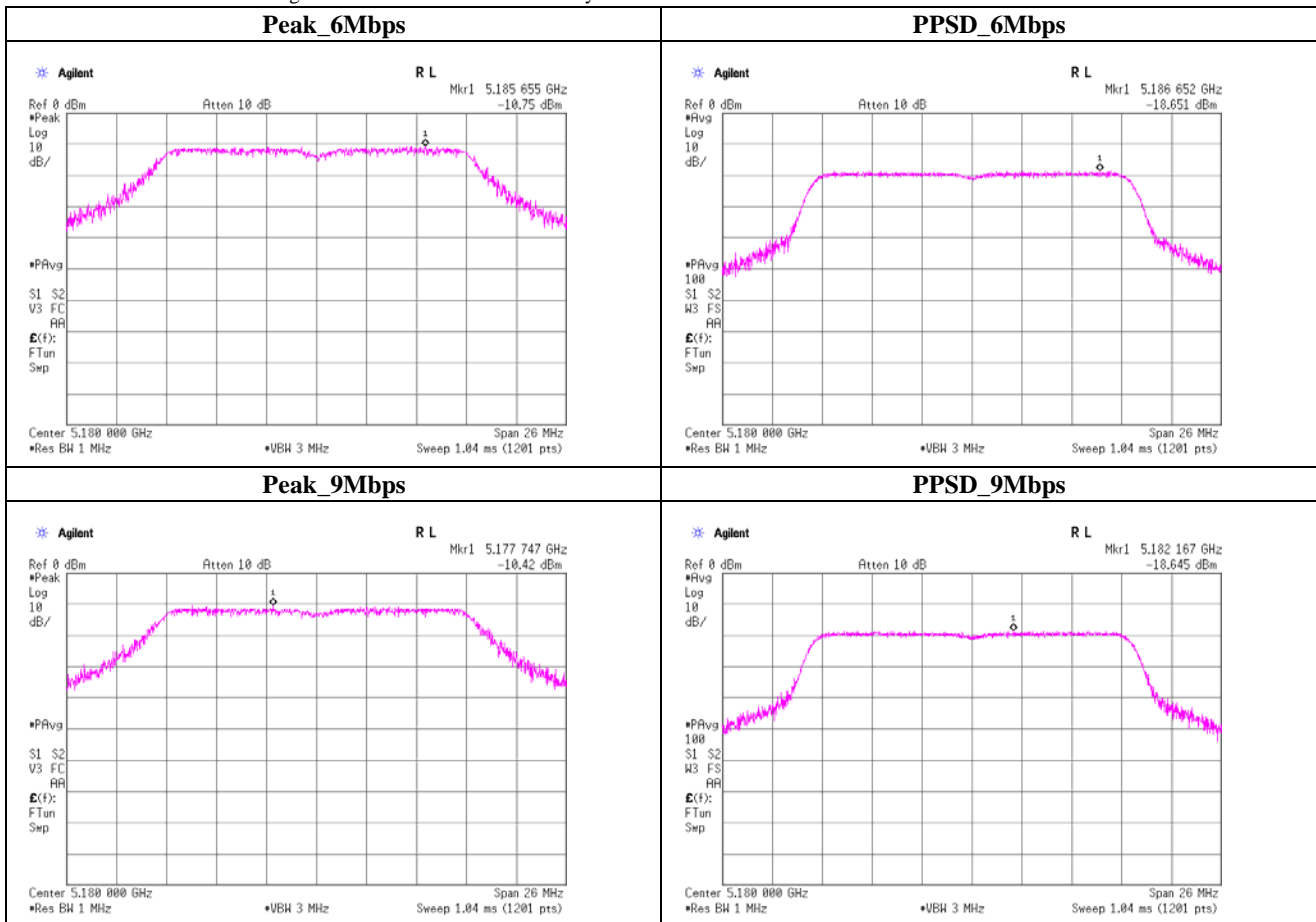
Facsimile : +81 463 50 6401

Peak Excursion Ratio

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	May 8, 2013	
Temperature / Humidity	25deg.C , 38%RH	
Engineer	Tatsuya Arai	
Mode	Tx, IEEE802.11a, PN9, worst antenna port 2	

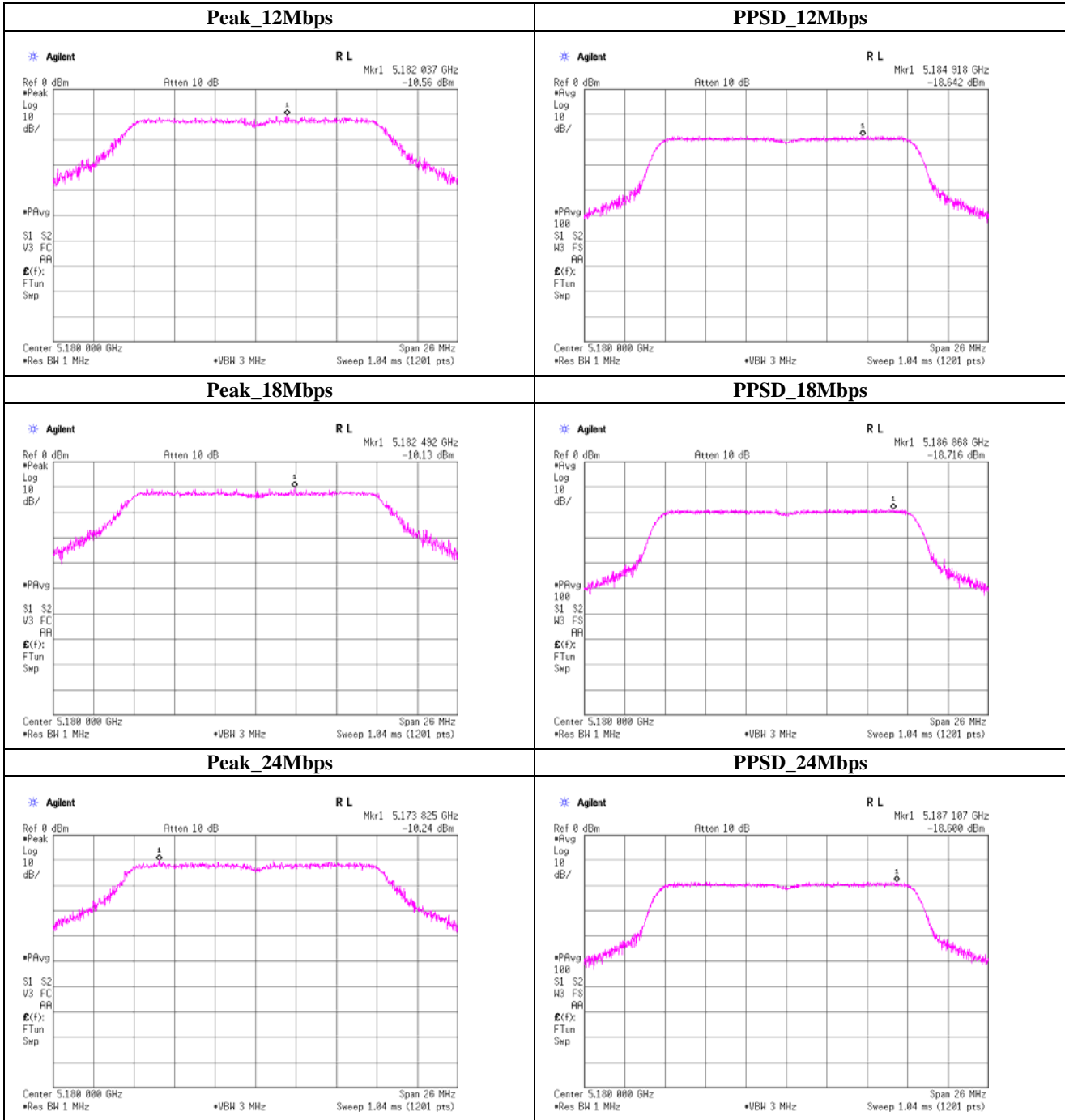
Ch. Freq. [MHz]	Rate [Mbps]	Peak Reading [dBm]	PPSD Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty factor [dB]	Peak Result [dBm]	PPSD Result [dBm]	Peak Power Excursion [dB]	Limit [dB]	Margin [dB]
5180	6	-10.75	-18.65	2.19	20.10	0.02	11.54	3.66	7.88	=<13.0	5.12
	9	-10.42	-18.65	2.19	20.10	0.03	11.87	3.67	8.20	=<13.0	4.80
	12	-10.56	-18.64	2.19	20.10	0.04	11.73	3.69	8.04	=<13.0	4.96
	18	-10.13	-18.72	2.19	20.10	0.06	12.16	3.63	8.53	=<13.0	4.47
	24	-10.24	-18.60	2.19	20.10	0.08	12.05	3.77	8.28	=<13.0	4.72
	36	-10.55	-18.67	2.19	20.10	0.11	11.74	3.73	8.01	=<13.0	4.99
	48	-10.34	-18.58	2.19	20.10	0.14	11.95	3.85	8.10	=<13.0	4.90
	54	-14.14	-22.78	2.19	20.10	0.16	8.15	-0.33	8.48	=<13.0	4.52

*Peak Power Excursion = Peak Result - PPSD Result
 *Peak Result = Peak Reading + Cable Loss + Atten. Loss,
 *PPSD Result = PPSD Reading + Cable Loss + Atten. Loss + Duty factor



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Peak Excursion Ratio



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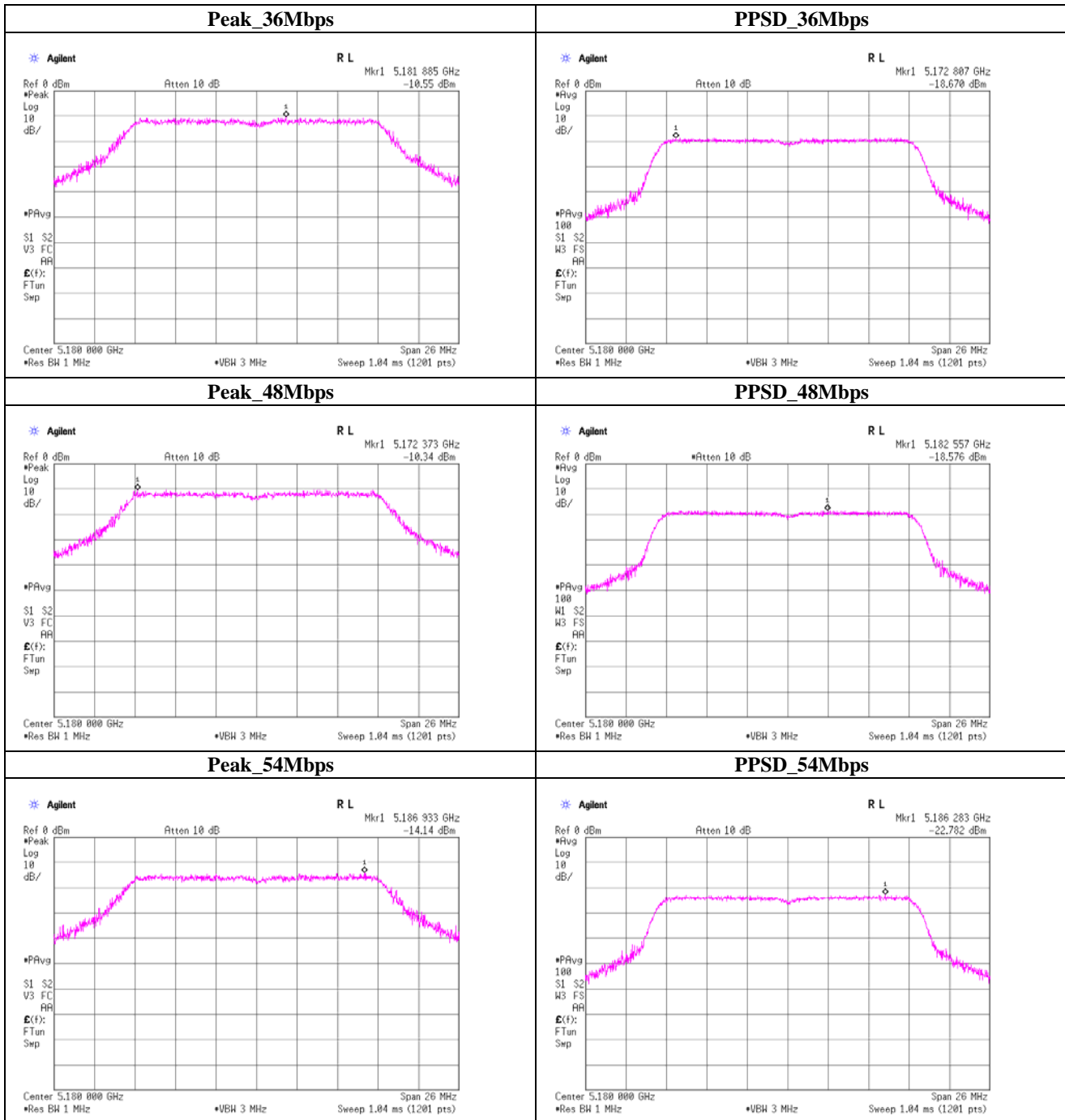
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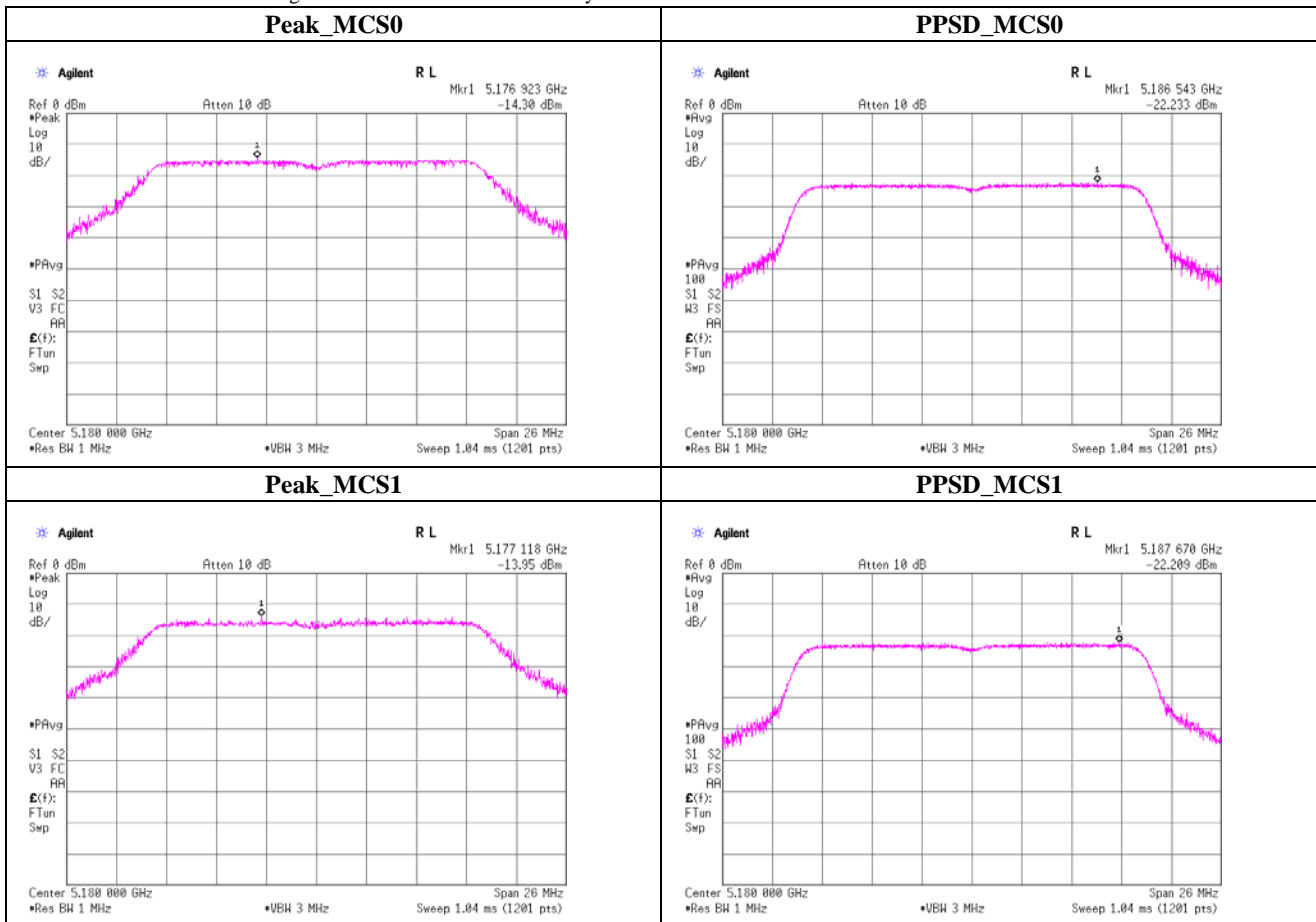
Facsimile : +81 463 50 6401

Peak Excursion Ratio

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	May 8, 2013	
Temperature / Humidity	25deg.C , 38%RH	
Engineer	Tatsuya Arai	
Mode	Tx, IEEE802.11n(HT20), PN9, worst antenna port 1	

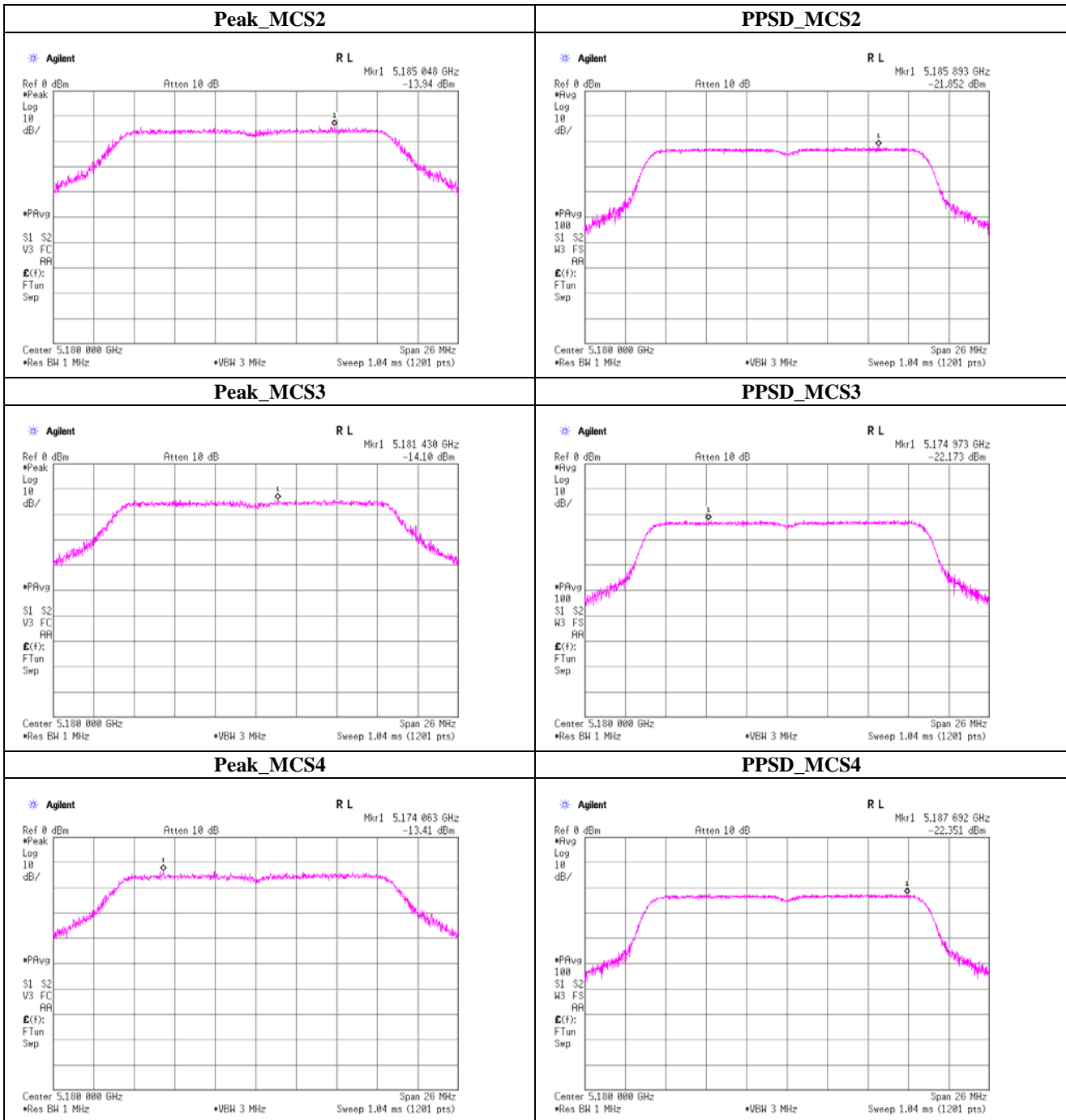
Ch. Freq. [MHz]	Rate [MCS]	Peak Reading [dBm]	PPSD Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty factor [dB]	Peak Result [dBm]	PPSD Result [dBm]	Peak Power Excursion [dB]	Limit [dB]	Margin [dB]
5180	0	-14.30	-22.23	2.17	20.10	0.02	7.97	0.06	7.91	=<13.0	5.09
	1	-13.95	-22.21	2.17	20.10	0.04	8.32	0.10	8.22	=<13.0	4.78
	2	-13.94	-21.85	2.17	20.10	0.06	8.33	0.48	7.85	=<13.0	5.15
	3	-14.10	-22.17	2.17	20.10	0.08	8.17	0.18	7.99	=<13.0	5.01
	4	-13.41	-22.35	2.17	20.10	0.11	8.86	0.03	8.83	=<13.0	4.17
	5	-13.09	-21.64	2.17	20.10	0.15	9.18	0.78	8.40	=<13.0	4.60
	6	-17.17	-25.76	2.17	20.10	0.16	5.10	-3.33	8.43	=<13.0	4.57
7	-16.89	-25.75	2.17	20.10	0.18	5.38	-3.30	8.68	=<13.0	4.32	

*Peak Power Excursion = Peak Result - PPSD Result
 *Peak Result = Peak Reading + Cable Loss + Atten. Loss,
 *PPSD Result = PPSD Reading + Cable Loss + Atten. Loss + Duty factor



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Peak Excursion Ratio



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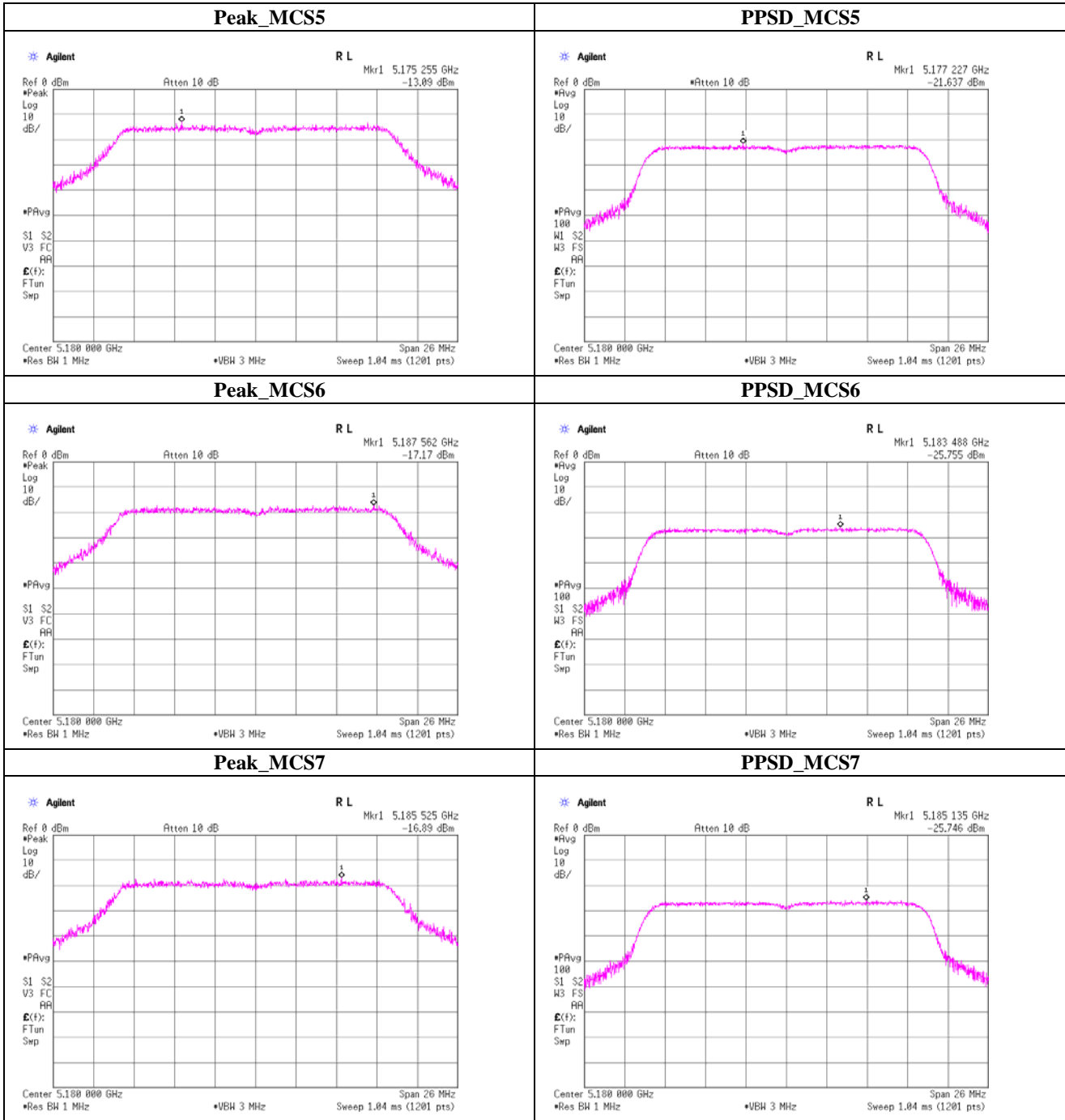
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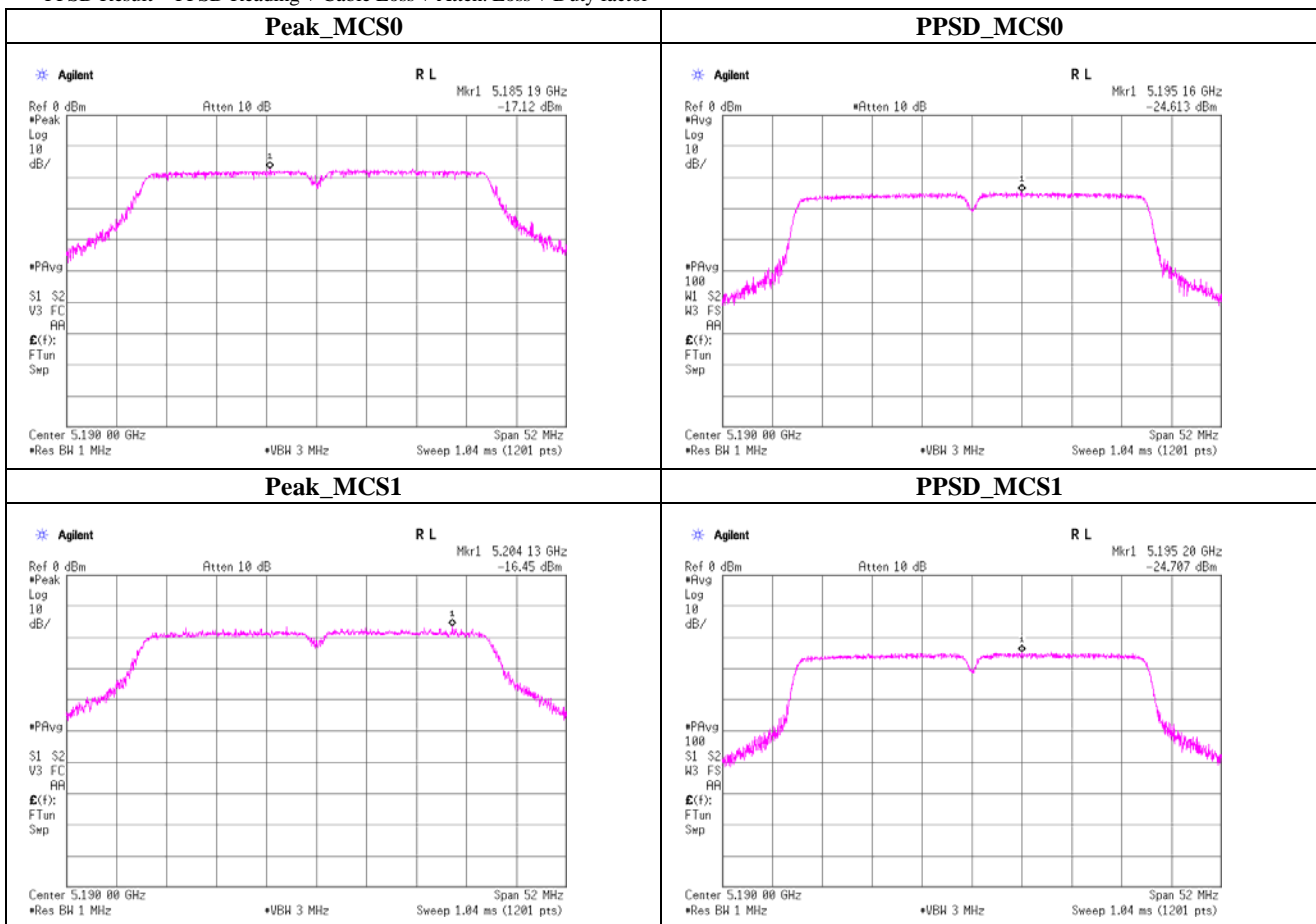
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Peak Excursion Ratio

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	May 8, 2013	
Temperature / Humidity	25deg.C , 38%RH	
Engineer	Tatsuya Arai	
Mode	Tx, IEEE802.11n(HT40), PN9, worst antenna port 1	

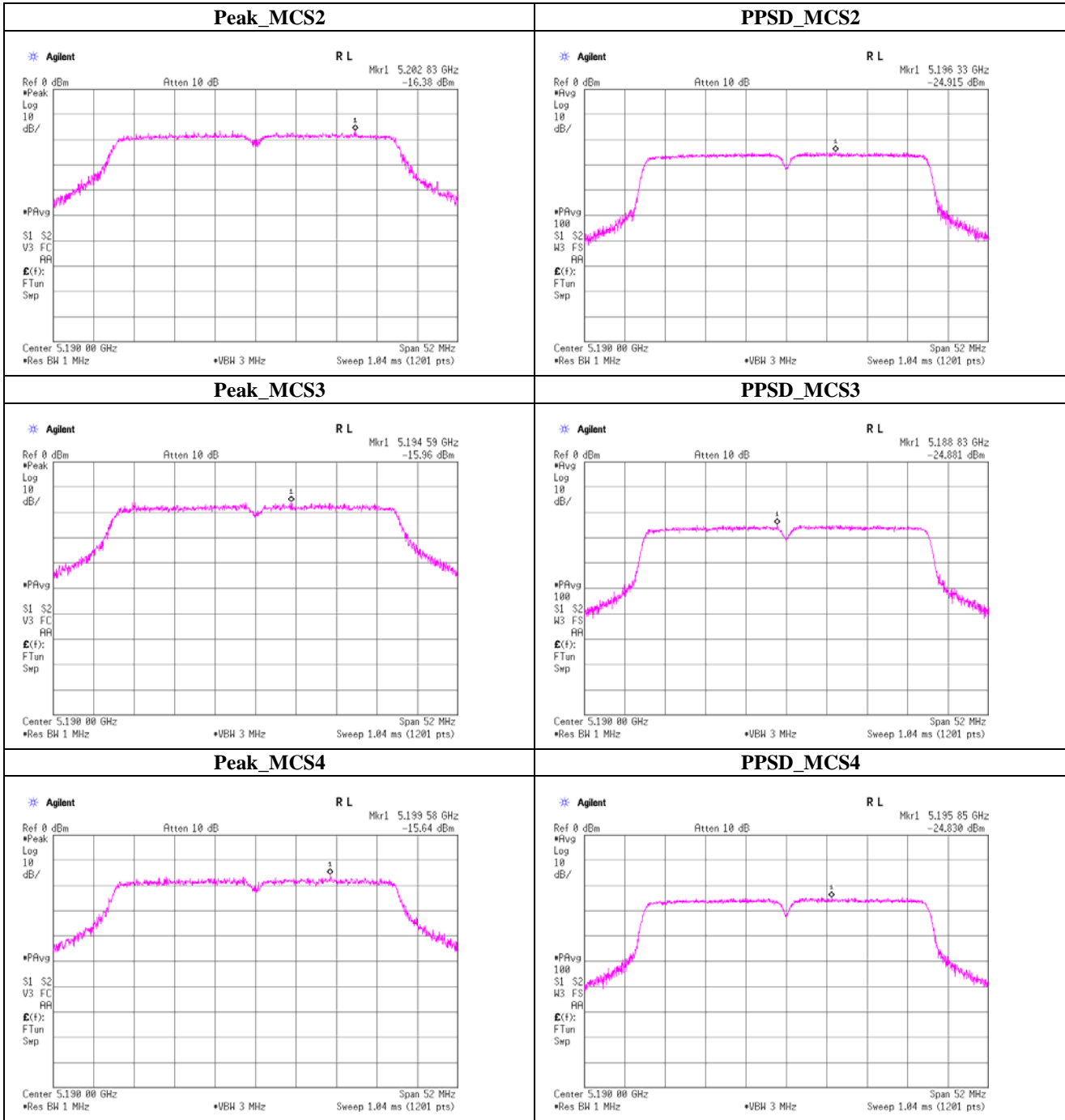
Ch. Freq. [MHz]	Rate [MCS]	Peak Reading [dBm]	PPSD Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty factor [dB]	Peak Result [dBm]	PPSD Result [dBm]	Peak Power Excursion [dB]	Limit [dB]	Margin [dB]
5190	0	-17.12	-24.61	2.17	20.09	0.04	5.14	-2.31	7.45	=<13.0	5.55
	1	-16.45	-24.71	2.17	20.09	0.08	5.81	-2.37	8.18	=<13.0	4.82
	2	-16.38	-24.92	2.17	20.09	0.11	5.88	-2.55	8.43	=<13.0	4.57
	3	-15.96	-24.88	2.17	20.09	0.15	6.30	-2.47	8.77	=<13.0	4.23
	4	-15.64	-24.83	2.17	20.09	0.21	6.62	-2.36	8.98	=<13.0	4.02
	5	-15.52	-24.87	2.17	20.09	0.26	6.74	-2.35	9.09	=<13.0	3.91
	6	-19.83	-28.55	2.17	20.09	0.29	2.43	-6.00	8.43	=<13.0	4.57
7	-19.53	-28.49	2.17	20.09	0.32	2.73	-5.91	8.64	=<13.0	4.36	

*Peak Power Excursion = Peak Result - PPSD Result
 *Peak Result = Peak Reading + Cable Loss + Atten. Loss,
 *PPSD Result = PPSD Reading + Cable Loss + Atten. Loss + Duty factor



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Peak Excursion Ratio



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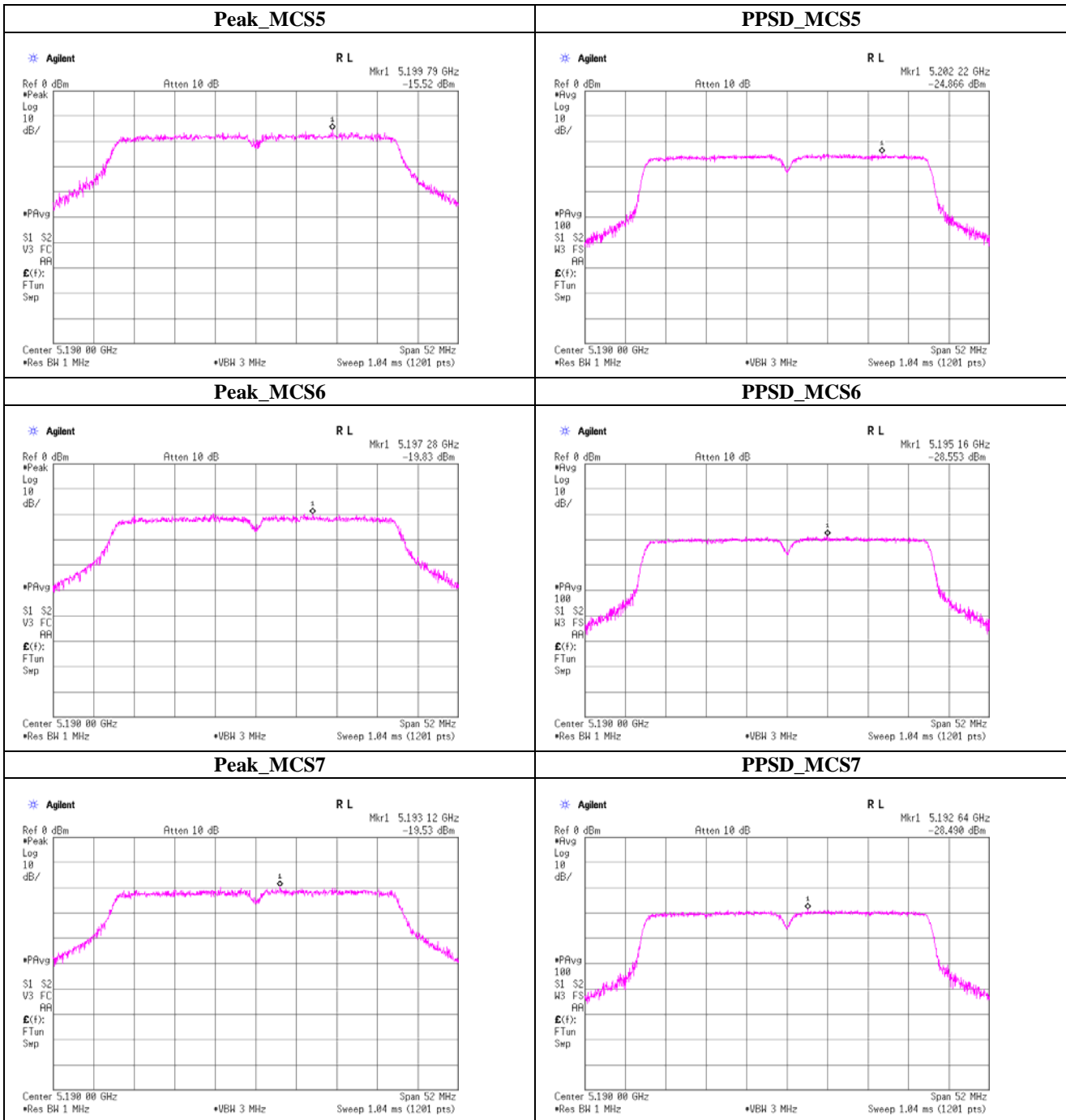
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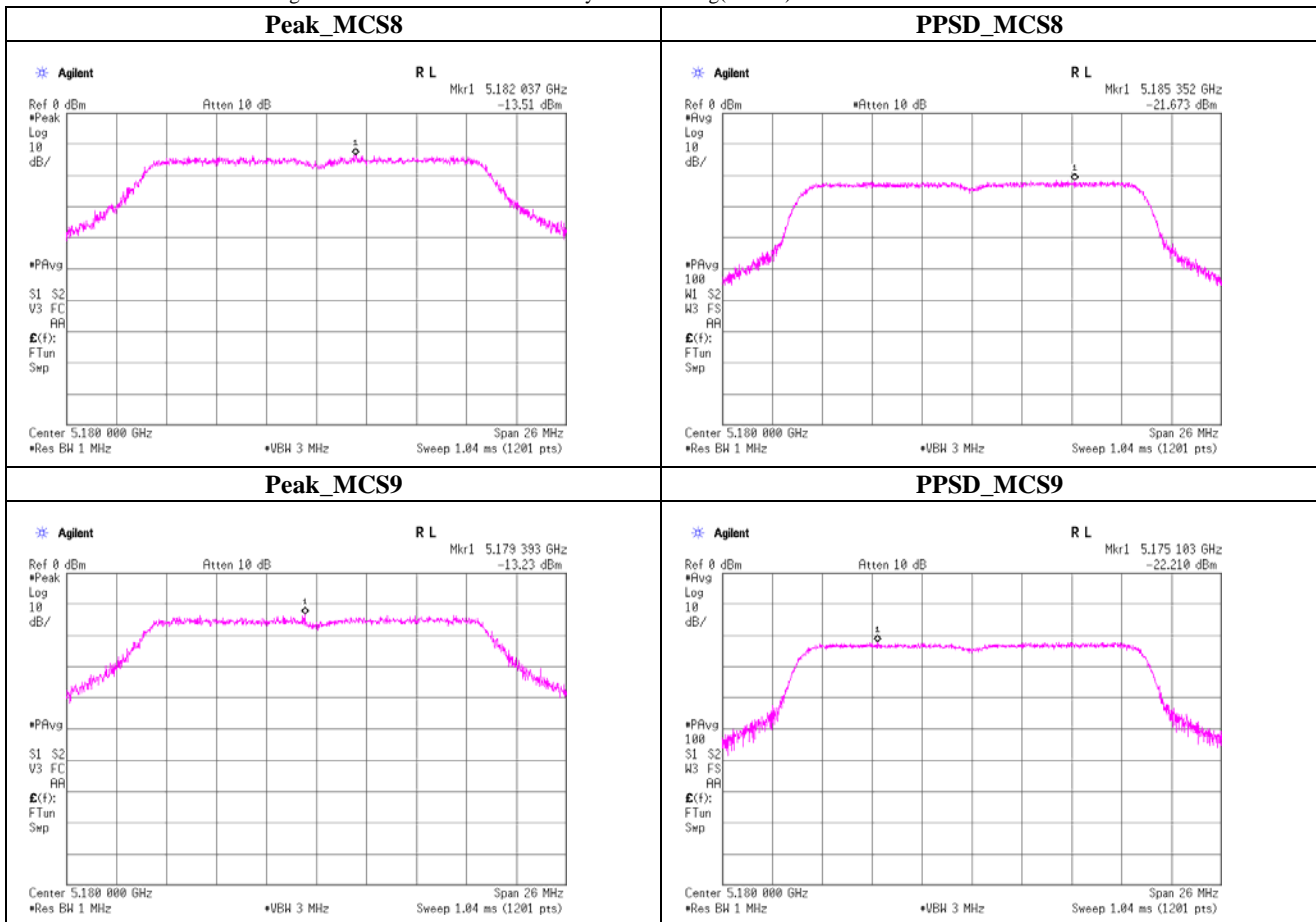
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Peak Excursion Ratio

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	May 8, 2013	
Temperature / Humidity	25deg.C , 38%RH	
Engineer	Tatsuya Arai	
Mode	Tx, IEEE802.11n(HT20), PN9, Antenna port 1	

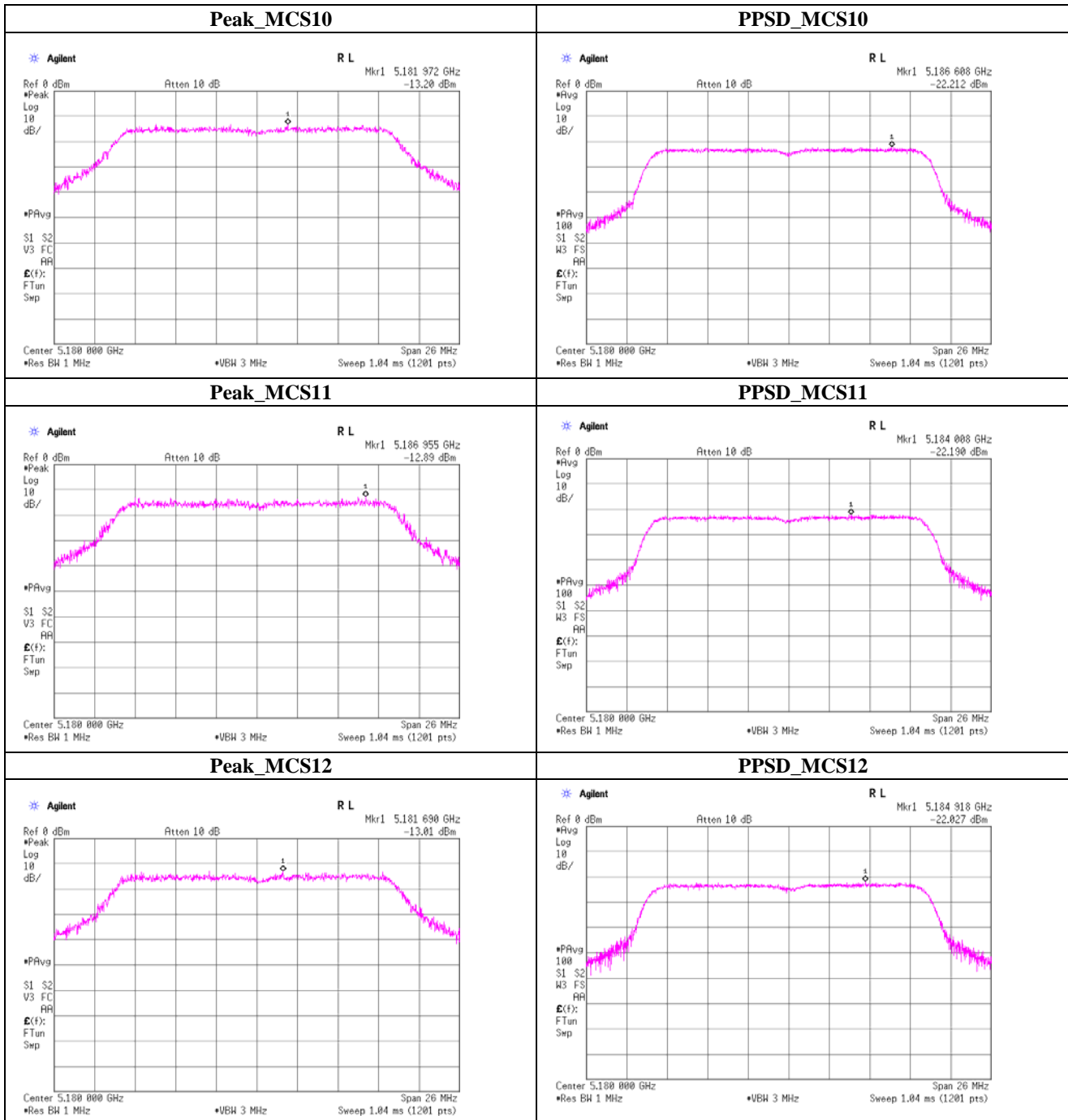
Ch. Freq. [MHz]	Rate [MCS]	Peak Reading [dBm]	PPSD Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty factor [dB]	10log (N _{ANT})* [dB]	Peak Result [dBm]	PPSD Result [dBm]	Peak Power Excursion [dB]	Limit [dB]	Margin [dB]
5180	8	-13.51	-21.67	2.17	20.10	0.04	3.01	11.77	3.65	8.12	=<13.0	4.88
	9	-13.23	-22.21	2.17	20.10	0.08	3.01	12.05	3.15	8.90	=<13.0	4.10
	10	-13.20	-22.21	2.17	20.10	0.11	3.01	12.08	3.18	8.90	=<13.0	4.10
	11	-12.89	-22.19	2.17	20.10	0.15	3.01	12.39	3.24	9.15	=<13.0	3.85
	12	-13.01	-22.03	2.17	20.10	0.21	3.01	12.27	3.46	8.81	=<13.0	4.19
	13	-12.92	-22.08	2.17	20.10	0.26	3.01	12.36	3.46	8.90	=<13.0	4.10
	14	-16.76	-25.63	2.17	20.10	0.29	3.01	8.52	-0.06	8.58	=<13.0	4.42
	15	-16.40	-25.68	2.17	20.10	0.31	3.01	8.88	-0.09	8.97	=<13.0	4.03

*Peak Power Excursion = Peak Result - PPSD Result
 *Peak Result = Peak Reading + Cable Loss + Atten. Loss + 10log(NANT)
 *PPSD Result = PPSD Reading + Cable Loss + Atten. Loss + Duty factor + 10log(NANT)



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Peak Excursion Ratio



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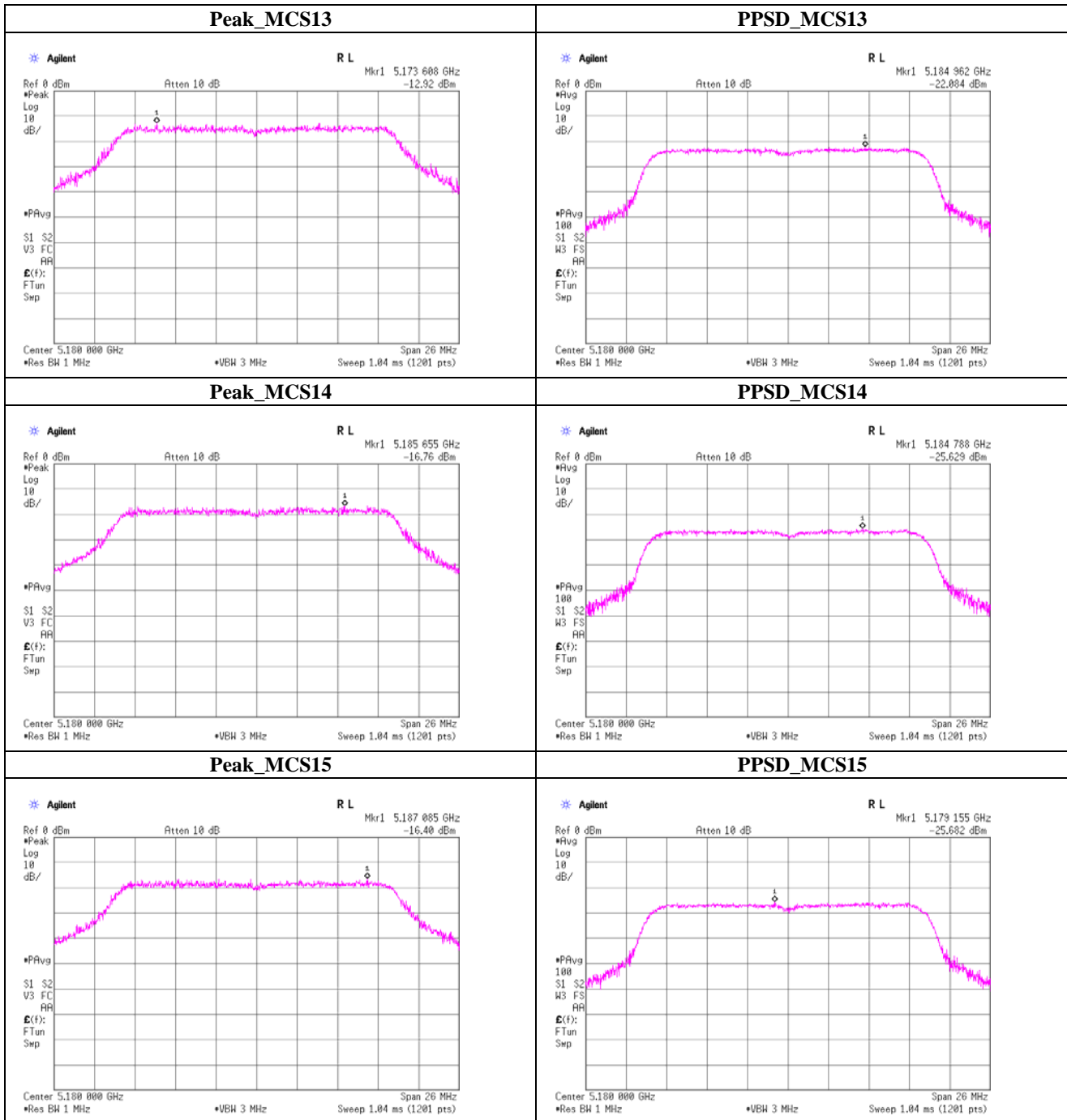
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Peak Excursion Ratio

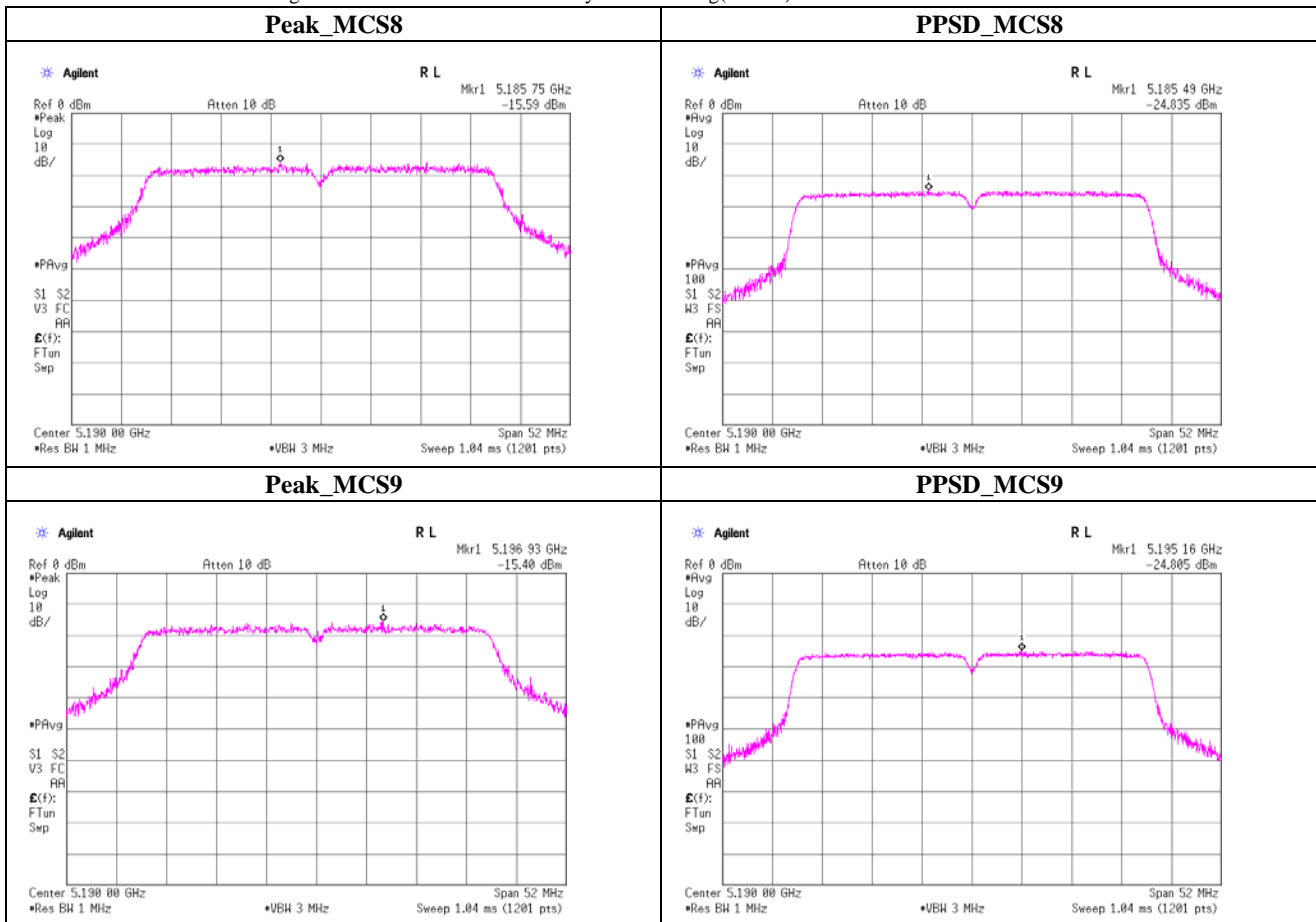
Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	May 8, 2013	
Temperature / Humidity	25deg.C , 38%RH	
Engineer	Tatsuya Arai	
Mode	Tx, IEEE802.11n(HT40), PN9, Antenna port 2	

Ch. Freq. [MHz]	Rate [MCS]	Peak Reading [dBm]	PPSD Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty factor [dB]	10log (N _{ANT})* [dB]	Peak Result [dBm]	PPSD Result [dBm]	Peak Power Excursion [dB]	Limit [dB]	Margin [dB]
5190	8	-15.59	-24.84	2.17	20.09	0.08	3.01	9.68	0.51	9.17	=<13.0	3.83
	9	-15.40	-24.81	2.17	20.09	0.15	3.01	9.87	0.61	9.26	=<13.0	3.74
	10	-15.96	-24.68	2.17	20.09	0.21	3.01	9.31	0.80	8.51	=<13.0	4.49
	11	-15.09	-25.00	2.17	20.09	0.26	3.01	10.18	0.53	9.65	=<13.0	3.35
	12	-15.83	-25.13	2.17	20.09	0.36	3.01	9.44	0.50	8.94	=<13.0	4.06
	13	-15.51	-25.16	2.17	20.09	0.42	3.01	9.76	0.53	9.23	=<13.0	3.77
	14	-19.03	-28.45	2.17	20.09	0.45	3.01	6.24	-2.73	8.97	=<13.0	4.03
	15	-18.90	-28.79	2.17	20.09	0.48	3.01	6.37	-3.04	9.41	=<13.0	3.59

*Peak Power Excursion = Peak Result - PPSSD Result

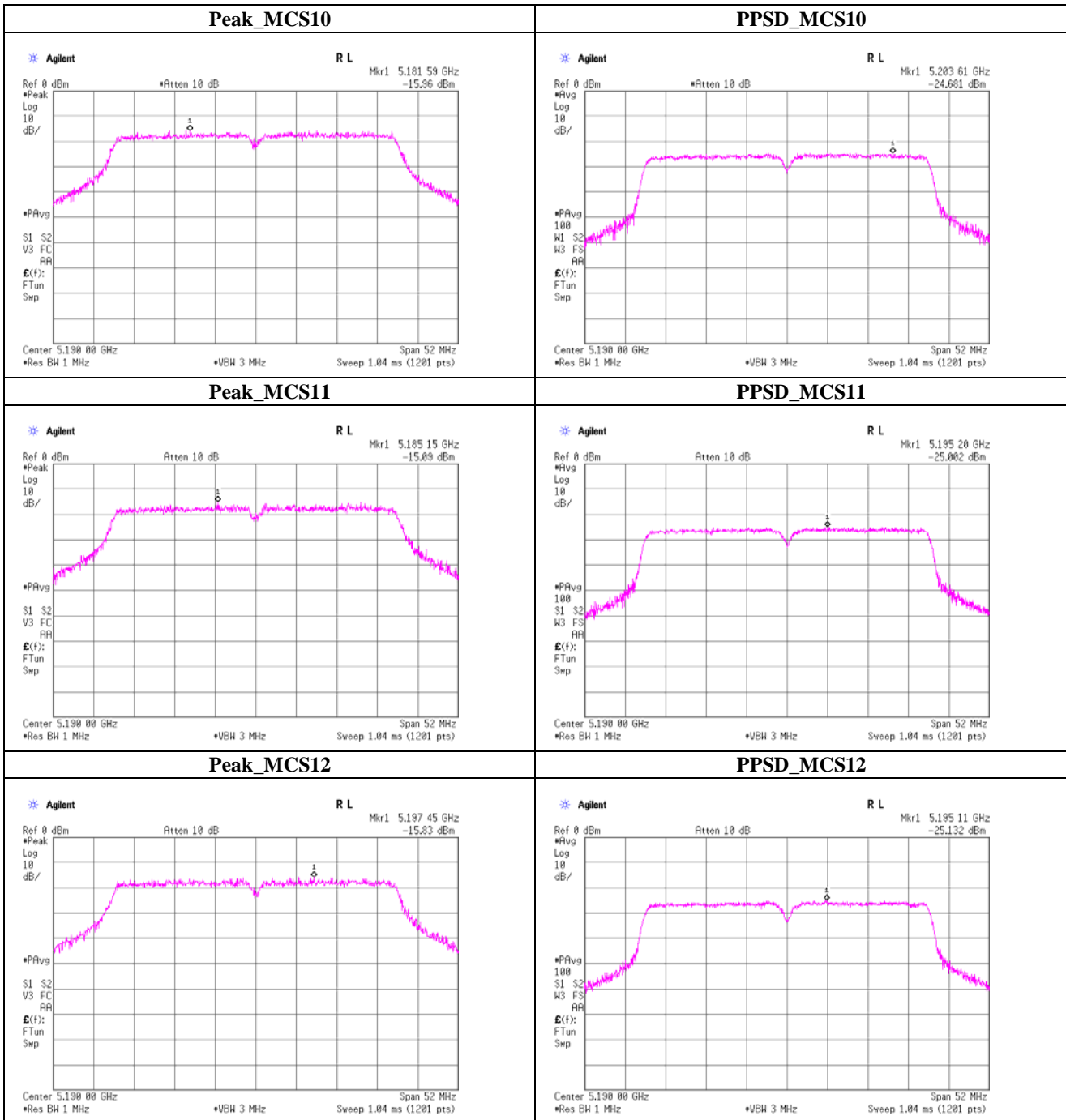
*Peak Result = Peak Reading + Cable Loss + Atten. Loss + 10log(NANT)

*PPSD Result = PPSSD Reading + Cable Loss + Atten. Loss + Duty factor + 10log(NANT)



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Peak Excursion Ratio



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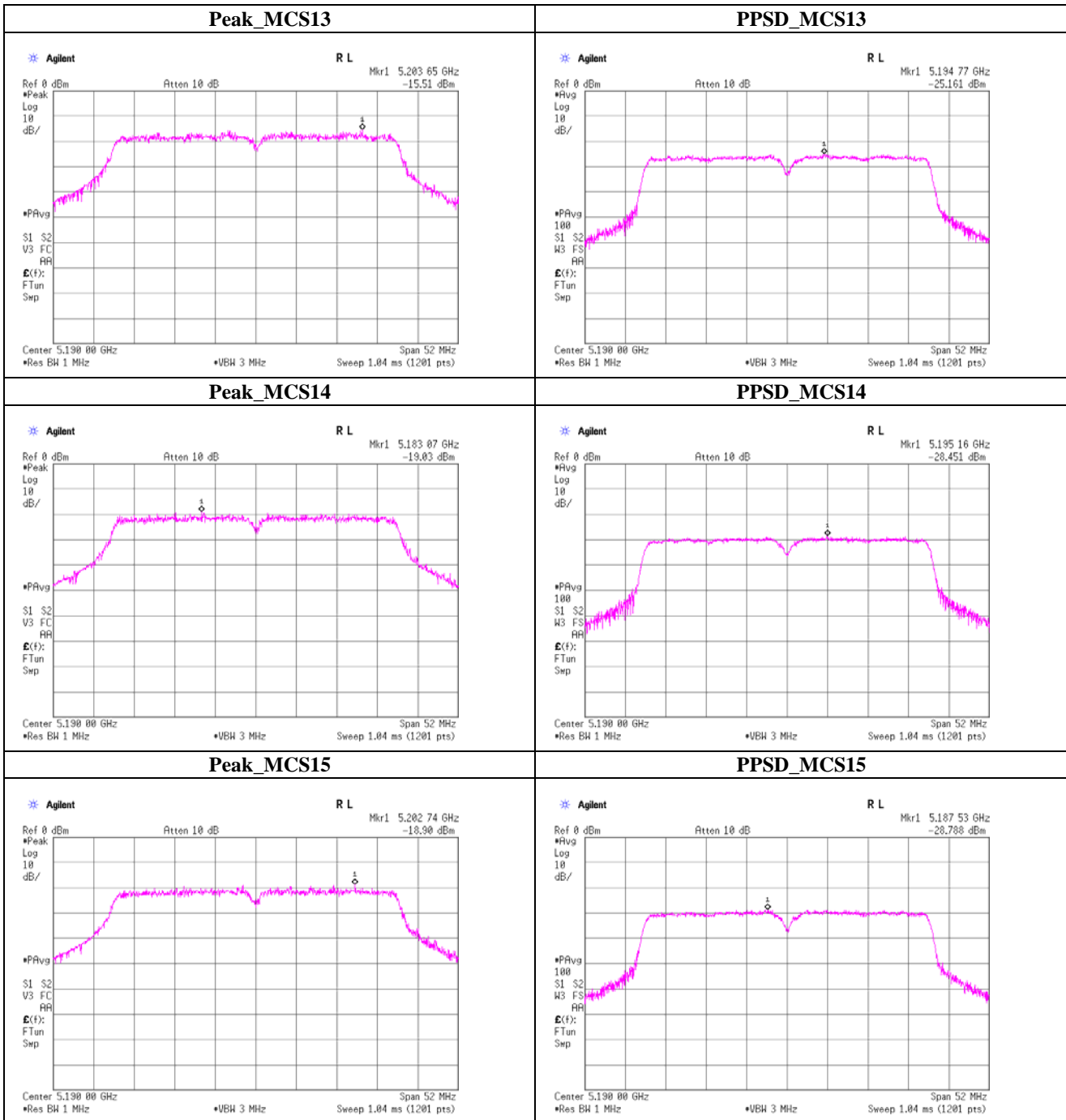
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APPENDIX 2
Test Instruments

EMI test equipment

Control No.	Instrument	Manufacturer	Model No	Serial No	Test Item	Calibration Date * Interval(month)
KSA-08	Spectrum Analyzer	Agilent	E4446A	MY46180525	AT/RE	2013/03/04 * 12
SPM-06	Power Meter	Anritsu	ML2495A	0850009	AT	2013/04/09 * 12
SPSS-03	Power sensor	Anritsu	MA2411B	0917063	AT	2013/04/09 * 12
SAT20-05	Attenuator	Weinschel Corp.	54A-20	Y5649	AT	2012/11/15 * 12
SCC-G12	Coaxial Cable	Suhner	SUCOFLEX 102	30790/2	AT	2013/03/16 * 12
SCC-H5	Microwave cable	Hirose Electric	U.FL-2LP-066J1-A-(200)	-	AT	Pre Check
SCC-H2	Microwave cable	Hirose Electric	U.FL-2LP-066J1-A-(200)	-	AT	Pre Check
STM-G5	Terminator	Weinschel	M1459A	U6594	AT	2012/07/18 * 12
SOS-09	Humidity Indicator	A&D	AD-5681	4061484	AT	2013/03/07 * 12
SAEC-02(NSA)	Semi-Anechoic Chamber	TDK	SAEC-02(NSA)	2	RE	2012/09/21 * 12
SAF-05	Pre Amplifier	TOYO Corporation	TPA0118-36	1440490	RE	2013/03/19 * 12
SCC-G02	Coaxial Cable	Suhner	SUCOFLEX 104A	46498/4A	RE	2013/04/09 * 12
SCC-G22	Coaxial Cable	Suhner	SUCOFLEX 104	296199/4	RE	2012/05/22 * 12
SHA-02	Horn Antenna	Schwarzbeck	BBHA9120D	9120D-726	RE	2012/08/17 * 12
SOS-03	Humidity Indicator	A&D	AD-5681	4063325	RE	2013/02/27 * 12
SJM-02	Measure	KOMELON	KMC-36	-	RE	-
COTS-SEMI-1	EMI Software	TSJ	TEPTO-DV(RE,CE,RFI,MF)	-	RE	-
SAT10-06	Attenuator	Agilent	8493C-010	74865	RE	2012/12/18 * 12
SFL-03	Highpass Filter	MICRO-TRONICS	HPM50112	028	RE	2012/12/18 * 12
SAEC-01(NSA)	Semi-Anechoic Chamber	TDK	SAEC-01(NSA)	1	RE	2012/09/11 * 12
SAF-04	Pre Amplifier	TOYO Corporation	TPA0118-36	1440489	RE	2013/03/19 * 12
SCC-G01	Coaxial Cable	Suhner	SUCOFLEX 104A	46497/4A	RE	2013/04/09 * 12
SCC-G21	Coaxial Cable	Suhner	SUCOFLEX 104	296169/4	RE	2012/05/22 * 12
SHA-01	Horn Antenna	Schwarzbeck	BBHA9120D	9120D-725	RE	2012/08/20 * 12
SOS-01	Humidity Indicator	A&D	AD-5681	4062555	RE	2013/02/27 * 12
SSA-02	Spectrum Analyzer	Agilent	E4448A	MY48250106	RE	2013/03/28 * 12
SJM-08	Measure	PROMART	SEN1935	-	RE	-
SHA-05	Horn Antenna	ETS LINDGREN	3160-09	LM4210	RE	2013/03/14 * 12
SAF-09	Pre Amplifier	TOYO Corporation	HAP18-26W	00000018	RE	2013/03/19 * 12
SCC-G18	Coaxial Cable	Suhner	SUCOFLEX 104A	46292/4A	RE	2013/03/16 * 12
SHA-06	Horn Antenna	ETS LINDGREN	3160-10	LM3459	RE	2013/03/14 * 12
SAF-10	Pre Amplifier	TOYO Corporation	HAP26-40W	00000010	RE	2013/03/19 * 12
SCC-G19	Coaxial Cable	Suhner	SUCOFLEX 102A	1188/2A	RE	2013/03/16 * 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 valid calibrations . Each measurement data is traceable to the national or international standards .

Test Item :

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

End of Report

APPENDIX 2

Test Instruments

EMI test equipment

Control No.	Instrument	Manufacturer	Model No	Serial No	Test Item	Calibration Date * Interval(month)
SAF-02	Pre Amplifier	SONOMA	310N	290212	RE	2013/02/12 * 12
SAT6-02	Attenuator	JFW	50HF-006N	-	RE	2013/02/12 * 12
KAT3-11	Attenuator	JFW IND. INC.	50HF-003N	-	RE	2012/08/07 * 12
SBA-02	Biconical Antenna	Schwarzbeck	BBA9106	91032665	RE	2012/11/18 * 12
SCC-B1/B3/B5/B7/B8/B13/SRSE-02	Coaxial Cable&RF Selector	Fujikura/Fujikura/Suhner/Suhner/Suhner/TOYO	8D2W/12DSFA/141PE/141PE/141PE/141PE/NS4906	-/0901-270(RF Selector)	RE	2013/04/03 * 12
SCC-B2/B4/B6/B7/B8/B13/SRSE-02	Coaxial Cable&RF Selector	Fujikura/Fujikura/Suhner/Suhner/Suhner/TOYO	8D2W/12DSFA/141PE/141PE/141PE/141PE/NS4906	-/0901-270(RF Selector)	RE	2013/04/03 * 12
SLA-02	Logperiodic Antenna	Schwarzbeck	UHALP9108A	UHALP9108-A 0893	RE	2012/11/18 * 12
SOS-03	Humidity Indicator	A&D	AD-5681	4063325	RE	2013/02/27 * 12
STR-02	Test Receiver	Rohde & Schwarz	ESCI	100575	RE	2012/09/03 * 12
SJM-02	Measure	KOMELON	KMC-36	-	RE	-
SAEC-02(NSA)	Semi-Anechoic Chamber	TDK	SAEC-02(NSA)	2	RE	2012/09/21 * 12
COTS-SEMI-1	EMI Software	TSJ	TEPTO-DV(RE,CE,RFLMF)	-	RE	-
SCC-B12/B13/SRSE-02	Coaxial Cable&RF Selector	Suhner/Suhner/TOYO	RG223U/141PE/NS4906	-/0901-270(RF Selector)	CE	2013/04/03 * 12
SLS-03	LISN	Rohde & Schwarz	ENV216	100513	CE	2013/02/22 * 12
SLS-04	LISN	Rohde & Schwarz	ENV216	100514	CE	2013/02/25 * 12
SAT3-05	Attenuator	JFW	50HF-003N	-	CE	2013/02/12 * 12
SOS-04	Humidity Indicator	A&D	AD-5681	4061512	CE	2013/03/07 * 12
STM-03	Terminator	TME	CT-01 BP	-	CE	2013/01/16 * 12
STR-02	Test Receiver	Rohde & Schwarz	ESCI	100575	CE	2012/09/03 * 12
SJM-02	Measure	KOMELON	KMC-36	-	CE	-
COTS-SEMI-1	EMI Software	TSJ	TEPTO-DV(RE,CE,RFLMF)	-	CE	-

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 valid calibrations . Each measurement data is traceable to the national or international standards .

Test Item :

CE: Conducted emission ,
 RE: Radiated emission