

Radiated Spurious Emission
(NR-243UH (Internal Amplifier))

Test place Head Office EMC Lab. No.4 Semi Anechoic Chamber
Report No. 10012781H
Date 05/31/2013 06/01/2013
Temperature/ Humidity 22 deg. C / 59% RH 24 deg. C / 61% RH
Engineer Hiroshi Kukita Hironobu Ohnishi
(Above 1GHz) (Below 1GHz)
Mode Tx, 3DH5 2402MHz

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	42.000	QP	22.9	14.0	7.3	32.2	12.0	40.0	28.0	
Hori	96.200	QP	26.8	9.7	8.0	32.1	12.4	43.5	31.1	
Hori	111.000	QP	30.7	12.2	8.2	32.1	19.0	43.5	24.5	
Hori	150.820	QP	30.4	15.1	8.6	32.1	22.0	43.5	21.5	
Hori	406.998	QP	26.7	17.9	10.5	32.0	23.1	46.0	22.9	
Hori	610.000	QP	22.0	20.2	11.6	32.1	21.7	46.0	24.3	
Hori	2390.000	PK	43.0	27.5	2.6	32.4	40.7	73.9	33.2	
Hori	2557.999	PK	49.8	27.6	2.7	32.3	47.8	73.9	26.1	
Hori	4804.000	PK	42.0	31.3	4.4	31.6	46.1	73.9	27.8	
Hori	7206.000	PK	43.0	35.8	5.2	32.7	51.3	73.9	22.6	
Hori	9608.000	PK	44.8	38.3	6.1	33.3	55.9	73.9	18.0	
Hori	2390.000	AV	30.9	27.5	2.6	32.4	28.6	53.9	25.3	
Hori	2557.989	AV	43.9	27.6	2.7	32.3	41.9	53.9	12.0	
Hori	4804.000	AV	32.0	31.3	4.4	31.6	36.1	53.9	17.8	
Hori	7206.000	AV	30.9	35.8	5.2	32.7	39.2	53.9	14.7	
Hori	9608.000	AV	31.8	38.3	6.1	33.3	42.9	53.9	11.0	
Vert	42.000	QP	23.0	14.0	7.3	32.2	12.1	40.0	27.9	
Vert	96.200	QP	29.9	9.7	8.0	32.1	15.5	43.5	28.0	
Vert	111.000	QP	29.9	12.2	8.2	32.1	18.2	43.5	25.3	
Vert	150.820	QP	35.5	15.1	8.6	32.1	27.1	43.5	16.4	
Vert	406.998	QP	28.4	17.9	10.5	32.0	24.8	46.0	21.2	
Vert	610.000	QP	22.0	20.2	11.6	32.1	21.7	46.0	24.3	
Vert	2390.000	PK	43.0	27.5	2.6	32.4	40.7	73.9	33.2	
Vert	2557.944	PK	47.6	27.6	2.7	32.3	45.6	73.9	28.3	
Vert	4804.000	PK	43.2	31.3	4.4	31.6	47.3	73.9	26.6	
Vert	7206.000	PK	43.3	35.8	5.2	32.7	51.6	73.9	22.3	
Vert	9608.000	PK	45.1	38.3	6.1	33.3	56.2	73.9	17.7	
Vert	2390.000	AV	30.5	27.5	2.6	32.4	28.2	53.9	25.7	
Vert	2557.944	AV	39.9	27.6	2.7	32.3	37.9	53.9	16.0	
Vert	4804.000	AV	30.9	31.3	4.4	31.6	35.0	53.9	18.9	
Vert	7206.000	AV	30.7	35.8	5.2	32.7	39.0	53.9	14.9	
Vert	9608.000	AV	31.7	38.3	6.1	33.3	42.8	53.9	11.1	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)

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

*The 10th harmonic was not seen so the result was its base noise level.
Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB

20dBc Data Sheet

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	2402.000	PK	98.6	27.5	2.6	32.4	96.3	-	-	Carrier
Hori	2400.000	PK	50.0	27.5	2.6	32.4	47.7	76.3	28.6	
Vert	2402.000	PK	96.9	27.5	2.6	32.4	94.6	-	-	Carrier
Vert	2400.000	PK	48.3	27.5	2.6	32.4	46.0	74.6	28.6	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)

Radiated Spurious Emission
(NR-243UH (Internal Amplifier))

Test place Head Office EMC Lab. No.4 Semi Anechoic Chamber
Report No. 10012781H
Date 05/31/2013 06/01/2013
Temperature/ Humidity 22 deg. C / 59% RH 24 deg. C / 61% RH
Engineer Hiroshi Kukita Hironobu Ohnishi
(Above 1GHz) (Below 1GHz)
Mode Tx, 3DH5 2441MHz

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	42.000	QP	22.8	14.0	7.3	32.2	11.9	40.0	28.1	
Hori	96.200	QP	26.8	9.7	8.0	32.1	12.4	43.5	31.1	
Hori	111.000	QP	30.9	12.2	8.2	32.1	19.2	43.5	24.3	
Hori	150.795	QP	30.6	15.1	8.6	32.1	22.2	43.5	21.3	
Hori	406.998	QP	26.8	17.9	10.5	32.0	23.2	46.0	22.8	
Hori	610.000	QP	22.0	20.2	11.6	32.1	21.7	46.0	24.3	
Hori	2597.137	PK	45.2	27.7	2.7	32.3	43.3	73.9	30.6	
Hori	4882.000	PK	43.1	31.5	4.4	31.6	47.4	73.9	26.5	
Hori	7323.000	PK	43.0	35.8	5.3	32.7	51.4	73.9	22.5	
Hori	9764.000	PK	43.9	38.4	6.1	33.4	55.0	73.9	18.9	
Hori	2597.137	AV	36.0	27.7	2.7	32.3	34.1	53.9	19.8	
Hori	4882.000	AV	31.1	31.5	4.4	31.6	35.4	53.9	18.5	
Hori	7323.000	AV	30.4	35.8	5.3	32.7	38.8	53.9	15.1	
Hori	9764.000	AV	31.7	38.4	6.1	33.4	42.8	53.9	11.1	
Vert	42.000	QP	22.9	14.0	7.3	32.2	12.0	40.0	28.0	
Vert	96.200	QP	29.9	9.7	8.0	32.1	15.5	43.5	28.0	
Vert	111.000	QP	29.5	12.2	8.2	32.1	17.8	43.5	25.7	
Vert	150.795	QP	35.6	15.1	8.6	32.1	27.2	43.5	16.3	
Vert	406.998	QP	28.5	17.9	10.5	32.0	24.9	46.0	21.1	
Vert	610.000	QP	22.0	20.2	11.6	32.1	21.7	46.0	24.3	
Vert	2596.970	PK	45.3	27.7	2.7	32.3	43.4	73.9	30.5	
Vert	4882.000	PK	42.3	31.5	4.4	31.6	46.6	73.9	27.3	
Vert	7323.000	PK	42.9	35.8	5.3	32.7	51.3	73.9	22.6	
Vert	9764.000	PK	43.8	38.4	6.1	33.4	54.9	73.9	19.0	
Vert	2596.970	AV	34.9	27.7	2.7	32.3	33.0	53.9	20.9	
Vert	4882.000	AV	31.4	31.5	4.4	31.6	35.7	53.9	18.2	
Vert	7323.000	AV	30.4	35.8	5.3	32.7	38.8	53.9	15.1	
Vert	9764.000	AV	31.6	38.4	6.1	33.4	42.7	53.9	11.2	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)

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

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

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB

Radiated Spurious Emission
(NR-243UH (Internal Amplifier))

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Report No. 10012781H
Date 05/31/2013 06/01/2013
Temperature/ Humidity 22 deg. C / 59% RH 24 deg. C / 61% RH
Engineer Hiroshi Kukita Hironobu Ohnishi
(Above 1GHz) (Below 1GHz)
Mode Tx, 3DH5 2480MHz

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	42.000	QP	22.9	14.0	7.3	32.2	12.0	40.0	28.0	
Hori	96.200	QP	26.7	9.7	8.0	32.1	12.3	43.5	31.2	
Hori	111.000	QP	31.1	12.2	8.2	32.1	19.4	43.5	24.1	
Hori	150.797	QP	30.4	15.1	8.6	32.1	22.0	43.5	21.5	
Hori	406.998	QP	26.8	17.9	10.5	32.0	23.2	46.0	22.8	
Hori	610.000	QP	21.9	20.2	11.6	32.1	21.6	46.0	24.4	
Hori	2483.500	PK	48.0	27.5	2.6	32.4	45.7	73.9	28.2	
Hori	3377.746	PK	45.0	28.9	3.1	32.0	45.0	73.9	28.9	
Hori	4960.000	PK	42.9	31.8	4.4	31.6	47.5	73.9	26.4	
Hori	7440.000	PK	43.0	35.9	5.3	32.8	51.4	73.9	22.5	
Hori	9920.000	PK	43.6	38.6	6.1	33.5	54.8	73.9	19.1	
Hori	2483.500	AV	34.4	27.5	2.6	32.4	32.1	53.9	21.8	
Hori	3377.746	AV	39.0	28.9	3.1	32.0	39.0	53.9	14.9	
Hori	4960.000	AV	31.4	31.8	4.4	31.6	36.0	53.9	17.9	
Hori	7440.000	AV	30.6	35.9	5.3	32.8	39.0	53.9	14.9	
Hori	9920.000	AV	31.7	38.6	6.1	33.5	42.9	53.9	11.0	
Vert	42.000	QP	23.0	14.0	7.3	32.2	12.1	40.0	27.9	
Vert	96.200	QP	29.9	9.7	8.0	32.1	15.5	43.5	28.0	
Vert	111.000	QP	29.6	12.2	8.2	32.1	17.9	43.5	25.6	
Vert	150.797	QP	35.5	15.1	8.6	32.1	27.1	43.5	16.4	
Vert	406.998	QP	28.5	17.9	10.5	32.0	24.9	46.0	21.1	
Vert	610.000	QP	22.0	20.2	11.6	32.1	21.7	46.0	24.3	
Vert	2483.500	PK	46.6	27.5	2.6	32.4	44.3	73.9	29.6	
Vert	3377.901	PK	45.9	28.9	3.1	32.0	45.9	73.9	28.0	
Vert	4960.000	PK	42.2	31.8	4.4	31.6	46.8	73.9	27.1	
Vert	7440.000	PK	42.7	35.9	5.3	32.8	51.1	73.9	22.8	
Vert	9920.000	PK	43.9	38.6	6.1	33.5	55.1	73.9	18.8	
Vert	2483.500	AV	33.4	27.5	2.6	32.4	31.1	53.9	22.8	
Vert	3377.901	AV	35.5	28.9	3.1	32.0	35.5	53.9	18.4	
Vert	4960.000	AV	32.1	31.8	4.4	31.6	36.7	53.9	17.2	
Vert	7440.000	AV	30.5	35.9	5.3	32.8	38.9	53.9	15.0	
Vert	9920.000	AV	31.6	38.6	6.1	33.5	42.8	53.9	11.1	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)

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

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

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB

UL Japan, Inc.

Head Office EMC Lab.

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Radiated Spurious Emission
(NR-241UH (Internal Amplifier))

Test place Head Office EMC Lab. No.4 Semi Anechoic Chamber
Report No. 10012781H
Date 06/01/2013 06/02/2013
Temperature/ Humidity 24 deg. C / 61% RH 23 deg. C/ 61% RH
Engineer Hironobu Ohnishi Hironobu Ohnishi
(Below 1GHz) (Above 1GHz)
Mode Tx, DH5 2402MHz

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	42.000	QP	23.0	14.0	7.3	32.2	12.1	40.0	27.9	
Hori	96.246	QP	26.0	9.7	8.0	32.1	11.6	43.5	31.9	
Hori	111.000	QP	31.0	12.2	8.2	32.1	19.3	43.5	24.2	
Hori	149.175	QP	28.6	15.0	8.6	32.1	20.1	43.5	23.4	
Hori	406.998	QP	25.9	17.9	10.5	32.0	22.3	46.0	23.7	
Hori	610.000	QP	22.0	20.2	11.6	32.1	21.7	46.0	24.3	
Hori	2390.000	PK	43.8	27.5	2.6	32.4	41.5	73.9	32.4	
Hori	2822.315	PK	52.0	28.2	2.8	32.2	50.8	73.9	23.1	
Hori	4804.000	PK	43.3	31.3	4.4	31.6	47.4	73.9	26.5	
Hori	7206.000	PK	43.9	35.8	5.3	32.7	52.3	73.9	21.6	
Hori	9608.000	PK	44.1	38.3	6.1	33.3	55.2	73.9	18.7	
Hori	2390.000	AV	30.3	27.5	2.6	32.4	28.0	53.9	25.9	
Hori	2822.315	AV	48.9	28.2	2.8	32.2	47.7	53.9	6.2	
Hori	4804.000	AV	31.4	31.3	4.4	31.6	35.5	53.9	18.4	
Hori	7206.000	AV	31.1	35.8	5.3	32.7	39.5	53.9	14.4	
Hori	9608.000	AV	31.4	38.3	6.1	33.3	42.5	53.9	11.4	
Vert	42.000	QP	23.1	14.0	7.3	32.2	12.2	40.0	27.8	
Vert	96.246	QP	29.6	9.7	8.0	32.1	15.2	43.5	28.3	
Vert	111.000	QP	29.9	12.2	8.2	32.1	18.2	43.5	25.3	
Vert	149.175	QP	34.3	15.0	8.6	32.1	25.8	43.5	17.7	
Vert	406.998	QP	27.7	17.9	10.5	32.0	24.1	46.0	21.9	
Vert	610.000	QP	22.0	20.2	11.6	32.1	21.7	46.0	24.3	
Vert	2390.000	PK	43.6	27.5	2.6	32.4	41.3	73.9	32.6	
Vert	2822.315	PK	49.8	28.2	2.8	32.2	48.6	73.9	25.3	
Vert	4804.000	PK	44.3	31.3	4.4	31.6	48.4	73.9	25.5	
Vert	7206.000	PK	43.7	35.8	5.3	32.7	52.1	73.9	21.8	
Vert	9608.000	PK	45.4	38.3	6.1	33.3	56.5	73.9	17.4	
Vert	2390.000	AV	30.3	27.5	2.6	32.4	28.0	53.9	25.9	
Vert	2822.315	AV	46.3	28.2	2.8	32.2	45.1	53.9	8.8	
Vert	4804.000	AV	32.0	31.3	4.4	31.6	36.1	53.9	17.8	
Vert	7206.000	AV	30.6	35.8	5.3	32.7	39.0	53.9	14.9	
Vert	9608.000	AV	31.3	38.3	6.1	33.3	42.4	53.9	11.5	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)

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

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Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB

20dBc Data Sheet

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	2402.000	PK	99.5	27.5	2.6	32.4	97.2	-	-	Carrier
Hori	2399.175	PK	51.8	27.5	2.6	32.4	49.5	77.2	27.7	
Hori	2400.000	PK	54.3	27.5	2.6	32.4	52.0	77.2	25.2	
Hori	2558.000	PK	47.0	27.6	2.7	32.3	45.0	77.2	32.2	
Vert	2402.000	PK	95.5	27.5	2.6	32.4	93.2	-	-	Carrier
Vert	2399.175	PK	48.5	27.5	2.6	32.4	46.2	73.2	27.0	
Vert	2400.000	PK	50.8	27.5	2.6	32.4	48.5	73.2	24.7	
Vert	2558.000	PK	43.4	27.6	2.7	32.3	41.4	73.2	31.8	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)

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(NR-241UH (Internal Amplifier))

Test place Head Office EMC Lab. No.4 Semi Anechoic Chamber
Report No. 10012781H
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Temperature/ Humidity 24 deg. C / 61% RH 23 deg. C/ 61% RH
Engineer Hironobu Ohnishi Hironobu Ohnishi
(Below 1GHz) (Above 1GHz)
Mode Tx, DH5 2441MHz

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	42.000	QP	23.0	14.0	7.3	32.2	12.1	40.0	27.9	
Hori	96.246	QP	26.0	9.7	8.0	32.1	11.6	43.5	31.9	
Hori	111.000	QP	31.1	12.2	8.2	32.1	19.4	43.5	24.1	
Hori	149.185	QP	28.8	15.0	8.6	32.1	20.3	43.5	23.2	
Hori	406.998	QP	26.0	17.9	10.5	32.0	22.4	46.0	23.6	
Hori	610.000	QP	22.1	20.2	11.6	32.1	21.8	46.0	24.2	
Hori	2822.315	PK	51.5	28.2	2.8	32.2	50.3	73.9	23.6	
Hori	4882.000	PK	43.5	31.5	4.4	31.6	47.8	73.9	26.1	
Hori	7323.000	PK	43.5	35.8	5.3	32.7	51.9	73.9	22.0	
Hori	9764.000	PK	45.3	38.4	6.1	33.4	56.4	73.9	17.5	
Hori	2822.315	AV	48.5	28.2	2.8	32.2	47.3	53.9	6.6	
Hori	4882.000	AV	31.0	31.5	4.4	31.6	35.3	53.9	18.6	
Hori	7323.000	AV	30.4	35.8	5.3	32.7	38.8	53.9	15.1	
Hori	9764.000	AV	31.4	38.4	6.1	33.4	42.5	53.9	11.4	
Vert	42.000	QP	23.0	14.0	7.3	32.2	12.1	40.0	27.9	
Vert	96.246	QP	29.5	9.7	8.0	32.1	15.1	43.5	28.4	
Vert	111.000	QP	29.8	12.2	8.2	32.1	18.1	43.5	25.4	
Vert	149.185	QP	34.3	15.0	8.6	32.1	25.8	43.5	17.7	
Vert	406.998	QP	28.0	17.9	10.5	32.0	24.4	46.0	21.6	
Vert	610.000	QP	22.0	20.2	11.6	32.1	21.7	46.0	24.3	
Vert	2822.315	PK	49.5	28.2	2.8	32.2	48.3	73.9	25.6	
Vert	4882.000	PK	43.2	31.5	4.4	31.6	47.5	73.9	26.4	
Vert	7323.000	PK	43.4	35.8	5.3	32.7	51.8	73.9	22.1	
Vert	9764.000	PK	44.3	38.4	6.1	33.4	55.4	73.9	18.5	
Vert	2822.315	AV	45.4	28.2	2.8	32.2	44.2	53.9	9.7	
Vert	4882.000	AV	32.2	31.5	4.4	31.6	36.5	53.9	17.4	
Vert	7323.000	AV	30.3	35.8	5.3	32.7	38.7	53.9	15.2	
Vert	9764.000	AV	31.4	38.4	6.1	33.4	42.5	53.9	11.4	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Ant)

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

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

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB

20dBc Data Sheet

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	2441.000	PK	98.2	27.5	2.6	32.4	95.9	-	-	Carrier
Hori	2597.000	PK	41.4	27.7	2.7	32.3	39.5	75.9	36.4	
Vert	2441.000	PK	92.8	27.5	2.6	32.4	90.5	-	-	Carrier
Vert	2597.000	PK	38.7	27.7	2.7	32.3	36.8	70.5	33.7	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)

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Radiated Spurious Emission
(NR-241UH (Internal Amplifier))

Test place Head Office EMC Lab. No.4 Semi Anechoic Chamber
Report No. 10012781H
Date 06/01/2013 06/02/2013
Temperature/ Humidity 24 deg. C / 61% RH 23 deg. C/ 61% RH
Engineer Hironobu Ohnishi Hironobu Ohnishi
(Below 1GHz) (Above 1GHz)
Mode Tx, DH5 2480MHz

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	42.000	QP	23.8	14.0	7.3	32.2	12.9	40.0	27.1	
Hori	96.246	QP	26.1	9.7	8.0	32.1	11.7	43.5	31.8	
Hori	111.000	QP	31.0	12.2	8.2	32.1	19.3	43.5	24.2	
Hori	149.185	QP	28.9	15.0	8.6	32.1	20.4	43.5	23.1	
Hori	406.998	QP	26.0	17.9	10.5	32.0	22.4	46.0	23.6	
Hori	610.000	QP	22.0	20.2	11.6	32.1	21.7	46.0	24.3	
Hori	2324.000	PK	47.4	27.6	2.6	32.5	45.1	73.9	28.8	
Hori	2483.500	PK	46.0	27.5	2.7	32.4	43.8	73.9	30.1	
Hori	2822.315	PK	52.0	28.2	2.8	32.2	50.8	73.9	23.1	
Hori	4960.000	PK	43.2	31.8	4.5	31.6	47.9	73.9	26.0	
Hori	7440.000	PK	43.7	35.9	5.4	32.8	52.2	73.9	21.7	
Hori	9920.000	PK	44.5	38.6	6.2	33.5	55.8	73.9	18.1	
Hori	2324.000	AV	40.0	27.6	2.6	32.5	37.7	53.9	16.2	
Hori	2483.500	AV	32.8	27.5	2.7	32.4	30.6	73.9	43.3	
Hori	2822.315	AV	48.5	28.2	2.8	32.2	47.3	53.9	6.6	
Hori	4960.000	AV	31.2	31.8	4.5	31.6	35.9	53.9	18.0	
Hori	7440.000	AV	30.4	35.9	5.4	32.8	38.9	53.9	15.0	
Hori	9920.000	AV	31.1	38.6	6.2	33.5	42.4	53.9	11.5	
Vert	42.000	QP	23.0	14.0	7.3	32.2	12.1	40.0	27.9	
Vert	96.246	QP	29.5	9.7	8.0	32.1	15.1	43.5	28.4	
Vert	111.000	QP	29.7	12.2	8.2	32.1	18.0	43.5	25.5	
Vert	149.185	QP	34.3	15.0	8.6	32.1	25.8	43.5	17.7	
Vert	406.998	QP	28.0	17.9	10.5	32.0	24.4	46.0	21.6	
Vert	610.000	QP	22.0	20.2	11.6	32.1	21.7	46.0	24.3	
Vert	2324.000	PK	46.8	27.6	2.6	32.5	44.5	73.9	29.4	
Vert	2483.500	PK	45.1	27.5	2.7	32.4	42.9	73.9	31.0	
Vert	2822.315	PK	50.0	28.2	2.8	32.2	48.8	73.9	25.1	
Vert	4960.000	PK	44.0	31.8	4.5	31.6	48.7	73.9	25.2	
Vert	7440.000	PK	43.3	35.9	5.4	32.8	51.8	73.9	22.1	
Vert	9920.000	PK	44.5	38.6	6.2	33.5	55.8	73.9	18.1	
Vert	2324.000	AV	37.8	27.6	2.6	32.5	35.5	53.9	18.4	
Vert	2483.500	AV	31.6	27.5	2.7	32.4	29.4	73.9	44.5	
Vert	2822.315	AV	46.2	28.2	2.8	32.2	45.0	53.9	8.9	
Vert	4960.000	AV	33.4	31.8	4.5	31.6	38.1	53.9	15.8	
Vert	7440.000	AV	30.4	35.9	5.4	32.8	38.9	53.9	15.0	
Vert	9920.000	AV	31.2	38.6	6.2	33.5	42.5	53.9	11.4	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)

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

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

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB

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Radiated Spurious Emission
(NR-241UH (External Amplifier))

Test place	Head Office EMC Lab. No.4 Semi Anechoic Chamber	
Report No.	10012781H	
Date	06/26/2013	06/27/2013
Temperature/ Humidity	23 deg. C / 69% RH	23 deg. C / 63% RH
Engineer	Shinya Watanabe (Above 1GHz)	Katsunori Okai (Below 1GHz)
Mode	Tx, DH5 2441MHz	

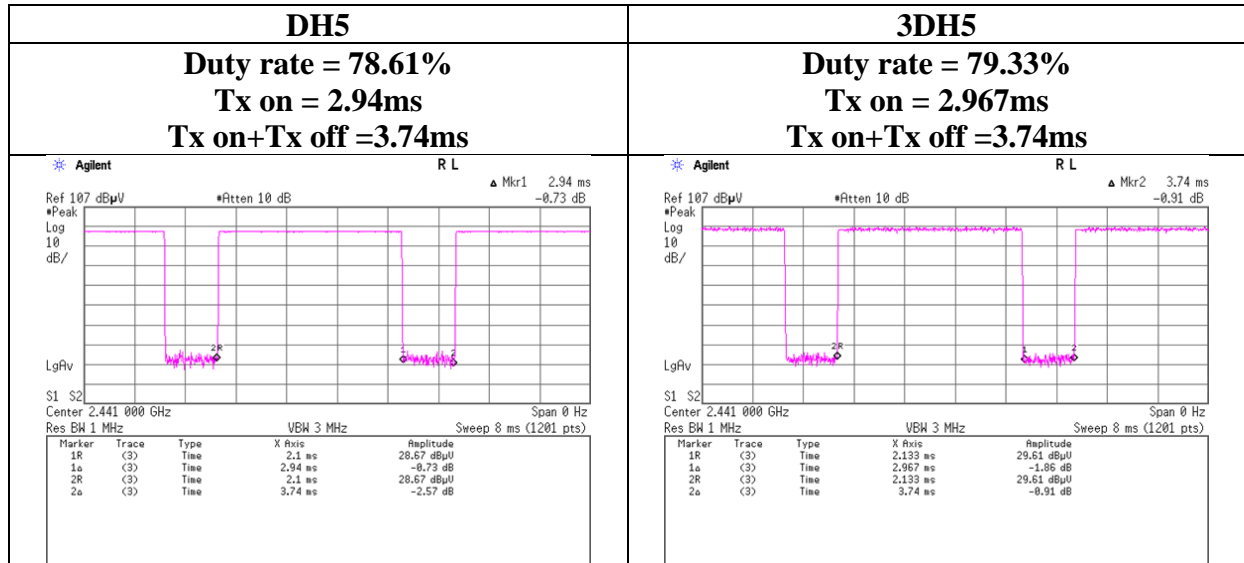
Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	95.975	QP	27.4	9.7	8.1	32.0	13.2	43.5	30.3	
Hori	111.000	QP	32.1	12.2	8.2	31.9	20.6	43.5	22.9	
Hori	135.195	QP	25.3	14.4	8.5	31.9	16.3	43.5	27.2	
Hori	158.077	QP	24.3	15.3	8.7	31.9	16.4	43.5	27.1	
Hori	406.997	QP	25.9	17.9	10.6	32.0	22.4	46.0	23.6	
Hori	443.999	QP	24.0	18.4	10.8	32.0	21.2	46.0	24.8	
Hori	2822.300	PK	48.5	28.2	2.8	32.2	47.3	73.9	26.6	
Hori	4882.000	PK	40.4	31.5	3.7	31.6	44.0	73.9	29.9	
Hori	7323.000	PK	42.4	35.7	4.3	34.9	47.5	73.9	26.4	
Hori	9764.000	PK	43.1	38.4	5.0	35.4	51.1	73.9	22.8	
Hori	2822.300	AV	44.6	28.2	2.8	32.2	43.4	53.9	10.5	
Hori	4882.000	AV	32.2	30.9	3.5	34.9	31.7	53.9	22.2	
Hori	7323.000	AV	31.9	35.7	4.3	34.9	37.0	53.9	16.9	
Hori	9764.000	AV	32.3	38.4	5.0	35.4	40.3	53.9	13.6	
Vert	95.977	QP	31.4	9.7	8.1	32.0	17.2	43.5	26.3	
Vert	110.998	QP	34.5	12.2	8.2	31.9	23.0	43.5	20.5	
Vert	135.197	QP	27.7	14.4	8.5	31.9	18.7	43.5	24.8	
Vert	158.075	QP	28.8	15.3	8.7	31.9	20.9	43.5	22.6	
Vert	406.996	QP	28.3	17.9	10.6	32.0	24.8	46.0	21.2	
Vert	443.998	QP	26.8	18.4	10.8	32.0	24.0	46.0	22.0	
Vert	2822.300	PK	44.7	28.2	2.8	32.2	43.5	73.9	30.4	
Vert	4882.000	PK	40.7	31.5	3.7	31.6	44.3	73.9	29.6	
Vert	7323.000	PK	43.3	35.7	4.3	34.9	48.4	73.9	25.5	
Vert	9764.000	PK	42.8	38.4	5.0	35.4	50.8	73.9	23.1	
Vert	2822.300	AV	36.3	28.2	2.8	32.2	35.1	53.9	18.8	
Vert	4882.000	AV	32.6	30.9	3.5	34.9	32.1	53.9	21.8	
Vert	7323.000	AV	32.3	35.7	4.3	34.9	37.4	53.9	16.5	
Vert	9764.000	AV	32.3	38.4	5.0	35.4	40.3	53.9	13.6	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)

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

Distance factor: 10GHz-26.5GHz $20\log(3.0m/1.0m) = 9.5dB$

Burst Rate Confirmation



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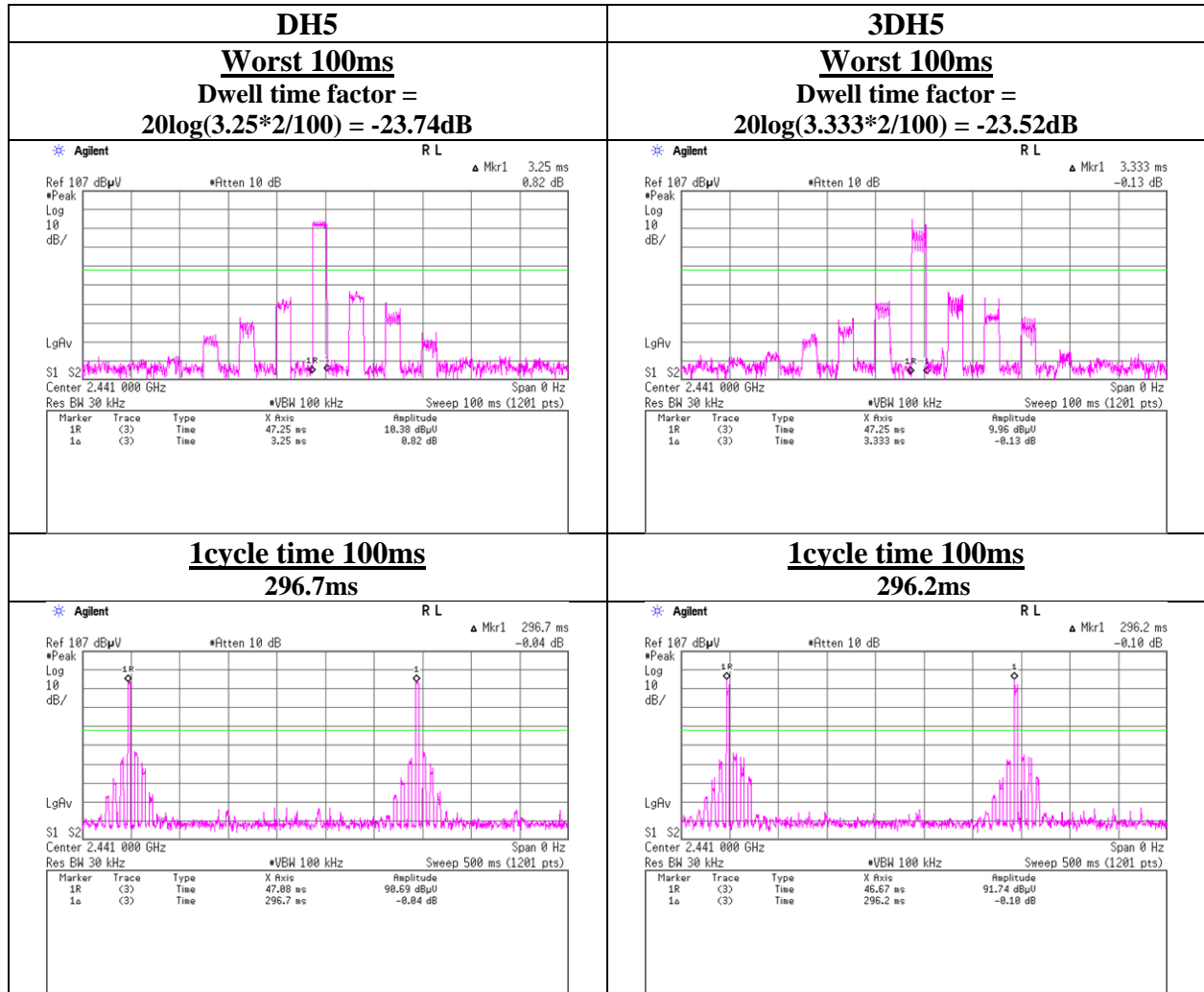
Head Office EMC Lab.

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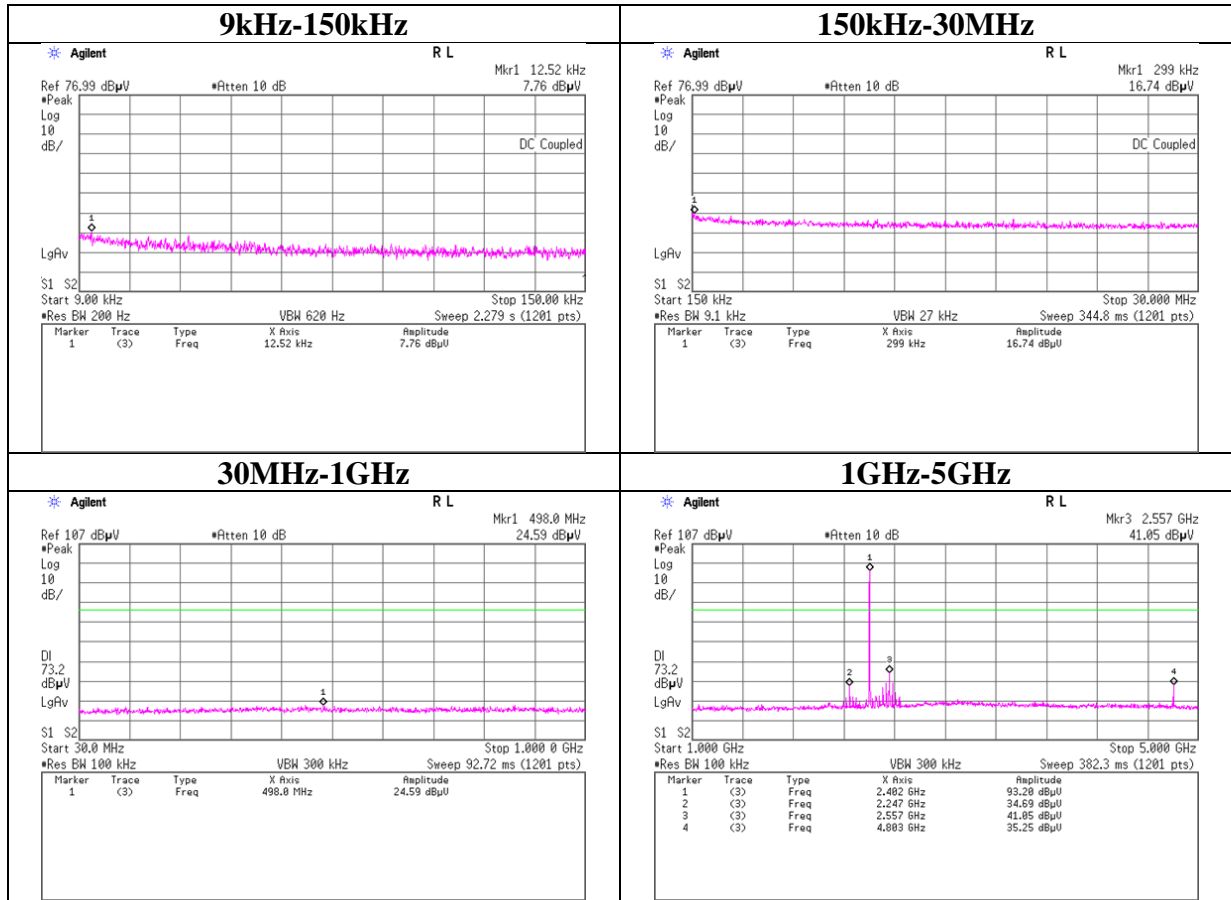
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Dwell time factor



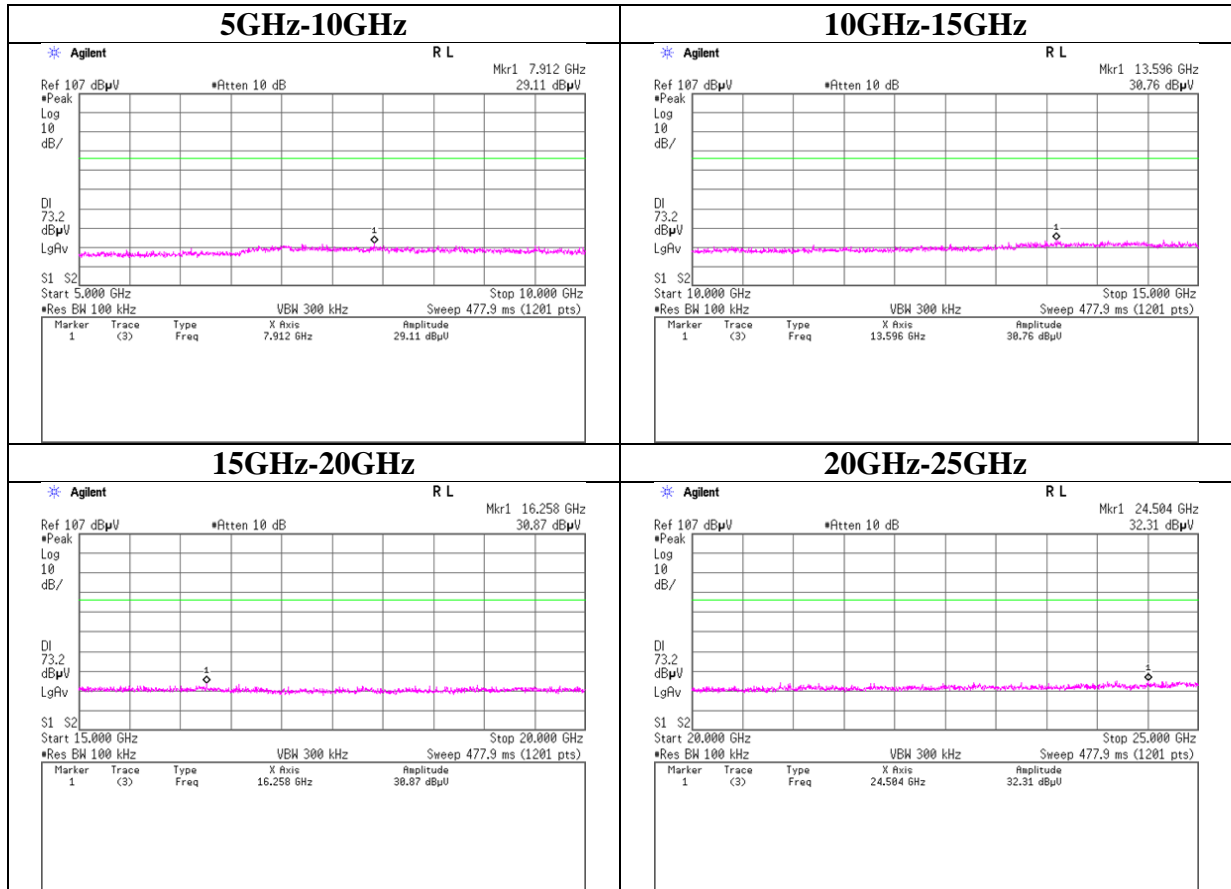
Conducted Spurious Emission

Tx DH5 2402MHz



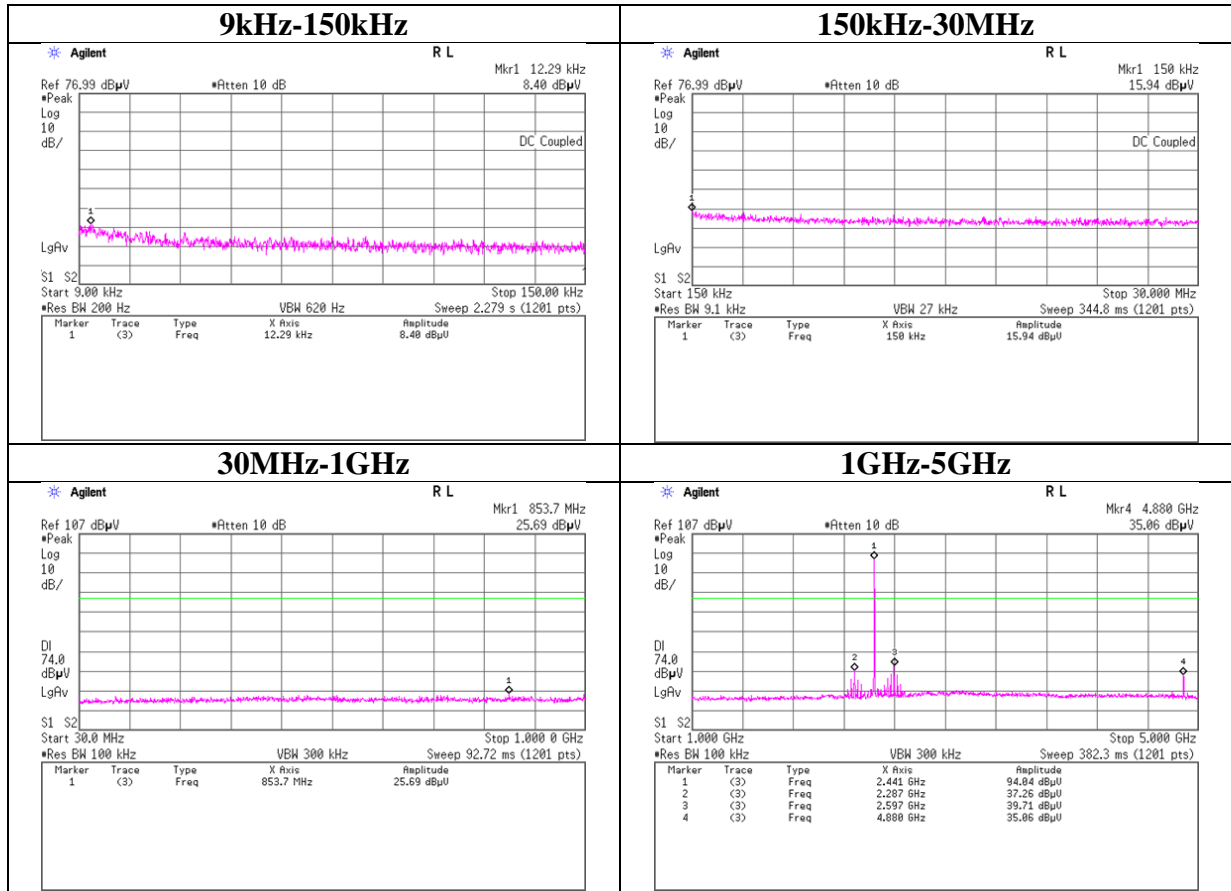
Conducted Spurious Emission

Tx DH5 2402MHz



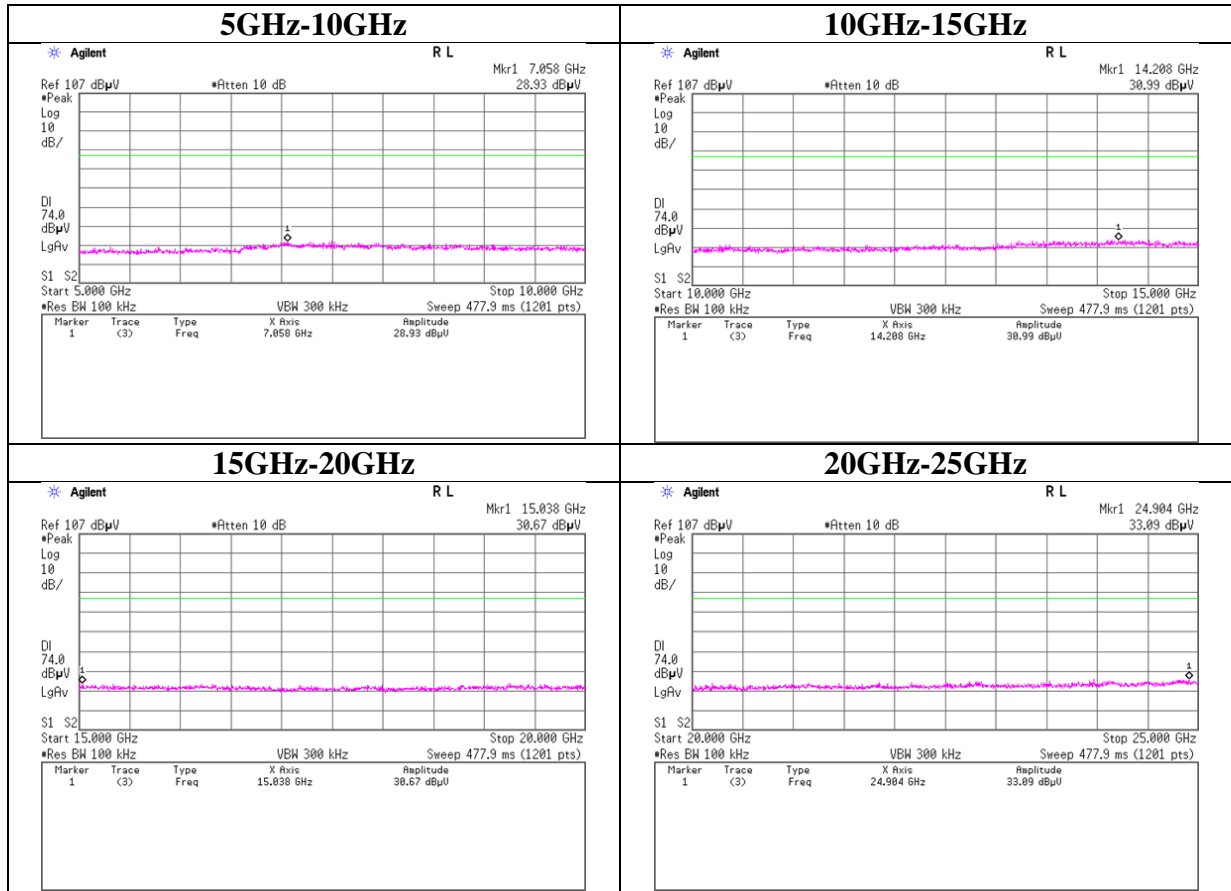
Conducted Spurious Emission

Tx DH5 2441MHz



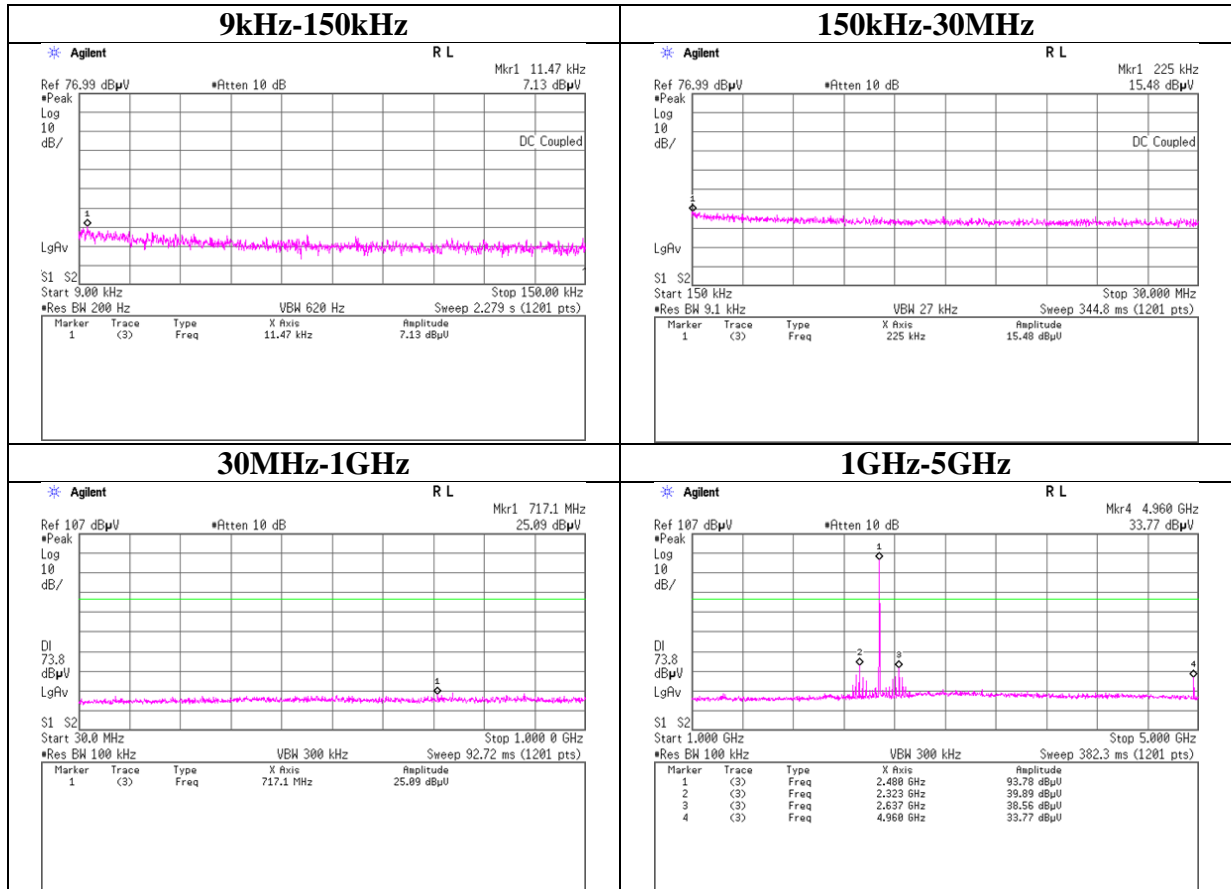
Conducted Spurious Emission

Tx DH5 2441MHz



Conducted Spurious Emission

Tx DH5 2480MHz



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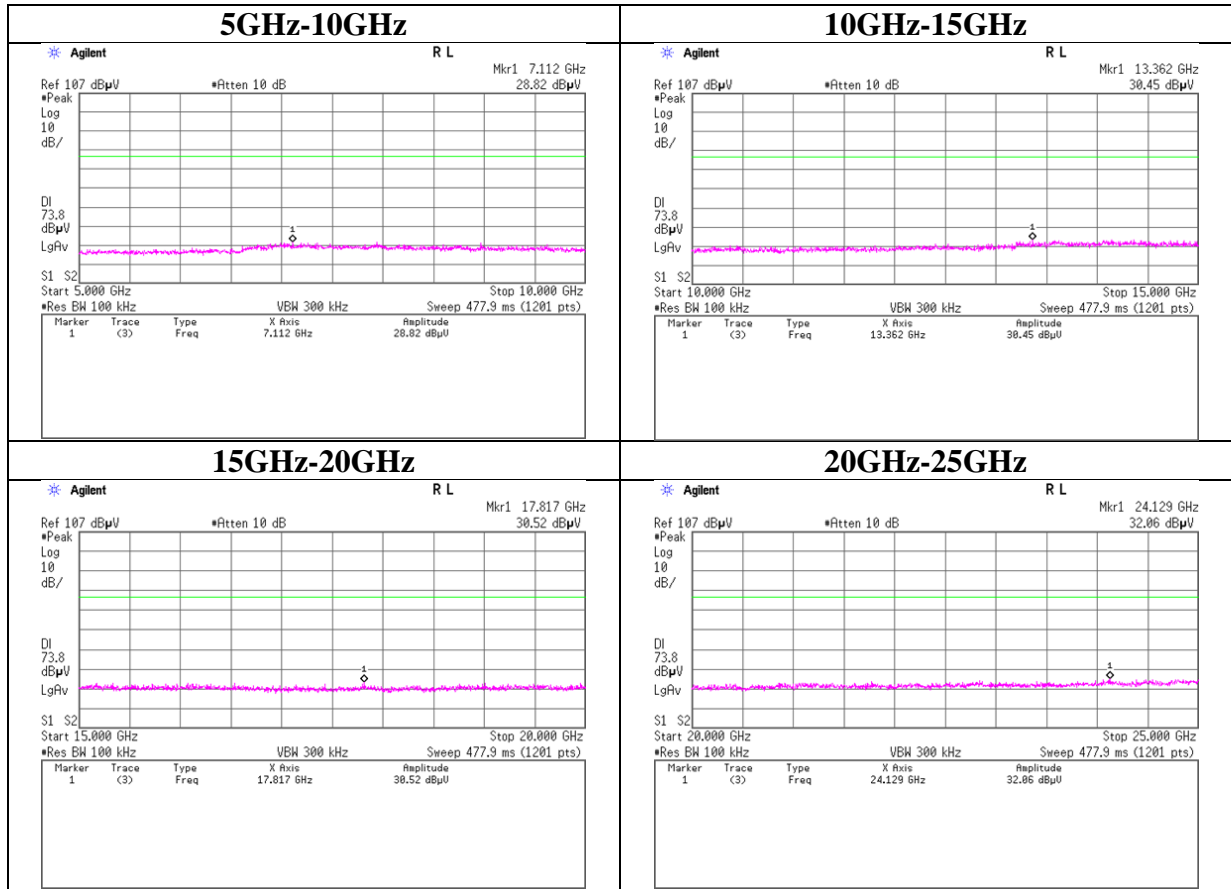
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Conducted Spurious Emission

Tx DH5 2480MHz



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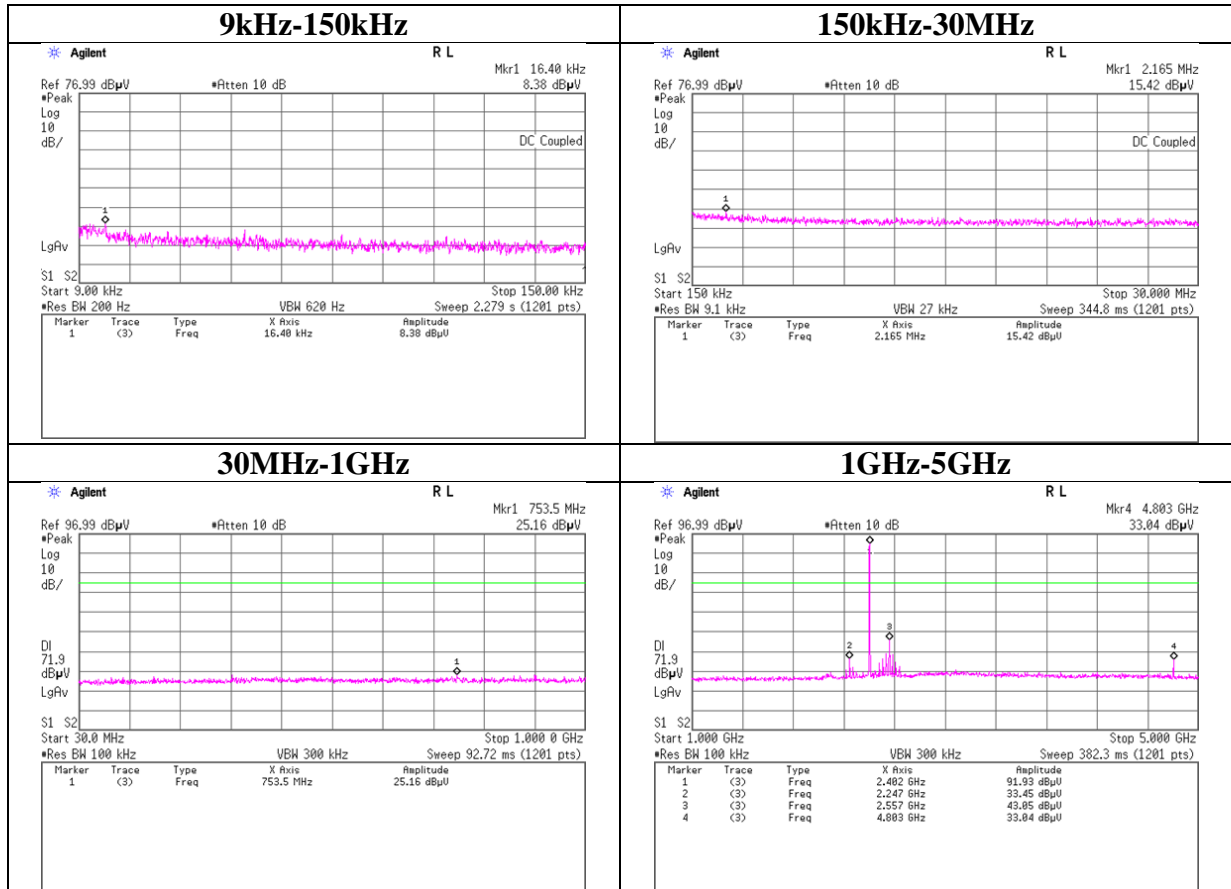
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Conducted Spurious Emission

Tx 3DH5 2402MHz



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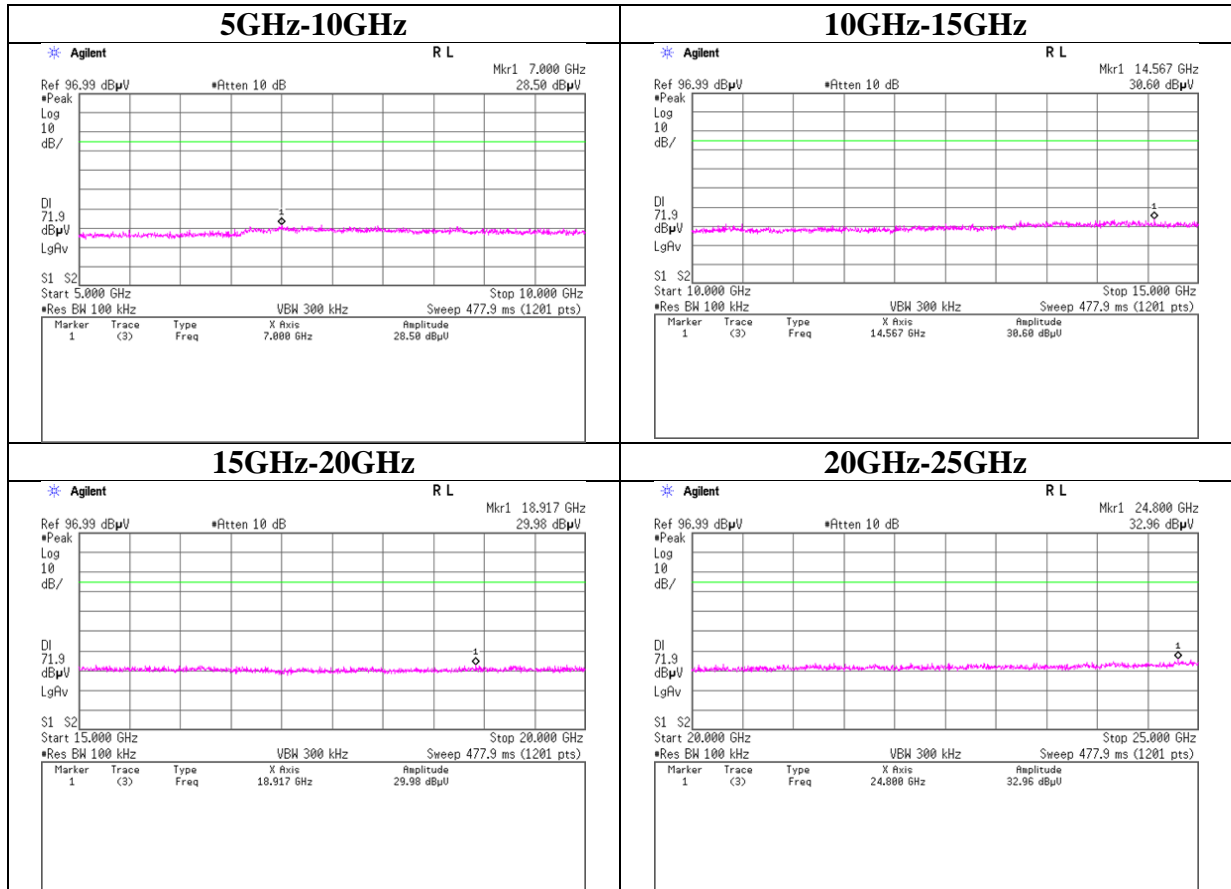
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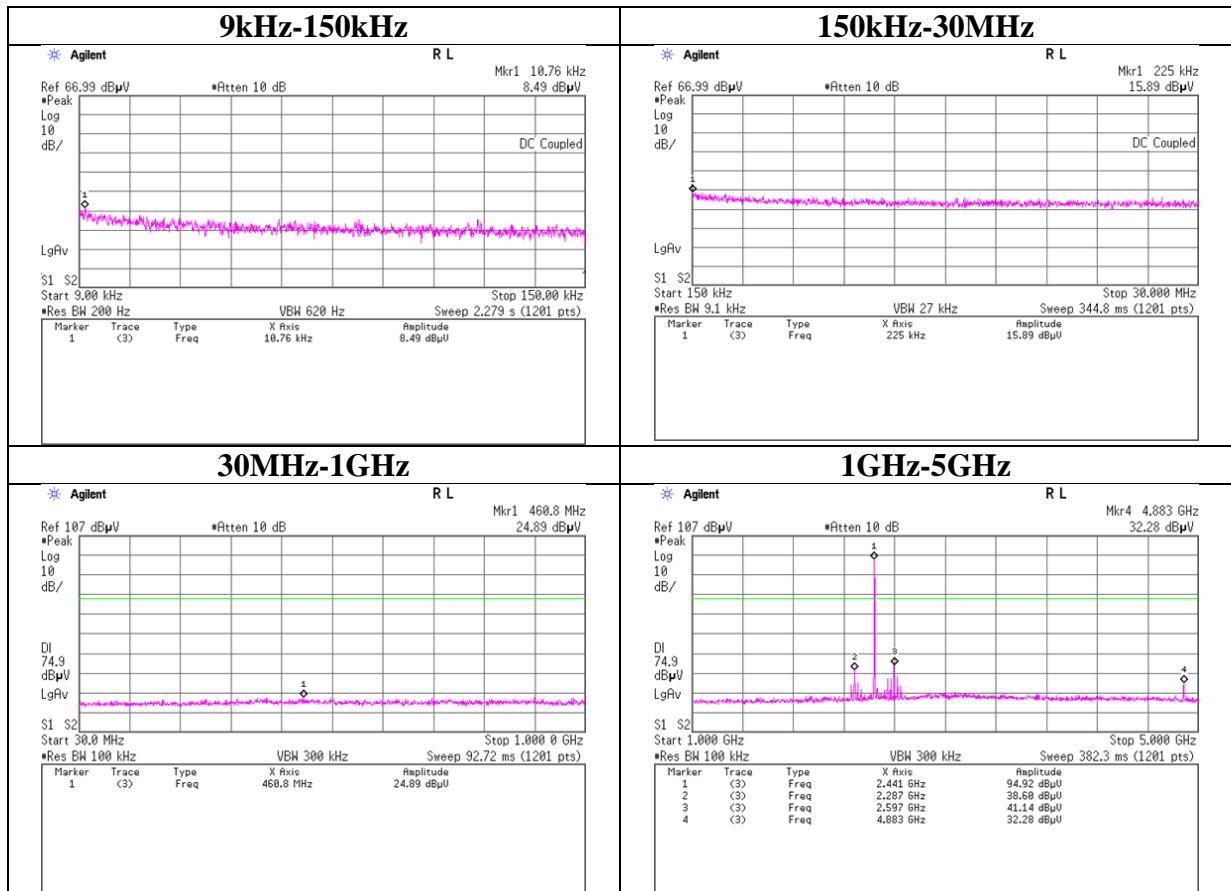
Conducted Spurious Emission

Tx 3DH5 2402MHz



Conducted Spurious Emission

Tx 3DH5 2441MHz



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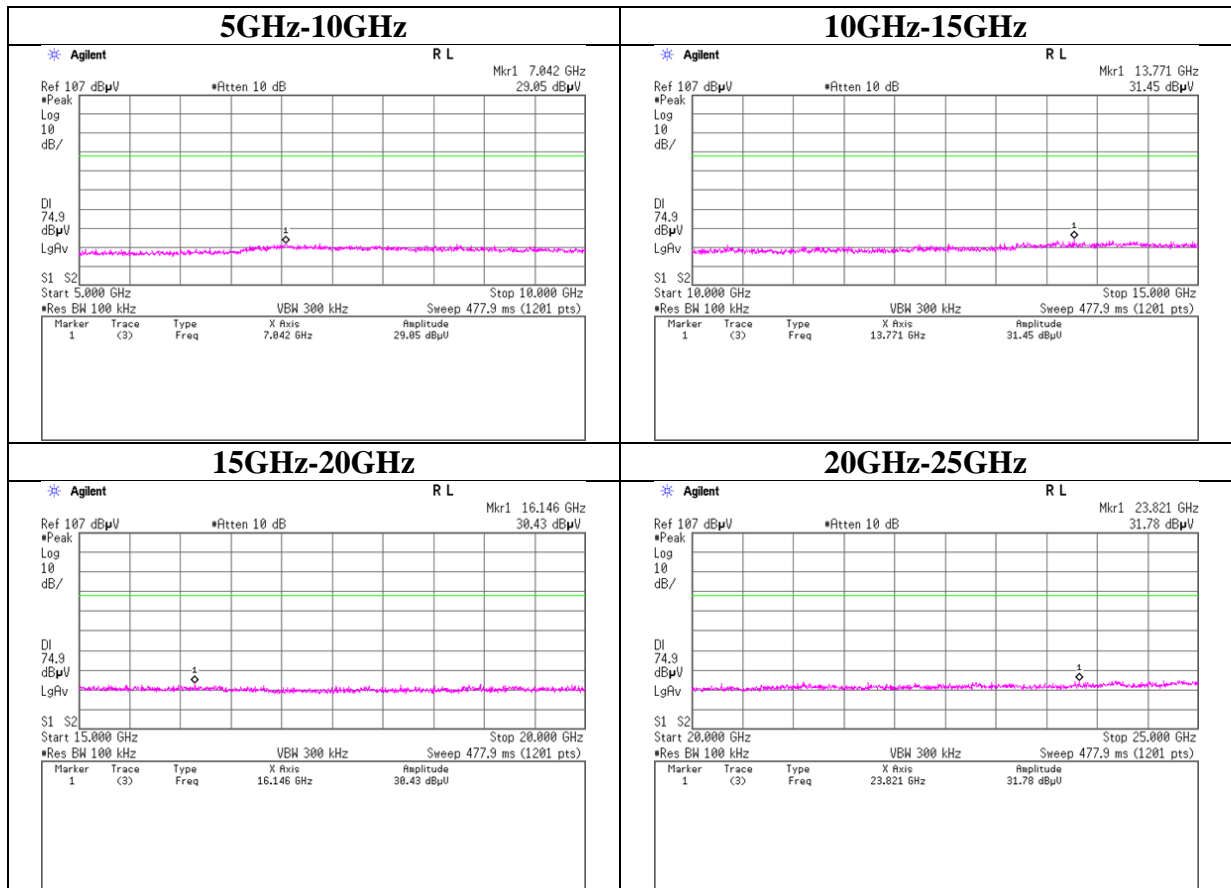
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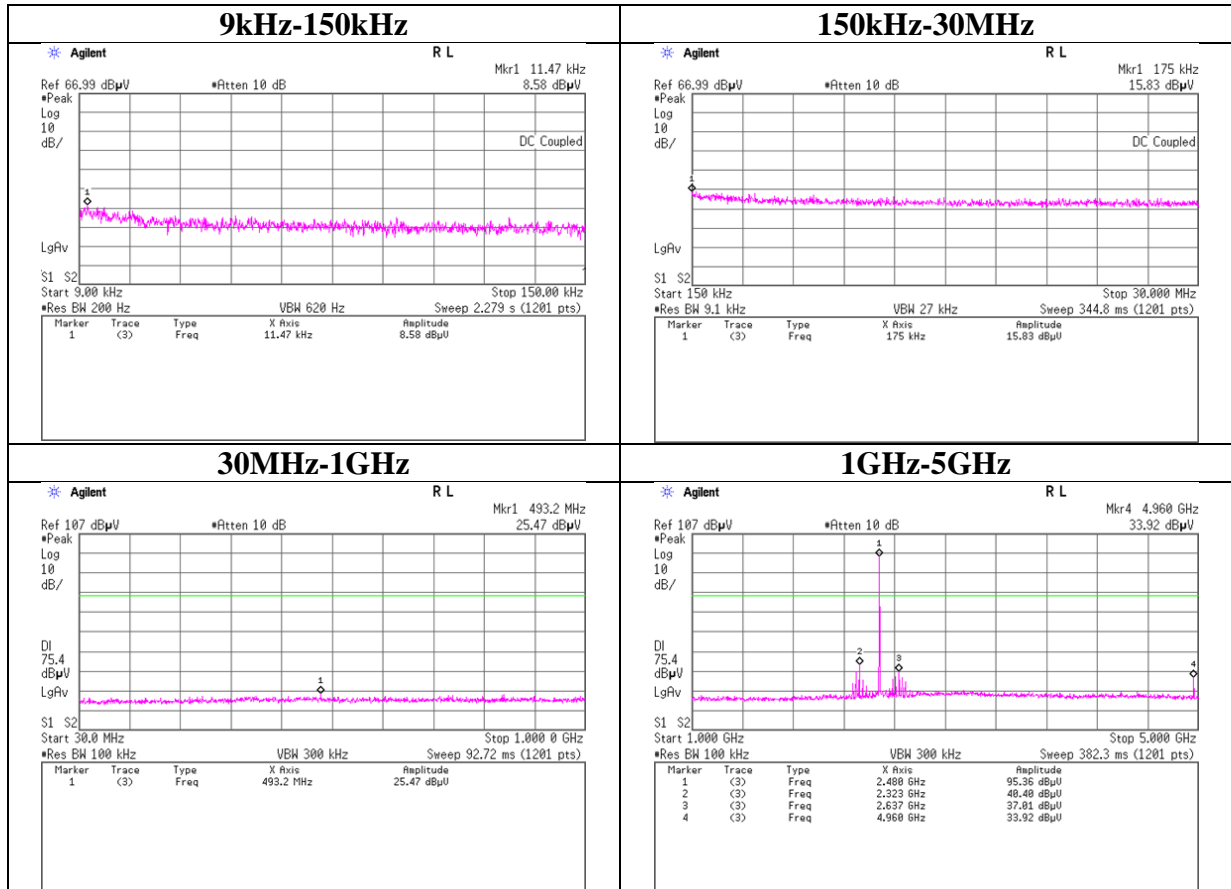
Conducted Spurious Emission

Tx 3DH5 2441MHz



Conducted Spurious Emission

Tx 3DH5 2480MHz



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Head Office EMC Lab.

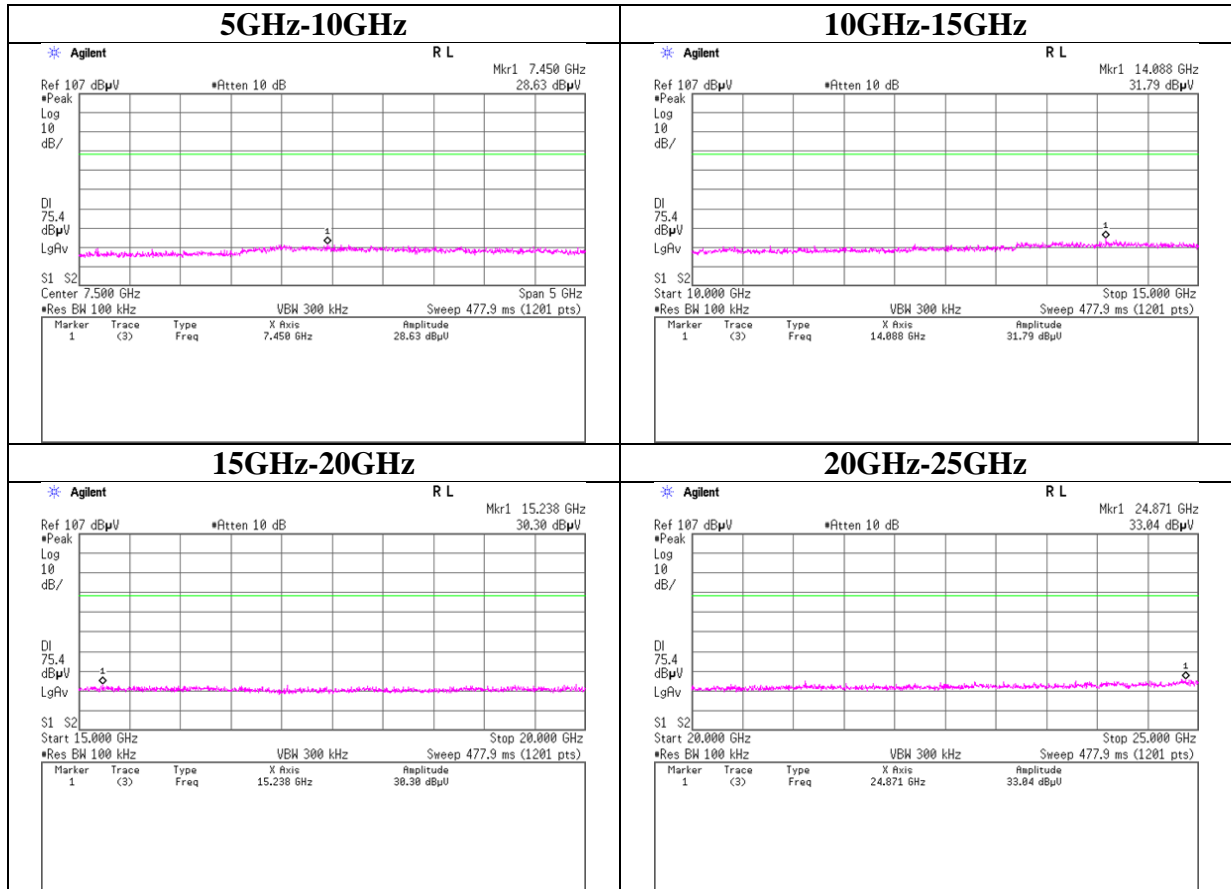
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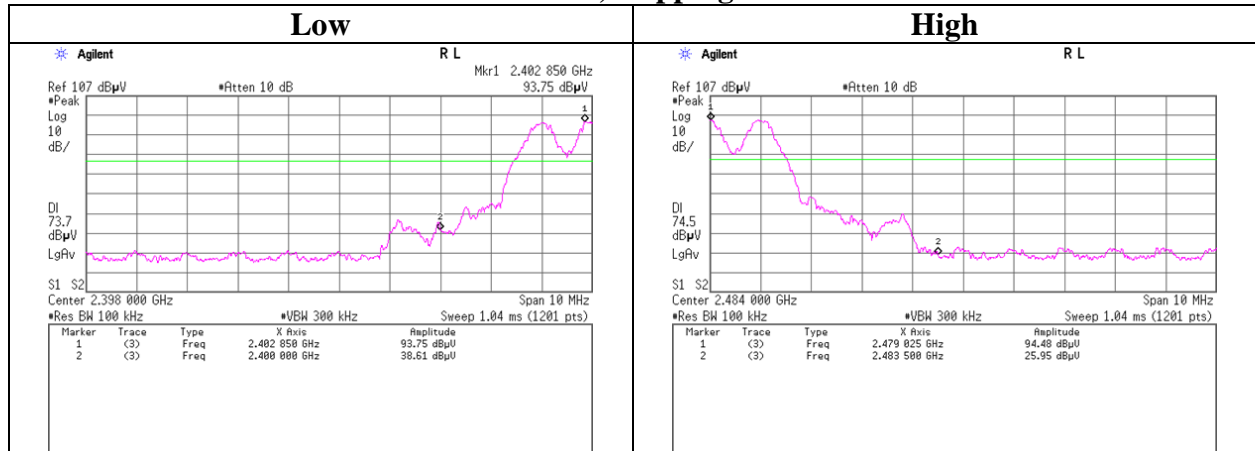
Conducted Spurious Emission

Tx 3DH5 2480MHz

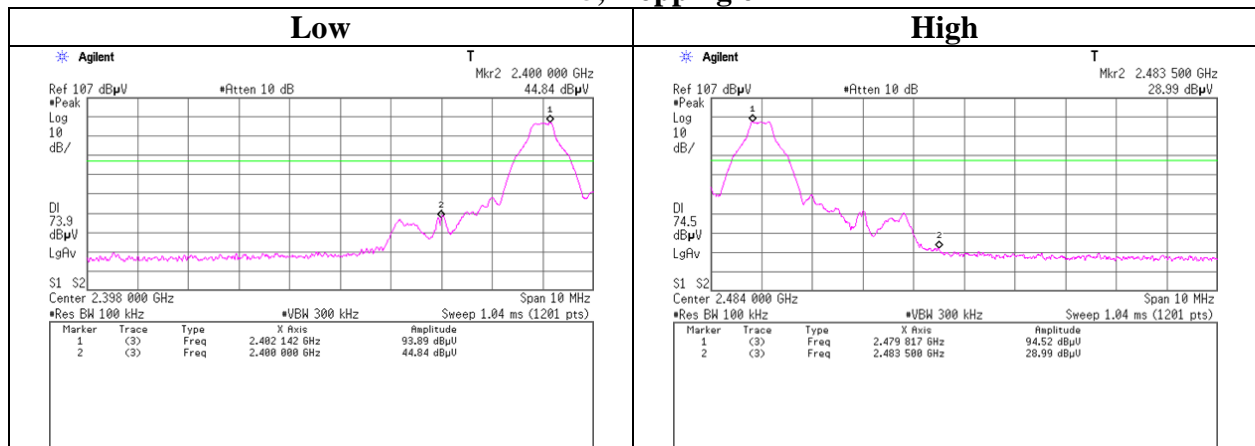


Conducted Emission Band Edge compliance

Tx DH5, Hopping on



Tx DH5, Hopping off



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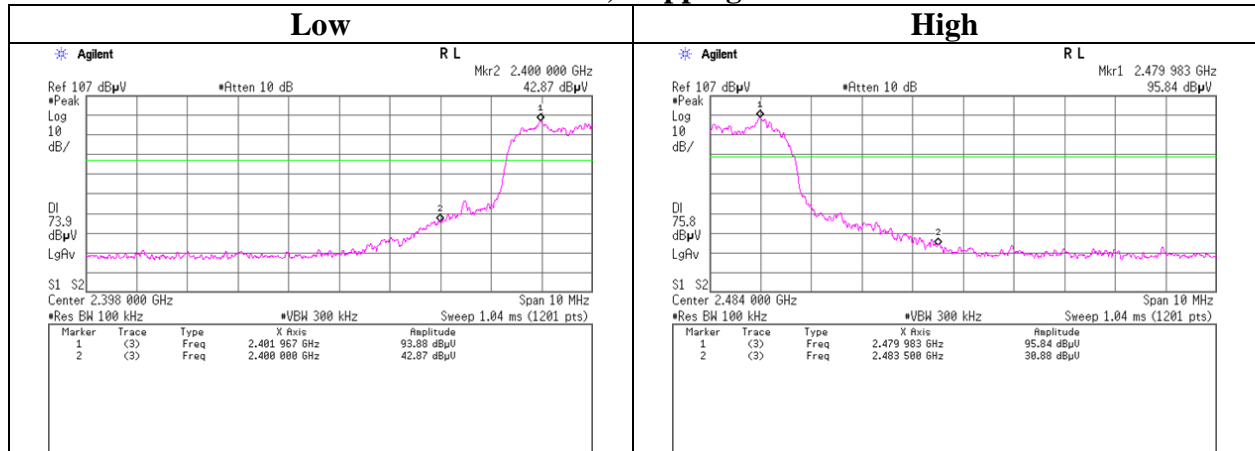
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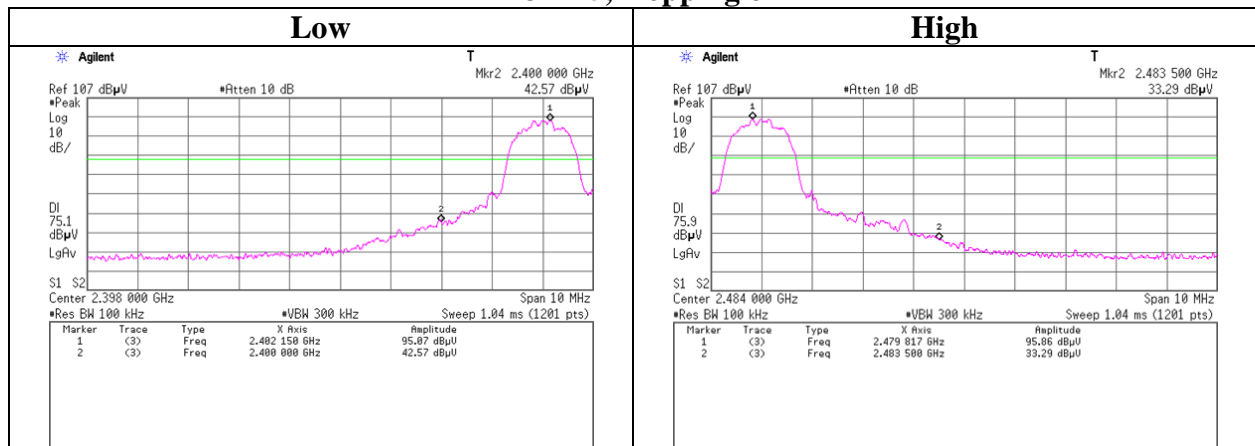
Facsimile : +81 596 24 8124

Conducted Emission Band Edge compliance

Tx 3DH5, Hopping on



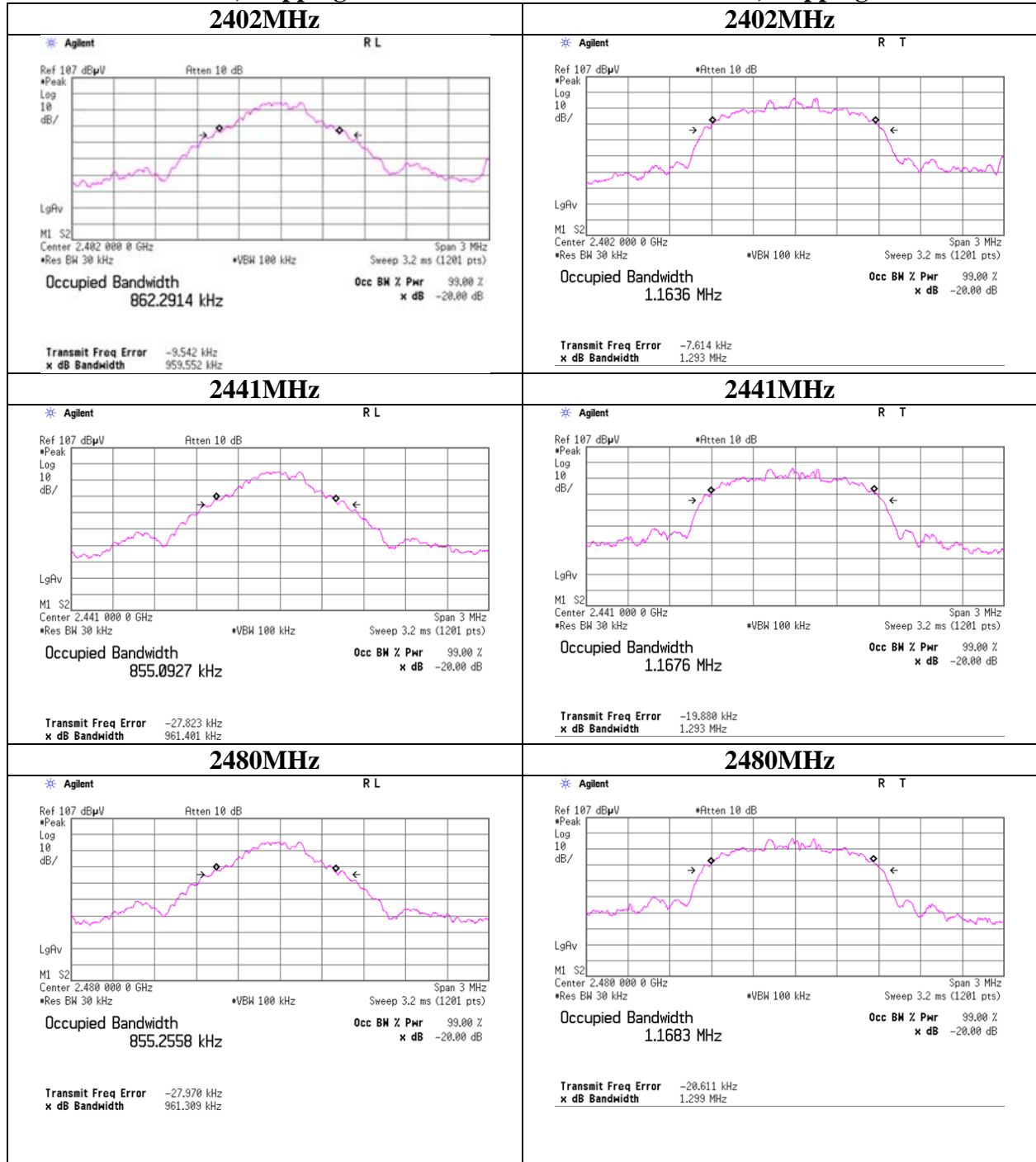
Tx 3DH5, Hopping off



99% Occupied Bandwidth

Tx DH5, Hopping off

Tx 3DH5, Hopping off



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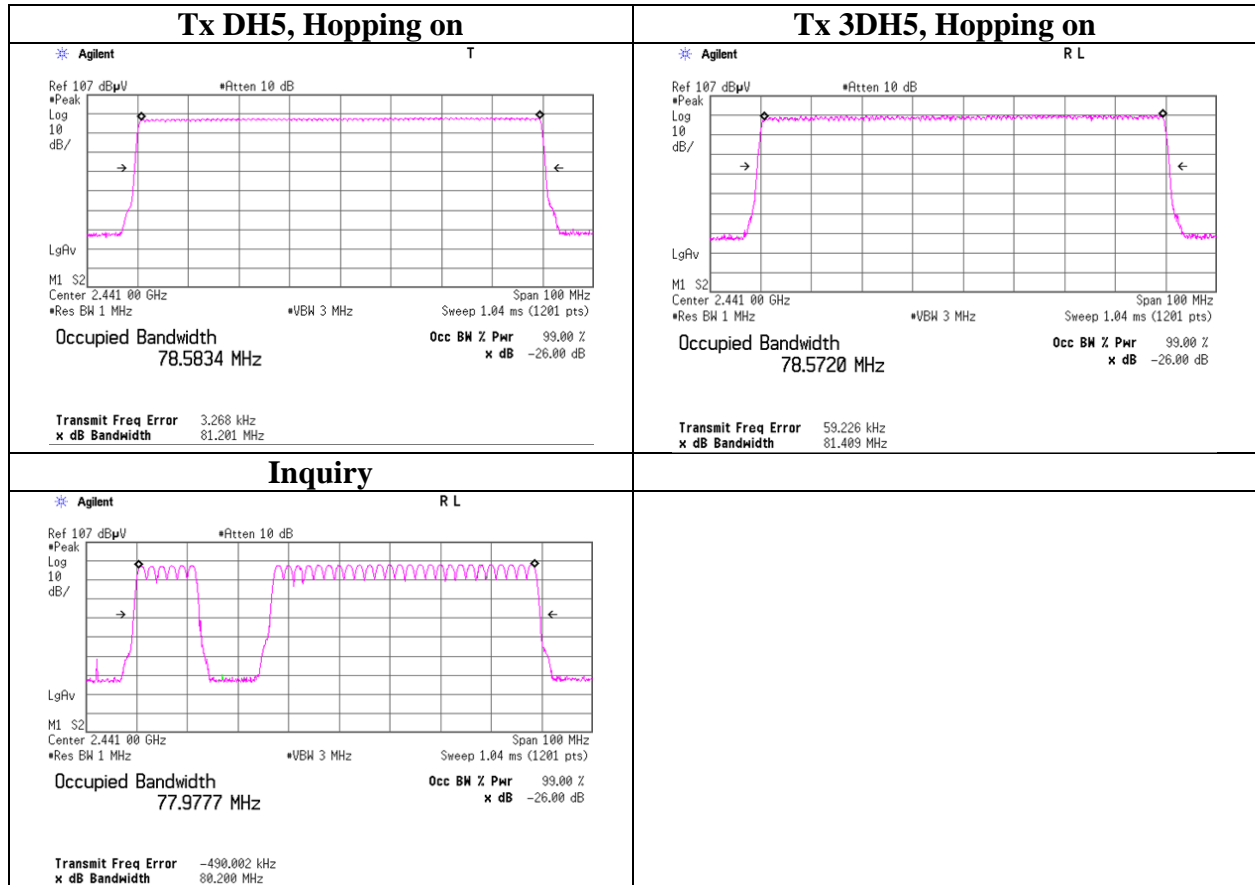
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99% Occupied Bandwidth



APPENDIX 2: Test instruments

EMI test equipment (1/2)

Control No.	Instrument	Manufacturer	Model No	Serial No	Test Item	Calibration Date * Interval(month)
COTS-MEMI	EMI measurement program	TSJ	TEPTO-DV	-	RE	-
MAEC-02	Semi Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 3m	DA-06902	RE	2012/06/29 * 12
MAEC-04	Semi Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 3m	DA-10005	RE	2013/02/28 * 12
MAT-07	Attenuator(6dB)	Weinschel Corp	2	BK7970	RE	2012/11/06 * 12
MAT-68	Attenuator	Anritsu	MP721B	6200961025	RE	2012/11/21 * 12
MBA-02	Biconical Antenna	Schwarzbeck	BBA9106	VHA91032008	RE	2012/10/08 * 12
MBA-05	Biconical Antenna	Schwarzbeck	BBA9106	1302	RE	2012/11/18 * 12
MCC-12	Coaxial Cable	Fujikura/Agilent	-	-	RE	2013/02/06 * 12
MCC-132	Microwave Cable	HUBER+SUHNER	SUCOFLEX104	336161/4(1m) / 340639(5m)	RE	2012/09/05 * 12
MCC-141	Microwave Cable	Junkosha	MWX221	1305S002R(1m) / 1204S062(5m)	RE	2013/05/28* 12
MCC-142	Microwave Cable	Junkosha	MWX221	1203S213(1m) / 1204S063(5m)	RE	2013/04/19 * 12
MCC-50	Coaxial Cable	UL Japan	-	-	RE	2012/06/01 * 12
MHA-02	Horn Antenna 18-26.5GHz	EMCO	3160-09	1265	RE	2013/02/15 * 12
MHA-06	Horn Antenna 1-18GHz	Schwarzbeck	BBHA9120D	254	RE	2013/02/15 * 12
MHA-17	Horn Antenna 15-40GHz	Schwarzbeck	BBHA9170	BBHA9170307	RE	2012/06/27 * 12
MHA-21	Horn Antenna 1-18GHz	Schwarzbeck	BBHA9120D	9120D-557	RE	2012/08/17 * 12
MHF-06	High Pass Filter 3.5-24GHz	TOKIMEC	TF323DCA	601	RE	2013/05/30 * 12
MJM-09	Measure	KDS	E19-55	-	RE	-
MJM-14	Measure	KOMELON	KMC-36	-	RE	-
MLA-02	Logperiodic Antenna	Schwarzbeck	USLP9143	201	RE	2012/10/08 * 12
MLA-08	Logperiodic Antenna	Schwarzbeck	UKLP9140-A	N/A	RE	2012/11/18 * 12
MOS-15	Thermo-Hygrometer	Custom	CTH-180	-	RE	2013/02/26 * 12
MOS-22	Thermo-Hygrometer	Custom	CTH-201	0003	RE	2013/2/26 * 12
MPA-09	Pre Amplifier	Agilent	8447D	2944A10845	RE	2012/09/11 * 12
MPA-10	Pre Amplifier	Agilent	8449B	3008A02142	RE	2013/01/10 * 12
MPA-12	MicroWave System Amplifier	Agilent	83017A	MY39500780	RE	2013/03/19 * 12
MPA-13	Pre Amplifier	SONOMA INSTRUMENT	310	260834	RE	2013/03/12 * 12
MSA-03	Spectrum Analyzer	Agilent	E4448A	MY44020357	RE	2012/11/20 * 12
MSA-04	Spectrum Analyzer	Agilent	E4448A	US44300523	RE	2013/04/03 * 12
MTR-03	Test Receiver	Rohde & Schwarz	ESCI	100300	RE	2013/04/10 * 12
MTR-07	Test Receiver	Rohde & Schwarz	ESCI	100635	RE	2013/04/10 * 12

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EMI test equipment (2/2)

Control No.	Instrument	Manufacturer	Model No	Serial No	Test Item	Calibration Date * Interval(month)
MRENT-95	Spectrum Analyzer	Agilent	E4440A	MY46185823	AT	2012/06/19 * 12
MCC-137	Microwave cable	HUBER+SUHNER	SUCOFLEX 102	37954/2	AT	2012/10/19 * 12
MAT-22	Attenuator(10dB) 1-18GHz	Orient Microwave	BX10-0476-00	-	AT	2013/03/21 * 12
MAT-10	Attenuator(10dB)	Weinschel Corp	2	BL1173	AT	2012/11/06 * 12
MCC-64	Coaxial Cable	UL Japan	-	-	AT	2013/03/22 * 12
MOS-14	Thermo-Hygrometer	Custom	CTH-201	-	AT	2013/02/26 * 12
MPM-08	Power Meter	Anritsu	ML2495A	6K00003338	AT	2012/10/08 * 12
MPSE-11	Power sensor	Anritsu	MA2411B	011737	AT	2012/10/08 * 12
MPA-14	Pre Amplifier	SONOMA INSTRUMENT	310	260833	RE	2013/03/12 * 12

The expiration date of the calibration is the end of the expired month.

All equipment is calibrated with valid calibrations. Each measurement data 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 Conducted test

UL Japan, Inc.

Head Office EMC Lab.

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