

Radiated Spurious Emission

Report No.	12699044S-AM-R1				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber	No.3	No.1	No.1	No.2	No.2
Date	June 6, 2019	March 3, 2019	June 10, 2019	February 14, 2019	February 12, 2019
Temperature /	24 deg. C /	22 deg. C /	22 deg. C /	20 deg. C /	22 deg. C /
Humidity	53 % RH	33 % RH	60 % RH	29 % RH	30 % RH
Engineer	Hiromasa Sato	Makoto Hosaka	Kazuya Noda	Yosuke Ishikawa	Yasumasa Owaki
	(1 GHz – 6.4 GHz)	(6.4 GHz - 13 GHz)	(13 GHz - 18 GHz)	(18 GHz - 26 GHz)	(26 GHz - 40 GHz)
Mode	Tx 11a 5180 MHz				

(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]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5150.000	PK	51.92	32.18	16.32	43.04	2.48	59.86	73.9	14.0	206	117	
Hori.	15540.000	PK	56.91	38.74	12.67	40.79	-9.54	57.99	73.9	15.9	152	351	
Hori.	20720.000	PK	49.31	39.81	12.76	45.94	-9.54	46.40	73.9	27.5	141	5	
Hori.	5150.000	AV	37.85	32.18	16.32	43.04	2.48	45.79	53.9	8.1	206	117	VBW:2.7 kHz
Hori.	15540.000	AV	47.64	38.74	12.67	40.79	-9.54	48.72	53.9	5.1	152	351	VBW:2.7 kHz
Hori.	20720.000	AV	38.69	39.81	12.76	45.94	-9.54	35.78	53.9	18.1	141	5	VBW:2.7 kHz
Vert.	5150.000	PK	52.03	32.18	16.32	43.04	2.48	59.97	73.9	13.9	129	43	
Vert.	15540.000	PK	56.12	38.74	12.67	40.79	-9.54	57.20	73.9	16.7	141	353	
Vert.	20720.000	PK	46.48	39.81	12.76	45.94	-9.54	43.57	73.9	30.3	132	86	
Vert.	5150.000	AV	38.14	32.18	16.32	43.04	2.48	46.08	53.9	7.8	129	43	VBW:2.7 kHz
Vert.	15540.000	AV	46.03	38.74	12.67	40.79	-9.54	47.11	53.9	6.7	141	353	VBW:2.7 kHz
Vert.	20720.000	AV	37.98	39.81	12.76	45.94	-9.54	35.07	53.9	18.8	132	86	VBW:2.7 kHz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

Distance factor : 1 GHz - 13 GHz : 20log (3.99 m / 3.0 m) = 2.48 dB

13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

(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]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	10360.000	PK	46.58	39.34	8.92	39.62	2.48	57.70	-37.52	-27.0	10.5	169	316	
Hori.	31080.000	PK	59.08	43.01	16.23	66.05	-9.54	42.73	-52.49	-27.0	25.4	138	62	
Vert.	10360.000	PK	47.30	39.34	8.92	39.62	2.48	58.42	-36.80	-27.0	9.8	103	296	
Vert.	31080.000	PK	59.43	43.01	16.23	66.05	-9.54	43.08	-52.14	-27.0	25.1	144	4	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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).

Distance factor : 1 GHz - 13 GHz : 20log (3.99 m / 3.0 m) = 2.48 dB

13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

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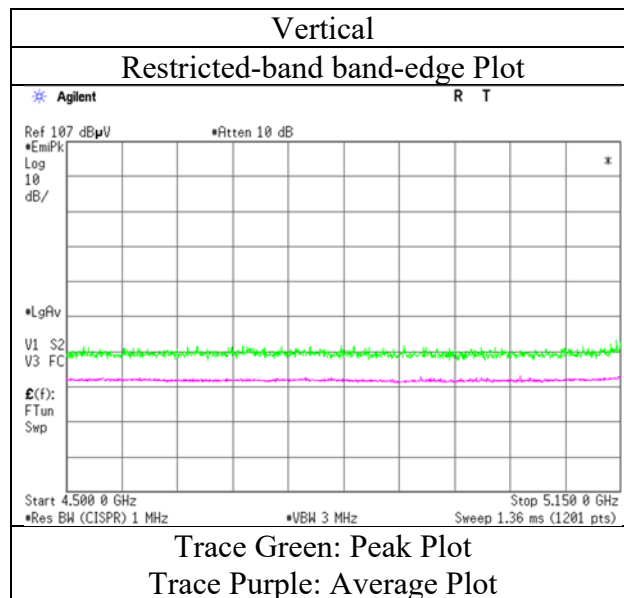
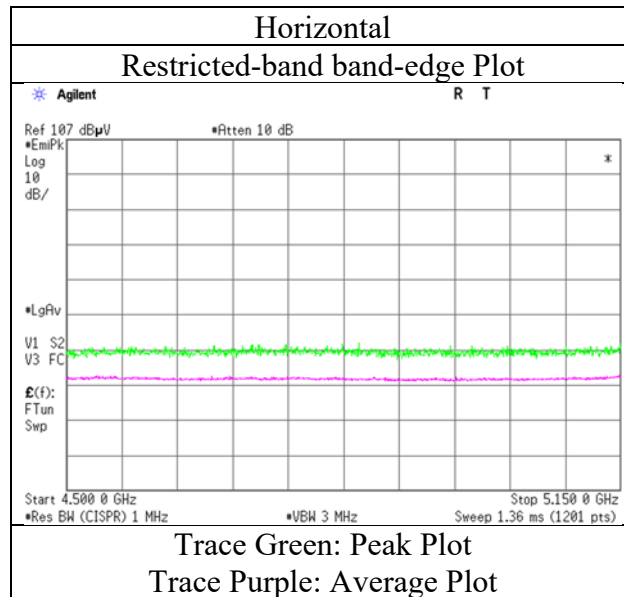
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Radiated Spurious Emission

Report No.	12699044S-AM-R1
Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	June 6, 2019
Temperature / Humidity	24 deg. C / 53 % RH
Engineer	Hiromasa Sato
	(1 GHz – 6.4 GHz)
Mode	Tx 11a 5180 MHz



* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions. Final result of restricted band edge was shown in tabular data.

Radiated Spurious Emission

Report No.	12699044S-AM-R1				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber	No.3	No.1	No.1	No.2	No.2
Date	June 6, 2019	March 3, 2019	June 10, 2019	February 14, 2019	February 12, 2019
Temperature /	24 deg. C /	22 deg. C /	22 deg. C /	20 deg. C /	22 deg. C /
Humidity	53 % RH	33 % RH	60 % RH	29 % RH	30 % RH
Engineer	Hiromasa Sato	Makoto Hosaka	Kazuya Noda	Yosuke Ishikawa	Yasumasa Owaki
	(1 GHz – 6.4 GHz)	(6.4 GHz - 13 GHz)	(13 GHz - 18 GHz)	(18 GHz - 26 GHz)	(26 GHz - 40 GHz)
Mode	Tx 11a 5240 MHz				

(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]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	15720.000	PK	58.33	38.36	12.74	40.60	-9.54	59.29	73.9	14.6	143	354	
Hori.	20960.000	PK	46.16	39.86	12.87	45.93	-9.54	43.42	73.9	30.4	134	53	
Hori.	31440.000	PK	57.17	43.08	16.39	64.40	-9.54	42.70	73.9	31.2	138	62	
Hori.	15720.000	AV	47.78	38.36	12.74	40.60	-9.54	48.74	53.9	5.1	143	354	VBW:2.7 kHz
Hori.	20960.000	AV	38.01	39.86	12.87	45.93	-9.54	35.27	53.9	18.6	134	53	VBW:2.7 kHz
Hori.	31440.000	AV	47.59	43.08	16.39	64.40	-9.54	33.12	53.9	20.7	138	62	VBW:2.7 kHz
Vert.	15720.000	PK	56.78	38.36	12.74	40.60	-9.54	57.74	73.9	16.1	139	355	
Vert.	20960.000	PK	45.79	39.86	12.87	45.93	-9.54	43.05	73.9	30.8	123	83	
Vert.	31440.000	PK	59.25	43.08	16.39	64.40	-9.54	44.78	73.9	29.1	143	4	
Vert.	15720.000	AV	46.96	38.36	12.74	40.60	-9.54	47.92	53.9	5.9	139	355	VBW:2.7 kHz
Vert.	20960.000	AV	38.76	39.86	12.87	45.93	-9.54	36.02	53.9	17.8	123	83	VBW:2.7 kHz
Vert.	31440.000	AV	50.69	43.08	16.39	64.40	-9.54	36.22	53.9	17.6	143	4	VBW:2.7 kHz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.99\text{ m} / 3.0\text{ m}) = 2.48\text{ dB}$

13 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.54\text{ dB}$

(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]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	10480.000	PK	46.80	39.63	8.98	39.75	2.48	58.14	-37.08	-27.0	10.0	141	335	
Vert.	10480.000	PK	46.51	39.63	8.98	39.75	2.48	57.85	-37.37	-27.0	10.3	119	315	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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).

Distance factor : 1 GHz - 13 GHz : $20\log(3.99\text{ m} / 3.0\text{ m}) = 2.48\text{ dB}$

13 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.54\text{ dB}$

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Radiated Spurious Emission

Report No.	12699044S-AM-R1				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber	No.3	No.1	No.1	No.2	No.2
Date	June 6, 2019	March 3, 2019	June 10, 2019	February 14, 2019	February 12, 2019
Temperature /	24 deg. C /	22 deg. C /	22 deg. C /	20 deg. C /	22 deg. C /
Humidity	53 % RH	33 % RH	60 % RH	29 % RH	30 % RH
Engineer	Hiromasa Sato	Makoto Hosaka	Kazuya Noda	Yosuke Ishikawa	Yasumasa Owaki
	(1 GHz – 6.4 GHz)	(6.4 GHz - 13 GHz)	(13 GHz - 18 GHz)	(18 GHz - 26 GHz)	(26 GHz - 40 GHz)
Mode	Tx 11a 5320 MHz				

(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]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5350.000	PK	54.55	31.73	16.40	43.21	2.48	61.95	73.9	11.9	152	104	
Hori.	10640.000	PK	46.34	39.56	9.00	39.69	2.48	57.69	73.9	16.2	128	317	
Hori.	15960.000	PK	58.48	37.85	12.84	40.34	-9.54	59.29	73.9	14.6	142	353	
Hori.	21280.000	PK	47.01	39.97	12.96	46.24	-9.54	44.16	73.9	29.7	137	56	
Hori.	5350.000	AV	39.88	31.73	16.40	43.21	2.48	47.28	53.9	6.6	152	104	VBW:2.7 kHz
Hori.	10640.000	AV	36.10	39.56	9.00	39.69	2.48	47.45	53.9	6.4	128	317	VBW:2.7 kHz
Hori.	15960.000	AV	49.34	37.85	12.84	40.34	-9.54	50.15	53.9	3.7	142	353	VBW:2.7 kHz
Hori.	21280.000	AV	38.49	39.97	12.96	46.24	-9.54	35.64	53.9	18.2	137	56	VBW:2.7 kHz
Vert.	5350.000	PK	53.06	31.73	16.40	43.21	2.48	60.46	73.9	13.4	310	38	
Vert.	10640.000	PK	45.24	39.56	9.00	39.69	2.48	56.59	73.9	17.3	100	312	
Vert.	15960.000	PK	57.45	37.85	12.84	40.34	-9.54	58.26	73.9	15.6	142	352	
Vert.	21280.000	PK	45.36	39.97	12.96	46.24	-9.54	42.51	73.9	31.3	130	47	
Vert.	5350.000	AV	39.09	31.73	16.40	43.21	2.48	46.49	53.9	7.4	310	38	VBW:2.7 kHz
Vert.	10640.000	AV	34.17	39.56	9.00	39.69	2.48	45.52	53.9	8.3	100	312	VBW:2.7 kHz
Vert.	15960.000	AV	48.01	37.85	12.84	40.34	-9.54	48.82	53.9	5.0	142	352	VBW:2.7 kHz
Vert.	21280.000	AV	36.20	39.97	12.96	46.24	-9.54	33.35	53.9	20.5	130	47	VBW:2.7 kHz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

Distance factor : 1 GHz - 13 GHz : 20log (3.99 m / 3.0 m) = 2.48 dB

13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

(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]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	31920.000	PK	58.64	43.22	16.43	64.26	-9.54	44.49	-50.73	-27.0	23.7	140	62	
Vert.	31920.000	PK	59.84	43.22	16.43	64.26	-9.54	45.69	-49.53	-27.0	22.5	146	4	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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).

Distance factor : 1 GHz - 13 GHz : 20log (3.99 m / 3.0 m) = 2.48 dB

13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

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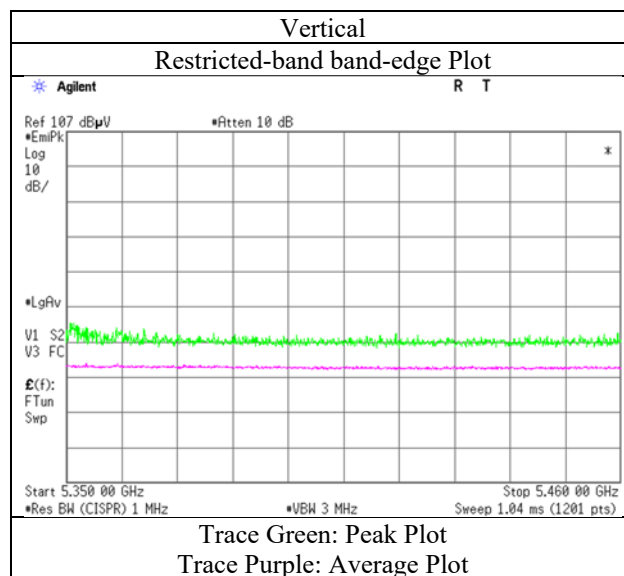
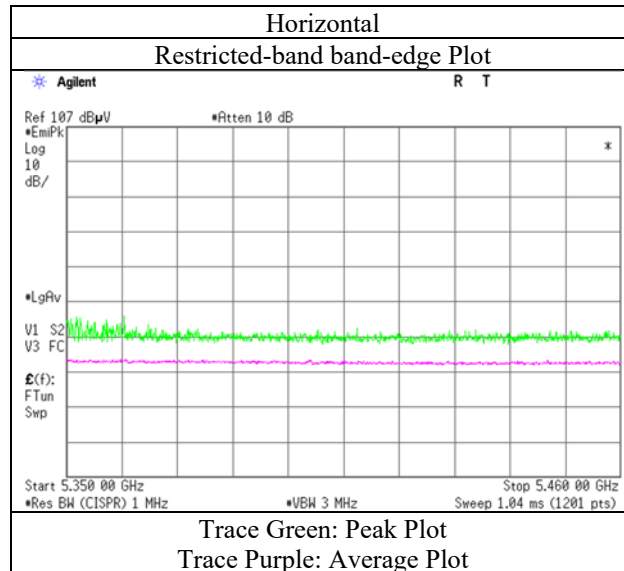
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Radiated Spurious Emission

Report No. 12699044S-AM-R1
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.3
Date June 6, 2019
Temperature / Humidity 24 deg. C / 53 % RH
Engineer Hiromasa Sato
Mode Tx 11a 5320 MHz



* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.
Final result of restricted band edge was shown in tabular data.

Radiated Spurious Emission

Report No.	12699044S-AM-R1				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber	No.3	No.1	No.1	No.2	No.2
Date	June 6, 2019	March 3, 2019	June 10, 2019	February 14, 2019	February 12, 2019
Temperature /	24 deg. C /	22 deg. C /	22 deg. C /	20 deg. C /	22 deg. C /
Humidity	53 % RH	33 % RH	60 % RH	29 % RH	30 % RH
Engineer	Hiomasa Sato	Makoto Hosaka	Kazuya Noda	Yosuke Ishikawa	Yasumasa Owaki
	(1 GHz - 6.4 GHz)	(6.4 GHz - 13 GHz)	(13 GHz - 18 GHz)	(18 GHz - 26 GHz)	(26 GHz - 40 GHz)
Mode	Tx 11a 5500 MHz				

(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]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5460.000	PK	49.82	32.08	16.47	43.30	2.48	57.55	73.9	16.3	149	101	
Hori.	11000.000	PK	47.02	40.11	9.05	39.49	2.48	59.17	73.9	14.7	100	301	
Hori.	5460.000	AV	38.60	32.08	16.47	43.30	2.48	46.33	53.9	7.5	149	101	VBW:2.7 kHz
Hori.	11000.000	AV	34.31	40.11	9.05	39.49	2.48	46.46	53.9	7.4	100	301	VBW:2.7 kHz
Vert.	5460.000	PK	49.51	32.08	16.47	43.30	2.48	57.24	73.9	16.6	259	54	
Vert.	11000.000	PK	46.20	40.11	9.05	39.49	2.48	58.35	73.9	15.5	101	338	
Vert.	5460.000	AV	38.61	32.08	16.47	43.30	2.48	46.34	53.9	7.5	259	54	VBW:2.7 kHz
Vert.	11000.000	AV	34.04	40.11	9.05	39.49	2.48	46.19	53.9	7.7	101	338	VBW:2.7 kHz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.99\text{ m} / 3.0\text{ m}) = 2.48\text{ dB}$

13 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.54\text{ dB}$

(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]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5470.000	PK	51.72	32.06	16.46	43.31	2.48	59.41	-35.81	-27.0	8.8	149	101	
Hori.	16500.000	PK	55.68	38.62	13.46	40.44	-9.54	57.78	-37.44	-27.0	10.4	143	353	
Hori.	22000.000	PK	46.58	40.20	13.24	46.97	-9.54	43.51	-51.71	-27.0	24.7	135	53	
Hori.	33000.000	PK	56.12	43.36	16.74	65.22	-9.54	41.46	-53.76	-27.0	26.7	141	63	
Vert.	5470.000	PK	51.33	32.06	16.46	43.31	2.48	59.02	-36.20	-27.0	9.2	259	54	
Vert.	16500.000	PK	55.72	38.62	13.46	40.44	-9.54	57.82	-37.40	-27.0	10.4	138	353	
Vert.	22000.000	PK	45.32	40.20	13.24	46.97	-9.54	42.25	-52.97	-27.0	25.9	133	50	
Vert.	33000.000	PK	59.77	43.36	16.74	65.22	-9.54	45.11	-50.11	-27.0	23.1	145	4	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

*The 4th harmonic was not seen so the result was its base noise level.

Distance factor : 1 GHz - 13 GHz : $20\log(3.99\text{ m} / 3.0\text{ m}) = 2.48\text{ dB}$

13 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.54\text{ dB}$

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Shonan EMC Lab.

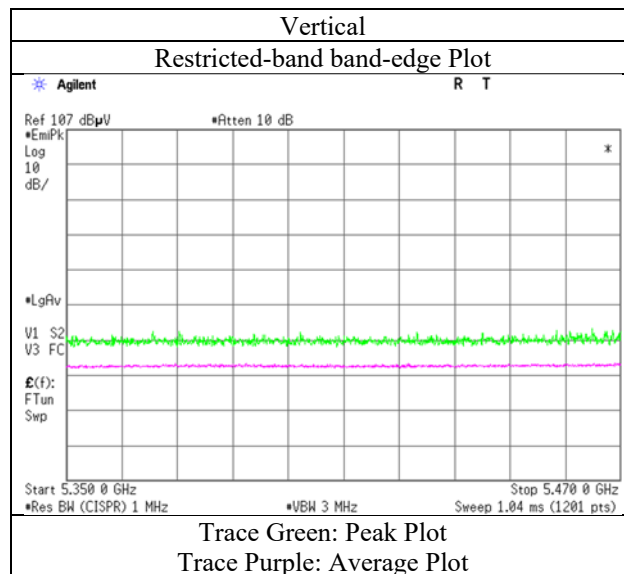
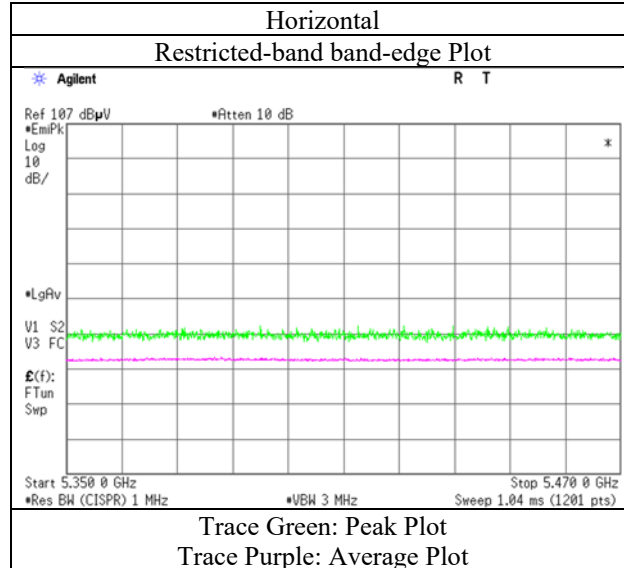
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Radiated Spurious Emission

Report No.	12699044S-AM-R1
Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	June 6, 2019
Temperature / Humidity	24 deg. C / 53 % RH
Engineer	Hiromasa Sato
Mode	Tx 11a 5500 MHz



* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions. Final result of restricted band edge was shown in tabular data.

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Radiated Spurious Emission

Report No.	12699044S-AM-R1				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber	No.3	No.1	No.1	No.2	No.2
Date	June 6, 2019	March 3, 2019	June 10, 2019	February 14, 2019	February 12, 2019
Temperature /	24 deg. C /	22 deg. C /	22 deg. C /	20 deg. C /	22 deg. C /
Humidity	53 % RH	33 % RH	60 % RH	29 % RH	30 % RH
Engineer	Hiromasa Sato	Makoto Hosaka	Kazuya Noda	Yosuke Ishikawa	Yasumasa Owaki
	(1 GHz – 6.4 GHz)	(6.4 GHz - 13 GHz)	(13 GHz - 18 GHz)	(18 GHz - 26 GHz)	(26 GHz - 40 GHz)
Mode	Tx 11a 5580 MHz				

(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]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	11160.000	PK	45.00	39.83	9.24	39.42	2.48	57.13	73.9	16.7	103	319	
Hori.	22320.000	PK	47.72	40.18	13.45	47.44	-9.54	44.37	73.9	29.5	146	5	
Hori.	11160.000	AV	34.11	39.83	9.24	39.42	2.48	46.24	53.9	7.6	103	319	VBW:2.7 kHz
Hori.	22320.000	AV	38.32	40.18	13.45	47.44	-9.54	34.97	53.9	18.9	146	5	VBW:2.7 kHz
Vert.	11160.000	PK	45.86	39.83	9.24	39.42	2.48	57.99	73.9	15.9	100	303	
Vert.	22320.000	PK	45.51	40.18	13.45	47.44	-9.54	42.16	73.9	31.7	132	55	
Vert.	11160.000	AV	33.86	39.83	9.24	39.42	2.48	45.99	53.9	7.9	100	303	VBW:2.7 kHz
Vert.	22320.000	AV	35.98	40.18	13.45	47.44	-9.54	32.63	53.9	21.2	132	55	VBW:2.7 kHz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.99\text{ m} / 3.0\text{ m}) = 2.48\text{ dB}$

13 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.54\text{ dB}$

(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]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	16740.000	PK	53.98	39.52	13.41	40.40	-9.54	56.97	-38.25	-27.0	11.2	143	352	
Hori.	33480.000	PK	56.43	43.25	16.84	68.16	-9.54	38.82	-56.40	-27.0	29.4	140	65	
Vert.	16740.000	PK	54.78	39.52	13.41	40.40	-9.54	57.77	-37.45	-27.0	10.4	138	351	
Vert.	33480.000	PK	59.42	43.25	16.84	68.16	-9.54	41.81	-53.41	-27.0	26.4	145	5	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.99\text{ m} / 3.0\text{ m}) = 2.48\text{ dB}$

13 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.54\text{ dB}$

UL Japan, Inc.

Shonan EMC Lab.

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Radiated Spurious Emission

Report No.	12699044S-AM-R1				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber	No.3	No.1	No.1	No.2	No.2
Date	June 6, 2019	March 3, 2019	June 10, 2019	February 14, 2019	February 12, 2019
Temperature /	24 deg. C /	22 deg. C /	22 deg. C /	20 deg. C /	22 deg. C /
Humidity	53 % RH	33 % RH	60 % RH	29 % RH	30 % RH
Engineer	Hiromasa Sato	Makoto Hosaka	Kazuya Noda	Yosuke Ishikawa	Yasumasa Owaki
	(1 GHz – 6.4 GHz)	(6.4 GHz - 13 GHz)	(13 GHz - 18 GHz)	(18 GHz - 26 GHz)	(26 GHz - 40 GHz)
Mode	Tx 11a 5700 MHz				

(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]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	11400.000	PK	45.11	39.93	9.53	39.31	2.48	57.74	73.9	16.1	100	290	
Hori.	22800.000	PK	46.46	39.93	13.67	47.94	-9.54	42.58	73.9	31.3	132	58	
Hori.	11400.000	AV	33.21	39.93	9.53	39.31	2.48	45.84	53.9	8.0	100	290	VBW:2.7 kHz
Hori.	22800.000	AV	36.90	39.93	13.67	47.94	-9.54	33.02	53.9	20.8	132	58	VBW:2.7 kHz
Vert.	11400.000	PK	44.73	39.93	9.53	39.31	2.48	57.36	73.9	16.5	155	0	
Vert.	22800.000	PK	43.87	39.93	13.67	47.94	-9.54	39.99	73.9	33.9	131	59	
Vert.	11400.000	AV	33.08	39.93	9.53	39.31	2.48	45.71	53.9	8.1	155	0	VBW:2.7 kHz
Vert.	22800.000	AV	33.40	39.93	13.67	47.94	-9.54	29.52	53.9	24.3	131	59	VBW:2.7 kHz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.99\text{ m} / 3.0\text{ m}) = 2.48\text{ dB}$

13 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.54\text{ dB}$

(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]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5725.000	PK	48.47	32.35	16.59	43.33	2.48	56.56	-38.66	-27.0	11.6	185	224	
Hori.	17100.000	PK	54.82	40.10	13.35	40.32	-9.54	58.41	-36.81	-27.0	9.8	142	353	
Hori.	34200.000	PK	57.15	43.02	17.10	68.54	-9.54	39.19	-56.03	-27.0	29.0	142	64	
Vert.	5725.000	PK	49.50	32.35	16.59	43.33	2.48	57.59	-37.63	-27.0	10.6	146	10	
Vert.	17100.000	PK	54.60	40.10	13.35	40.32	-9.54	58.19	-37.03	-27.0	10.0	138	352	
Vert.	34200.000	PK	59.65	43.02	17.10	68.54	-9.54	41.69	-53.53	-27.0	26.5	145	4	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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).

Distance factor : 1 GHz - 13 GHz : $20\log(3.99\text{ m} / 3.0\text{ m}) = 2.48\text{ dB}$

13 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.54\text{ dB}$

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Shonan EMC Lab.

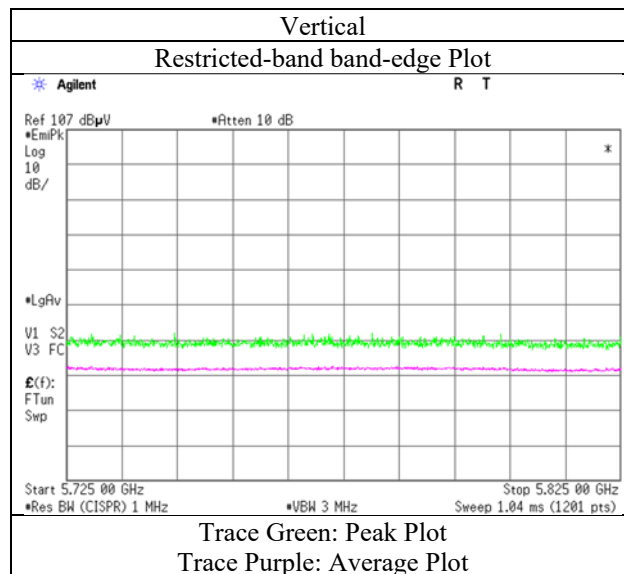
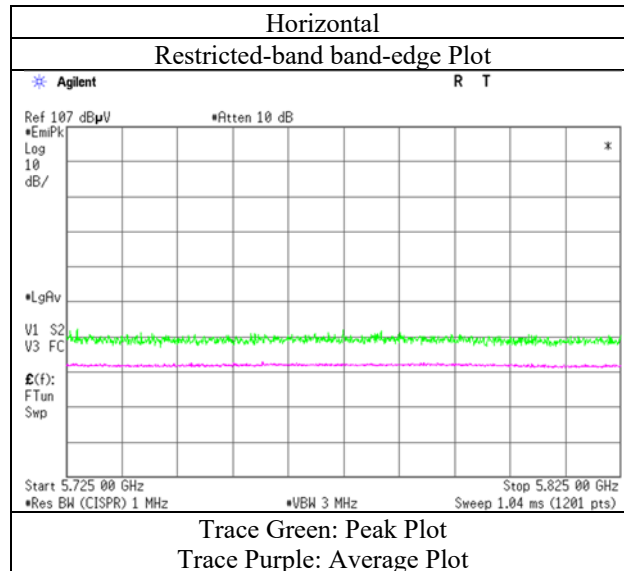
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Radiated Spurious Emission

Report No. 12699044S-AM-R1
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.3
Date June 6, 2019
Temperature / Humidity 24 deg. C / 53 % RH
Engineer Hiromasa Sato
Mode Tx 11a 5700 MHz



* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.
Final result of restricted band edge was shown in tabular data.

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Radiated Spurious Emission

Report No.	12699044S-AM-R1				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber	No.3	No.1	No.1	No.2	No.2
Date	June 6, 2019	March 3, 2019	June 10, 2019	February 14, 2019	February 12, 2019
Temperature /	24 deg. C /	22 deg. C /	22 deg. C /	20 deg. C /	22 deg. C /
Humidity	53 % RH	33 % RH	60 % RH	29 % RH	30 % RH
Engineer	Huromasa Sato	Makoto Hosaka	Kazuya Noda	Yosuke Ishikawa	Yasumasa Owaki
	(1 GHz - 6.4 GHz)	(6.4 GHz - 13 GHz)	(13 GHz - 18 GHz)	(18 GHz - 26 GHz)	(26 GHz - 40 GHz)
Mode	Tx 11a 5745 MHz				

(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]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	11490.000	PK	44.51	40.01	9.64	39.27	2.48	57.37	73.9	16.5	109	296	
Hori.	22980.000	PK	47.21	39.87	13.72	48.07	-9.54	43.19	73.9	30.7	135	57	
Hori.	11490.000	AV	33.17	40.01	9.64	39.27	2.48	46.03	53.9	7.8	109	296	VBW:2.7 kHz
Hori.	22980.000	AV	36.83	39.87	13.72	48.07	-9.54	32.81	53.9	21.0	135	57	VBW:2.7 kHz
Vert.	11490.000	PK	44.82	40.01	9.64	39.27	2.48	57.68	73.9	16.2	103	299	
Vert.	22980.000	PK	46.16	39.87	13.72	48.07	-9.54	42.14	73.9	31.7	130	78	
Vert.	11490.000	AV	33.11	40.01	9.64	39.27	2.48	45.97	53.9	7.9	103	299	VBW:2.7 kHz
Vert.	22980.000	AV	34.48	39.87	13.72	48.07	-9.54	30.46	53.9	23.4	130	78	VBW:2.7 kHz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

Distance factor : 1 GHz - 13 GHz : 20log (3.99 m / 3.0 m) = 2.48 dB

13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

(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]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5650.000	PK	49.37	32.18	16.56	43.33	2.48	57.26	-37.96	-27.0	10.9	149	116	
Hori.	5700.000	PK	49.06	32.23	16.58	43.33	2.48	57.02	-38.20	10.0	48.2	149	116	
Hori.	5720.000	PK	50.90	32.33	16.58	43.33	2.48	58.96	-36.26	15.6	51.8	149	116	
Hori.	5725.000	PK	52.58	32.35	16.59	43.33	2.48	60.67	-34.55	27.0	61.5	149	116	
Hori.	17235.000	PK	51.98	40.25	13.33	40.29	-9.54	55.73	-39.49	-27.0	12.4	142	345	
Hori.	34470.000	PK	59.41	42.92	17.16	69.36	-9.54	40.59	-54.63	-27.0	27.6	142	62	
Vert.	5650.000	PK	49.20	32.18	16.56	43.33	2.48	57.09	-38.13	-27.0	11.1	118	74	
Vert.	5700.000	PK	48.77	32.23	16.58	43.33	2.48	56.73	-38.49	10.0	48.4	118	74	
Vert.	5720.000	PK	49.04	32.33	16.58	43.33	2.48	57.10	-38.12	15.6	53.7	118	74	
Vert.	5725.000	PK	50.38	32.35	16.59	43.33	2.48	58.47	-36.75	27.0	63.7	118	74	
Vert.	17235.000	PK	52.55	40.25	13.33	40.29	-9.54	56.30	-38.92	-27.0	11.9	140	354	
Vert.	34470.000	PK	60.91	42.92	17.16	69.36	-9.54	42.09	-53.13	-27.0	26.1	142	5	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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).

Distance factor : 1 GHz - 13 GHz : 20log (3.99 m / 3.0 m) = 2.48 dB

13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

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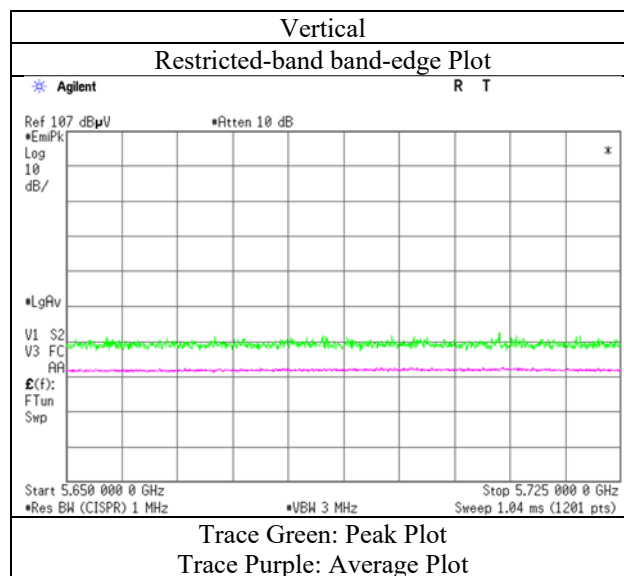
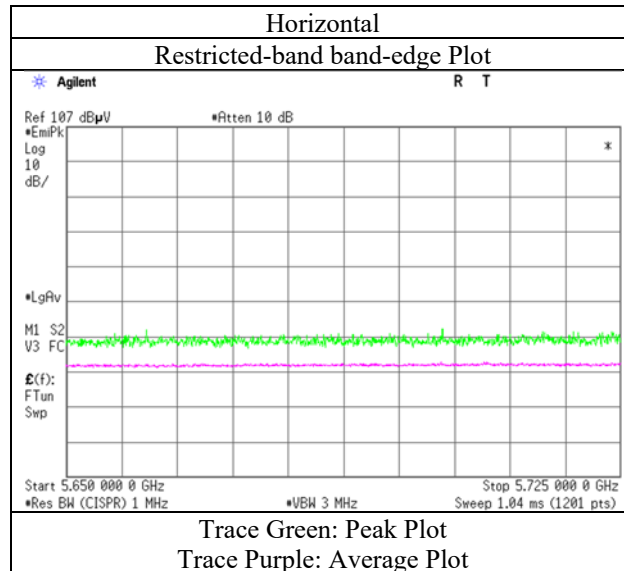
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

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Radiated Spurious Emission

Report No.	12699044S-AM-R1
Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	June 6, 2019
Temperature / Humidity	24 deg. C / 53 % RH
Engineer	Hiromasa Sato
Mode	Tx 11a 5745 MHz



* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions. Final result of restricted band edge was shown in tabular data.

Radiated Spurious Emission

Report No.	12699044S-AM-R1				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber	No.3	No.1	No.1	No.2	No.2
Date	June 6, 2019	March 3, 2019	June 10, 2019	February 14, 2019	February 12, 2019
Temperature /	24 deg. C /	22 deg. C /	22 deg. C /	20 deg. C /	22 deg. C /
Humidity	53 % RH	33 % RH	60 % RH	29 % RH	30 % RH
Engineer	Hiromasa Sato	Makoto Hosaka	Kazuya Noda	Yosuke Ishikawa	Yasumasa Owaki
	(1 GHz - 6.4 GHz)	(6.4 GHz - 13 GHz)	(13 GHz - 18 GHz)	(18 GHz - 26 GHz)	(26 GHz - 40 GHz)
Mode	Tx 11a 5785 MHz				

(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]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	11570.000	PK	45.00	39.98	9.67	39.21	2.48	57.92	73.9	15.9	100	305	
Hori.	11570.000	AV	33.08	39.98	9.67	39.21	2.48	46.00	53.9	7.9	100	305	VBW:2.7 kHz
Vert.	11570.000	PK	44.34	39.98	9.67	39.21	2.48	57.26	73.9	16.6	100	0	
Vert.	11570.000	AV	32.88	39.98	9.67	39.21	2.48	45.80	53.9	8.1	100	0	VBW:2.7 kHz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.99\text{ m} / 3.0\text{ m}) = 2.48\text{ dB}$

13 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.54\text{ dB}$

(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]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	17355.000	PK	50.73	41.01	13.32	40.26	-9.54	55.26	-39.96	-27.0	12.9	140	8	
Hori.	23140.000	PK	47.08	39.84	13.73	48.18	-9.54	42.93	-52.29	-27.0	25.2	130	53	
Hori.	34710.000	PK	58.94	42.75	17.24	69.82	-9.54	39.57	-55.65	-27.0	28.6	138	63	
Vert.	17355.000	PK	51.63	41.01	13.32	40.26	-9.54	56.16	-39.06	-27.0	12.0	139	354	
Vert.	23140.000	PK	45.76	39.84	13.73	48.18	-9.54	41.61	-53.61	-27.0	26.6	133	76	
Vert.	34710.000	PK	59.44	42.75	17.24	69.82	-9.54	40.07	-55.15	-27.0	28.1	143	5	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

Result(EIRP[dBm]) = $10 \cdot \log \left(\left(\left\{ 10^{\left(\text{Electric Field Strength [dBuV/m]} / 20 \right)} \cdot 10^{(-6)} \right\} \cdot \text{Distance:3[m]} \right)^2 / 30 \right) \cdot 10^{(3)}$

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.99\text{ m} / 3.0\text{ m}) = 2.48\text{ dB}$

13 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.54\text{ dB}$

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Radiated Spurious Emission

Report No.	12699044S-AM-R1				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber	No.3	No.1	No.1	No.2	No.2
Date	June 6, 2019	March 3, 2019	June 10, 2019	February 14, 2019	February 12, 2019
Temperature /	24 deg. C /	22 deg. C /	22 deg. C /	20 deg. C /	22 deg. C /
Humidity	53 % RH	33 % RH	60 % RH	29 % RH	30 % RH
Engineer	Hiomasa Sato	Makoto Hosaka	Kazuya Noda	Yosuke Ishikawa	Yasumasa Owaki
	(1 GHz - 6.4 GHz)	(6.4 GHz - 13 GHz)	(13 GHz - 18 GHz)	(18 GHz - 26 GHz)	(26 GHz - 40 GHz)
Mode	Tx 11a 5825 MHz				

(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]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	11650.000	PK	44.15	39.69	9.67	39.14	2.48	56.85	73.9	17.0	100	296	
Hori.	11650.000	AV	33.64	39.69	9.67	39.14	2.48	46.34	53.9	7.5	100	296	VBW:2.7 kHz
Vert.	11650.000	PK	45.68	39.69	9.67	39.14	2.48	58.38	73.9	15.5	100	358	
Vert.	11650.000	AV	33.67	39.69	9.67	39.14	2.48	46.37	53.9	7.5	100	358	VBW:2.7 kHz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

Distance factor : 1 GHz - 13 GHz : 20log (3.99 m / 3.0 m) = 2.48 dB

13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

(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]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5850.000	PK	48.55	32.65	16.66	43.34	2.48	57.00	-38.22	27.0	65.2	173	215	
Hori.	5855.000	PK	47.27	32.66	16.66	43.34	2.48	55.73	-39.49	15.6	55.0	173	215	
Hori.	5875.000	PK	48.00	32.72	16.67	43.34	2.48	56.53	-38.69	10.0	48.6	173	215	
Hori.	5925.000	PK	47.79	32.80	16.69	43.34	2.48	56.42	-38.80	-27.0	11.8	173	215	
Hori.	17475.000	PK	51.37	41.81	13.31	40.23	-9.54	56.72	-38.50	-27.0	11.5	139	10	
Hori.	23300.000	PK	46.06	39.85	13.73	48.29	-9.54	41.81	-53.41	-27.0	26.4	139	57	
Hori.	34950.000	PK	59.81	42.68	17.31	70.23	-9.54	40.03	-55.19	-27.0	28.1	139	62	
Vert.	5850.000	PK	51.88	32.65	16.66	43.34	2.48	60.33	-34.89	27.0	61.8	150	26	
Vert.	5855.000	PK	47.85	32.66	16.66	43.34	2.48	56.31	-38.91	15.6	54.5	150	26	
Vert.	5875.000	PK	48.24	32.72	16.67	43.34	2.48	56.77	-38.45	10.0	48.4	150	26	
Vert.	5925.000	PK	48.93	32.80	16.69	43.34	2.48	57.56	-37.66	-27.0	10.6	150	26	
Vert.	17475.000	PK	51.42	41.81	13.31	40.23	-9.54	56.77	-38.45	-27.0	11.4	141	355	
Vert.	23300.000	PK	43.16	39.85	13.73	48.29	-9.54	38.91	-56.31	-27.0	29.3	139	51	
Vert.	34950.000	PK	61.18	42.68	17.31	70.23	-9.54	41.40	-53.82	-27.0	26.8	145	4	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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).

Distance factor : 1 GHz - 13 GHz : 20log (3.99 m / 3.0 m) = 2.48 dB

13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

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Shonan EMC Lab.

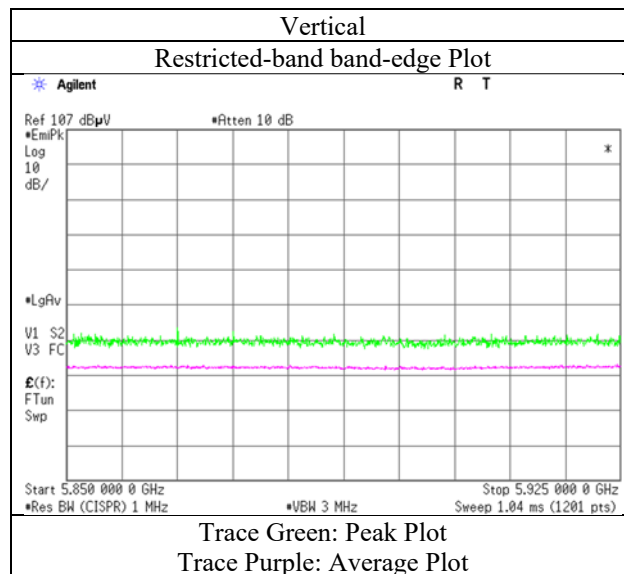
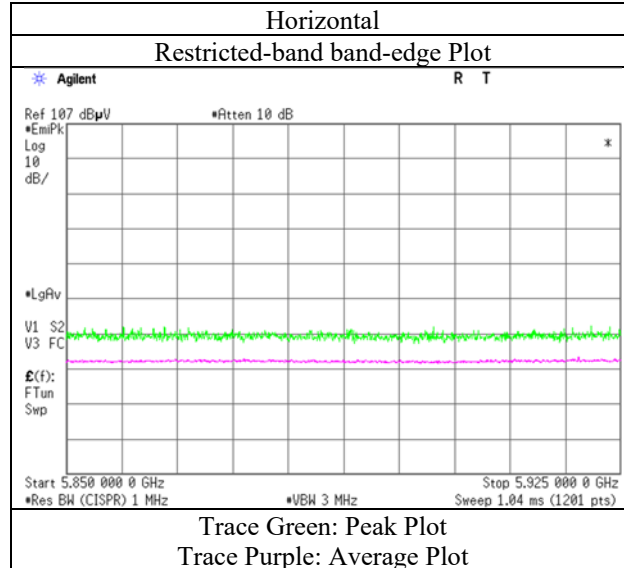
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

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Radiated Spurious Emission

Report No.	12699044S-AM-R1
Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	June 6, 2019
Temperature / Humidity	24 deg. C / 53 % RH
Engineer	Hiromasa Sato
Mode	Tx 11a 5825 MHz



* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions. Final result of restricted band edge was shown in tabular data.

UL Japan, Inc.

Shonan EMC Lab.

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Radiated Spurious Emission

Report No.	12699044S-AM-R1				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber	No.3	No.1	No.1	No.2	No.2
Date	June 7, 2019	March 11, 2019	June 10, 2019	February 14, 2019	February 13, 2019
Temperature /	23 deg. C /	22 deg. C /	22 deg. C /	23 deg. C /	21 deg. C /
Humidity	56 % RH	43 % RH	60 % RH	30 % RH	31 % RH
Engineer	Toshinori Yamada	Kazuya Noda	Kazuya Noda	Yasumasa Owaki	Yosuke Ishikawa
	(1 GHz – 6.4 GHz)	(6.4 GHz - 13 GHz)	(13 GHz - 18 GHz)	(18 GHz - 26 GHz)	(26 GHz - 40 GHz)
Mode	Tx 11n-20 MIMO 5180 MHz				

(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]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5150.000	PK	49.51	32.18	16.32	43.04	2.48	57.45	73.9	16.4	125	95	
Hori.	15540.000	PK	57.44	38.74	12.67	40.79	-9.54	58.52	73.9	15.3	142	353	
Hori.	20720.000	PK	49.20	39.81	12.76	45.94	-9.54	46.29	73.9	27.6	144	5	
Hori.	31080.000	PK	56.67	43.01	16.23	66.05	-9.54	40.32	73.9	33.5	143	45	
Hori.	5150.000	AV	38.37	32.18	16.32	43.04	2.48	46.31	53.9	7.5	125	95	VBW:3.3 kHz
Hori.	15540.000	AV	48.05	38.74	12.67	40.79	-9.54	49.13	53.9	4.7	142	353	VBW:3.3 kHz
Hori.	20720.000	AV	41.33	39.81	12.76	45.94	-9.54	38.42	53.9	15.4	144	5	VBW:3.3 kHz
Vert.	5150.000	PK	49.78	32.18	16.32	43.04	2.48	57.72	73.9	16.1	134	83	
Vert.	15540.000	PK	57.89	38.74	12.67	40.79	-9.54	58.97	73.9	14.9	139	351	
Vert.	20720.000	PK	47.28	39.81	12.76	45.94	-9.54	44.37	73.9	29.5	126	85	
Vert.	31080.000	PK	58.26	43.01	16.23	66.05	-9.54	41.91	73.9	31.9	138	292	
Vert.	5150.000	AV	39.12	32.18	16.32	43.04	2.48	47.06	53.9	6.8	134	83	VBW:3.3 kHz
Vert.	15540.000	AV	48.11	38.74	12.67	40.79	-9.54	49.19	53.9	4.7	139	351	VBW:3.3 kHz
Vert.	20720.000	AV	39.72	39.81	12.76	45.94	-9.54	36.81	53.9	17.0	126	85	VBW:3.3 kHz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.99\text{ m} / 3.0\text{ m}) = 2.48\text{ dB}$

13 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.54\text{ dB}$

(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]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	10360.000	PK	47.13	39.34	8.92	39.62	2.48	58.25	-36.97	-27.0	9.9	320	34	
Hori.	31080.000	PK	56.67	43.01	16.23	66.05	-9.54	40.32	-54.90	-27.0	27.9	143	45	
Vert.	10360.000	PK	47.43	39.34	8.92	39.62	2.48	58.55	-36.67	-27.0	9.6	116	36	
Vert.	31080.000	PK	58.26	43.01	16.23	66.05	-9.54	41.91	-53.31	-27.0	26.3	138	292	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

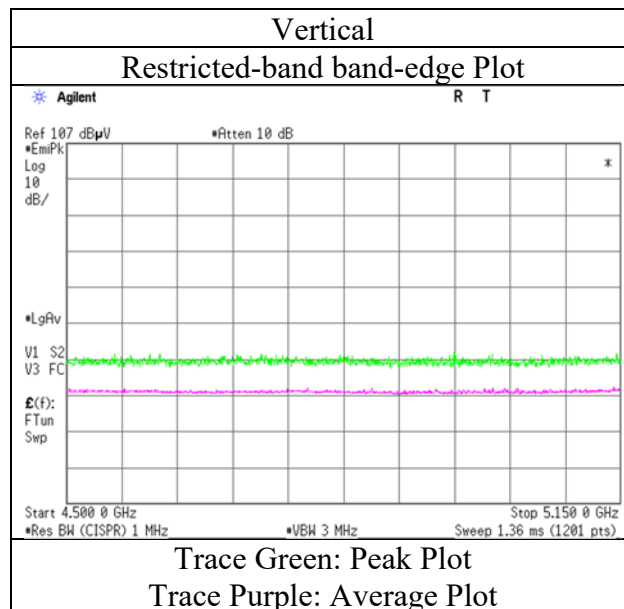
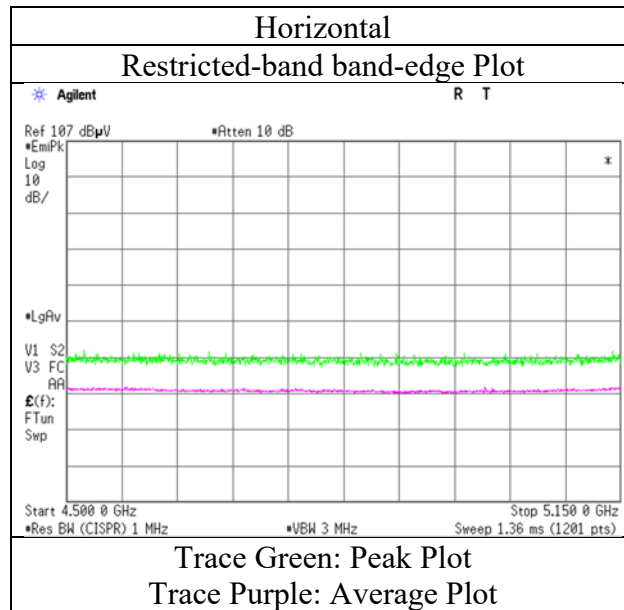
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor : 1 GHz - 13 GHz : $20\log(3.99\text{ m} / 3.0\text{ m}) = 2.48\text{ dB}$

13 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.54\text{ dB}$

Radiated Spurious Emission

Report No. 12699044S-AM-R1
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.3
Date June 7, 2019
Temperature / Humidity 23 deg. C / 56 % RH
Engineer Toshinori Yamada
(1 GHz – 6.4 GHz)
Mode Tx 11n-20 MIMO 5180 MHz



* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.
Final result of restricted band edge was shown in tabular data.

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Radiated Spurious Emission

Report No.	12699044S-AM-R1				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber	No.3	No.1	No.1	No.2	No.2
Date	June 7, 2019	March 11, 2019	June 10, 2019	February 14, 2019	February 13, 2019
Temperature /	23 deg. C / 56 %	22 deg. C /	22 deg. C /	23 deg. C /	21 deg. C /
Humidity	RH	43 % RH	60 % RH	30 % RH	31 % RH
Engineer	Toshinori Yamada	Kazuya Noda	Kazuya Noda	Yasumasa Owaki	Yosuke Ishikawa
	(1 GHz - 6.4 GHz)	(6.4 GHz - 13 GHz)	(13 GHz - 18 GHz)	(18 GHz - 26 GHz)	(26 GHz - 40 GHz)
Mode	Tx 11n-20 MIMO 5240 MHz				

(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]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	15720.000	PK	56.28	38.36	12.74	40.60	-9.54	57.24	73.9	16.6	142	353	
Hori.	20960.000	PK	48.81	39.86	12.87	45.93	-9.54	46.07	73.9	27.8	143	6	
Hori.	31440.000	PK	55.50	43.08	16.39	64.40	-9.54	41.03	73.9	32.8	142	45	
Hori.	15720.000	AV	47.05	38.36	12.74	40.60	-9.54	48.01	53.9	5.8	142	353	VBW:3.3 kHz
Hori.	20960.000	AV	41.14	39.86	12.87	45.93	-9.54	38.40	53.9	15.5	143	6	VBW:3.3 kHz
Hori.	31440.000	AV	46.24	43.08	16.39	64.40	-9.54	31.77	53.9	22.1	142	45	VBW:3.3 kHz
Vert.	15720.000	PK	56.78	38.36	12.74	40.60	-9.54	57.74	73.9	16.1	138	351	
Vert.	20960.000	PK	45.44	39.86	12.87	45.93	-9.54	42.70	73.9	31.2	126	89	
Vert.	31440.000	PK	56.58	43.08	16.39	64.40	-9.54	42.11	73.9	31.7	141	313	
Vert.	15720.000	AV	46.99	38.36	12.74	40.60	-9.54	47.95	53.9	5.9	138	351	VBW:3.3 kHz
Vert.	20960.000	AV	38.48	39.86	12.87	45.93	-9.54	35.74	53.9	18.1	126	89	VBW:3.3 kHz
Vert.	31440.000	AV	48.84	43.08	16.39	64.40	-9.54	34.37	53.9	19.5	141	313	VBW:3.3 kHz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

Distance factor : 1 GHz - 13 GHz : 20log (3.99 m / 3.0 m) = 2.48 dB

13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

(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]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	10480.000	PK	46.98	39.63	8.98	39.75	2.48	58.32	-36.90	-27.0	9.9	308	37	
Vert.	10480.000	PK	47.67	39.63	8.98	39.75	2.48	59.01	-36.21	-27.0	9.2	115	27	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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).

Distance factor : 1 GHz - 13 GHz : 20log (3.99 m / 3.0 m) = 2.48 dB

13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

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Radiated Spurious Emission

Report No.	12699044S-AM-R1				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber	No.3	No.1	No.1	No.2	No.2
Date	June 7, 2019	March 11, 2019	June 10, 2019	February 14, 2019	February 13, 2019
Temperature /	23 deg. C /	22 deg. C /	22 deg. C /	23 deg. C /	21 deg. C /
Humidity	56 % RH	43 % RH	60 % RH	30 % RH	31 % RH
Engineer	Toshinori Yamada	Kazuya Noda	Kazuya Noda	Yasumasa Owaki	Yosuke Ishikawa
	(1 GHz - 6.4 GHz)	(6.4 GHz - 13 GHz)	(13 GHz - 18 GHz)	(18 GHz - 26 GHz)	(26 GHz - 40 GHz)
Mode	Tx 11n-20 MIMO 5320 MHz				

(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]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5350.000	PK	52.97	31.73	16.40	43.21	2.48	60.37	73.9	13.5	152	124	
Hori.	10640.000	PK	47.71	39.56	9.00	39.69	2.48	59.06	73.9	14.8	106	31	
Hori.	15960.000	PK	57.32	37.85	12.84	40.34	-9.54	58.13	73.9	15.7	143	352	
Hori.	21280.000	PK	48.46	39.97	12.96	46.24	-9.54	45.61	73.9	28.2	143	5	
Hori.	5350.000	AV	39.54	31.73	16.40	43.21	2.48	46.94	53.9	6.9	152	124	VBW:3.3 kHz
Hori.	10640.000	AV	37.51	39.56	9.00	39.69	2.48	48.86	53.9	5.0	106	31	VBW:3.3 kHz
Hori.	15960.000	AV	47.51	37.85	12.84	40.34	-9.54	48.32	53.9	5.5	143	352	VBW:3.3 kHz
Hori.	21280.000	AV	39.98	39.97	12.96	46.24	-9.54	37.13	53.9	16.7	143	5	VBW:3.3 kHz
Vert.	5350.000	PK	52.46	31.73	16.40	43.21	2.48	59.86	73.9	14.0	125	6	
Vert.	10640.000	PK	47.12	39.56	9.00	39.69	2.48	58.47	73.9	15.4	119	32	
Vert.	15960.000	PK	58.13	37.85	12.84	40.34	-9.54	58.94	73.9	14.9	136	353	
Vert.	21280.000	PK	44.56	39.97	12.96	46.24	-9.54	41.71	73.9	32.1	136	88	
Vert.	5350.000	AV	39.50	31.73	16.40	43.21	2.48	46.90	53.9	7.0	125	6	VBW:3.3 kHz
Vert.	10640.000	AV	36.80	39.56	9.00	39.69	2.48	48.15	53.9	5.7	119	32	VBW:3.3 kHz
Vert.	15960.000	AV	47.94	37.85	12.84	40.34	-9.54	48.75	53.9	5.1	136	353	VBW:3.3 kHz
Vert.	21280.000	AV	36.65	39.97	12.96	46.24	-9.54	33.80	53.9	20.1	136	88	VBW:3.3 kHz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.99\text{ m} / 3.0\text{ m}) = 2.48\text{ dB}$

13 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.54\text{ dB}$

(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]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	31920.000	PK	54.77	43.22	16.43	64.26	-9.54	40.62	-54.60	-27.0	27.6	140	50	
Vert.	31920.000	PK	55.10	43.22	16.43	64.26	-9.54	40.95	-54.27	-27.0	27.2	141	8	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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).

Distance factor : 1 GHz - 13 GHz : $20\log(3.99\text{ m} / 3.0\text{ m}) = 2.48\text{ dB}$

13 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.54\text{ dB}$

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Shonan EMC Lab.

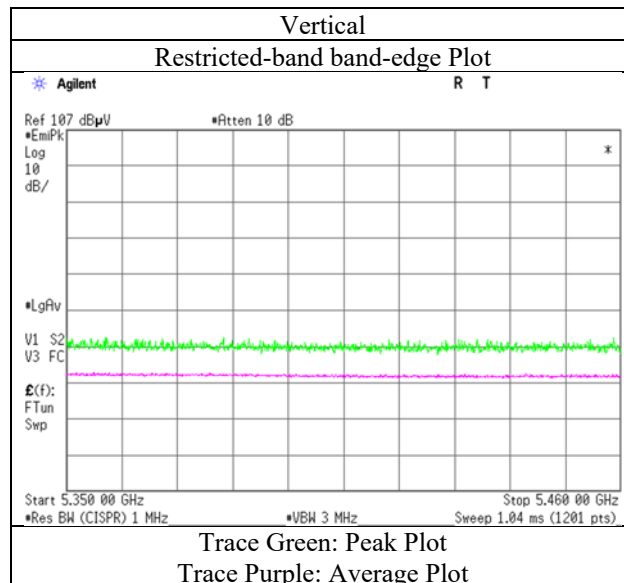
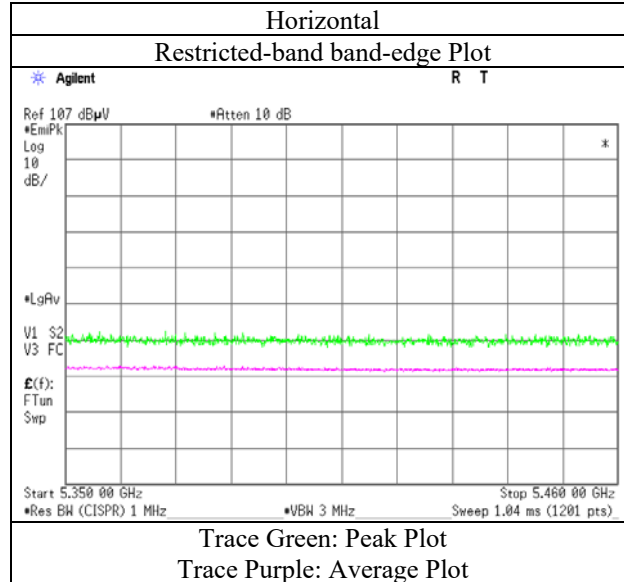
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

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Radiated Spurious Emission

Report No.	12699044S-AM-R1
Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	June 7, 2019
Temperature / Humidity	23 deg. C / 56 % RH
Engineer	Toshinori Yamada
Mode	Tx 11n-20 MIMO 5320 MHz



* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions. Final result of restricted band edge was shown in tabular data.

UL Japan, Inc.

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

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Radiated Spurious Emission

Report No.	12699044S-AM-R1				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber	No.3	No.1	No.1	No.2	No.2
Date	June 7, 2019	March 11, 2019	June 10, 2019	February 14, 2019	February 13, 2019
Temperature /	23 deg. C /	22 deg. C /	22 deg. C /	23 deg. C /	21 deg. C /
Humidity	56 % RH	43 % RH	60 % RH	30 % RH	31 % RH
Engineer	Toshinori Yamada	Kazuya Noda	Kazuya Noda	Yasumasa Owaki	Yosuke Ishikawa
	(1 GHz – 6.4 GHz)	(6.4 GHz - 13 GHz)	(13 GHz - 18 GHz)	(18 GHz - 26 GHz)	(26 GHz - 40 GHz)
Mode	Tx 11n-20 MIMO 5500 MHz				

(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]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5460.000	PK	51.68	32.08	16.47	43.30	2.48	59.41	73.9	14.4	149	105	
Hori.	11000.000	PK	46.24	40.11	9.05	39.49	2.48	58.39	73.9	15.5	112	31	
Hori.	5460.000	AV	38.83	32.08	16.47	43.30	2.48	46.56	53.9	7.3	149	105	VBW:3.3 kHz
Hori.	11000.000	AV	36.11	40.11	9.05	39.49	2.48	48.26	53.9	5.6	112	31	VBW:3.3 kHz
Vert.	5460.000	PK	51.34	32.08	16.47	43.30	2.48	59.07	73.9	14.8	338	27	
Vert.	11000.000	PK	46.19	40.11	9.05	39.49	2.48	58.34	73.9	15.5	128	24	
Vert.	5460.000	AV	38.88	32.08	16.47	43.30	2.48	46.61	53.9	7.2	338	27	VBW:3.3 kHz
Vert.	11000.000	AV	35.83	40.11	9.05	39.49	2.48	47.98	53.9	5.9	128	24	VBW:3.3 kHz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

Distance factor : 1 GHz - 13 GHz : 20log (3.99 m / 3.0 m) = 2.48 dB

13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

(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]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5470.000	PK	53.75	32.06	16.46	43.31	2.48	61.44	-33.78	-27.0	6.7	149	105	
Hori.	16500.000	PK	54.04	38.62	13.46	40.44	-9.54	56.14	-39.08	-27.0	12.0	143	353	
Hori.	22000.000	PK	48.88	40.20	13.24	46.97	-9.54	45.81	-49.41	-27.0	22.4	139	52	
Hori.	33000.000	PK	54.50	43.36	16.74	65.22	-9.54	39.84	-55.38	-27.0	28.3	146	315	
Vert.	5470.000	PK	53.31	32.06	16.46	43.31	2.48	61.00	-34.22	-27.0	7.2	338	27	
Vert.	16500.000	PK	53.83	38.62	13.46	40.44	-9.54	55.93	-39.29	-27.0	12.2	137	354	
Vert.	22000.000	PK	46.66	40.20	13.24	46.97	-9.54	43.59	-51.63	-27.0	24.6	134	56	
Vert.	33000.000	PK	56.48	43.36	16.74	65.22	-9.54	41.82	-53.40	-27.0	26.4	139	314	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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).

Distance factor : 1 GHz - 13 GHz : 20log (3.99 m / 3.0 m) = 2.48 dB

13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

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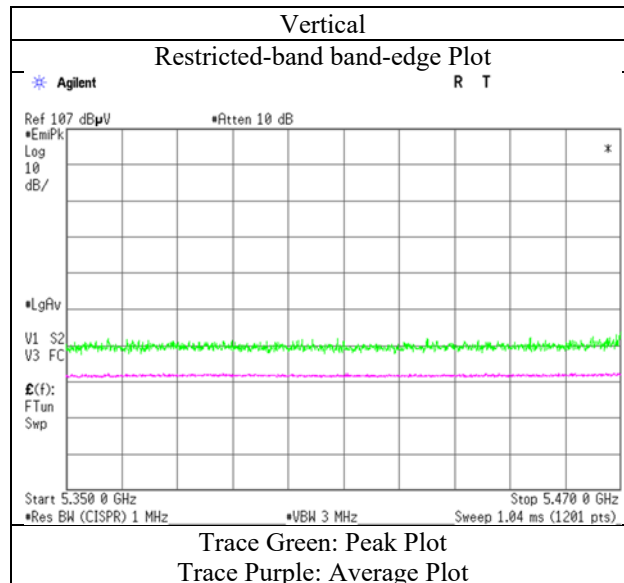
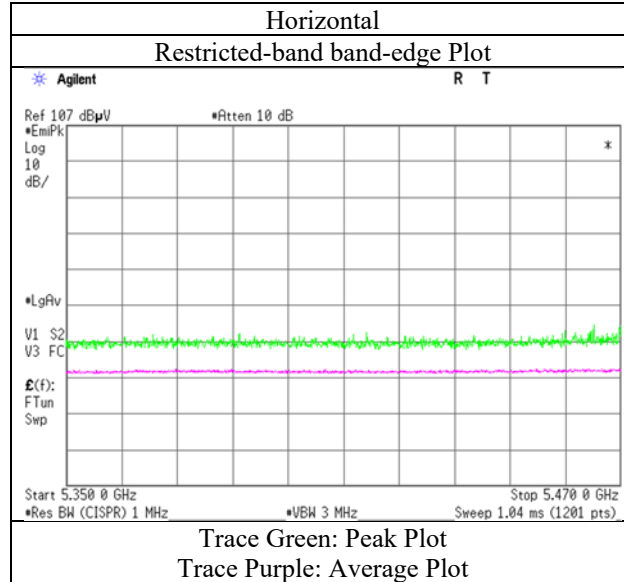
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Radiated Spurious Emission

Report No.	12699044S-AM-R1
Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	June 7, 2019
Temperature / Humidity	23 deg. C / 56 % RH
Engineer	Toshinori Yamada
Mode	Tx 11n-20 MIMO 5500 MHz



* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions. Final result of restricted band edge was shown in tabular data.

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Radiated Spurious Emission

Report No.	12699044S-AM-R1				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber	No.3	No.1	No.1	No.2	No.2
Date	June 7, 2019	March 11, 2019	June 10, 2019	February 14, 2019	February 13, 2019
Temperature /	23 deg. C /	22 deg. C /	22 deg. C /	23 deg. C /	21 deg. C /
Humidity	56 % RH	43 % RH	60 % RH	30 % RH	31 % RH
Engineer	Toshinori Yamada	Kazuya Noda	Kazuya Noda	Yasumasa Owaki	Yosuke Ishikawa
	(1 GHz – 6.4 GHz)	(6.4 GHz - 13 GHz)	(13 GHz - 18 GHz)	(18 GHz - 26 GHz)	(26 GHz - 40 GHz)
Mode	Tx 11n-20 MIMO 5580 MHz				

(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]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	11160.000	PK	46.16	39.83	9.24	39.42	2.48	58.29	73.9	15.6	113	38	
Hori.	22320.000	PK	48.11	40.18	13.45	47.44	-9.54	44.76	73.9	29.1	144	5	
Hori.	11160.000	AV	36.45	39.83	9.24	39.42	2.48	48.58	53.9	5.3	113	38	VBW:3.3 kHz
Hori.	22320.000	AV	41.22	40.18	13.45	47.44	-9.54	37.87	53.9	16.0	144	5	VBW:3.3 kHz
Vert.	11160.000	PK	46.14	39.83	9.24	39.42	2.48	58.27	73.9	15.6	124	26	
Vert.	22320.000	PK	46.86	40.18	13.45	47.44	-9.54	43.51	73.9	30.3	133	57	
Vert.	11160.000	AV	36.26	39.83	9.24	39.42	2.48	48.39	53.9	5.5	124	26	VBW:3.3 kHz
Vert.	22320.000	AV	38.57	40.18	13.45	47.44	-9.54	35.22	53.9	18.6	133	57	VBW:3.3 kHz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

Distance factor : 1 GHz - 13 GHz : 20log (3.99 m / 3.0 m) = 2.48 dB

13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

(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]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	16740.000	PK	53.99	39.52	13.41	40.40	-9.54	56.98	-38.24	-27.0	11.2	142	353	
Hori.	33480.000	PK	56.82	43.25	16.84	68.16	-9.54	39.21	-56.01	-27.0	29.0	144	313	
Vert.	16740.000	PK	53.82	39.52	13.41	40.40	-9.54	56.81	-38.41	-27.0	11.4	140	352	
Vert.	33480.000	PK	56.26	43.25	16.84	68.16	-9.54	38.65	-56.57	-27.0	29.5	135	310	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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).

Distance factor : 1 GHz - 13 GHz : 20log (3.99 m / 3.0 m) = 2.48 dB

13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

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Radiated Spurious Emission

Report No.	12699044S-AM-R1				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber	No.3	No.1	No.1	No.2	No.2
Date	June 7, 2019	March 11, 2019	June 10, 2019	February 14, 2019	February 13, 2019
Temperature /	23 deg. C /	22 deg. C /	22 deg. C /	23 deg. C /	21 deg. C /
Humidity	56 % RH	43 % RH	60 % RH	30 % RH	31 % RH
Engineer	Toshinori Yamada	Kazuya Noda	Kazuya Noda	Yasumasa Owaki	Yosuke Ishikawa
	(1 GHz – 6.4 GHz)	(6.4 GHz - 13 GHz)	(13 GHz - 18 GHz)	(18 GHz - 26 GHz)	(26 GHz - 40 GHz)
Mode	Tx 11n-20 MIMO 5700 MHz				

(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]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	11400.000	PK	45.55	39.93	9.53	39.31	2.48	58.18	73.9	15.7	115	31	
Hori.	22800.000	PK	47.62	39.93	13.67	47.94	-9.54	43.74	73.9	30.1	132	55	
Hori.	11400.000	AV	35.51	39.93	9.53	39.31	2.48	48.14	53.9	5.7	115	31	VBW:3.3 kHz
Hori.	22800.000	AV	40.81	39.93	13.67	47.94	-9.54	36.93	53.9	16.9	132	55	VBW:3.3 kHz
Vert.	11400.000	PK	45.78	39.93	9.53	39.31	2.48	58.41	73.9	15.4	128	23	
Vert.	22800.000	PK	44.77	39.93	13.67	47.94	-9.54	40.89	73.9	33.0	130	53	
Vert.	11400.000	AV	35.81	39.93	9.53	39.31	2.48	48.44	53.9	5.4	128	23	VBW:3.3 kHz
Vert.	22800.000	AV	36.54	39.93	13.67	47.94	-9.54	32.66	53.9	21.2	130	53	VBW:3.3 kHz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

Distance factor : 1 GHz - 13 GHz : 20log (3.99 m / 3.0 m) = 2.48 dB

13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

(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]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5725.000	PK	51.25	32.35	16.59	43.33	2.48	59.34	-35.88	-27.0	8.8	168	104	
Hori.	17100.000	PK	52.66	40.10	13.35	40.32	-9.54	56.25	-38.97	-27.0	11.9	141	353	
Hori.	34200.000	PK	55.64	43.02	17.10	68.54	-9.54	37.68	-57.54	-27.0	30.5	140	58	
Vert.	5725.000	PK	50.98	32.35	16.59	43.33	2.48	59.07	-36.15	-27.0	9.1	141	30	
Vert.	17100.000	PK	53.82	40.10	13.35	40.32	-9.54	57.41	-37.81	-27.0	10.8	138	352	
Vert.	34200.000	PK	58.22	43.02	17.10	68.54	-9.54	40.26	-54.96	-27.0	27.9	144	5	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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).

Distance factor : 1 GHz - 13 GHz : 20log (3.99 m / 3.0 m) = 2.48 dB

13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

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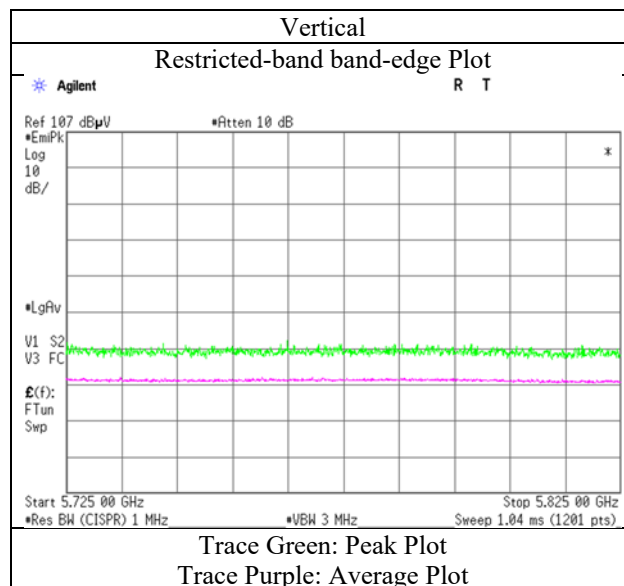
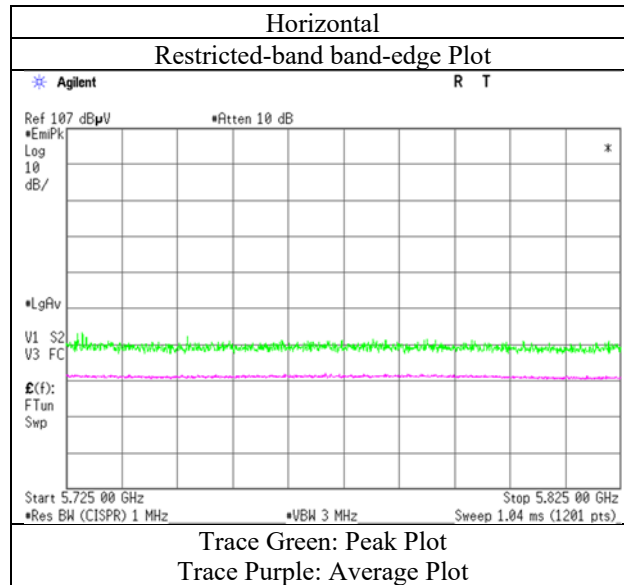
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

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Radiated Spurious Emission

Report No.	12699044S-AM-R1
Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	June 7, 2019
Temperature / Humidity	23 deg. C / 56 % RH
Engineer	Toshinori Yamada
Mode	Tx 11n-20 MIMO 5700 MHz



* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions. Final result of restricted band edge was shown in tabular data.

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Radiated Spurious Emission

Report No. 12699044S-AM-R1
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.3 No.3 No.1 No.1 No.2 No.2
Date March 13, 2019 June 7, 2019 March 11, 2019 June 10, 2019 February 14, 2019 February 13, 2019
Temperature / 23 deg. C / 23 deg. C / 22 deg. C / 22 deg. C / 23 deg. C / 21 deg. C /
Humidity 39 % RH 56 % RH 43 % RH 60 % RH 30 % RH 31 % RH
Engineer Takahiro Suzuki Toshinori Yamada Kazuya Noda Kazuya Noda Yasumasa Owaki Yosuke Ishikawa
(30 MHz - 1 GHz) (1 GHz - 6.4 GHz) (6.4 GHz - 13 GHz) (13 GHz - 18 GHz) (18 GHz - 26 GHz) (26 GHz - 40 GHz)
Mode Tx 11n-20 MIMO 5745 MHz

(below 1GHz and 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]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	245.275	QP	37.83	11.72	8.35	32.02	0.00	25.88	46.0	20.1	100	79	
Hori.	745.000	QP	28.64	20.24	10.56	31.81	0.00	27.63	46.0	18.3	100	137	
Hori.	875.000	QP	27.96	22.15	11.02	31.24	0.00	29.89	46.0	16.1	174	172	
Hori.	960.009	QP	29.89	22.22	11.28	30.57	0.00	32.82	53.9	21.0	154	155	
Hori.	11490.000	PK	45.02	40.01	9.64	39.27	2.48	57.88	73.9	16.0	123	15	
Hori.	22980.000	PK	47.10	39.87	13.72	48.07	-9.54	43.08	73.9	30.8	136	56	
Hori.	11490.000	AV	34.71	40.01	9.64	39.27	2.48	47.57	53.9	6.3	123	15	VBW:3.3 kHz
Hori.	22980.000	AV	39.40	39.87	13.72	48.07	-9.54	35.38	53.9	18.5	136	56	VBW:3.3 kHz
Vert.	32.190	QP	37.86	17.84	6.50	32.20	0.00	30.00	40.0	10.0	100	197	
Vert.	33.104	QP	39.35	17.46	6.51	32.20	0.00	31.12	40.0	8.8	100	146	
Vert.	34.028	QP	38.79	17.14	6.53	32.20	0.00	30.26	40.0	9.7	100	190	
Vert.	34.571	QP	40.32	16.93	6.54	32.20	0.00	31.59	40.0	8.4	100	182	
Vert.	56.161	QP	42.87	9.22	6.69	32.19	0.00	26.59	40.0	13.4	100	132	
Vert.	84.480	QP	39.36	7.13	7.59	32.17	0.00	21.91	40.0	18.0	100	175	
Vert.	11490.000	PK	44.85	40.01	9.64	39.27	2.48	57.71	73.9	16.1	119	25	
Vert.	22980.000	PK	44.47	39.87	13.72	48.07	-9.54	40.45	73.9	33.4	128	70	
Vert.	11490.000	AV	34.98	40.01	9.64	39.27	2.48	47.84	53.9	6.0	119	25	VBW:3.3 kHz
Vert.	22980.000	AV	35.69	39.87	13.72	48.07	-9.54	31.67	53.9	22.2	128	70	VBW:3.3 kHz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

Distance factor : 1 GHz - 13 GHz : 20log (3.99 m / 3.0 m) = 2.48 dB

13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

(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]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5650.000	PK	48.67	32.18	16.56	43.33	2.48	56.56	-38.66	-27.0	11.6	201	113	
Hori.	5700.000	PK	49.06	32.23	16.58	43.33	2.48	57.02	-38.20	10.0	48.2	201	113	
Hori.	5720.000	PK	50.27	32.33	16.58	43.33	2.48	58.33	-36.89	15.6	52.4	201	113	
Hori.	5725.000	PK	53.70	32.35	16.59	43.33	2.48	61.79	-33.43	27.0	60.4	201	113	
Hori.	17235.000	PK	51.84	40.25	13.33	40.29	-9.54	55.59	-39.63	-27.0	12.6	141	351	
Hori.	34470.000	PK	56.93	42.92	17.16	69.36	-9.54	38.11	-57.11	-27.0	30.1	140	58	
Vert.	5650.000	PK	49.19	32.18	16.56	43.33	2.48	57.08	-38.14	-27.0	11.1	132	39	
Vert.	5700.000	PK	50.11	32.23	16.58	43.33	2.48	58.07	-37.15	10.0	47.1	132	39	
Vert.	5720.000	PK	52.18	32.33	16.58	43.33	2.48	60.24	-34.98	15.6	50.5	132	39	
Vert.	5725.000	PK	54.78	32.35	16.59	43.33	2.48	62.87	-32.35	27.0	59.3	132	39	
Vert.	17235.000	PK	52.38	40.25	13.33	40.29	-9.54	56.13	-39.09	-27.0	12.0	139	353	
Vert.	34470.000	PK	58.01	42.92	17.16	69.36	-9.54	39.19	-56.03	-27.0	29.0	144	5	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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).

Distance factor : 1 GHz - 13 GHz : 20log (3.99 m / 3.0 m) = 2.48 dB

13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

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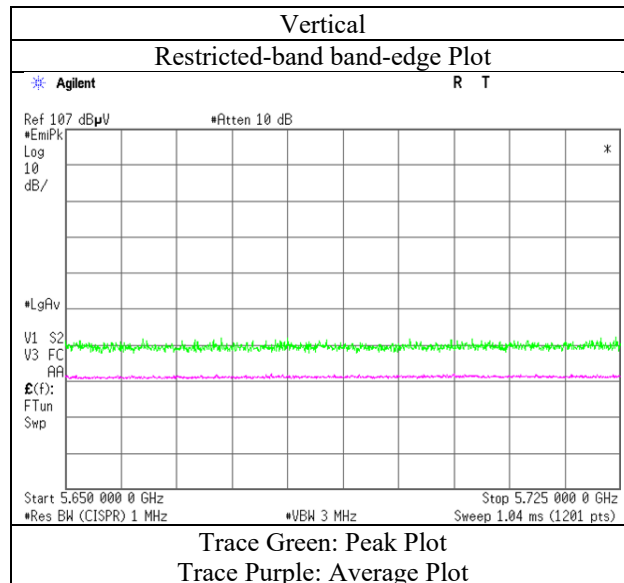
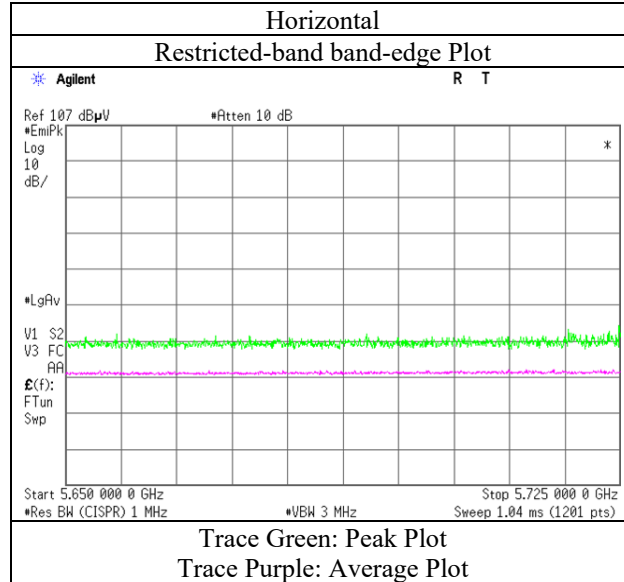
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

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Radiated Spurious Emission

Report No.	12699044S-AM-R1
Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	June 7, 2019
Temperature / Humidity	23 deg. C / 56 % RH
Engineer	Toshinori Yamada
Mode	Tx 11n-20 MIMO 5745 MHz



* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions. Final result of restricted band edge was shown in tabular data.

UL Japan, Inc.

Shonan EMC Lab.

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

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Radiated Spurious Emission

Report No.	12699044S-AM-R1				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber	No.3	No.1	No.1	No.2	No.2
Date	June 7, 2019	March 11, 2019	June 10, 2019	February 14, 2019	February 13, 2019
Temperature /	23 deg. C /	22 deg. C /	22 deg. C /	23 deg. C /	21 deg. C /
Humidity	56 % RH	43 % RH	60 % RH	30 % RH	31 % RH
Engineer	Toshinori Yamada	Kazuya Noda	Kazuya Noda	Yasumasa Owaki	Yosuke Ishikawa
	(1 GHz – 6.4 GHz)	(6.4 GHz - 13 GHz)	(13 GHz - 18 GHz)	(18 GHz - 26 GHz)	(26 GHz - 40 GHz)
Mode	Tx 11n-20 MIMO 5785 MHz				

(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]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	11570.000	PK	44.77	39.98	9.67	39.21	2.48	57.69	73.9	16.2	117	27	
Hori.	11570.000	AV	34.78	39.98	9.67	39.21	2.48	47.70	53.9	6.2	117	27	VBW:3.3 kHz
Vert.	11570.000	PK	44.59	39.98	9.67	39.21	2.48	57.51	73.9	16.3	115	30	
Vert.	11570.000	AV	34.84	39.98	9.67	39.21	2.48	47.76	53.9	6.1	115	30	VBW:3.3 kHz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.99\text{ m} / 3.0\text{ m}) = 2.48\text{ dB}$

13 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.54\text{ dB}$

(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]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	17355.000	PK	50.69	41.01	13.32	40.26	-9.54	55.22	-40.00	-27.0	13.0	139	13	
Hori.	23140.000	PK	46.48	39.84	13.73	48.18	-9.54	42.33	-52.89	-27.0	25.8	145	5	
Hori.	34710.000	PK	57.49	42.75	17.24	69.82	-9.54	38.12	-57.10	-27.0	30.1	141	53	
Vert.	17355.000	PK	49.17	41.01	13.32	40.26	-9.54	53.70	-41.52	-27.0	14.5	138	351	
Vert.	23140.000	PK	46.10	39.84	13.73	48.18	-9.54	41.95	-53.27	-27.0	26.2	133	72	
Vert.	34710.000	PK	58.06	42.75	17.24	69.82	-9.54	38.69	-56.53	-27.0	29.5	148	50	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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).

Distance factor : 1 GHz - 13 GHz : $20\log(3.99\text{ m} / 3.0\text{ m}) = 2.48\text{ dB}$

13 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.54\text{ dB}$

UL Japan, Inc.

Shonan EMC Lab.

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Radiated Spurious Emission

Report No.	12699044S-AM-R1				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber	No.3	No.1	No.1	No.2	No.2
Date	June 7, 2019	March 11, 2019	June 10, 2019	February 14, 2019	February 13, 2019
Temperature /	23 deg. C /	22 deg. C /	22 deg. C /	23 deg. C /	21 deg. C /
Humidity	56 % RH	43 % RH	60 % RH	30 % RH	31 % RH
Engineer	Toshinori Yamada	Kazuya Noda	Kazuya Noda	Yasumasa Owaki	Yosuke Ishikawa
	(1 GHz – 6.4 GHz)	(6.4 GHz - 13 GHz)	(13 GHz - 18 GHz)	(18 GHz - 26 GHz)	(26 GHz - 40 GHz)
Mode	Tx 11n-20 MIMO 5825 MHz				

(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]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	11650.000	PK	44.19	39.69	9.67	39.14	2.48	56.89	73.9	17.0	123	22	
Hori.	11650.000	AV	34.24	39.69	9.67	39.14	2.48	46.94	53.9	6.9	123	22	VBW:3.3 kHz
Vert.	11650.000	PK	44.10	39.69	9.67	39.14	2.48	56.80	73.9	17.1	131	28	
Vert.	11650.000	AV	33.91	39.69	9.67	39.14	2.48	46.61	53.9	7.2	131	28	VBW:3.3 kHz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.99\text{ m} / 3.0\text{ m}) = 2.48\text{ dB}$

13 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.54\text{ dB}$

(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]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5850.000	PK	50.84	32.65	16.66	43.34	2.48	59.29	-35.93	27.0	62.9	187	102	
Hori.	5855.000	PK	49.81	32.66	16.66	43.34	2.48	58.27	-36.95	15.6	52.5	187	102	
Hori.	5875.000	PK	49.33	32.72	16.67	43.34	2.48	57.86	-37.36	10.0	47.3	187	102	
Hori.	5925.000	PK	49.12	32.80	16.69	43.34	2.48	57.75	-37.47	-27.0	10.4	187	102	
Hori.	17475.000	PK	50.41	41.81	13.31	40.23	-9.54	55.76	-39.46	-27.0	12.4	136	11	
Hori.	23300.000	PK	46.04	39.85	13.73	48.29	-9.54	41.79	-53.43	-27.0	26.4	136	57	
Hori.	34950.000	PK	56.74	42.68	17.31	70.23	-9.54	36.96	-58.26	-27.0	31.2	140	57	
Vert.	5850.000	PK	51.20	32.65	16.66	43.34	2.48	59.65	-35.57	27.0	62.5	208	48	
Vert.	5855.000	PK	49.77	32.66	16.66	43.34	2.48	58.23	-36.99	15.6	52.5	208	48	
Vert.	5875.000	PK	49.34	32.72	16.67	43.34	2.48	57.87	-37.35	10.0	47.3	208	48	
Vert.	5925.000	PK	49.23	32.80	16.69	43.34	2.48	57.86	-37.36	-27.0	10.3	208	48	
Vert.	17475.000	PK	50.16	41.81	13.31	40.23	-9.54	55.51	-39.71	-27.0	12.7	139	352	
Vert.	23300.000	PK	44.85	39.85	13.73	48.29	-9.54	40.60	-54.62	-27.0	27.6	125	83	
Vert.	34950.000	PK	57.40	42.68	17.31	70.23	-9.54	37.62	-57.60	-27.0	30.6	138	291	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

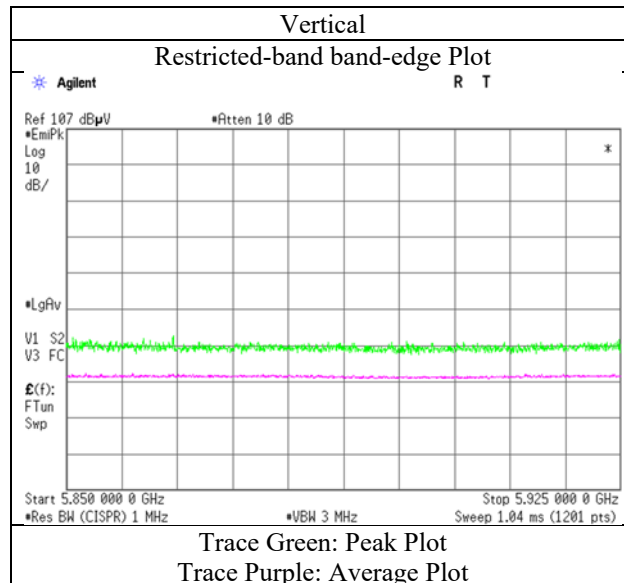
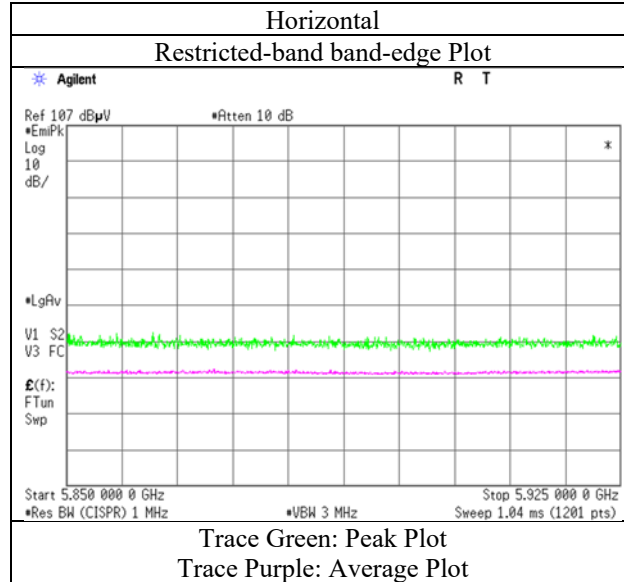
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor : 1 GHz - 13 GHz : $20\log(3.99\text{ m} / 3.0\text{ m}) = 2.48\text{ dB}$

13 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.54\text{ dB}$

Radiated Spurious Emission

Report No.	12699044S-AM-R1
Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	June 7, 2019
Temperature / Humidity	23 deg. C / 56 % RH
Engineer	Toshinori Yamada
Mode	Tx 11n-20 MIMO 5825 MHz



* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.
Final result of restricted band edge was shown in tabular data.

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Radiated Spurious Emission

Report No.	12699044S-AM-R1				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber	No.3	No.1	No.1	No.2	No.2
Date	June 7, 2019	March 12, 2019	June 10, 2019	February 14, 2019	February 13, 2019
Temperature /	23 deg. C /	21 deg. C /	22 deg. C /	23 deg. C /	21 deg. C /
Humidity	56 % RH	39 % RH	60 % RH	30 % RH	31 % RH
Engineer	Toshinori Yamada	Kazuya Noda	Kazuya Noda	Yasumasa Owaki	Yosuke Ishikawa
	(1 GHz - 6.4 GHz)	(6.4 GHz - 13 GHz)	(13 GHz - 18 GHz)	(18 GHz - 26 GHz)	(26 GHz - 40 GHz)
Mode	Tx 11ac-20 MIMO 5180 MHz				

(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]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5150.000	PK	51.76	32.18	16.32	43.04	2.48	59.70	73.9	14.2	198	129	
Hori.	15540.000	PK	57.53	38.74	12.67	40.79	-9.54	58.61	-27.0	9.6	144	353	
Hori.	20720.000	PK	49.73	39.81	12.76	45.94	-9.54	46.82	-27.0	21.4	143	4	
Hori.	5150.000	AV	39.15	32.18	16.32	43.04	2.48	47.09	53.9	6.8	198	129	VBW:3.6 kHz
Hori.	15540.000	AV	48.63	38.74	12.67	40.79	-9.54	49.71	53.9	4.1	144	353	VBW:3.6 kHz
Hori.	20720.000	AV	40.93	39.81	12.76	45.94	-9.54	38.02	53.9	15.8	143	4	VBW:3.6 kHz
Vert.	5150.000	PK	52.13	32.18	16.32	43.04	2.48	60.07	73.9	13.8	299	51	
Vert.	15540.000	PK	57.36	38.74	12.67	40.79	-9.54	58.44	-27.0	9.7	138	353	
Vert.	20720.000	PK	46.37	39.81	12.76	45.94	-9.54	43.46	-27.0	24.7	122	84	
Vert.	5150.000	AV	39.10	32.18	16.32	43.04	2.48	47.04	53.9	6.8	299	51	VBW:3.6 kHz
Vert.	15540.000	AV	48.49	38.74	12.67	40.79	-9.54	49.57	53.9	4.3	138	353	VBW:3.6 kHz
Vert.	20720.000	AV	39.32	39.81	12.76	45.94	-9.54	36.41	53.9	17.4	122	84	VBW:3.6 kHz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

Distance factor : 1 GHz - 13 GHz : 20log (3.99 m / 3.0 m) = 2.48 dB

13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

(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]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	10360.000	PK	47.52	39.34	8.92	39.62	2.48	58.64	-36.58	-27.0	9.5	345	42	
Vert.	10360.000	PK	47.22	39.34	8.92	39.62	2.48	58.34	-36.88	-27.0	9.8	103	313	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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).

Distance factor : 1 GHz - 13 GHz : 20log (3.99 m / 3.0 m) = 2.48 dB

13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

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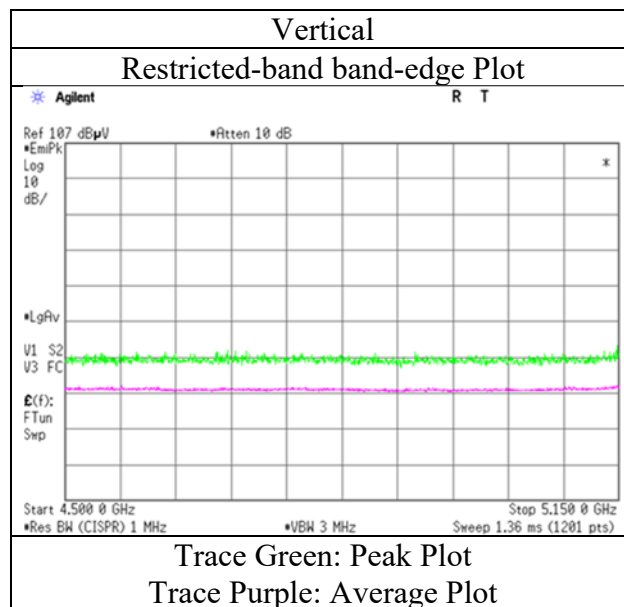
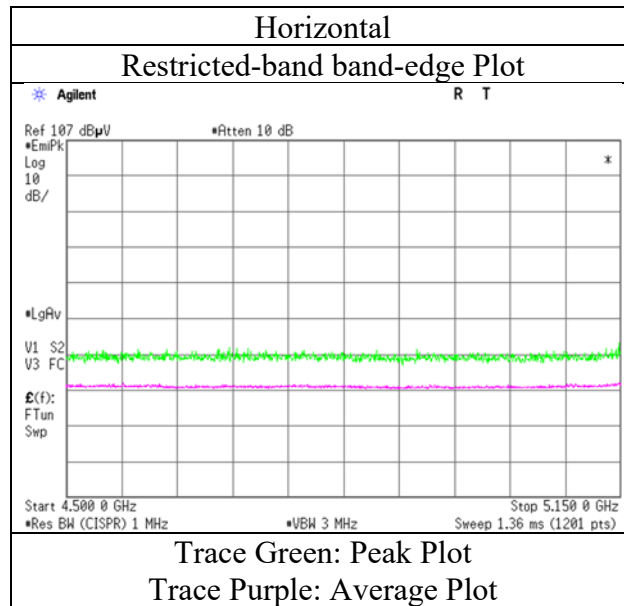
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Radiated Spurious Emission

Report No.	12699044S-AM-R1
Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	June 7, 2019
Temperature / Humidity	23 deg. C / 56 % RH
Engineer	Toshinori Yamada
	(1 GHz – 6.4 GHz)
Mode	Tx 11ac-20 MIMO 5180 MHz



* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions. Final result of restricted band edge was shown in tabular data.

Radiated Spurious Emission

Report No.	12699044S-AM-R1				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber	No.3	No.1	No.1	No.2	No.2
Date	June 7, 2019	March 12, 2019	June 10, 2019	February 14, 2019	February 13, 2019
Temperature /	23 deg. C /	21 deg. C /	22 deg. C /	23 deg. C /	21 deg. C /
Humidity	56 % RH	39 % RH	60 % RH	30 % RH	31 % RH
Engineer	Toshinori Yamada	Kazuya Noda	Kazuya Noda	Yasumasa Owaki	Yosuke Ishikawa
	(1 GHz – 6.4 GHz)	(6.4 GHz - 13 GHz)	(13 GHz - 18 GHz)	(18 GHz - 26 GHz)	(26 GHz - 40 GHz)
Mode	Tx 11ac-20 MIMO 5240 MHz				

(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]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	15720.000	PK	57.32	38.36	12.74	40.60	-9.54	58.28	73.9	15.6	143	352	
Hori.	20960.000	PK	48.63	39.86	12.87	45.93	-9.54	45.89	73.9	28.0	143	5	
Hori.	15720.000	AV	49.12	38.36	12.74	40.60	-9.54	50.08	53.9	3.8	143	352	VBW:3.6 kHz
Hori.	20960.000	AV	39.40	39.86	12.87	45.93	-9.54	36.66	53.9	17.2	143	5	VBW:3.6 kHz
Vert.	15720.000	PK	56.22	38.36	12.74	40.60	-9.54	57.18	73.9	16.7	140	353	
Vert.	20960.000	PK	45.32	39.86	12.87	45.93	-9.54	42.58	73.9	31.3	125	86	
Vert.	15720.000	AV	47.67	38.36	12.74	40.60	-9.54	48.63	53.9	5.2	140	353	VBW:3.6 kHz
Vert.	20960.000	AV	37.36	39.86	12.87	45.93	-9.54	34.62	53.9	19.2	125	86	VBW:3.6 kHz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.99\text{ m} / 3.0\text{ m}) = 2.48\text{ dB}$

13 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.54\text{ dB}$

(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]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	10480.000	PK	46.98	39.63	8.98	39.75	2.48	58.32	-36.90	-27.0	9.9	333	29	
Vert.	10480.000	PK	46.86	39.63	8.98	39.75	2.48	58.20	-37.02	-27.0	10.0	113	309	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.99\text{ m} / 3.0\text{ m}) = 2.48\text{ dB}$

13 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.54\text{ dB}$

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Radiated Spurious Emission

Report No.	12699044S-AM-R1				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber	No.3	No.1	No.1	No.2	No.2
Date	June 7, 2019	March 12, 2019	June 10, 2019	February 14, 2019	February 13, 2019
Temperature /	23 deg. C /	21 deg. C /	22 deg. C /	23 deg. C /	21 deg. C /
Humidity	56 % RH	39 % RH	60 % RH	30 % RH	31 % RH
Engineer	Toshinori Yamada	Kazuya Noda	Kazuya Noda	Yasumasa Owaki	Yosuke Ishikawa
	(1 GHz – 6.4 GHz)	(6.4 GHz - 13 GHz)	(13 GHz - 18 GHz)	(18 GHz - 26 GHz)	(26 GHz - 40 GHz)
Mode	Tx 11ac-20 MIMO 5320 MHz				

(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]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5350.000	PK	50.74	31.73	16.40	43.21	2.48	58.14	73.9	15.7	100	84	
Hori.	10640.000	PK	46.93	39.56	9.00	39.69	2.48	58.28	73.9	15.6	112	26	
Hori.	15960.000	PK	56.45	37.85	12.84	40.34	-9.54	57.26	73.9	16.6	144	352	
Hori.	21280.000	PK	48.81	39.97	12.96	46.24	-9.54	45.96	73.9	27.9	144	5	
Hori.	5350.000	AV	39.32	31.73	16.40	43.21	2.48	46.72	53.9	7.1	100	84	VBW:3.6 kHz
Hori.	10640.000	AV	35.62	39.56	9.00	39.69	2.48	46.97	53.9	6.9	112	26	VBW:3.6 kHz
Hori.	15960.000	AV	47.25	37.85	12.84	40.34	-9.54	48.06	53.9	5.8	144	352	VBW:3.6 kHz
Hori.	21280.000	AV	39.61	39.97	12.96	46.24	-9.54	36.76	53.9	17.1	144	5	VBW:3.6 kHz
Vert.	5350.000	PK	51.13	31.73	16.40	43.21	2.48	58.53	73.9	15.3	100	27	
Vert.	10640.000	PK	46.80	39.56	9.00	39.69	2.48	58.15	73.9	15.7	129	38	
Vert.	15960.000	PK	57.47	37.85	12.84	40.34	-9.54	58.28	73.9	15.6	138	351	
Vert.	21280.000	PK	45.13	39.97	12.96	46.24	-9.54	42.28	73.9	31.6	133	88	
Vert.	5350.000	AV	39.54	31.73	16.40	43.21	2.48	46.94	53.9	6.9	100	27	VBW:3.6 kHz
Vert.	10640.000	AV	35.19	39.56	9.00	39.69	2.48	46.54	53.9	7.3	129	38	VBW:3.6 kHz
Vert.	15960.000	AV	48.17	37.85	12.84	40.34	-9.54	48.98	53.9	4.9	138	351	VBW:3.6 kHz
Vert.	21280.000	AV	36.30	39.97	12.96	46.24	-9.54	33.45	53.9	20.4	133	88	VBW:3.6 kHz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.99\text{ m} / 3.0\text{ m}) = 2.48\text{ dB}$

13 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.54\text{ dB}$

UL Japan, Inc.

Shonan EMC Lab.

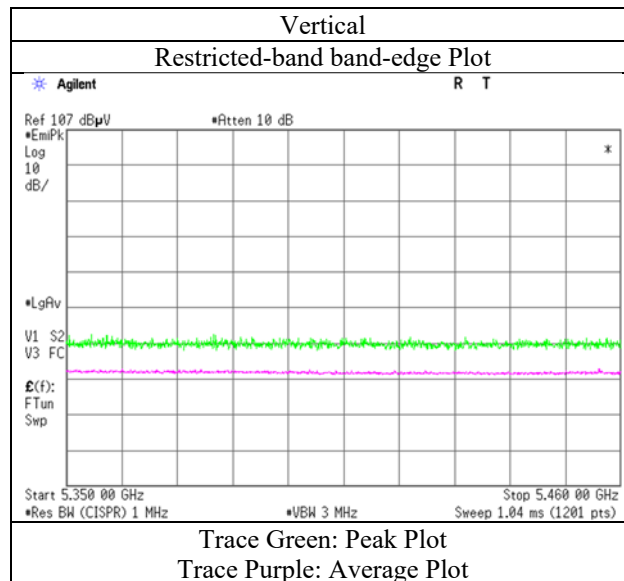
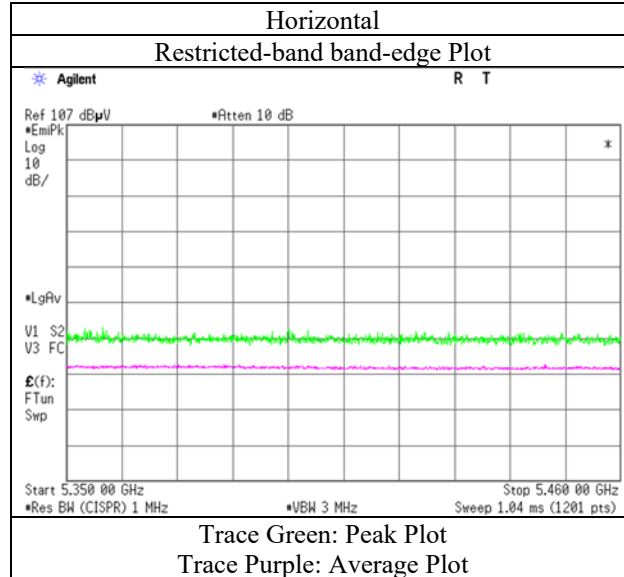
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

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Radiated Spurious Emission

Report No. 12699044S-AM-R1
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.3
Date June 7, 2019
Temperature / Humidity 23 deg. C / 56 % RH
Engineer Toshinori Yamada
Mode Tx 11ac-20 MIMO 5320 MHz



* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.
Final result of restricted band edge was shown in tabular data.

UL Japan, Inc.

Shonan EMC Lab.

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

Telephone : +81 463 50 6400

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Radiated Spurious Emission

Report No.	12699044S-AM-R1				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber	No.3	No.1	No.1	No.2	No.2
Date	June 7, 2019	March 12, 2019	June 10, 2019	February 14, 2019	February 13, 2019
Temperature /	23 deg. C /	21 deg. C /	22 deg. C /	23 deg. C /	21 deg. C /
Humidity	56 % RH	39 % RH	60 % RH	30 % RH	31 % RH
Engineer	Hiromasa Sato	Kazuya Noda	Kazuya Noda	Yasumasa Owaki	Yosuke Ishikawa
	(1 GHz – 6.4 GHz)	(6.4 GHz - 13 GHz)	(13 GHz - 18 GHz)	(18 GHz - 26 GHz)	(26 GHz - 40 GHz)
Mode	Tx 11ac-20 MIMO 5500 MHz				

(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]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5460.000	PK	49.16	32.08	16.47	43.30	2.48	56.89	73.9	17.0	103	91	
Hori.	11000.000	PK	45.67	40.11	9.05	39.49	2.48	57.82	73.9	16.0	118	44	
Hori.	5460.000	AV	39.04	32.08	16.47	43.30	2.48	46.77	53.9	7.1	103	91	VBW:3.6 kHz
Hori.	11000.000	AV	34.48	40.11	9.05	39.49	2.48	46.63	53.9	7.2	118	44	VBW:3.6 kHz
Vert.	5460.000	PK	49.46	32.08	16.47	43.30	2.48	57.19	73.9	16.7	344	13	
Vert.	11000.000	PK	45.75	40.11	9.05	39.49	2.48	57.90	73.9	16.0	126	35	
Vert.	5460.000	AV	39.14	32.08	16.47	43.30	2.48	46.87	53.9	7.0	344	13	VBW:3.6 kHz
Vert.	11000.000	AV	34.38	40.11	9.05	39.49	2.48	46.53	53.9	7.3	126	35	VBW:3.6 kHz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

Distance factor : 1 GHz - 13 GHz : 20log (3.99 m / 3.0 m) = 2.48 dB

13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

(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]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5470.000	PK	49.47	32.06	16.46	43.31	2.48	57.16	-38.06	-27.0	11.0	103	91	
Hori.	16500.000	PK	53.26	38.62	13.46	40.44	-9.54	55.36	-39.86	-27.0	12.8	142	353	
Hori.	22000.000	PK	48.44	40.20	13.24	46.97	-9.54	45.37	-49.85	-27.0	22.8	135	53	
Vert.	5470.000	PK	50.69	32.06	16.46	43.31	2.48	58.38	-36.84	-27.0	9.8	344	13	
Vert.	16500.000	PK	54.02	38.62	13.46	40.44	-9.54	56.12	-39.10	-27.0	12.1	139	353	
Vert.	22000.000	PK	45.98	40.20	13.24	46.97	-9.54	42.91	-52.31	-27.0	25.3	132	54	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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).

Distance factor : 1 GHz - 13 GHz : 20log (3.99 m / 3.0 m) = 2.48 dB

13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

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Shonan EMC Lab.

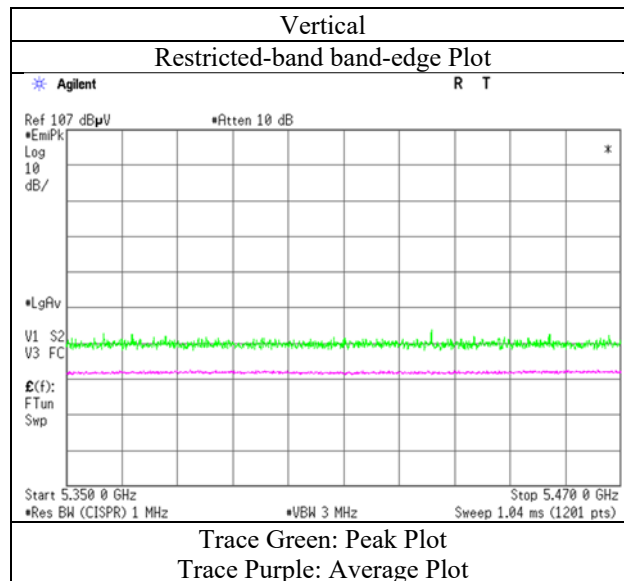
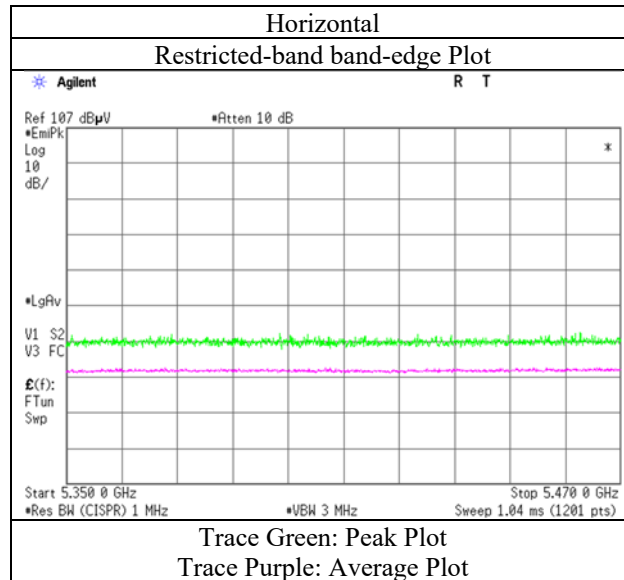
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Radiated Spurious Emission

Report No. 12699044S-AM-R1
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.3
Date June 7, 2019
Temperature / Humidity 23 deg. C / 56 % RH
Engineer Hiromasa Sato
Mode Tx 11ac-20 MIMO 5500 MHz



* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.
Final result of restricted band edge was shown in tabular data.

Radiated Spurious Emission

Report No.	12699044S-AM-R1				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber	No.3	No.1	No.1	No.2	No.2
Date	June 7, 2019	March 12, 2019	June 10, 2019	February 14, 2019	February 13, 2019
Temperature /	23 deg. C /	21 deg. C /	22 deg. C /	23 deg. C /	21 deg. C /
Humidity	56 % RH	39 % RH	60 % RH	30 % RH	31 % RH
Engineer	Hiromasa Sato	Kazuya Noda	Kazuya Noda	Yasumasa Owaki	Yosuke Ishikawa
	(1 GHz – 6.4 GHz)	(6.4 GHz - 13 GHz)	(13 GHz - 18 GHz)	(18 GHz - 26 GHz)	(26 GHz - 40 GHz)
Mode	Tx 11ac-20 MIMO 5580 MHz				

(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]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	11160.000	PK	46.01	39.83	9.24	39.42	2.48	58.14	73.9	15.7	127	26	
Hori.	22320.000	PK	47.48	40.18	13.45	47.44	-9.54	44.13	73.9	29.7	145	5	
Hori.	11160.000	AV	34.81	39.83	9.24	39.42	2.48	46.94	53.9	6.9	127	26	VBW:3.6 kHz
Hori.	22320.000	AV	39.69	40.18	13.45	47.44	-9.54	36.34	53.9	17.5	145	5	VBW:3.6 kHz
Vert.	11160.000	PK	45.72	39.83	9.24	39.42	2.48	57.85	73.9	16.0	104	22	
Vert.	22320.000	PK	45.34	40.18	13.45	47.44	-9.54	41.99	73.9	31.9	132	57	
Vert.	11160.000	AV	34.65	39.83	9.24	39.42	2.48	46.78	53.9	7.1	104	22	VBW:3.6 kHz
Vert.	22320.000	AV	36.93	40.18	13.45	47.44	-9.54	33.58	53.9	20.3	132	57	VBW:3.6 kHz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.99\text{ m} / 3.0\text{ m}) = 2.48\text{ dB}$

13 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.54\text{ dB}$

(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]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	16740.000	PK	53.10	39.52	13.41	40.40	-9.54	56.09	-39.13	-27.0	12.1	142	354	
Vert.	16740.000	PK	53.46	39.52	13.41	40.40	-9.54	56.45	-38.77	-27.0	11.7	137	353	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.99\text{ m} / 3.0\text{ m}) = 2.48\text{ dB}$

13 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.54\text{ dB}$

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Radiated Spurious Emission

Report No.	12699044S-AM-R1				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber	No.3	No.1	No.1	No.2	No.2
Date	June 7, 2019	March 12, 2019	June 10, 2019	February 14, 2019	February 13, 2019
Temperature /	23 deg. C /	21 deg. C /	22 deg. C /	23 deg. C /	21 deg. C /
Humidity	56 % RH	39 % RH	60 % RH	30 % RH	31 % RH
Engineer	Hiromasa Sato	Kazuya Noda	Kazuya Noda	Yasumasa Owaki	Yosuke Ishikawa
	(1 GHz – 6.4 GHz)	(6.4 GHz - 13 GHz)	(13 GHz - 18 GHz)	(18 GHz - 26 GHz)	(26 GHz - 40 GHz)
Mode	Tx 11ac-20 MIMO 5700 MHz				

(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]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	11400.000	PK	45.36	39.93	9.53	39.31	2.48	57.99	73.9	15.9	117	27	
Hori.	22800.000	PK	46.73	39.93	13.67	47.94	-9.54	42.85	73.9	31.0	133	55	
Hori.	11400.000	AV	33.97	39.93	9.53	39.31	2.48	46.60	53.9	7.3	117	27	VBW:3.6 kHz
Hori.	22800.000	AV	39.31	39.93	13.67	47.94	-9.54	35.43	53.9	18.4	133	55	VBW:3.6 kHz
Vert.	11400.000	PK	45.11	39.93	9.53	39.31	2.48	57.74	73.9	16.1	118	29	
Vert.	22800.000	PK	44.31	39.93	13.67	47.94	-9.54	40.43	73.9	33.4	130	53	
Vert.	11400.000	AV	33.91	39.93	9.53	39.31	2.48	46.54	53.9	7.3	118	29	VBW:3.6 kHz
Vert.	22800.000	AV	34.70	39.93	13.67	47.94	-9.54	30.82	53.9	23.0	130	53	VBW:3.6 kHz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

Distance factor : 1 GHz - 13 GHz : 20log (3.99 m / 3.0 m) = 2.48 dB

13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

(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]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5725.000	PK	49.86	32.35	16.59	43.33	2.48	57.95	-37.27	-27.0	10.2	137	97	
Hori.	17100.000	PK	53.77	40.10	13.35	40.32	-9.54	57.36	-37.86	-27.0	10.8	141	353	
Vert.	5725.000	PK	48.95	32.35	16.59	43.33	2.48	57.04	-38.18	-27.0	11.1	140	9	
Vert.	17100.000	PK	53.41	40.10	13.35	40.32	-9.54	57.00	-38.22	-27.0	11.2	138	351	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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).

Distance factor : 1 GHz - 13 GHz : 20log (3.99 m / 3.0 m) = 2.48 dB

13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

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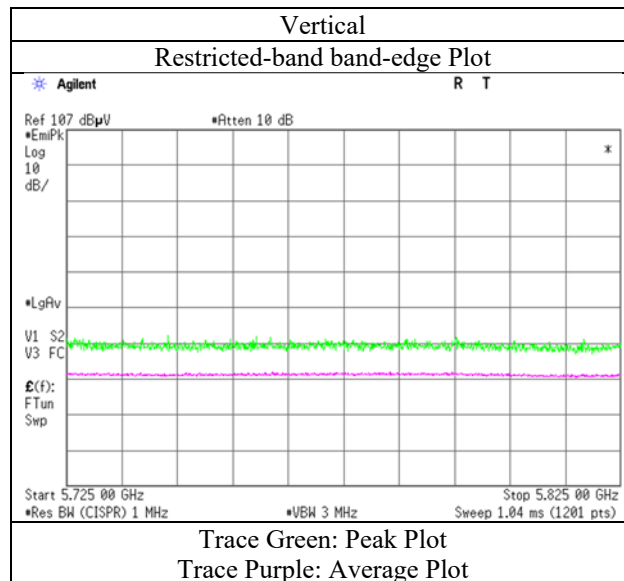
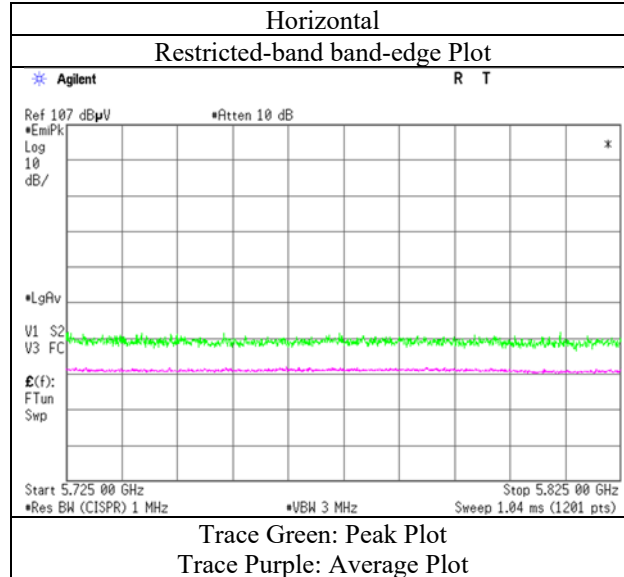
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Radiated Spurious Emission

Report No. 12699044S-AM-R1
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.3
Date June 7, 2019
Temperature / Humidity 23 deg. C / 56 % RH
Engineer Hiromasa Sato
Mode Tx 11ac-20 MIMO 5700 MHz



* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.
Final result of restricted band edge was shown in tabular data.

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Radiated Spurious Emission

Report No.	12699044S-AM-R1				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber	No.3	No.1	No.1	No.2	No.2
Date	June 7, 2019	March 12, 2019	June 10, 2019	February 14, 2019	February 13, 2019
Temperature /	23 deg. C /	21 deg. C /	22 deg. C /	23 deg. C /	21 deg. C /
Humidity	56 % RH	39 % RH	60 % RH	30 % RH	31 % RH
Engineer	Hiromasa Sato	Kazuya Noda	Kazuya Noda	Yasumasa Owaki	Yosuke Ishikawa
	(1 GHz – 6.4 GHz)	(6.4 GHz - 13 GHz)	(13 GHz - 18 GHz)	(18 GHz - 26 GHz)	(26 GHz - 40 GHz)
Mode	Tx 11ac-20 MIMO 5745 MHz				

(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]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	11490.000	PK	45.02	40.01	9.64	39.27	2.48	57.88	73.9	16.0	135	38	
Hori.	22980.000	PK	45.00	39.87	13.72	48.07	-9.54	40.98	73.9	32.9	144	6	
Hori.	11490.000	AV	33.25	40.01	9.64	39.27	2.48	46.11	53.9	7.7	135	38	VBW:3.6 kHz
Hori.	22980.000	AV	36.12	39.87	13.72	48.07	-9.54	32.10	53.9	21.8	144	6	VBW:3.6 kHz
Vert.	11490.000	PK	44.85	40.01	9.64	39.27	2.48	57.71	73.9	16.1	112	20	
Vert.	22980.000	PK	44.44	39.87	13.72	48.07	-9.54	40.42	73.9	33.4	130	70	
Vert.	11490.000	AV	33.29	40.01	9.64	39.27	2.48	46.15	53.9	7.7	112	20	VBW:3.6 kHz
Vert.	22980.000	AV	33.33	39.87	13.72	48.07	-9.54	29.31	53.9	24.5	130	70	VBW:3.6 kHz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

Distance factor : 1 GHz - 13 GHz : 20log (3.99 m / 3.0 m) = 2.48 dB

13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

(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]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5650.000	PK	48.27	32.18	16.56	43.33	2.48	56.16	-39.06	-27.0	12.0	151	87	
Hori.	5700.000	PK	49.24	32.23	16.58	43.33	2.48	57.20	-38.02	10.0	48.0	151	87	
Hori.	5720.000	PK	49.75	32.33	16.58	43.33	2.48	57.81	-37.41	15.6	53.0	151	87	
Hori.	5725.000	PK	51.83	32.35	16.59	43.33	2.48	59.92	-35.30	27.0	62.3	151	87	
Hori.	17235.000	PK	52.29	40.25	13.33	40.29	-9.54	56.04	-39.18	-27.0	12.1	141	351	
Vert.	5650.000	PK	48.97	32.18	16.56	43.33	2.48	56.86	-38.36	-27.0	11.3	148	75	
Vert.	5700.000	PK	48.33	32.23	16.58	43.33	2.48	56.29	-38.93	10.0	48.9	148	75	
Vert.	5720.000	PK	50.57	32.33	16.58	43.33	2.48	58.63	-36.59	15.6	52.1	148	75	
Vert.	5725.000	PK	50.36	32.35	16.59	43.33	2.48	58.45	-36.77	27.0	63.7	148	75	
Vert.	17235.000	PK	52.33	40.25	13.33	40.29	-9.54	56.08	-39.14	-27.0	12.1	139	352	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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).

Distance factor : 1 GHz - 13 GHz : 20log (3.99 m / 3.0 m) = 2.48 dB

13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

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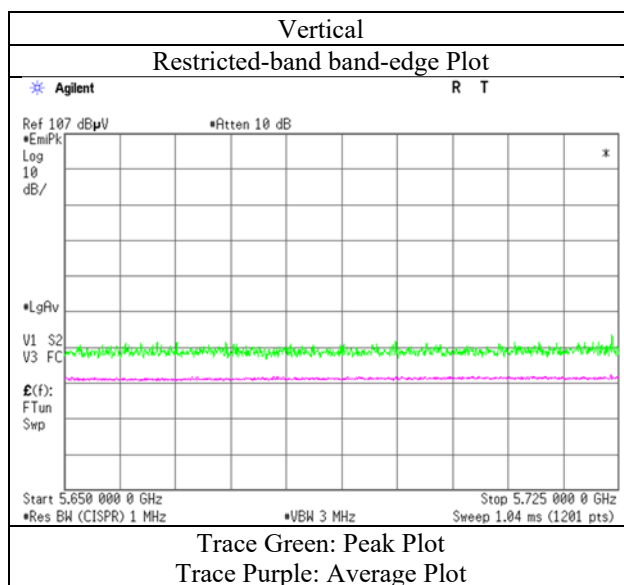
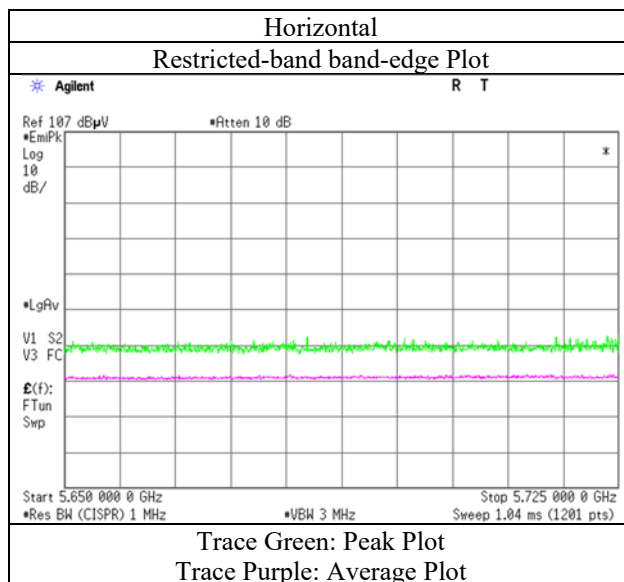
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Radiated Spurious Emission

Report No.	12699044S-AM-R1
Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	June 7, 2019
Temperature / Humidity	23 deg. C / 56 % RH
Engineer	Hiromasa Sato
Mode	Tx 11ac-20 MIMO 5745 MHz



* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.
Final result of restricted band edge was shown in tabular data.

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Radiated Spurious Emission

Report No.	12699044S-AM-R1				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber	No.3	No.1	No.1	No.2	No.2
Date	June 6, 2019	March 12, 2019	June 10, 2019	February 14, 2019	February 13, 2019
Temperature /	24 deg. C /	21 deg. C /	22 deg. C /	23 deg. C /	21 deg. C /
Humidity	53 % RH	39 % RH	60 % RH	30 % RH	31 % RH
Engineer	Hiromasa Sato	Kazuya Noda	Kazuya Noda	Yasumasa Owaki	Yosuke Ishikawa
	(1 GHz – 6.4 GHz)	(6.4 GHz - 13 GHz)	(13 GHz - 18 GHz)	(18 GHz - 26 GHz)	(26 GHz - 40 GHz)
Mode	Tx 11ac-20 MIMO 5785 MHz				

(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]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	11570.000	PK	44.27	39.98	9.67	39.21	2.48	57.19	73.9	16.7	122	22	
Hori.	11570.000	AV	33.04	39.98	9.67	39.21	2.48	45.96	53.9	7.9	122	22	VBW:3.6 kHz
Vert.	11570.000	PK	44.20	39.98	9.67	39.21	2.48	57.12	73.9	16.7	114	27	
Vert.	11570.000	AV	32.87	39.98	9.67	39.21	2.48	45.79	53.9	8.1	114	27	VBW:3.6 kHz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.99\text{ m} / 3.0\text{ m}) = 2.48\text{ dB}$

13 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.54\text{ dB}$

(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]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	17355.000	PK	49.41	41.01	13.32	40.26	-9.54	53.94	-41.28	-27.0	14.2	136	10	
Hori.	23140.000	PK	46.25	39.84	13.73	48.18	-9.54	42.10	-53.12	-27.0	26.1	146	5	
Vert.	17355.000	PK	49.16	41.01	13.32	40.26	-9.54	53.69	-41.53	-27.0	14.5	139	351	
Vert.	23140.000	PK	45.84	39.84	13.73	48.18	-9.54	41.69	-53.53	-27.0	26.5	134	72	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

Result(EIRP[dBm])= $10\cdot\log\left(\left(\left\{10^{\frac{1}{20}}\cdot\left(\frac{\text{Electric Field Strength [dBuV/m]}{20}\right)\cdot10^{-6}\right\}\cdot\text{Distance:3[m]}^2\right)/30\right)\cdot10^3$

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.99\text{ m} / 3.0\text{ m}) = 2.48\text{ dB}$

13 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.54\text{ dB}$

UL Japan, Inc.

Shonan EMC Lab.

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Radiated Spurious Emission

Report No.	12699044S-AM-R1				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber	No.3	No.1	No.1	No.2	No.2
Date	June 7, 2019	March 12, 2019	June 10, 2019	February 14, 2019	February 13, 2019
Temperature /	23 deg. C /	21 deg. C /	22 deg. C /	23 deg. C /	21 deg. C /
Humidity	56 % RH	39 % RH	60 % RH	30 % RH	31 % RH
Engineer	Hiromasa Sato	Kazuya Noda	Kazuya Noda	Yasumasa Owaki	Yosuke Ishikawa
	(1 GHz – 6.4 GHz)	(6.4 GHz - 13 GHz)	(13 GHz - 18 GHz)	(18 GHz - 26 GHz)	(26 GHz - 40 GHz)
Mode	Tx 11ac-20 MIMO 5825 MHz				

(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]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	11650.000	PK	43.56	39.69	9.67	39.14	2.48	56.26	73.9	17.6	115	29	
Hori.	11650.000	AV	32.39	39.69	9.67	39.14	2.48	45.09	53.9	8.8	115	29	VBW:3.6 kHz
Vert.	11650.000	PK	43.60	39.69	9.67	39.14	2.48	56.30	73.9	17.6	121	21	
Vert.	11650.000	AV	32.25	39.69	9.67	39.14	2.48	44.95	53.9	8.9	121	21	VBW:3.6 kHz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

Distance factor : 1 GHz - 13 GHz : 20log (3.99 m / 3.0 m) = 2.48 dB

13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

(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]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5850.000	PK	49.61	32.65	16.66	43.34	2.48	58.06	-37.16	27.0	64.1	101	89	
Hori.	5855.000	PK	49.96	32.66	16.66	43.34	2.48	58.42	-36.80	15.6	52.4	101	89	
Hori.	5875.000	PK	49.09	32.72	16.67	43.34	2.48	57.62	-37.60	10.0	47.6	101	89	
Hori.	5925.000	PK	49.14	32.80	16.69	43.34	2.48	57.77	-37.45	-27.0	10.4	101	89	
Hori.	17475.000	PK	49.86	41.81	13.31	40.23	-9.54	55.21	-40.01	-27.0	13.0	136	11	
Hori.	23300.000	PK	45.47	39.85	13.73	48.29	-9.54	41.22	-54.00	-27.0	27.0	135	56	
Vert.	5850.000	PK	50.87	32.65	16.66	43.34	2.48	59.32	-35.90	27.0	62.9	176	83	
Vert.	5855.000	PK	48.88	32.66	16.66	43.34	2.48	57.34	-37.88	15.6	53.4	176	83	
Vert.	5875.000	PK	49.25	32.72	16.67	43.34	2.48	57.78	-37.44	10.0	47.4	176	83	
Vert.	5925.000	PK	49.10	32.80	16.69	43.34	2.48	57.73	-37.49	-27.0	10.4	176	83	
Vert.	17475.000	PK	49.10	41.81	13.31	40.23	-9.54	54.45	-40.77	-27.0	13.7	138	354	
Vert.	23300.000	PK	44.90	39.85	13.73	48.29	-9.54	40.65	-54.57	-27.0	27.5	124	83	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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).

Distance factor : 1 GHz - 13 GHz : 20log (3.99 m / 3.0 m) = 2.48 dB

13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

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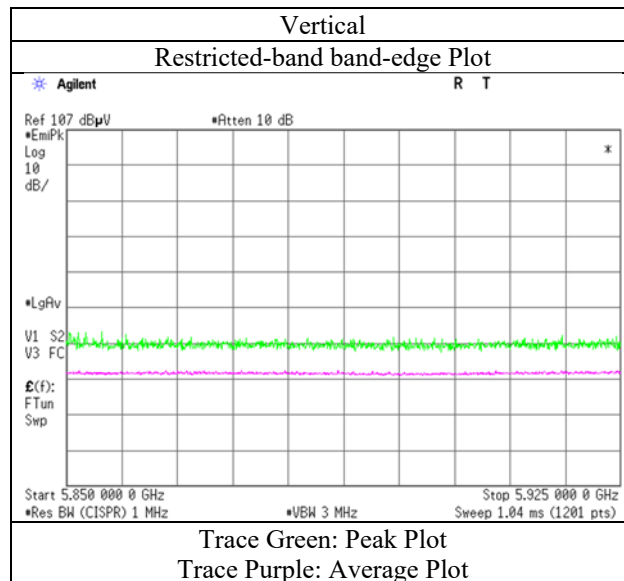
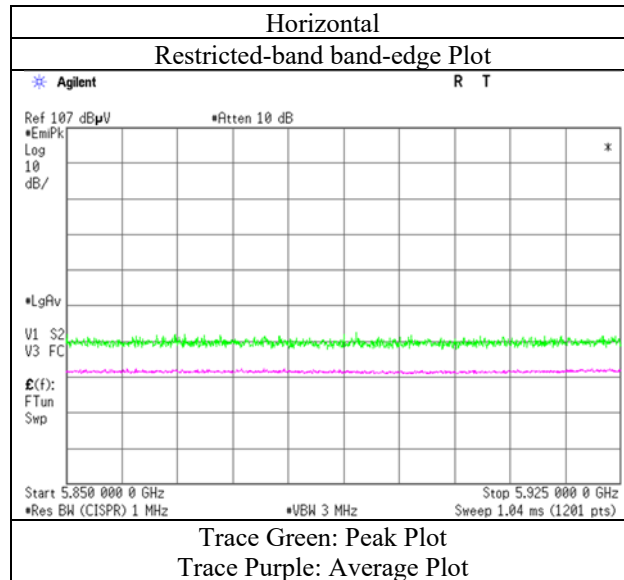
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Radiated Spurious Emission

Report No. 12699044S-AM-R1
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.3
Date June 7, 2019
Temperature / Humidity 23 deg. C / 56 % RH
Engineer Hiromasa Sato
Mode Tx 11ac-20 MIMO 5825 MHz



* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.
Final result of restricted band edge was shown in tabular data.

Radiated Spurious Emission

Report No.	12699044S-AM-R1				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber	No.3	No.1	No.1	No.2	No.2
Date	June 7, 2019	March 11, 2019	June 10, 2019	February 15, 2019	February 13, 2019
Temperature /	23 deg. C /	22 deg. C /	22 deg. C /	21 deg. C /	20 deg. C /
Humidity	56 % RH	43 % RH	60 % RH	32 % RH	30 % RH
Engineer	Hiromasa Sato	Kazuya Noda	Kazuya Noda	Yasumasa Owaki	Yasumasa Owaki
	(1 GHz - 6.4 GHz)	(6.4 GHz - 13 GHz)	(13 GHz - 18 GHz)	(18 GHz - 26 GHz)	(26 GHz - 40 GHz)
Mode	Tx 11n-40 MIMO 5190 MHz				

(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]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5150.000	PK	51.38	32.18	16.32	43.04	2.48	59.32	73.9	14.5	170	68	
Hori.	15570.000	PK	55.73	38.66	12.69	40.76	-9.54	56.78	73.9	17.1	142	351	
Hori.	20760.000	PK	48.40	39.79	12.78	45.94	-9.54	45.49	73.9	28.4	144	7	
Hori.	5150.000	AV	37.89	32.18	16.32	43.04	2.48	45.83	53.9	8.0	170	68	VBW:10 Hz
Hori.	15570.000	AV	43.63	38.66	12.69	40.76	-9.54	44.68	53.9	9.2	142	351	VBW:10 Hz
Hori.	20760.000	AV	39.83	39.79	12.78	45.94	-9.54	36.92	53.9	16.9	144	7	VBW:10 Hz
Vert.	5150.000	PK	49.69	32.18	16.32	43.04	2.48	57.63	73.9	16.2	135	49	
Vert.	15570.000	PK	55.09	38.66	12.69	40.76	-9.54	56.14	73.9	17.7	137	348	
Vert.	20760.000	PK	46.62	39.79	12.78	45.94	-9.54	43.71	73.9	30.1	123	87	
Vert.	5150.000	AV	37.46	32.18	16.32	43.04	2.48	45.40	53.9	8.5	135	49	VBW:10 Hz
Vert.	15570.000	AV	43.22	38.66	12.69	40.76	-9.54	44.27	53.9	9.6	137	348	VBW:10 Hz
Vert.	20760.000	AV	39.29	39.79	12.78	45.94	-9.54	36.38	53.9	17.5	123	87	VBW:10 Hz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

Distance factor : 1 GHz - 13 GHz : 20log (3.99 m / 3.0 m) = 2.48 dB

13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

(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]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	10380.000	PK	47.12	39.43	8.93	39.64	2.48	58.32	-36.90	-27.0	9.9	108	340	
Vert.	10380.000	PK	47.40	39.43	8.93	39.64	2.48	58.60	-36.62	-27.0	9.6	122	33	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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).

Distance factor : 1 GHz - 13 GHz : 20log (3.99 m / 3.0 m) = 2.48 dB

13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

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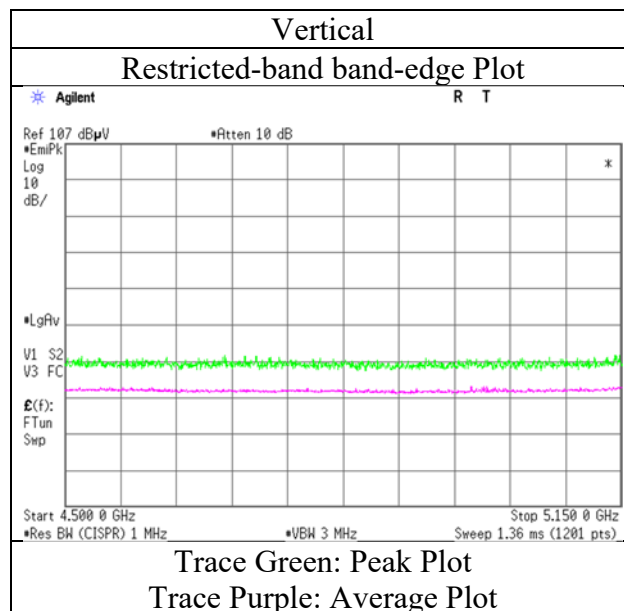
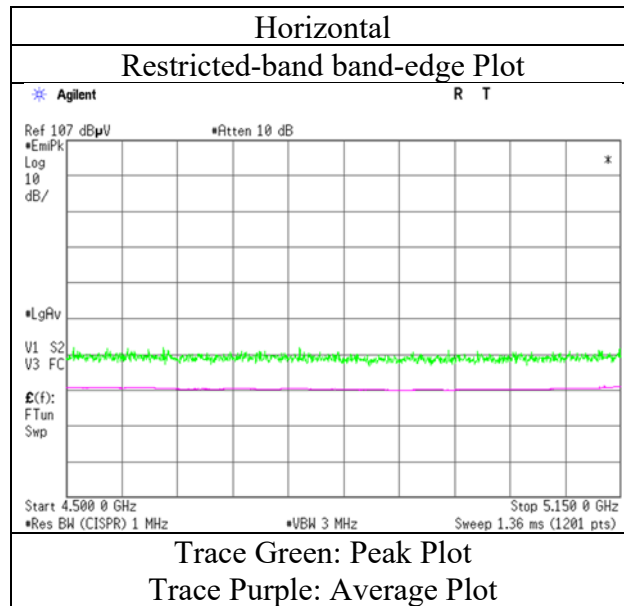
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Radiated Spurious Emission

Report No.	12699044S-AM-R1
Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	June 7, 2019
Temperature / Humidity	23 deg. C / 56 % RH
Engineer	Hiromasa Sato
	(1 GHz – 6.4 GHz)
Mode	Tx 11n-40 MIMO 5190 MHz



* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions. Final result of restricted band edge was shown in tabular data.

Radiated Spurious Emission

Report No.	12699044S-AM-R1				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber	No.3	No.1	No.1	No.2	No.2
Date	June 7, 2019	March 11, 2019	June 10, 2019	February 15, 2019	February 13, 2019
Temperature /	23 deg. C / 56 %	22 deg. C /	22 deg. C /	21 deg. C /	20 deg. C /
Humidity	RH	43 % RH	60 % RH	32 % RH	30 % RH
Engineer	Hiromasa Sato	Kazuya Noda	Kazuya Noda	Yasumasa Owaki	Yasumasa Owaki
	(1 GHz - 6.4 GHz)	(6.4 GHz - 13 GHz)	(13 GHz - 18 GHz)	(18 GHz - 26 GHz)	(26 GHz - 40 GHz)
Mode	Tx 11n-40 MIMO 5230 MHz				

(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]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	15690.000	PK	56.11	38.41	12.73	40.63	-9.54	57.08	73.9	16.8	142	353	
Hori.	20920.000	PK	48.39	39.85	12.84	45.93	-9.54	45.61	73.9	28.2	144	8	
Hori.	15690.000	AV	43.31	38.41	12.73	40.63	-9.54	44.28	53.9	9.6	142	353	VBW:10 Hz
Hori.	20920.000	AV	39.97	39.85	12.84	45.93	-9.54	37.19	53.9	16.7	144	8	VBW:10 Hz
Vert.	15690.000	PK	55.61	38.41	12.73	40.63	-9.54	56.58	73.9	17.3	137	350	
Vert.	20920.000	PK	45.06	39.85	12.84	45.93	-9.54	42.28	73.9	31.6	124	87	
Vert.	15690.000	AV	42.96	38.41	12.73	40.63	-9.54	43.93	53.9	9.9	137	350	VBW:10 Hz
Vert.	20920.000	AV	38.35	39.85	12.84	45.93	-9.54	35.57	53.9	18.3	124	87	VBW:10 Hz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.99 \text{ m} / 3.0 \text{ m}) = 2.48 \text{ dB}$

13 GHz - 40 GHz : $20\log(1.0 \text{ m} / 3.0 \text{ m}) = -9.54 \text{ dB}$

(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]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	10460.000	PK	47.43	39.62	8.97	39.73	2.48	58.77	-36.45	-27.0	9.4	118	25	
Vert.	10460.000	PK	47.93	39.62	8.97	39.73	2.48	59.27	-35.95	-27.0	8.9	117	35	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

Result(EIRP[dBm])= $10 \cdot \log \left(\left(\left(\text{Electric Field Strength [dBuV/m]} / 20 \right) \cdot 10^{(-6)} \cdot \text{Distance:3[m]} \right)^2 / 30 \right) \cdot 10^{(3)}$

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.99 \text{ m} / 3.0 \text{ m}) = 2.48 \text{ dB}$

13 GHz - 40 GHz : $20\log(1.0 \text{ m} / 3.0 \text{ m}) = -9.54 \text{ dB}$

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Radiated Spurious Emission

Report No.	12699044S-AM-R1				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber	No.3	No.1	No.1	No.2	No.2
Date	June 7, 2019	March 11, 2019	June 10, 2019	February 15, 2019	February 13, 2019
Temperature /	23 deg. C /	22 deg. C /	22 deg. C /	21 deg. C /	20 deg. C /
Humidity	56 % RH	43 % RH	60 % RH	32 % RH	30 % RH
Engineer	Hiromasa Sato	Kazuya Noda	Kazuya Noda	Yasumasa Owaki	Yasumasa Owaki
	(1 GHz - 6.4 GHz)	(6.4 GHz - 13 GHz)	(13 GHz - 18 GHz)	(18 GHz - 26 GHz)	(26 GHz - 40 GHz)
Mode	Tx 11n-40 MIMO 5310 MHz				

(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]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5350.000	PK	50.72	31.73	16.40	43.21	2.48	58.12	73.9	15.7	147	91	
Hori.	10620.000	PK	46.65	39.65	9.00	39.70	2.48	58.08	73.9	15.8	112	27	
Hori.	15930.000	PK	55.43	37.88	12.82	40.37	-9.54	56.22	73.9	17.6	143	352	
Hori.	21240.000	PK	48.94	39.97	12.95	46.20	-9.54	46.12	73.9	27.7	144	7	
Hori.	5350.000	AV	37.92	31.73	16.40	43.21	2.48	45.32	53.9	8.5	147	91	VBW:10 Hz
Hori.	10620.000	AV	35.37	39.65	9.00	39.70	2.48	46.80	53.9	7.1	112	27	VBW:10 Hz
Hori.	15930.000	AV	43.75	37.88	12.82	40.37	-9.54	44.54	53.9	9.3	143	352	VBW:10 Hz
Hori.	21240.000	AV	41.66	39.97	12.95	46.20	-9.54	38.84	53.9	15.0	144	7	VBW:10 Hz
Vert.	5350.000	PK	50.37	31.73	16.40	43.21	2.48	57.77	73.9	16.1	184	8	
Vert.	10620.000	PK	46.66	39.65	9.00	39.70	2.48	58.09	73.9	15.8	108	28	
Vert.	15930.000	PK	55.39	37.88	12.82	40.37	-9.54	56.18	73.9	17.7	138	351	
Vert.	21240.000	PK	45.23	39.97	12.95	46.20	-9.54	42.41	73.9	31.4	130	85	
Vert.	5350.000	AV	37.84	31.73	16.40	43.21	2.48	45.24	53.9	8.6	184	8	VBW:10 Hz
Vert.	10620.000	AV	34.90	39.65	9.00	39.70	2.48	46.33	53.9	7.5	108	28	VBW:10 Hz
Vert.	15930.000	AV	43.81	37.88	12.82	40.37	-9.54	44.60	53.9	9.3	138	351	VBW:10 Hz
Vert.	21240.000	AV	36.77	39.97	12.95	46.20	-9.54	33.95	53.9	19.9	130	85	VBW:10 Hz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.99\text{ m}/3.0\text{ m}) = 2.48\text{ dB}$

13 GHz - 40 GHz : $20\log(1.0\text{ m}/3.0\text{ m}) = -9.54\text{ dB}$

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Shonan EMC Lab.

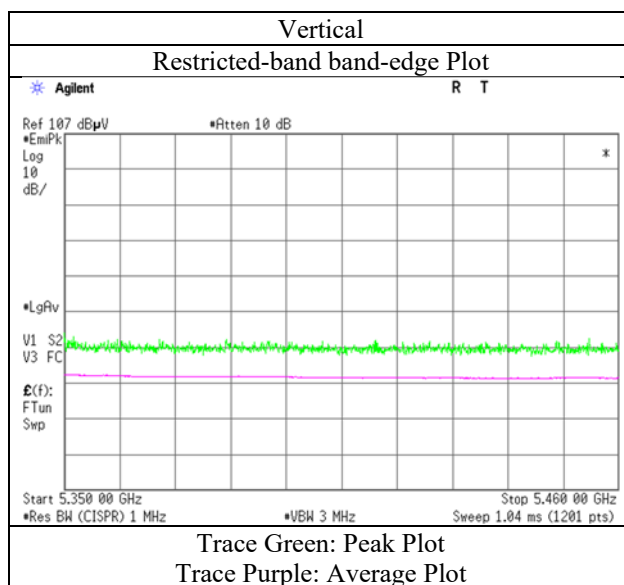
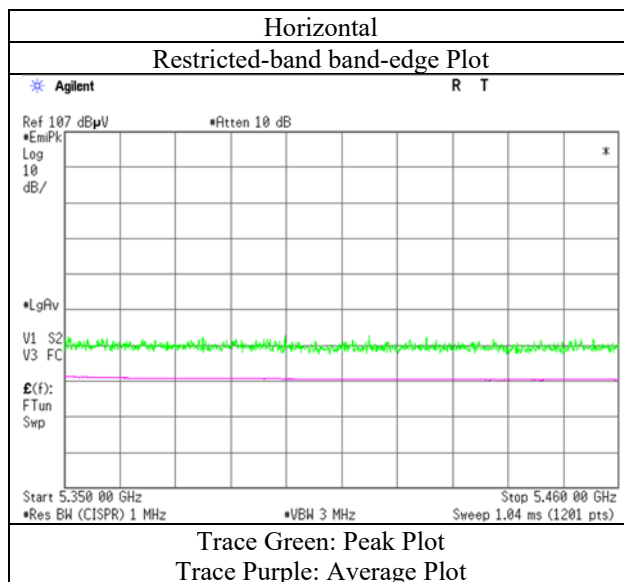
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Radiated Spurious Emission

Report No.	12699044S-AM-R1
Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	June 7, 2019
Temperature / Humidity	23 deg. C / 56 % RH
Engineer	Hiromasa Sato
Mode	Tx 11n-40 MIMO 5310 MHz



* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions. Final result of restricted band edge was shown in tabular data.

Radiated Spurious Emission

Report No.	12699044S-AM-R1				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber	No.3	No.1	No.3	No.2	No.2
Date	June 7, 2019	March 11, 2019	June 11, 2019	February 15, 2019	February 13, 2019
Temperature /	23 deg. C /	22 deg. C /	26 deg. C /	21 deg. C /	20 deg. C /
Humidity	56 % RH	43 % RH	47 % RH	32 % RH	30 % RH
Engineer	Hiromasa Sato	Kazuya Noda	Toshinori Yamada	Yasumasa Owaki	Yasumasa Owaki
	(1 GHz – 6.4 GHz)	(6.4 GHz - 13 GHz)	(13 GHz - 18 GHz)	(18 GHz - 26 GHz)	(26 GHz - 40 GHz)
Mode	Tx 11n-40 MIMO 5510 MHz				

(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]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5460.000	PK	49.06	32.08	16.47	43.30	2.48	56.79	73.9	17.1	121	83	
Hori.	11020.000	PK	46.49	40.13	9.07	39.48	2.48	58.69	73.9	15.2	116	30	
Hori.	22040.000	PK	48.82	40.18	13.27	47.03	-9.54	45.70	73.9	28.2	135	53	
Hori.	5460.000	AV	37.17	32.08	16.47	43.30	2.48	44.90	53.9	9.0	121	83	VBW:10 Hz
Hori.	11020.000	AV	34.72	40.13	9.07	39.48	2.48	46.92	53.9	6.9	116	30	VBW:10 Hz
Hori.	22040.000	AV	43.56	40.18	13.27	47.03	-9.54	40.44	53.9	13.4	135	53	VBW:10 Hz
Vert.	5460.000	PK	49.71	32.08	16.47	43.30	2.48	57.44	73.9	16.4	169	53	
Vert.	11020.000	PK	46.32	40.13	9.07	39.48	2.48	58.52	73.9	15.3	301	23	
Vert.	22040.000	PK	46.48	40.18	13.27	47.03	-9.54	43.36	73.9	30.5	134	50	
Vert.	5460.000	AV	37.28	32.08	16.47	43.30	2.48	45.01	53.9	8.8	169	53	VBW:10 Hz
Vert.	11020.000	AV	34.48	40.13	9.07	39.48	2.48	46.68	53.9	7.2	301	23	VBW:10 Hz
Vert.	22040.000	AV	40.54	40.18	13.27	47.03	-9.54	37.42	53.9	16.4	134	50	VBW:10 Hz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

Distance factor : 1 GHz - 13 GHz : 20log (3.99 m / 3.0 m) = 2.48 dB

13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

(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]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5470.000	PK	48.54	32.06	16.46	43.31	2.48	56.23	-38.99	-27.0	11.9	121	83	
Hori.	16530.000	PK	52.67	38.60	10.78	40.43	-9.54	52.08	-43.14	-27.0	16.1	140	3	
Vert.	5470.000	PK	50.50	32.06	16.46	43.31	2.48	58.19	-37.03	-27.0	10.0	169	53	
Vert.	16530.000	PK	51.67	38.60	10.78	40.43	-9.54	51.08	-44.14	-27.0	17.1	138	331	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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).

Distance factor : 1 GHz - 13 GHz : 20log (3.99 m / 3.0 m) = 2.48 dB

13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

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Shonan EMC Lab.

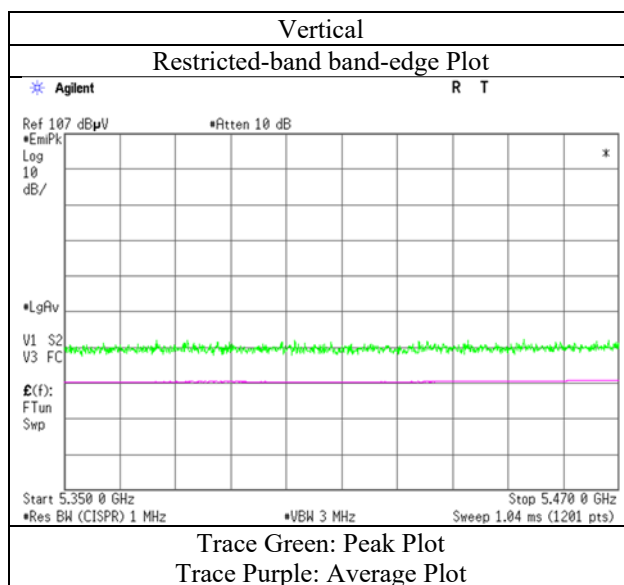
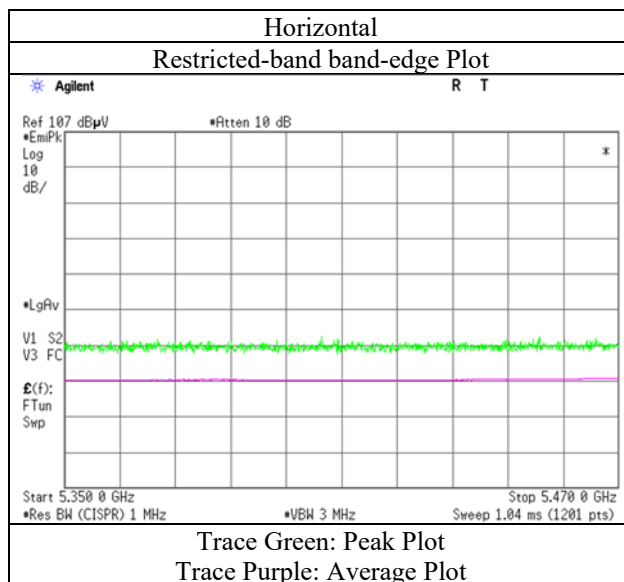
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

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Radiated Spurious Emission

Report No.	12699044S-AM-R1
Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	June 7, 2019
Temperature / Humidity	23 deg. C / 56 % RH
Engineer	Hiromasa Sato
Mode	Tx 11n-40 MIMO 5510 MHz



* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.
Final result of restricted band edge was shown in tabular data.

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Radiated Spurious Emission

Report No.	12699044S-AM-R1				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber	No.3	No.1	No.3	No.2	No.2
Date	June 7, 2019	March 11, 2019	June 11, 2019	February 15, 2019	February 13, 2019
Temperature /	23 deg. C /	22 deg. C /	26 deg. C /	21 deg. C /	20 deg. C /
Humidity	56 % RH	43 % RH	47 % RH	32 % RH	30 % RH
Engineer	Hiromasa Sato	Kazuya Noda	Toshinori Yamada	Yasumasa Owaki	Yasumasa Owaki
	(1 GHz – 6.4 GHz)	(6.4 GHz - 13 GHz)	(13 GHz - 18 GHz)	(18 GHz - 26 GHz)	(26 GHz - 40 GHz)
Mode	Tx 11n-40 MIMO 5550 MHz				

(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]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	11100.000	PK	46.76	40.01	9.17	39.45	2.48	58.97	73.9	14.9	126	40	
Hori.	22200.000	PK	49.75	40.21	13.38	47.27	-9.54	46.53	73.9	27.3	144	6	
Hori.	11100.000	AV	35.02	40.01	9.17	39.45	2.48	47.23	53.9	6.6	126	40	VBW:10 Hz
Hori.	22200.000	AV	43.62	40.21	13.38	47.27	-9.54	40.40	53.9	13.5	144	6	VBW:10 Hz
Vert.	11100.000	PK	46.31	40.01	9.17	39.45	2.48	58.52	73.9	15.3	115	26	
Vert.	22200.000	PK	46.71	40.21	13.38	47.27	-9.54	43.49	73.9	30.4	131	57	
Vert.	11100.000	AV	34.70	40.01	9.17	39.45	2.48	46.91	53.9	6.9	115	26	VBW:10 Hz
Vert.	22200.000	AV	39.91	40.21	13.38	47.27	-9.54	36.69	53.9	17.2	131	57	VBW:10 Hz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.99\text{ m} / 3.0\text{ m}) = 2.48\text{ dB}$

13 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.54\text{ dB}$

(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]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	16650.000	PK	51.41	38.57	10.83	40.41	-9.54	50.86	-44.36	-27.0	17.3	138	3	
Vert.	16650.000	PK	52.24	38.57	10.83	40.41	-9.54	51.69	-43.53	-27.0	16.5	134	335	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

Result(EIRP[dBm])= $10\cdot\log((\{10^{\wedge}(\text{Electric Field Strength [dBuV/m]} / 20) * 10^{\wedge}(-6) * \text{Distance:3[m]}^{\wedge}2\} / 30) * 10^{\wedge}3)$

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.99\text{ m} / 3.0\text{ m}) = 2.48\text{ dB}$

13 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.54\text{ dB}$

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Radiated Spurious Emission

Report No.	12699044S-AM-R1				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber	No.3	No.1	No.3	No.2	No.2
Date	June 7, 2019	March 11, 2019	June 11, 2019	February 15, 2019	February 13, 2019
Temperature /	23 deg. C /	22 deg. C /	26 deg. C /	21 deg. C /	20 deg. C /
Humidity	56 % RH	43 % RH	47 % RH	32 % RH	30 % RH
Engineer	Hiromasa Sato	Kazuya Noda	Toshinori Yamada	Yasumasa Owaki	Yasumasa Owaki
	(1 GHz – 6.4 GHz)	(6.4 GHz - 13 GHz)	(13 GHz - 18 GHz)	(18 GHz - 26 GHz)	(26 GHz - 40 GHz)
Mode	Tx 11n-40 MIMO 5670 MHz				

(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]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	11340.000	PK	45.33	39.79	9.46	39.34	2.48	57.72	73.9	16.1	113	26	
Hori.	22680.000	PK	47.99	39.98	13.63	47.85	-9.54	44.21	73.9	29.6	137	58	
Hori.	11340.000	AV	34.08	39.79	9.46	39.34	2.48	46.47	53.9	7.4	113	26	VBW:10 Hz
Hori.	22680.000	AV	40.21	39.98	13.63	47.85	-9.54	36.43	53.9	17.4	137	58	VBW:10 Hz
Vert.	11340.000	PK	45.79	39.79	9.46	39.34	2.48	58.18	73.9	15.7	149	1	
Vert.	22680.000	PK	46.24	39.98	13.63	47.85	-9.54	42.46	73.9	31.4	132	55	
Vert.	11340.000	AV	34.00	39.79	9.46	39.34	2.48	46.39	53.9	7.5	149	1	VBW:10 Hz
Vert.	22680.000	AV	37.41	39.98	13.63	47.85	-9.54	33.63	53.9	20.2	132	55	VBW:10 Hz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

Distance factor : 1 GHz - 13 GHz : 20log (3.99 m / 3.0 m) = 2.48 dB

13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

(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]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5725.000	PK	47.96	32.35	16.59	43.33	2.48	56.05	-39.17	-27.0	12.1	138	84	
Hori.	17010.000	PK	50.67	39.55	10.97	40.35	-9.54	51.30	-43.92	-27.0	16.9	137	4	
Vert.	5725.000	PK	47.93	32.35	16.59	43.33	2.48	56.02	-39.20	-27.0	12.2	291	12	
Vert.	17010.000	PK	49.06	39.55	10.97	40.35	-9.54	49.69	-45.53	-27.0	18.5	138	331	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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).

Distance factor : 1 GHz - 13 GHz : 20log (3.99 m / 3.0 m) = 2.48 dB

13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

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Shonan EMC Lab.

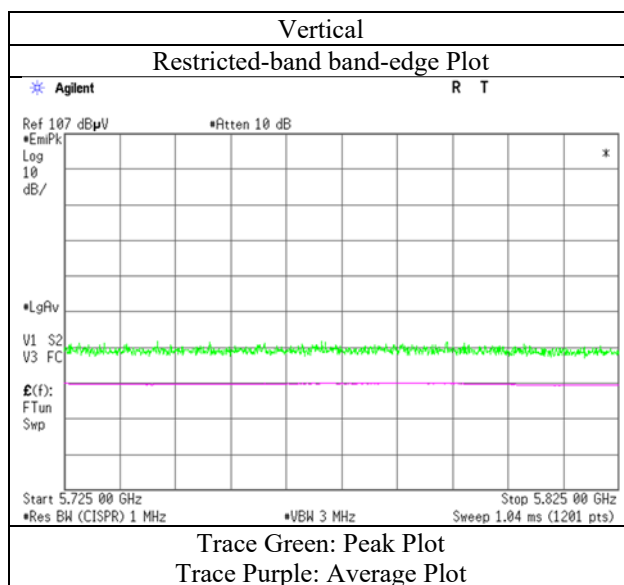
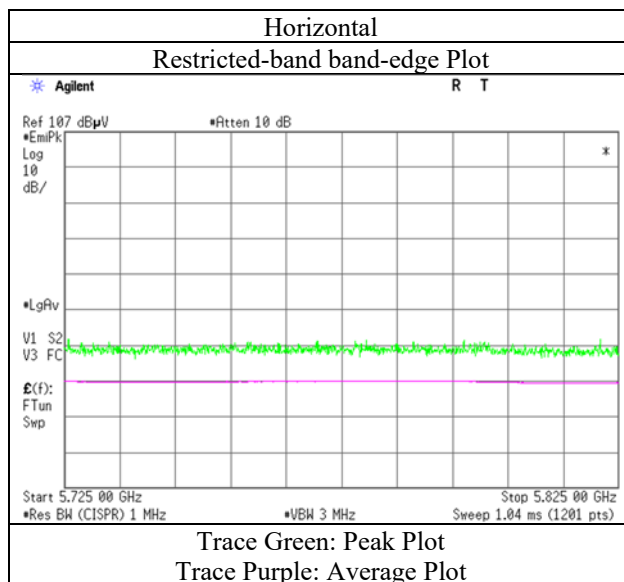
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

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Radiated Spurious Emission

Report No.	12699044S-AM-R1
Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	June 7, 2019
Temperature / Humidity	23 deg. C / 56 % RH
Engineer	Hiromasa Sato
Mode	Tx 11n-40 MIMO 5670 MHz



* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.
Final result of restricted band edge was shown in tabular data.

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Shonan EMC Lab.

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Radiated Spurious Emission

Report No.	12699044S-AM-R1				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber	No.3	No.1	No.3	No.2	No.2
Date	June 7, 2019	March 11, 2019	June 11, 2019	February 15, 2019	February 13, 2019
Temperature /	23 deg. C /	22 deg. C /	26 deg. C /	21 deg. C /	20 deg. C /
Humidity	56 % RH	43 % RH	47 % RH	32 % RH	30 % RH
Engineer	Hiromasa Sato	Kazuya Noda	Toshinori Yamada	Yasumasa Owaki	Yasumasa Owaki
	(1 GHz - 6.4 GHz)	(6.4 GHz - 13 GHz)	(13 GHz - 18 GHz)	(18 GHz - 26 GHz)	(26 GHz - 40 GHz)
Mode	Tx 11n-40 MIMO 5755 MHz				

(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]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	11510.000	PK	44.63	40.01	9.65	39.26	2.48	57.51	73.9	16.3	121	34	
Hori.	23020.000	PK	47.96	39.88	13.73	48.10	-9.54	43.93	73.9	29.9	145	7	
Hori.	11510.000	AV	33.44	40.01	9.65	39.26	2.48	46.32	53.9	7.5	121	34	VBW:10 Hz
Hori.	23020.000	AV	39.25	39.88	13.73	48.10	-9.54	35.22	53.9	18.6	145	7	VBW:10 Hz
Vert.	11510.000	PK	44.78	40.01	9.65	39.26	2.48	57.66	73.9	16.2	122	23	
Vert.	23020.000	PK	46.57	39.88	13.73	48.10	-9.54	42.54	73.9	31.3	130	74	
Vert.	11510.000	AV	33.36	40.01	9.65	39.26	2.48	46.24	53.9	7.6	122	23	VBW:10 Hz
Vert.	23020.000	AV	36.59	39.88	13.73	48.10	-9.54	32.56	53.9	21.3	130	74	VBW:10 Hz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.99\text{ m} / 3.0\text{ m}) = 2.48\text{ dB}$

13 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.54\text{ dB}$

(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]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5650.000	PK	48.27	32.18	16.56	43.33	2.48	56.16	-39.06	-27.0	12.0	105	95	
Hori.	5700.000	PK	47.60	32.23	16.58	43.33	2.48	55.56	-39.66	10.0	49.6	105	95	
Hori.	5720.000	PK	48.61	32.33	16.58	43.33	2.48	56.67	-38.55	15.6	54.1	105	95	
Hori.	5725.000	PK	50.22	32.35	16.59	43.33	2.48	58.31	-36.91	27.0	63.9	105	95	
Hori.	17265.000	PK	50.34	39.98	10.89	40.28	-9.54	51.39	-43.83	-27.0	16.8	136	3	
Vert.	5650.000	PK	47.60	32.18	16.56	43.33	2.48	55.49	-39.73	-27.0	12.7	145	81	
Vert.	5700.000	PK	48.17	32.23	16.58	43.33	2.48	56.13	-39.09	10.0	49.0	145	81	
Vert.	5720.000	PK	48.27	32.33	16.58	43.33	2.48	56.33	-38.89	15.6	54.4	145	81	
Vert.	5725.000	PK	49.78	32.35	16.59	43.33	2.48	57.87	-37.35	27.0	64.3	145	81	
Vert.	17265.000	PK	48.21	39.98	10.89	40.28	-9.54	49.26	-45.96	-27.0	18.9	135	333	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

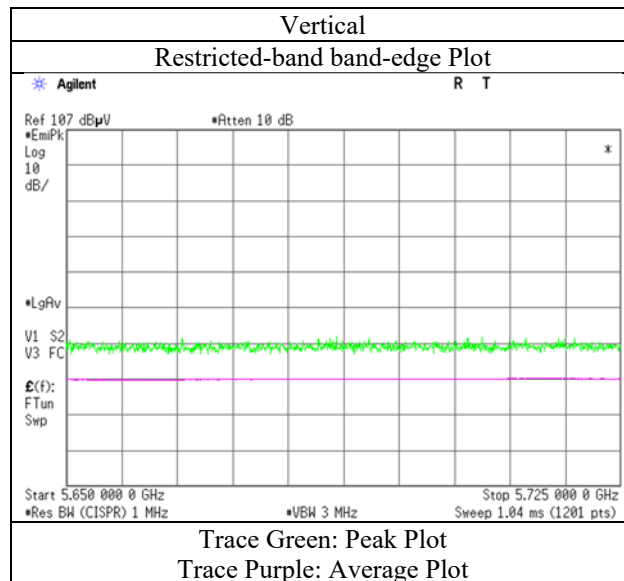
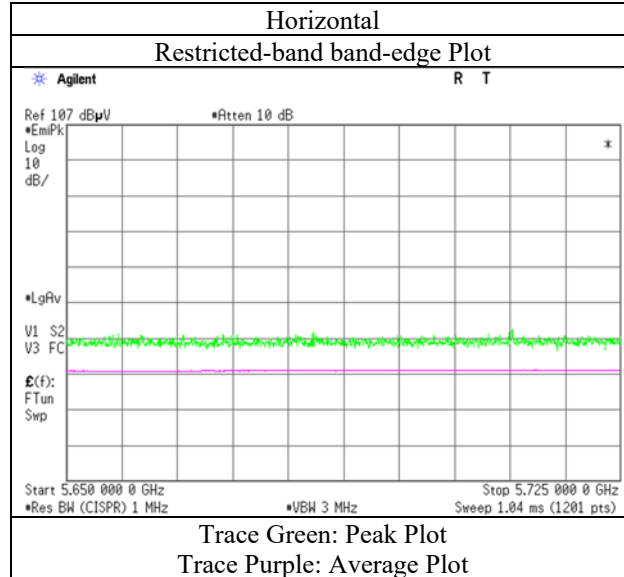
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor : 1 GHz - 13 GHz : $20\log(3.99\text{ m} / 3.0\text{ m}) = 2.48\text{ dB}$

13 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.54\text{ dB}$

Radiated Spurious Emission

Report No. 12699044S-AM-R1
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.3
Date June 7, 2019
Temperature / Humidity 23 deg. C / 56 % RH
Engineer Hiromasa Sato
Mode Tx 11n-40 MIMO 5755 MHz



* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.
Final result of restricted band edge was shown in tabular data.

UL Japan, Inc.

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Radiated Spurious Emission

Report No.	12699044S-AM-R1				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber	No.3	No.1	No.3	No.2	No.2
Date	June 7, 2019	March 11, 2019	June 11, 2019	February 15, 2019	February 13, 2019
Temperature /	23 deg. C /	22 deg. C /	26 deg. C /	21 deg. C /	20 deg. C /
Humidity	56 % RH	43 % RH	47 % RH	32 % RH	30 % RH
Engineer	Hiromasa Sato	Kazuya Noda	Toshinori Yamada	Yasumasa Owaki	Yasumasa Owaki
	(1 GHz – 6.4 GHz)	(6.4 GHz - 13 GHz)	(13 GHz - 18 GHz)	(18 GHz - 26 GHz)	(26 GHz - 40 GHz)
Mode	Tx 11n-40 MIMO 5795 MHz				

(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]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	11590.000	PK	44.89	39.93	9.66	39.19	2.48	57.77	73.9	16.1	122	21	
Hori.	11590.000	AV	32.94	39.93	9.66	39.19	2.48	45.82	53.9	8.0	122	21	VBW:10 Hz
Vert.	11590.000	PK	44.21	39.93	9.66	39.19	2.48	57.09	73.9	16.8	118	25	
Vert.	11590.000	AV	32.85	39.93	9.66	39.19	2.48	45.73	53.9	8.1	118	25	VBW:10 Hz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.99\text{ m} / 3.0\text{ m}) = 2.48\text{ dB}$

13 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.54\text{ dB}$

(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]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5850.000	PK	48.02	32.65	16.66	43.34	2.48	56.47	-38.75	27.0	65.7	181	105	
Hori.	5855.000	PK	47.95	32.66	16.66	43.34	2.48	56.41	-38.81	15.6	54.4	181	105	
Hori.	5875.000	PK	48.13	32.72	16.67	43.34	2.48	56.66	-38.56	10.0	48.5	181	105	
Hori.	5925.000	PK	48.01	32.80	16.69	43.34	2.48	56.64	-38.58	-27.0	11.5	181	105	
Hori.	17385.000	PK	48.76	40.84	10.86	40.25	-9.54	50.67	-44.55	-27.0	17.5	135	4	
Hori.	23180.000	PK	46.10	39.83	13.73	48.21	-9.54	41.91	-53.31	-27.0	26.3	145	7	
Vert.	5850.000	PK	48.87	32.65	16.66	43.34	2.48	57.32	-37.90	27.0	64.9	267	23	
Vert.	5855.000	PK	48.12	32.66	16.66	43.34	2.48	56.58	-38.64	15.6	54.2	267	23	
Vert.	5875.000	PK	47.34	32.72	16.67	43.34	2.48	55.87	-39.35	10.0	49.3	267	23	
Vert.	5925.000	PK	47.94	32.80	16.69	43.34	2.48	56.57	-38.65	-27.0	11.6	267	23	
Vert.	17385.000	PK	47.38	40.84	10.86	40.25	-9.54	49.29	-45.93	-27.0	18.9	139	358	
Vert.	23180.000	PK	45.76	39.83	13.73	48.21	-9.54	41.57	-53.65	-27.0	26.6	132	72	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

Result(EIRP[dBm])= $10\cdot\log((\{10^{\frac{1}{10}}(\text{Electric Field Strength [dBuV/m]} / 20) * 10^{(-6)} * \text{Distance:3[m]} \}^2 / 30) * 10^3)$

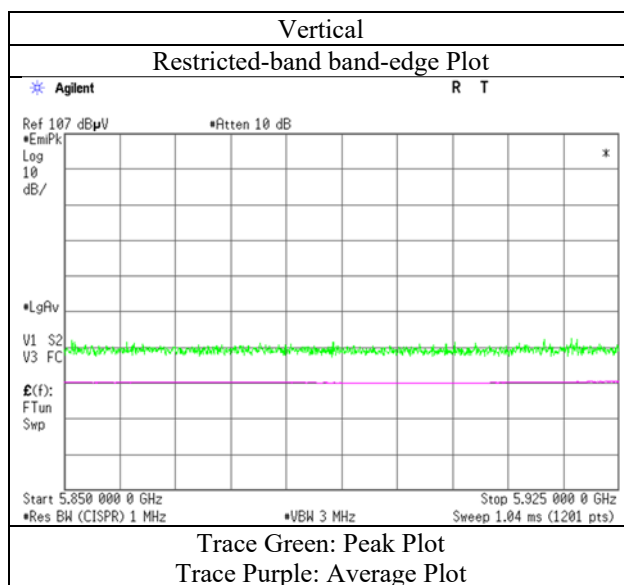
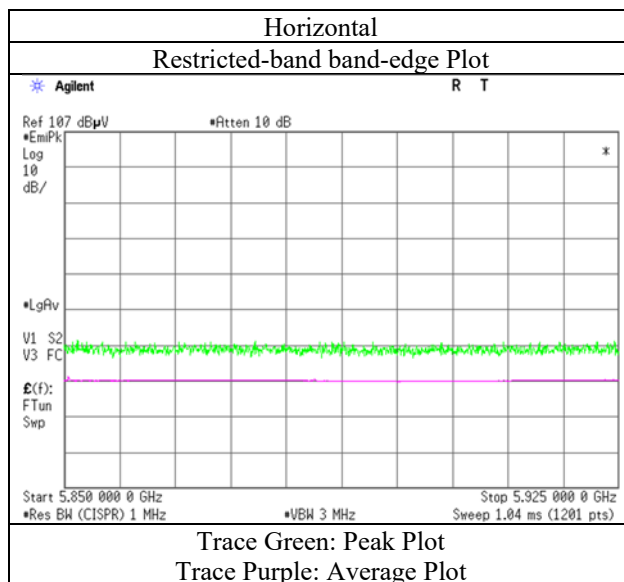
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor : 1 GHz - 13 GHz : $20\log(3.99\text{ m} / 3.0\text{ m}) = 2.48\text{ dB}$

13 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.54\text{ dB}$

Radiated Spurious Emission

Report No.	12699044S-AM-R1
Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	June 7, 2019
Temperature / Humidity	23 deg. C / 56 % RH
Engineer	Hiromasa Sato
Mode	Tx 11n-40 MIMO 5795 MHz



* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions. Final result of restricted band edge was shown in tabular data.

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Radiated Spurious Emission

Report No.	12699044S-AM-R1				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber	No.3	No.1	No.3	No.2	No.2
Date	June 7, 2019	March 3, 2019	June 11, 2019	February 15, 2019	February 13, 2019
Temperature /	23 deg. C /	22 deg. C /	26 deg. C /	21 deg. C /	20 deg. C /
Humidity	56 % RH	33 % RH	47 % RH	32 % RH	30 % RH
Engineer	Hiromasa Sato	Makoto Hosaka	Toshinori Yamada	Yasumasa Owaki	Yasumasa Owaki
	(1 GHz - 6.4 GHz)	(6.4 GHz - 13 GHz)	(13 GHz - 18 GHz)	(18 GHz - 26 GHz)	(26 GHz - 40 GHz)
Mode	Tx 11ac-40 MIMO 5190 MHz				

(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]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5150.000	PK	48.53	32.18	16.32	43.04	2.48	56.47	73.9	17.4	154	105	
Hori.	15570.000	PK	56.11	38.54	10.32	40.76	-9.54	54.67	73.9	19.2	135	4	
Hori.	20760.000	PK	48.81	39.79	12.78	45.94	-9.54	45.90	73.9	28.0	144	7	
Hori.	5150.000	AV	37.16	32.18	16.32	43.04	2.48	45.10	53.9	8.8	154	105	VBW:10Hz
Hori.	15570.000	AV	45.16	38.54	10.32	40.76	-9.54	43.72	53.9	10.1	135	4	VBW:10Hz
Hori.	20760.000	AV	41.92	39.79	12.78	45.94	-9.54	39.01	53.9	14.8	144	7	VBW:10Hz
Vert.	5150.000	PK	48.98	32.18	16.32	43.04	2.48	56.92	73.9	16.9	152	57	
Vert.	15570.000	PK	53.70	38.54	10.32	40.76	-9.54	52.26	73.9	21.6	133	331	
Vert.	20760.000	PK	46.28	39.79	12.78	45.94	-9.54	43.37	73.9	30.5	121	86	
Vert.	5150.000	AV	37.35	32.18	16.32	43.04	2.48	45.29	53.9	8.6	152	57	VBW:10Hz
Vert.	15570.000	AV	42.96	38.54	10.32	40.76	-9.54	41.52	53.9	12.3	133	331	VBW:10Hz
Vert.	20760.000	AV	40.87	39.79	12.78	45.94	-9.54	37.96	53.9	15.9	121	86	VBW:10Hz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

Distance factor : 1 GHz - 13 GHz : 20log (3.99 m / 3.0 m) = 2.48 dB

13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

(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]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	10380.000	PK	47.12	39.43	8.93	39.64	2.48	58.32	-36.90	-27.0	9.9	123	0	
Vert.	10380.000	PK	45.24	39.43	8.93	39.64	2.48	56.44	-38.78	-27.0	11.7	108	25	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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).

Distance factor : 1 GHz - 13 GHz : 20log (3.99 m / 3.0 m) = 2.48 dB

13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

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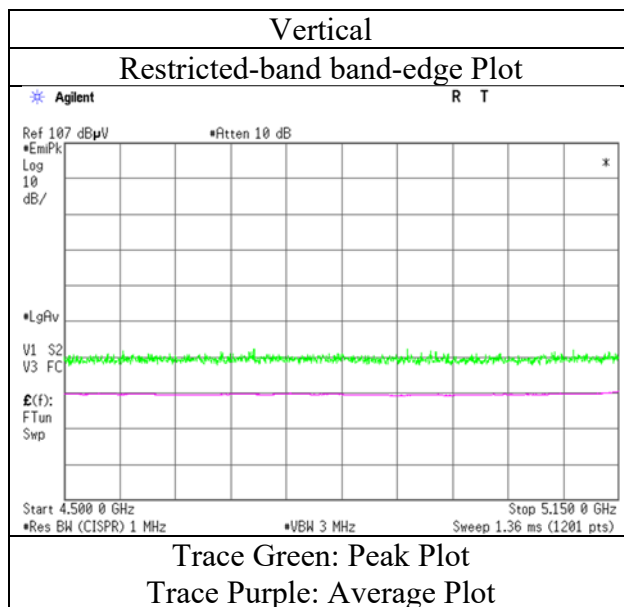
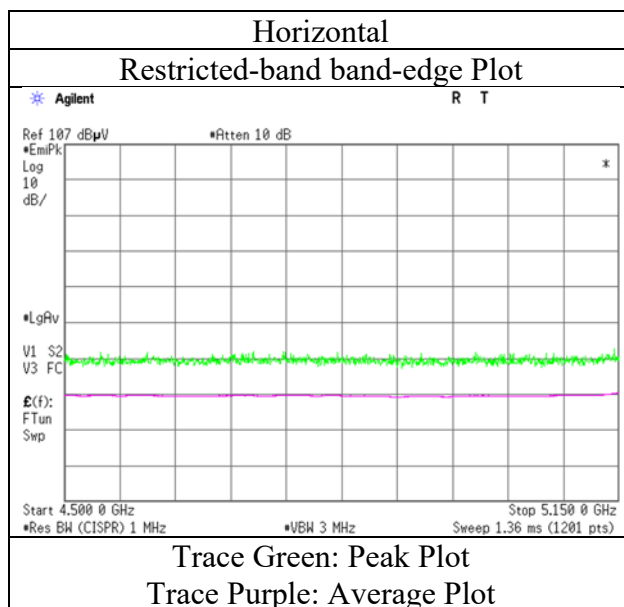
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Radiated Spurious Emission

Report No.	12699044S-AM-R1
Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	June 7, 2019
Temperature / Humidity	23 deg. C / 56 % RH
Engineer	Hiromasa Sato
	(1 GHz – 6.4 GHz)
Mode	Tx 11ac-40 MIMO 5190 MHz



* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions. Final result of restricted band edge was shown in tabular data.

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Radiated Spurious Emission

Report No.	12699044S-AM-R1				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber	No.3	No.1	No.3	No.2	No.2
Date	June 7, 2019	March 3, 2019	June 11, 2019	February 15, 2019	February 13, 2019
Temperature /	23 deg. C /	22 deg. C /	26 deg. C /	21 deg. C /	20 deg. C /
Humidity	56 % RH	33 % RH	47 % RH	32 % RH	30 % RH
Engineer	Hiromasa Sato	Makoto Hosaka	Toshinori Yamada	Yasumasa Owaki	Yasumasa Owaki
	(1 GHz – 6.4 GHz)	(6.4 GHz - 13 GHz)	(13 GHz - 18 GHz)	(18 GHz - 26 GHz)	(26 GHz - 40 GHz)
Mode	Tx 11ac-40 MIMO 5230 MHz				

(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]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	15690.000	PK	56.04	38.39	10.31	40.63	-9.54	54.57	73.9	19.3	135	3	
Hori.	20920.000	PK	47.81	39.85	12.84	45.93	-9.54	45.03	73.9	28.8	143	7	
Hori.	15690.000	AV	45.37	38.39	10.31	40.63	-9.54	43.90	53.9	10.0	135	3	VBW:10Hz
Hori.	20920.000	AV	40.80	39.85	12.84	45.93	-9.54	38.02	53.9	15.8	143	7	VBW:10Hz
Vert.	15690.000	PK	53.89	38.39	10.31	40.63	-9.54	52.42	73.9	21.4	134	333	
Vert.	20920.000	PK	45.32	39.85	12.84	45.93	-9.54	42.54	73.9	31.3	122	88	
Vert.	15690.000	AV	43.12	38.39	10.31	40.63	-9.54	41.65	53.9	12.2	134	333	VBW:10Hz
Vert.	20920.000	AV	39.06	39.85	12.84	45.93	-9.54	36.28	53.9	17.6	122	88	VBW:10Hz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.99\text{ m} / 3.0\text{ m}) = 2.48\text{ dB}$

13 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.54\text{ dB}$

(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]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	10460.000	PK	45.17	39.62	8.97	39.73	2.48	56.51	-38.71	-27.0	11.7	127	1	
Vert.	10460.000	PK	45.89	39.62	8.97	39.73	2.48	57.23	-37.99	-27.0	10.9	122	0	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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).

Distance factor : 1 GHz - 13 GHz : $20\log(3.99\text{ m} / 3.0\text{ m}) = 2.48\text{ dB}$

13 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.54\text{ dB}$

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Radiated Spurious Emission

Report No.	12699044S-AM-R1				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber	No.3	No.1	No.3	No.2	No.2
Date	June 7, 2019	March 3, 2019	June 11, 2019	February 15, 2019	February 13, 2019
Temperature /	23 deg. C /	22 deg. C /	26 deg. C /	21 deg. C /	20 deg. C /
Humidity	56 % RH	33 % RH	47 % RH	32 % RH	30 % RH
Engineer	Hiromasa Sato	Makoto Hosaka	Toshinori Yamada	Yasumasa Owaki	Yasumasa Owaki
	(1 GHz - 6.4 GHz)	(6.4 GHz - 13 GHz)	(13 GHz - 18 GHz)	(18 GHz - 26 GHz)	(26 GHz - 40 GHz)
Mode	Tx 11ac-40 MIMO 5310 MHz				

(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]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5350.000	PK	51.32	31.73	16.40	43.21	2.48	58.72	73.9	15.1	151	75	
Hori.	10620.000	PK	45.73	39.65	9.00	39.70	2.48	57.16	73.9	16.7	113	0	
Hori.	15930.000	PK	56.32	37.78	10.30	40.37	-9.54	54.49	73.9	19.4	135	4	
Hori.	21240.000	PK	48.84	39.97	12.95	46.20	-9.54	46.02	73.9	27.8	144	7	
Hori.	5350.000	AV	37.69	31.73	16.40	43.21	2.48	45.09	53.9	8.8	151	75	VBW:10 Hz
Hori.	10620.000	AV	35.86	39.65	9.00	39.70	2.48	47.29	53.9	6.6	113	0	VBW:10 Hz
Hori.	15930.000	AV	45.27	37.78	10.30	40.37	-9.54	43.44	53.9	10.4	135	4	VBW:10 Hz
Hori.	21240.000	AV	42.90	39.97	12.95	46.20	-9.54	40.08	53.9	13.8	144	7	VBW:10 Hz
Vert.	5350.000	PK	52.53	31.73	16.40	43.21	2.48	59.93	73.9	13.9	102	9	
Vert.	10620.000	PK	45.93	39.65	9.00	39.70	2.48	57.36	73.9	16.5	110	317	
Vert.	15930.000	PK	54.04	37.78	10.30	40.37	-9.54	52.21	73.9	21.6	135	356	
Vert.	21240.000	PK	44.87	39.97	12.95	46.20	-9.54	42.05	73.9	31.8	127	86	
Vert.	5350.000	AV	37.93	31.73	16.40	43.21	2.48	45.33	53.9	8.5	102	9	VBW:10 Hz
Vert.	10620.000	AV	35.54	39.65	9.00	39.70	2.48	46.97	53.9	6.9	110	317	VBW:10 Hz
Vert.	15930.000	AV	43.03	37.78	10.30	40.37	-9.54	41.20	53.9	12.7	135	356	VBW:10 Hz
Vert.	21240.000	AV	37.96	39.97	12.95	46.20	-9.54	35.14	53.9	18.7	127	86	VBW:10 Hz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.99\text{ m} / 3.0\text{ m}) = 2.48\text{ dB}$

13 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.54\text{ dB}$

UL Japan, Inc.

Shonan EMC Lab.

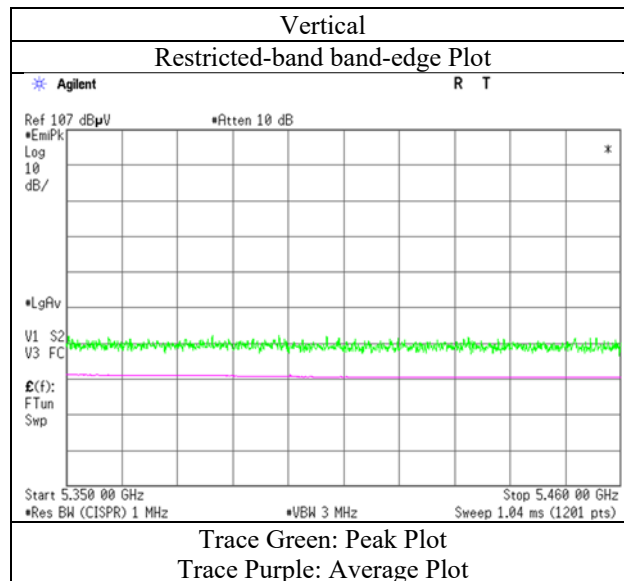
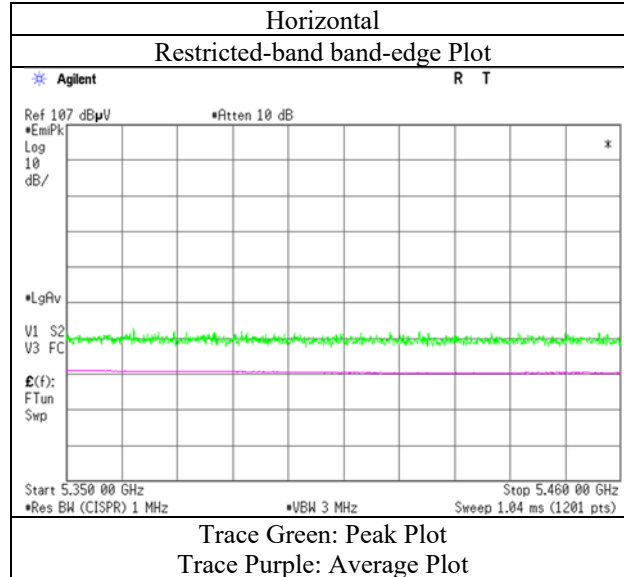
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

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Radiated Spurious Emission

Report No.	12699044S-AM-R1
Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	June 7, 2019
Temperature / Humidity	23 deg. C / 56 % RH
Engineer	Hiromasa Sato
Mode	Tx 11ac-40 MIMO 5310 MHz



* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions. Final result of restricted band edge was shown in tabular data.

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Radiated Spurious Emission

Report No.	12699044S-AM-R1				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber	No.3	No.1	No.3	No.2	No.2
Date	June 7, 2019	March 3, 2019	June 11, 2019	February 15, 2019	February 13, 2019
Temperature /	23 deg. C /	22 deg. C /	26 deg. C /	21 deg. C /	20 deg. C /
Humidity	56 % RH	33 % RH	47 % RH	32 % RH	30 % RH
Engineer	Hiromasa Sato	Makoto Hosaka	Toshinori Yamada	Yasumasa Owaki	Yasumasa Owaki
	(1 GHz – 6.4 GHz)	(6.4 GHz - 13 GHz)	(13 GHz - 18 GHz)	(18 GHz - 26 GHz)	(26 GHz - 40 GHz)
Mode	Tx 11ac-40 MIMO 5510 MHz				

(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]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5460.000	PK	49.80	32.08	16.47	43.30	2.48	57.53	73.9	16.3	148	97	
Hori.	11020.000	PK	46.10	40.13	9.07	39.48	2.48	58.30	73.9	15.6	123	323	
Hori.	22040.000	PK	48.65	40.18	13.27	47.03	-9.54	45.53	73.9	28.3	134	53	
Hori.	5460.000	AV	36.82	32.08	16.47	43.30	2.48	44.55	53.9	9.3	148	97	VBW:10Hz
Hori.	11020.000	AV	35.13	40.13	9.07	39.48	2.48	47.33	53.9	6.5	123	323	VBW:10Hz
Hori.	22040.000	AV	44.56	40.18	13.27	47.03	-9.54	41.44	53.9	12.4	134	53	VBW:10Hz
Vert.	5460.000	PK	48.66	32.08	16.47	43.30	2.48	56.39	73.9	17.5	149	22	
Vert.	11020.000	PK	45.85	40.13	9.07	39.48	2.48	58.05	73.9	15.8	120	14	
Vert.	22040.000	PK	46.85	40.18	13.27	47.03	-9.54	43.73	73.9	30.1	133	52	
Vert.	5460.000	AV	36.73	32.08	16.47	43.30	2.48	44.46	53.9	9.4	149	22	VBW:10Hz
Vert.	11020.000	AV	35.19	40.13	9.07	39.48	2.48	47.39	53.9	6.5	120	14	VBW:10Hz
Vert.	22040.000	AV	41.72	40.18	13.27	47.03	-9.54	38.60	53.9	15.3	133	52	VBW:10Hz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

Distance factor : 1 GHz - 13 GHz : 20log (3.99 m / 3.0 m) = 2.48 dB

13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

(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]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5470.000	PK	48.62	32.06	16.46	43.31	2.48	56.31	-38.91	-27.0	11.9	148	97	
Hori.	16530.000	PK	53.38	38.60	10.78	40.43	-9.54	52.79	-42.43	-27.0	15.4	135	0	
Vert.	5470.000	PK	49.49	32.06	16.46	43.31	2.48	57.18	-38.04	-27.0	11.0	149	22	
Vert.	16530.000	PK	51.49	38.60	10.78	40.43	-9.54	50.90	-44.32	-27.0	17.3	137	358	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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).

Distance factor : 1 GHz - 13 GHz : 20log (3.99 m / 3.0 m) = 2.48 dB

13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

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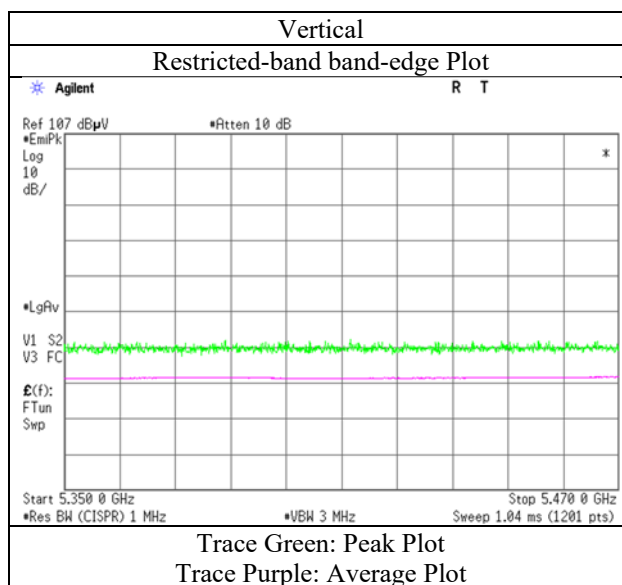
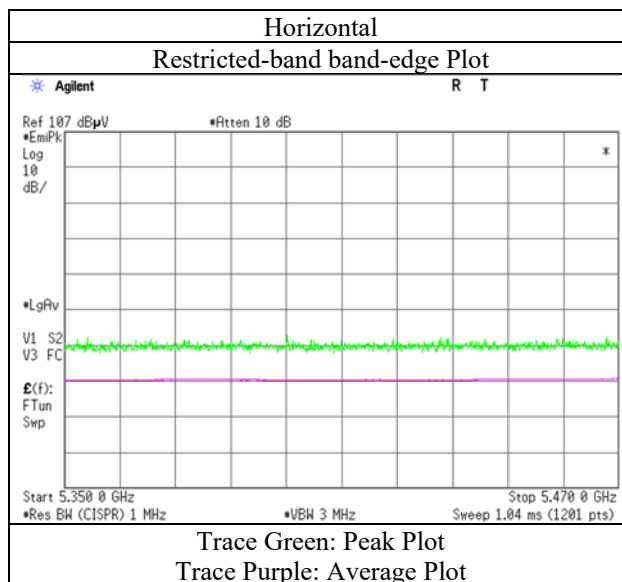
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

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Radiated Spurious Emission

Report No.	12699044S-AM-R1
Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	June 7, 2019
Temperature / Humidity	23 deg. C / 56 % RH
Engineer	Hiromasa Sato
Mode	Tx 11ac-40 MIMO 5510 MHz



* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.
Final result of restricted band edge was shown in tabular data.

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Radiated Spurious Emission

Report No.	12699044S-AM-R1				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber	No.3	No.1	No.3	No.2	No.2
Date	June 7, 2019	March 3, 2019	June 11, 2019	February 15, 2019	February 13, 2019
Temperature /	23 deg. C /	22 deg. C /	26 deg. C /	21 deg. C /	20 deg. C /
Humidity	56 % RH	33 % RH	47 % RH	32 % RH	30 % RH
Engineer	Hiromasa Sato	Makoto Hosaka	Toshinori Yamada	Yasumasa Owaki	Yasumasa Owaki
	(1 GHz – 6.4 GHz)	(6.4 GHz - 13 GHz)	(13 GHz - 18 GHz)	(18 GHz - 26 GHz)	(26 GHz - 40 GHz)
Mode	Tx 11ac-40 MIMO 5550 MHz				

(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]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	11100.000	PK	44.98	40.01	9.17	39.45	2.48	57.19	73.9	16.7	121	20	
Hori.	22200.000	PK	49.63	40.21	13.38	47.27	-9.54	46.41	73.9	27.4	146	6	
Hori.	11100.000	AV	35.29	40.01	9.17	39.45	2.48	47.50	53.9	6.4	121	20	VBW:10Hz
Hori.	22200.000	AV	44.30	40.21	13.38	47.27	-9.54	41.08	53.9	12.8	146	6	VBW:10Hz
Vert.	11100.000	PK	44.56	40.01	9.17	39.45	2.48	56.77	73.9	17.1	124	0	
Vert.	22200.000	PK	47.28	40.21	13.38	47.27	-9.54	44.06	73.9	29.8	134	51	
Vert.	11100.000	AV	35.02	40.01	9.17	39.45	2.48	47.23	53.9	6.6	124	0	VBW:10Hz
Vert.	22200.000	AV	41.56	40.21	13.38	47.27	-9.54	38.34	53.9	15.5	134	51	VBW:10Hz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

Distance factor : 1 GHz - 13 GHz : 20log (3.99 m / 3.0 m) = 2.48 dB

13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

(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]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	16650.000	PK	53.48	38.57	10.83	40.41	-9.54	52.93	-42.29	-27.0	15.2	136	1	
Vert.	16650.000	PK	52.14	38.57	10.83	40.41	-9.54	51.59	-43.63	-27.0	16.6	135	332	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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).

Distance factor : 1 GHz - 13 GHz : 20log (3.99 m / 3.0 m) = 2.48 dB

13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

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Radiated Spurious Emission

Report No.	12699044S-AM-R1				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber	No.3	No.1	No.3	No.2	No.2
Date	June 7, 2019	March 3, 2019	June 11, 2019	February 15, 2019	February 13, 2019
Temperature /	23 deg. C /	22 deg. C /	26 deg. C /	21 deg. C /	20 deg. C /
Humidity	56 % RH	33 % RH	47 % RH	32 % RH	30 % RH
Engineer	Hiromasa Sato	Makoto Hosaka	Toshinori Yamada	Yasumasa Owaki	Yasumasa Owaki
	(1 GHz – 6.4 GHz)	(6.4 GHz - 13 GHz)	(13 GHz - 18 GHz)	(18 GHz - 26 GHz)	(26 GHz - 40 GHz)
Mode	Tx 11ac-40 MIMO 5670 MHz				

(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]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	11340.000	PK	45.29	39.79	9.46	39.34	2.48	57.68	73.9	16.2	109	313	
Hori.	22680.000	PK	48.00	39.98	13.63	47.85	-9.54	44.22	73.9	29.6	139	55	
Hori.	11340.000	AV	34.66	39.79	9.46	39.34	2.48	47.05	53.9	6.8	109	313	VBW:10Hz
Hori.	22680.000	AV	42.62	39.98	13.63	47.85	-9.54	38.84	53.9	15.0	139	55	VBW:10Hz
Vert.	11340.000	PK	44.53	39.79	9.46	39.34	2.48	56.92	73.9	16.9	100	0	
Vert.	22680.000	PK	46.01	39.98	13.63	47.85	-9.54	42.23	73.9	31.6	136	57	
Vert.	11340.000	AV	34.50	39.79	9.46	39.34	2.48	46.89	53.9	7.0	100	0	VBW:10Hz
Vert.	22680.000	AV	39.48	39.98	13.63	47.85	-9.54	35.70	53.9	18.2	136	57	VBW:10Hz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

Distance factor : 1 GHz - 13 GHz : 20log (3.99 m / 3.0 m) = 2.48 dB

13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

(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]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5725.000	PK	48.01	32.35	16.59	43.33	2.48	56.10	-39.12	-27.0	12.1	119	79	
Hori.	17010.000	PK	51.75	39.55	10.97	40.35	-9.54	52.38	-42.84	-27.0	15.8	135	3	
Vert.	5725.000	PK	47.81	32.35	16.59	43.33	2.48	55.90	-39.32	-27.0	12.3	142	9	
Vert.	17010.000	PK	49.82	39.55	10.97	40.35	-9.54	50.45	-44.77	-27.0	17.7	134	332	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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).

Distance factor : 1 GHz - 13 GHz : 20log (3.99 m / 3.0 m) = 2.48 dB

13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

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Shonan EMC Lab.

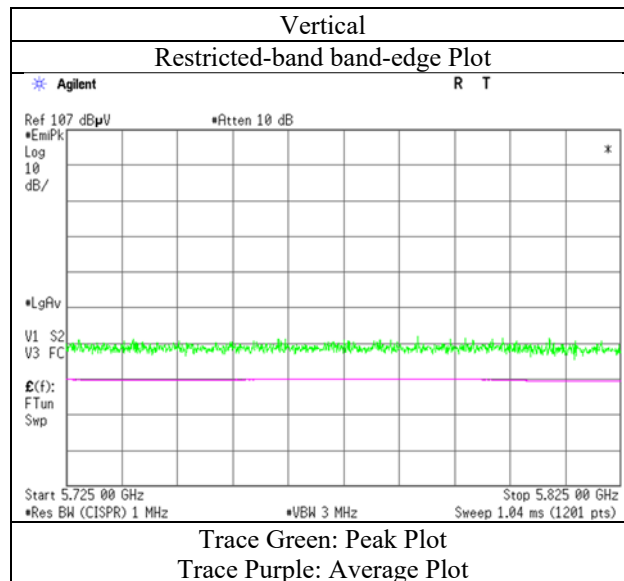
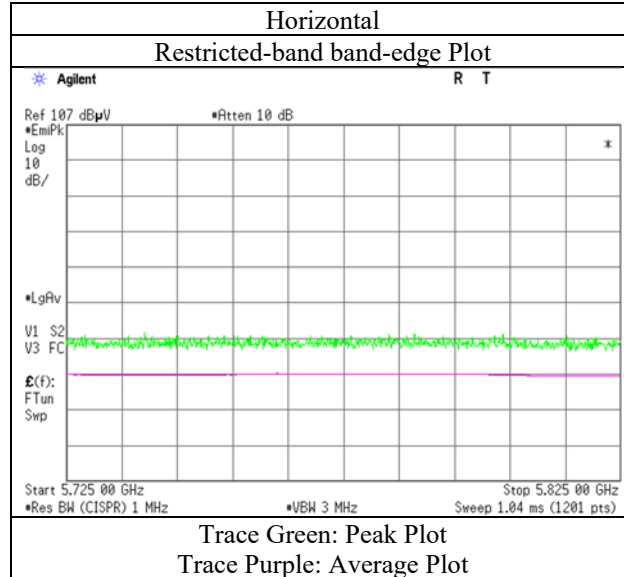
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

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Radiated Spurious Emission

Report No.	12699044S-AM-R1
Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	June 7, 2019
Temperature / Humidity	23 deg. C / 56 % RH
Engineer	Hiromasa Sato
Mode	Tx 11ac-40 MIMO 5670 MHz



* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.
Final result of restricted band edge was shown in tabular data.

UL Japan, Inc.

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Radiated Spurious Emission

Report No.	12699044S-AM-R1				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber	No.3	No.1	No.3	No.2	No.2
Date	June 7, 2019	March 3, 2019	June 11, 2019	February 15, 2019	February 13, 2019
Temperature /	23 deg. C /	22 deg. C /	26 deg. C /	21 deg. C /	20 deg. C /
Humidity	56 % RH	33 % RH	47 % RH	32 % RH	30 % RH
Engineer	Hiromasa Sato	Makoto Hosaka	Toshinori Yamada	Yasumasa Owaki	Yasumasa Owaki
	(1 GHz – 6.4 GHz)	(6.4 GHz - 13 GHz)	(13 GHz - 18 GHz)	(18 GHz - 26 GHz)	(26 GHz - 40 GHz)
Mode	Tx 11ac-40 MIMO 5755 MHz				

(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]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	11510.000	PK	43.70	40.01	9.65	39.26	2.48	56.58	73.9	17.3	129	309	
Hori.	23020.000	PK	49.49	39.88	13.73	48.10	-9.54	45.46	73.9	28.4	135	57	
Hori.	11510.000	AV	34.30	40.01	9.65	39.26	2.48	47.18	53.9	6.7	129	309	VBW:10Hz
Hori.	23020.000	AV	42.90	39.88	13.73	48.10	-9.54	38.87	53.9	15.0	135	57	VBW:10Hz
Vert.	11510.000	PK	42.62	40.01	9.65	39.26	2.48	55.50	73.9	18.4	100	1	
Vert.	23020.000	PK	47.44	39.88	13.73	48.10	-9.54	43.41	73.9	30.4	130	72	
Vert.	11510.000	AV	34.43	40.01	9.65	39.26	2.48	47.31	53.9	6.5	100	1	VBW:10Hz
Vert.	23020.000	AV	39.67	39.88	13.73	48.10	-9.54	35.64	53.9	18.2	130	72	VBW:10Hz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.99\text{ m} / 3.0\text{ m}) = 2.48\text{ dB}$

13 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.54\text{ dB}$

(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]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5650.000	PK	47.05	32.18	16.56	43.33	2.48	54.94	-40.28	-27.0	13.2	115	84	
Hori.	5700.000	PK	47.68	32.23	16.58	43.33	2.48	55.64	-39.58	10.0	49.5	115	84	
Hori.	5720.000	PK	47.04	32.33	16.58	43.33	2.48	55.10	-40.12	15.6	55.7	115	84	
Hori.	5725.000	PK	47.38	32.35	16.59	43.33	2.48	55.47	-39.75	27.0	66.7	115	84	
Hori.	17265.000	PK	51.07	39.98	10.89	40.28	-9.54	52.12	-43.10	-27.0	16.1	136	3	
Vert.	5650.000	PK	47.06	32.18	16.56	43.33	2.48	54.95	-40.27	-27.0	13.2	270	33	
Vert.	5700.000	PK	47.22	32.23	16.58	43.33	2.48	55.18	-40.04	10.0	50.0	270	33	
Vert.	5720.000	PK	47.30	32.33	16.58	43.33	2.48	55.36	-39.86	15.6	55.4	270	33	
Vert.	5725.000	PK	47.45	32.35	16.59	43.33	2.48	55.54	-39.68	27.0	66.6	270	33	
Vert.	17265.000	PK	49.47	39.98	10.89	40.28	-9.54	50.52	-44.70	-27.0	17.7	136	358	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

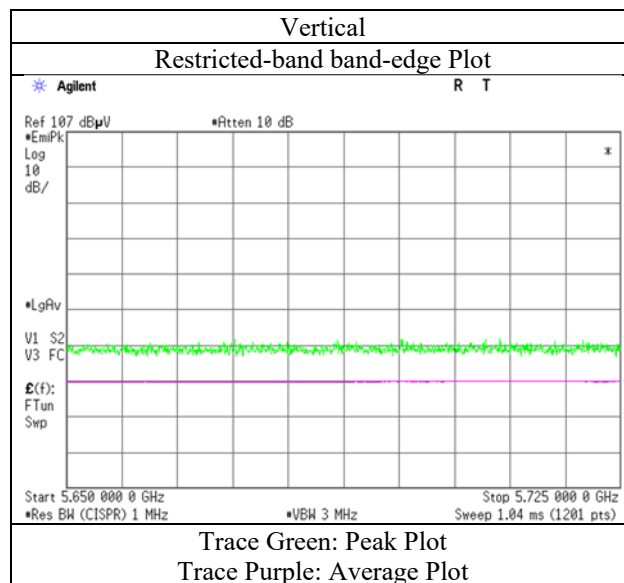
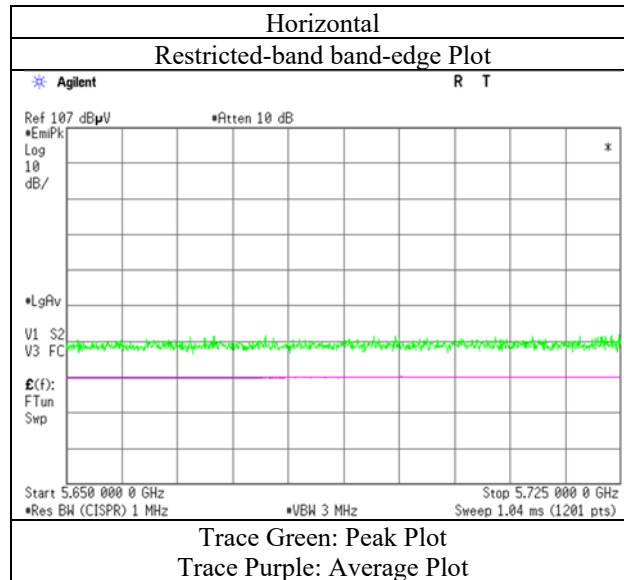
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor : 1 GHz - 13 GHz : $20\log(3.99\text{ m} / 3.0\text{ m}) = 2.48\text{ dB}$

13 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.54\text{ dB}$

Radiated Spurious Emission

Report No. 12699044S-AM-R1
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.3
Date June 7, 2019
Temperature / Humidity 23 deg. C / 56 % RH
Engineer Hiromasa Sato
Mode Tx 11ac-40 MIMO 5755 MHz



* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.
Final result of restricted band edge was shown in tabular data.

UL Japan, Inc.

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Radiated Spurious Emission

Report No.	12699044S-AM-R1				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber	No.3	No.1	No.3	No.2	No.2
Date	June 7, 2019	March 3, 2019	June 11, 2019	February 15, 2019	February 13, 2019
Temperature /	23 deg. C /	22 deg. C /	26 deg. C /	21 deg. C /	20 deg. C /
Humidity	56 % RH	33 % RH	47 % RH	32 % RH	30 % RH
Engineer	Hiromasa Sato	Makoto Hosaka	Toshinori Yamada	Yasumasa Owaki	Yasumasa Owaki
	(1 GHz - 6.4 GHz)	(6.4 GHz - 13 GHz)	(13 GHz - 18 GHz)	(18 GHz - 26 GHz)	(26 GHz - 40 GHz)
Mode	Tx 11ac-40 MIMO 5795 MHz				

(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]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	11590.000	PK	45.30	39.93	9.66	39.19	2.48	58.18	73.9	15.7	123	298	
Hori.	11590.000	AV	34.40	39.93	9.66	39.19	2.48	47.28	53.9	6.6	123	298	VBW:10Hz
Vert.	11590.000	PK	44.50	39.93	9.66	39.19	2.48	57.38	73.9	16.5	109	23	
Vert.	11590.000	AV	34.27	39.93	9.66	39.19	2.48	47.15	53.9	6.7	109	23	VBW:10Hz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

Distance factor : 1 GHz - 13 GHz : 20log (3.99 m / 3.0 m) = 2.48 dB

13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

(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]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5850.000	PK	47.81	32.65	16.66	43.34	2.48	56.26	-38.96	27.0	65.9	118	96	
Hori.	5855.000	PK	47.03	32.66	16.66	43.34	2.48	55.49	-39.73	15.6	55.3	118	96	
Hori.	5875.000	PK	47.24	32.72	16.67	43.34	2.48	55.77	-39.45	10.0	49.4	118	96	
Hori.	5925.000	PK	47.88	32.80	16.69	43.34	2.48	56.51	-38.71	-27.0	11.7	118	96	
Hori.	17385.000	PK	49.27	40.84	10.86	40.25	-9.54	51.18	-44.04	-27.0	17.0	136	3	
Hori.	23180.000	PK	47.77	39.83	13.73	48.21	-9.54	43.58	-51.64	-27.0	24.6	135	54	
Vert.	5850.000	PK	47.68	32.65	16.66	43.34	2.48	56.13	-39.09	27.0	66.0	228	144	
Vert.	5855.000	PK	47.36	32.66	16.66	43.34	2.48	55.82	-39.40	15.6	55.0	228	144	
Vert.	5875.000	PK	47.34	32.72	16.67	43.34	2.48	55.87	-39.35	10.0	49.3	228	144	
Vert.	5925.000	PK	47.94	32.80	16.69	43.34	2.48	56.57	-38.65	-27.0	11.6	228	144	
Vert.	17385.000	PK	48.56	40.84	10.86	40.25	-9.54	50.47	-44.75	-27.0	17.7	136	359	
Vert.	23180.000	PK	45.00	39.83	13.73	48.21	-9.54	40.81	-54.41	-27.0	27.4	131	72	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

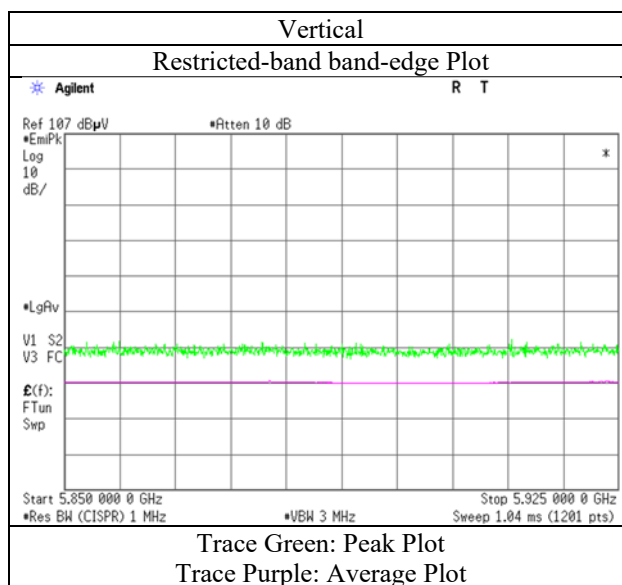
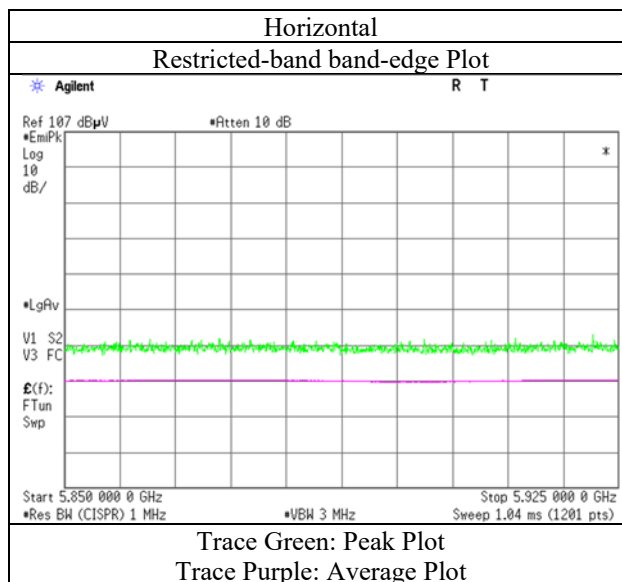
Result(EIRP[dBm])=10*LOG (({ 10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance:3[m]) ^ 2 } / 30) *10^3)

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

Distance factor : 1 GHz - 13 GHz : 20log (3.99 m / 3.0 m) = 2.48 dB

Radiated Spurious Emission

Report No.	12699044S-AM-R1
Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	June 7, 2019
Temperature / Humidity	23 deg. C / 56 % RH
Engineer	Hiromasa Sato
Mode	Tx 11ac-40 MIMO 5795 MHz



* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions. Final result of restricted band edge was shown in tabular data.

Radiated Spurious Emission

Report No.	12699044S-AM-R1				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber	No.3	No.1	No.3	No.2	No.2
Date	June 8, 2019	March 3, 2019	June 11, 2019	February 15, 2019	February 14, 2019
Temperature /	24 deg. C /	22 deg. C /	26 deg. C /	21 deg. C /	20 deg. C /
Humidity	52 % RH	33 % RH	47 % RH	32 % RH	29 % RH
Engineer	Kazuya Noda	Makoto Hosaka	Toshinori Yamada	Yasumasa Owaki	Yosuke Ishikawa
	(1 GHz - 6.4 GHz)	(6.4 GHz - 13 GHz)	(13 GHz - 18 GHz)	(18 GHz - 26 GHz)	(26 GHz - 40 GHz)
Mode	Tx 11ac-80 MIMO 5210 MHz				

(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]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5150.000	PK	50.87	32.18	16.32	43.04	2.48	58.81	73.9	15.0	149	111	
Hori.	15630.000	PK	53.74	38.45	10.32	40.69	-9.54	52.28	73.9	21.6	136	4	
Hori.	20840.000	PK	46.12	39.80	12.82	45.94	-9.54	43.26	73.9	30.6	144	6	
Hori.	5150.000	AV	42.29	32.18	16.32	43.04	2.48	50.23	53.9	3.6	149	111	VBW:12 kHz
Hori.	15630.000	AV	49.46	38.45	10.32	40.69	-9.54	48.00	53.9	5.9	136	4	VBW:12 kHz
Hori.	20840.000	AV	41.01	39.80	12.82	45.94	-9.54	38.15	53.9	15.7	144	6	VBW:12 kHz
Vert.	5150.000	PK	50.69	32.18	16.32	43.04	2.48	58.63	73.9	15.2	165	59	
Vert.	15630.000	PK	52.36	38.45	10.32	40.69	-9.54	50.90	73.9	23.0	137	358	
Vert.	20840.000	PK	45.32	39.80	12.82	45.94	-9.54	42.46	73.9	31.4	120	86	
Vert.	5150.000	AV	41.91	32.18	16.32	43.04	2.48	49.85	53.9	4.0	165	59	VBW:12 kHz
Vert.	15630.000	AV	48.23	38.45	10.32	40.69	-9.54	46.77	53.9	7.1	137	358	VBW:12 kHz
Vert.	20840.000	AV	40.83	39.80	12.82	45.94	-9.54	37.97	53.9	15.9	120	86	VBW:12 kHz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

Distance factor : 1 GHz - 13 GHz : 20log (3.99 m / 3.0 m) = 2.48 dB

13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

(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]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	10420.000	PK	45.90	39.56	8.96	39.69	2.48	57.21	-38.01	-27.0	11.0	121	0	
Vert.	10420.000	PK	44.61	39.56	8.96	39.69	2.48	55.92	-39.30	-27.0	12.3	100	0	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

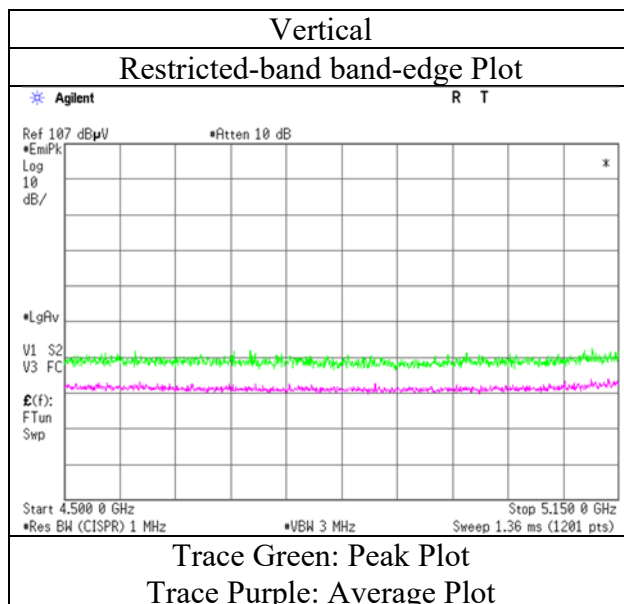
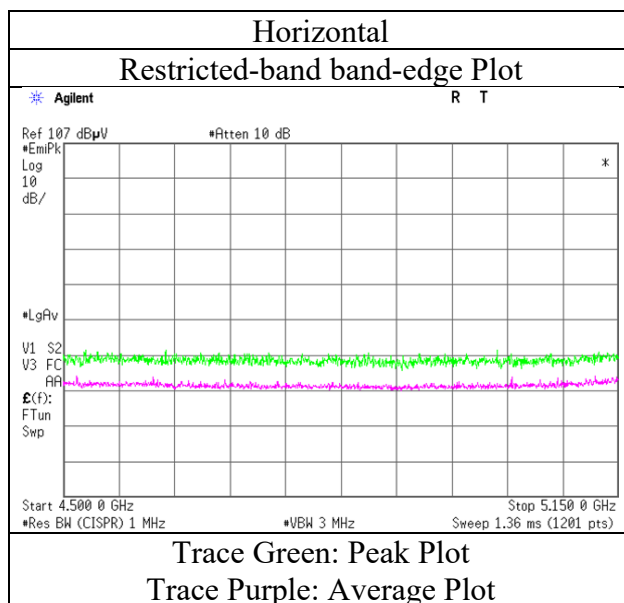
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor : 1 GHz - 13 GHz : 20log (3.99 m / 3.0 m) = 2.48 dB

13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Radiated Spurious Emission

Report No.	12699044S-AM-R1
Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	June 8, 2019
Temperature / Humidity	24 deg. C / 52 % RH
Engineer	Kazuya Noda
	(1 GHz – 6.4 GHz)
Mode	Tx 11ac-80 MIMO 5210 MHz



* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions. Final result of restricted band edge was shown in tabular data.

Radiated Spurious Emission

Report No.	12699044S-AM-R1				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber	No.3	No.1	No.3	No.2	No.2
Date	June 8, 2019	March 3, 2019	June 11, 2019	February 15, 2019	February 14, 2019
Temperature /	24 deg. C /	22 deg. C /	26 deg. C /	21 deg. C /	20 deg. C /
Humidity	52 % RH	33 % RH	47 % RH	32 % RH	29 % RH
Engineer	Kazuya Noda	Makoto Hosaka	Toshinori Yamada	Yasumasa Owaki	Yosuke Ishikawa
	(1 GHz - 6.4 GHz)	(6.4 GHz - 13 GHz)	(13 GHz - 18 GHz)	(18 GHz - 26 GHz)	(26 GHz - 40 GHz)
Mode	Tx 11ac-80 MIMO 5290 MHz				

(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]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5350.000	PK	53.22	31.73	16.40	43.21	2.48	60.62	73.9	13.2	146	95	
Hori.	15870.000	PK	54.46	37.85	10.30	40.44	-9.54	52.63	73.9	21.2	137	4	
Hori.	21160.000	PK	47.76	39.91	12.92	46.11	-9.54	44.94	73.9	28.9	144	7	
Hori.	5350.000	AV	44.17	31.73	16.40	43.21	2.48	51.57	53.9	2.3	146	95	VBW:12 kHz
Hori.	15870.000	AV	48.44	37.85	10.30	40.44	-9.54	46.61	53.9	7.2	137	4	VBW:12 kHz
Hori.	21160.000	AV	42.09	39.91	12.92	46.11	-9.54	39.27	53.9	14.6	144	7	VBW:12 kHz
Vert.	5350.000	PK	52.74	31.73	16.40	43.21	2.48	60.14	73.9	13.7	131	29	
Vert.	15870.000	PK	52.84	37.85	10.30	40.44	-9.54	51.01	73.9	22.8	135	358	
Vert.	21160.000	PK	44.40	39.91	12.92	46.11	-9.54	41.58	73.9	32.3	129	85	
Vert.	5350.000	AV	43.77	31.73	16.40	43.21	2.48	51.17	53.9	2.7	131	29	VBW:12 kHz
Vert.	15870.000	AV	46.48	37.85	10.30	40.44	-9.54	44.65	53.9	9.2	135	358	VBW:12 kHz
Vert.	21160.000	AV	38.63	39.91	12.92	46.11	-9.54	35.81	53.9	18.0	129	85	VBW:12 kHz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.99\text{ m} / 3.0\text{ m}) = 2.48\text{ dB}$

13 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.54\text{ dB}$

(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]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	10580.000	PK	45.52	39.65	9.00	39.73	2.48	56.92	-38.30	-27.0	11.3	100	304	
Vert.	10580.000	PK	45.44	39.65	9.00	39.73	2.48	56.84	-38.38	-27.0	11.3	126	0	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

Result(EIRP[dBm])= $10\cdot\log\left(\left(\left\{10^{\left(\text{Electric Field Strength [dBuV/m]} / 20\right)}\right\} \cdot 10^{-6}\right) \cdot \text{Distance:3[m]}^2 / 30\right) \cdot 10^3$

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.99\text{ m} / 3.0\text{ m}) = 2.48\text{ dB}$

13 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.54\text{ dB}$

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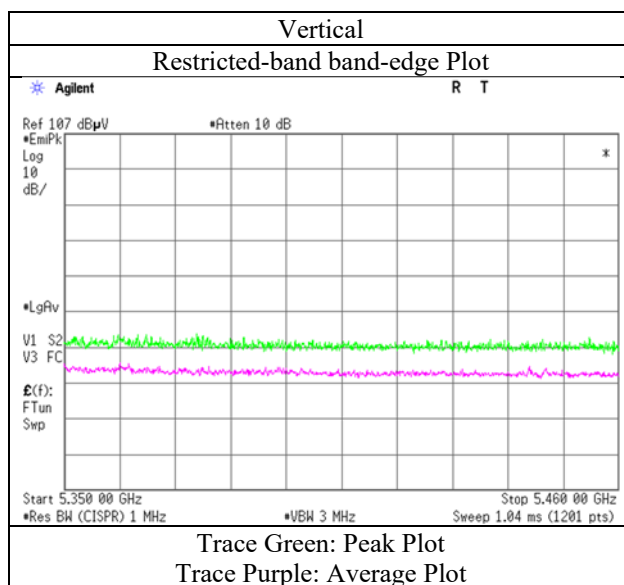
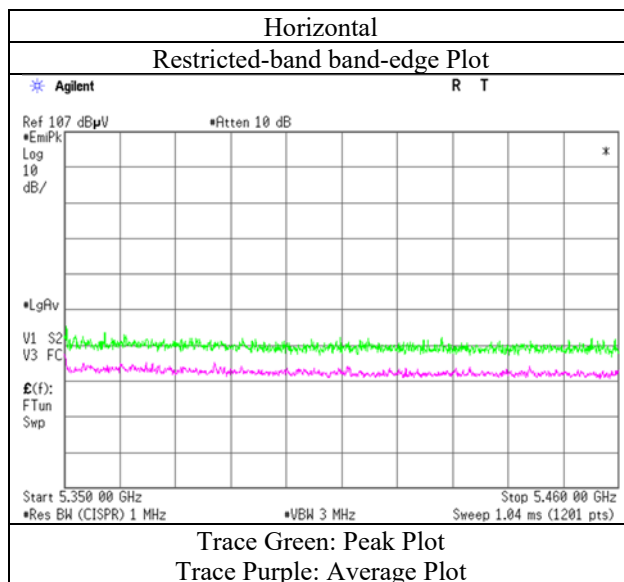
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Radiated Spurious Emission

Report No.	12699044S-AM-R1
Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	June 8, 2019
Temperature / Humidity	24 deg. C / 52 % RH
Engineer	Kazuya Noda
Mode	Tx 11ac-80 MIMO 5290 MHz



* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions. Final result of restricted band edge was shown in tabular data.

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Radiated Spurious Emission

Report No.	12699044S-AM-R1				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber	No.3	No.1	No.3	No.2	No.2
Date	June 8, 2019	March 3, 2019	June 11, 2019	February 15, 2019	February 14, 2019
Temperature /	24 deg. C /	22 deg. C /	26 deg. C /	21 deg. C /	20 deg. C /
Humidity	52 % RH	33 % RH	47 % RH	32 % RH	29 % RH
Engineer	Kazuya Noda	Makoto Hosaka	Toshinori Yamada	Yasumasa Owaki	Yosuke Ishikawa
	(1 GHz - 6.4 GHz)	(6.4 GHz - 13 GHz)	(13 GHz - 18 GHz)	(18 GHz - 26 GHz)	(26 GHz - 40 GHz)
Mode	Tx 11ac-80 MIMO 5530 MHz				

(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]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5460.000	PK	50.34	32.08	16.47	43.30	2.48	58.07	73.9	15.8	145	85	
Hori.	11060.000	PK	45.24	40.13	9.13	39.46	2.48	57.52	73.9	16.3	106	285	
Hori.	22120.000	PK	46.98	40.20	13.32	47.15	-9.54	43.81	73.9	30.0	134	58	
Hori.	5460.000	AV	41.58	32.08	16.47	43.30	2.48	49.31	53.9	4.5	145	85	VBW:12 kHz
Hori.	11060.000	AV	36.13	40.13	9.13	39.46	2.48	48.41	53.9	5.4	106	285	VBW:12 kHz
Hori.	22120.000	AV	42.21	40.20	13.32	47.15	-9.54	39.04	53.9	14.8	134	58	VBW:12 kHz
Vert.	5460.000	PK	50.19	32.08	16.47	43.30	2.48	57.92	73.9	15.9	129	49	
Vert.	11060.000	PK	45.28	40.13	9.13	39.46	2.48	57.56	73.9	16.3	114	336	
Vert.	22120.000	PK	45.14	40.20	13.32	47.15	-9.54	41.97	73.9	31.9	134	52	
Vert.	5460.000	AV	41.51	32.08	16.47	43.30	2.48	49.24	53.9	4.6	129	49	VBW:12 kHz
Vert.	11060.000	AV	36.06	40.13	9.13	39.46	2.48	48.34	53.9	5.5	114	336	VBW:12 kHz
Vert.	22120.000	AV	39.93	40.20	13.32	47.15	-9.54	36.76	53.9	17.1	134	52	VBW:12 kHz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.99\text{ m} / 3.0\text{ m}) = 2.48\text{ dB}$

13 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.54\text{ dB}$

(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]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5470.000	PK	50.72	32.06	16.46	43.31	2.48	58.41	-36.81	-27.0	9.8	145	85	
Hori.	16590.000	PK	52.92	38.55	10.80	40.42	-9.54	52.31	-42.91	-27.0	15.9	136	4	
Vert.	5470.000	PK	50.74	32.06	16.46	43.31	2.48	58.43	-36.79	-27.0	9.7	129	49	
Vert.	16590.000	PK	50.73	38.55	10.80	40.42	-9.54	50.12	-45.10	-27.0	18.1	133	334	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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).

Distance factor : 1 GHz - 13 GHz : $20\log(3.99\text{ m} / 3.0\text{ m}) = 2.48\text{ dB}$

13 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.54\text{ dB}$

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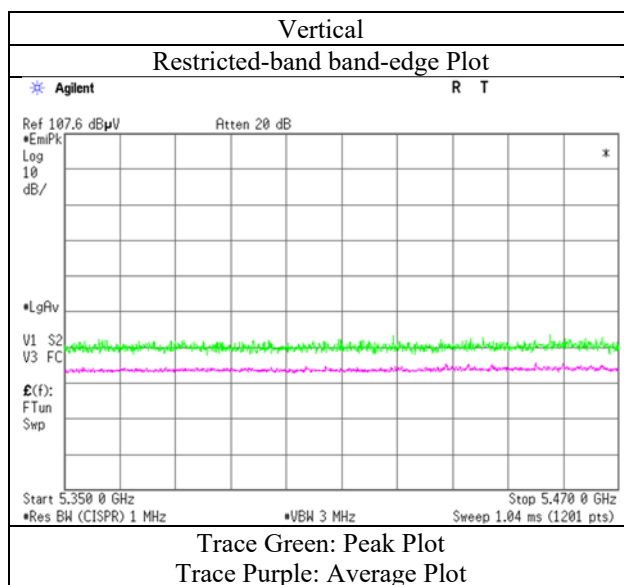
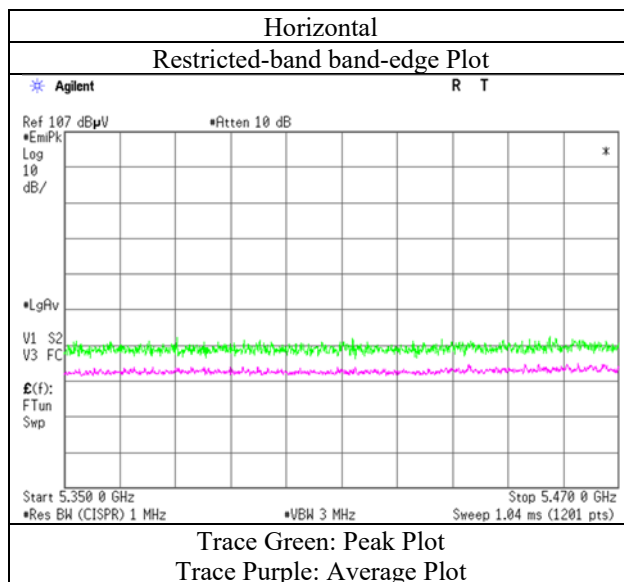
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Radiated Spurious Emission

Report No.	12699044S-AM-R1
Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	June 8, 2019
Temperature / Humidity	24 deg. C / 52 % RH
Engineer	Kazuya Noda
Mode	Tx 11ac-80 MIMO 5530 MHz



* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.
Final result of restricted band edge was shown in tabular data.

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Shonan EMC Lab.

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

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Radiated Spurious Emission

Report No.	12699044S-AM-R1				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber	No.3	No.1	No.3	No.2	No.2
Date	June 8, 2019	March 3, 2019	June 11, 2019	February 15, 2019	February 14, 2019
Temperature /	24 deg. C /	22 deg. C /	26 deg. C /	21 deg. C /	20 deg. C /
Humidity	52 % RH	33 % RH	47 % RH	32 % RH	29 % RH
Engineer	Kazuya Noda	Makoto Hosaka	Toshinori Yamada	Yasumasa Owaki	Yosuke Ishikawa
	(1 GHz – 6.4 GHz)	(6.4 GHz - 13 GHz)	(13 GHz - 18 GHz)	(18 GHz - 26 GHz)	(26 GHz - 40 GHz)
Mode	Tx 11ac-80 MIMO 5610 MHz				

(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]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	11220.000	PK	44.90	39.73	9.32	39.39	2.48	57.04	73.9	16.8	129	299	
Hori.	22440.000	PK	48.72	40.16	13.53	47.62	-9.54	45.25	73.9	28.6	144	6	
Hori.	11220.000	AV	36.03	39.73	9.32	39.39	2.48	48.17	53.9	5.7	129	299	VBW:12 kHz
Hori.	22440.000	AV	44.51	40.16	13.53	47.62	-9.54	41.04	53.9	12.8	144	6	VBW:12 kHz
Vert.	11220.000	PK	45.35	39.73	9.32	39.39	2.48	57.49	73.9	16.4	100	3	
Vert.	22440.000	PK	47.68	40.16	13.53	47.62	-9.54	44.21	73.9	29.6	135	57	
Vert.	11220.000	AV	35.30	39.73	9.32	39.39	2.48	47.44	53.9	6.4	100	3	VBW:12 kHz
Vert.	22440.000	AV	42.24	40.16	13.53	47.62	-9.54	38.77	53.9	15.1	135	57	VBW:12 kHz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

Distance factor : 1 GHz - 13 GHz : 20log (3.99 m / 3.0 m) = 2.48 dB

13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

(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]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5725.000	PK	48.65	32.35	16.59	43.33	2.48	56.74	-38.48	-27.0	11.4	154	106	
Hori.	16830.000	PK	50.46	39.57	10.91	40.38	-9.54	51.02	-44.20	-27.0	17.2	136	5	
Vert.	5725.000	PK	49.06	32.35	16.59	43.33	2.48	57.15	-38.07	-27.0	11.0	113	46	
Vert.	16830.000	PK	48.38	39.57	10.91	40.38	-9.54	48.94	-46.28	-27.0	19.2	133	333	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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).

Distance factor : 1 GHz - 13 GHz : 20log (3.99 m / 3.0 m) = 2.48 dB

13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

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Shonan EMC Lab.

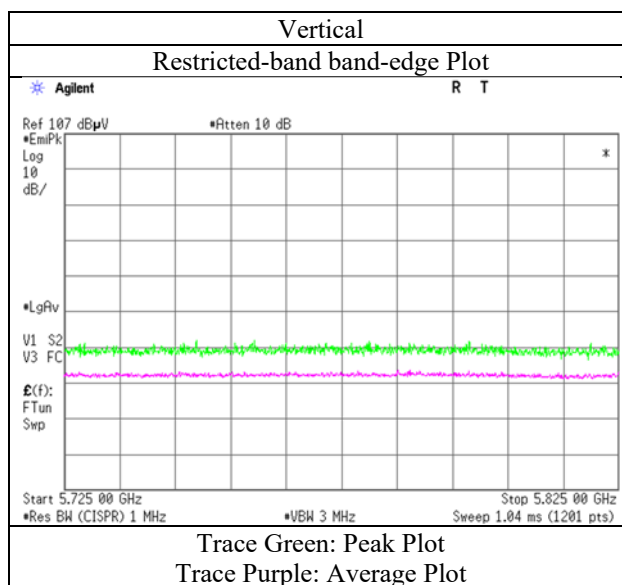
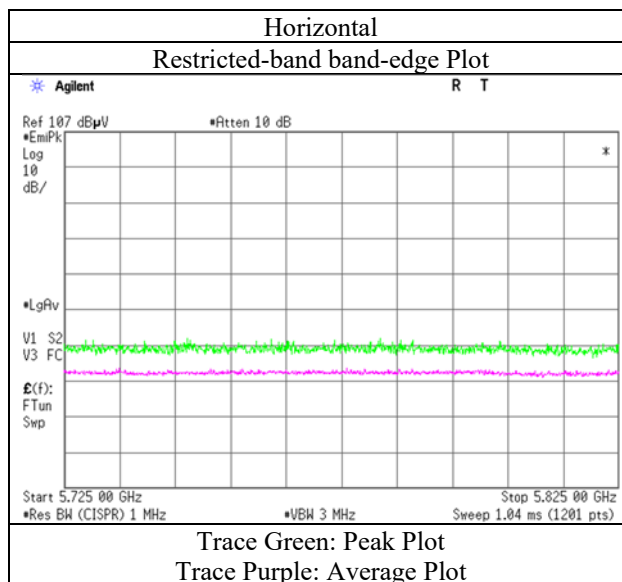
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

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Radiated Spurious Emission

Report No.	12699044S-AM-R1
Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	June 8, 2019
Temperature / Humidity	24 deg. C / 52 % RH
Engineer	Kazuya Noda
Mode	Tx 11ac-80 MIMO 5610 MHz



* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.
Final result of restricted band edge was shown in tabular data.

UL Japan, Inc.

Shonan EMC Lab.

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

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Radiated Spurious Emission

Report No.	12699044S-AM-R1				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber	No.3	No.1	No.3	No.2	No.2
Date	June 8, 2019	March 3, 2019	June 11, 2019	February 15, 2019	February 14, 2019
Temperature /	24 deg. C /	22 deg. C /	26 deg. C /	21 deg. C /	20 deg. C /
Humidity	52 % RH	33 % RH	47 % RH	32 % RH	29 % RH
Engineer	Kazuya Noda	Makoto Hosaka	Toshinori Yamada	Yasumasa Owaki	Yosuke Ishikawa
	(1 GHz – 6.4 GHz)	(6.4 GHz - 13 GHz)	(13 GHz - 18 GHz)	(18 GHz - 26 GHz)	(26 GHz - 40 GHz)
Mode	Tx 11ac-80 MIMO 5775 MHz				

(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]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	11550.000	PK	45.50	40.03	9.65	39.23	2.48	58.43	73.9	15.4	129	331	
Hori.	23100.000	PK	49.29	39.85	13.73	48.16	-9.54	45.17	73.9	28.7	137	56	
Hori.	11550.000	AV	35.80	40.03	9.65	39.23	2.48	48.73	53.9	5.1	129	331	VBW:12 kHz
Hori.	23100.000	AV	44.27	39.85	13.73	48.16	-9.54	40.15	53.9	13.7	137	56	VBW:12 kHz
Vert.	11550.000	PK	44.31	40.03	9.65	39.23	2.48	57.24	73.9	16.6	122	0	
Vert.	23100.000	PK	47.18	39.85	13.73	48.16	-9.54	43.06	73.9	30.8	132	75	
Vert.	11550.000	AV	35.32	40.03	9.65	39.23	2.48	48.25	53.9	5.6	122	0	VBW:12 kHz
Vert.	23100.000	AV	41.12	39.85	13.73	48.16	-9.54	37.00	53.9	16.9	132	75	VBW:12 kHz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

Distance factor : 1 GHz - 13 GHz : 20log (3.99 m / 3.0 m) = 2.48 dB

13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

(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]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5650.000	PK	47.68	32.18	16.56	43.33	2.48	55.57	-39.65	-27.0	12.6	155	96	
Hori.	5700.000	PK	48.72	32.23	16.58	43.33	2.48	56.68	-38.54	10.0	48.5	155	96	
Hori.	5720.000	PK	48.97	32.33	16.58	43.33	2.48	57.03	-38.19	15.6	53.7	155	96	
Hori.	5725.000	PK	49.68	32.35	16.59	43.33	2.48	57.77	-37.45	27.0	64.4	155	96	
Hori.	5850.000	PK	49.16	32.65	16.66	43.34	2.48	57.61	-37.61	27.0	64.6	155	96	
Hori.	5855.000	PK	48.79	32.66	16.66	43.34	2.48	57.25	-37.97	15.6	53.5	155	96	
Hori.	5875.000	PK	48.97	32.72	16.67	43.34	2.48	57.50	-37.72	10.0	47.7	155	96	
Hori.	5925.000	PK	49.75	32.80	16.69	43.34	2.48	58.38	-36.84	-27.0	9.8	155	96	
Hori.	17325.000	PK	49.76	40.32	10.87	40.27	-9.54	51.14	-44.08	-27.0	17.0	137	4	
Vert.	5650.000	PK	48.41	32.18	16.56	43.33	2.48	56.30	-38.92	-27.0	11.9	116	48	
Vert.	5700.000	PK	48.32	32.23	16.58	43.33	2.48	56.28	-38.94	10.0	48.9	116	48	
Vert.	5720.000	PK	48.81	32.33	16.58	43.33	2.48	56.87	-38.35	15.6	53.9	116	48	
Vert.	5725.000	PK	49.67	32.35	16.59	43.33	2.48	57.76	-37.46	27.0	64.4	116	48	
Vert.	5850.000	PK	48.81	32.65	16.66	43.34	2.48	57.26	-37.96	27.0	64.9	116	48	
Vert.	5855.000	PK	48.77	32.66	16.66	43.34	2.48	57.23	-37.99	15.6	53.5	116	48	
Vert.	5875.000	PK	48.80	32.72	16.67	43.34	2.48	57.33	-37.89	10.0	47.8	116	48	
Vert.	5925.000	PK	49.28	32.80	16.69	43.34	2.48	57.91	-37.31	-27.0	10.3	116	48	
Vert.	17325.000	PK	47.49	40.32	10.87	40.27	-9.54	48.87	-46.35	-27.0	19.3	134	332	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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).

Distance factor : 1 GHz - 13 GHz : 20log (3.99 m / 3.0 m) = 2.48 dB

13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

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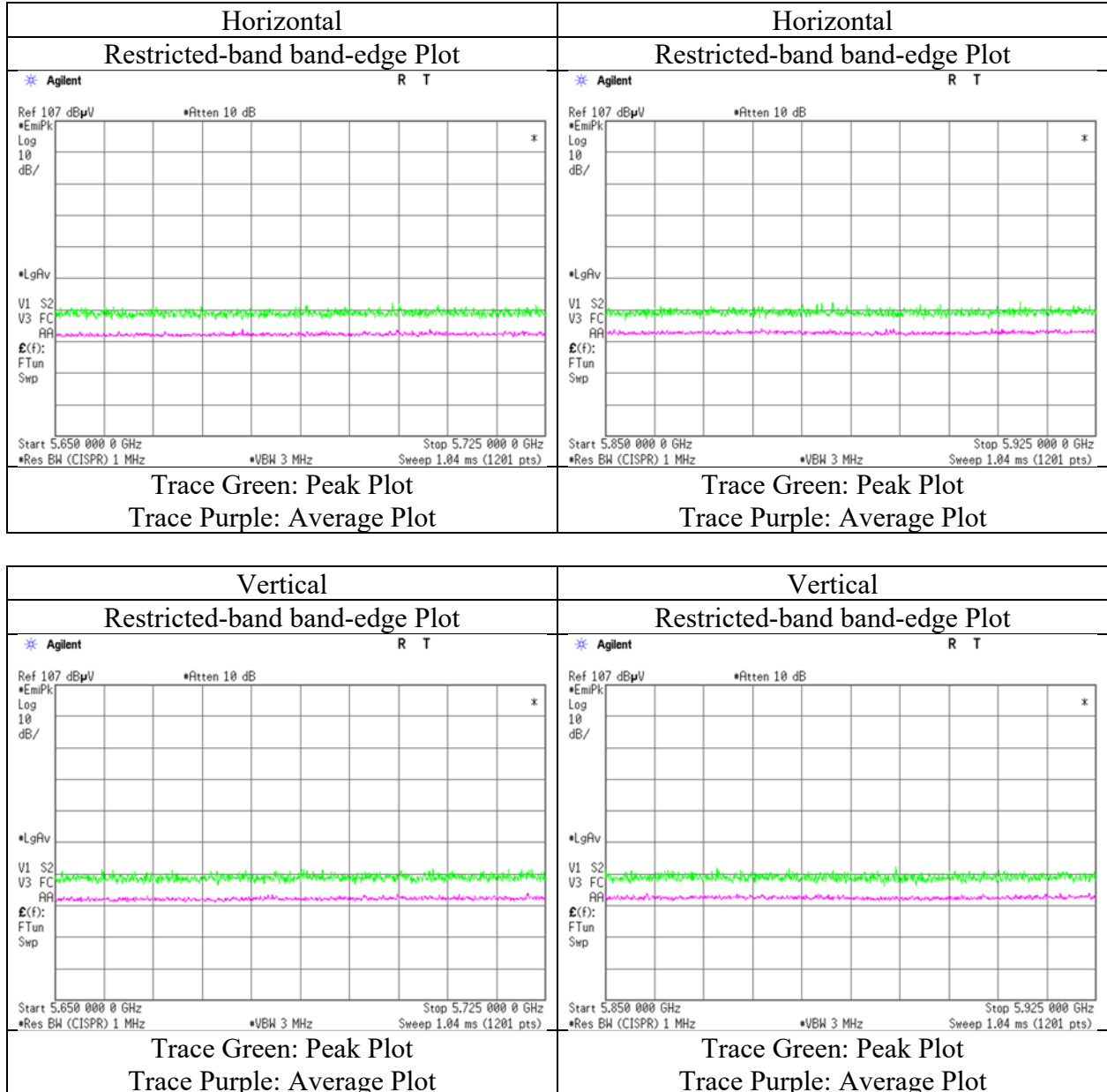
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Radiated Spurious Emission

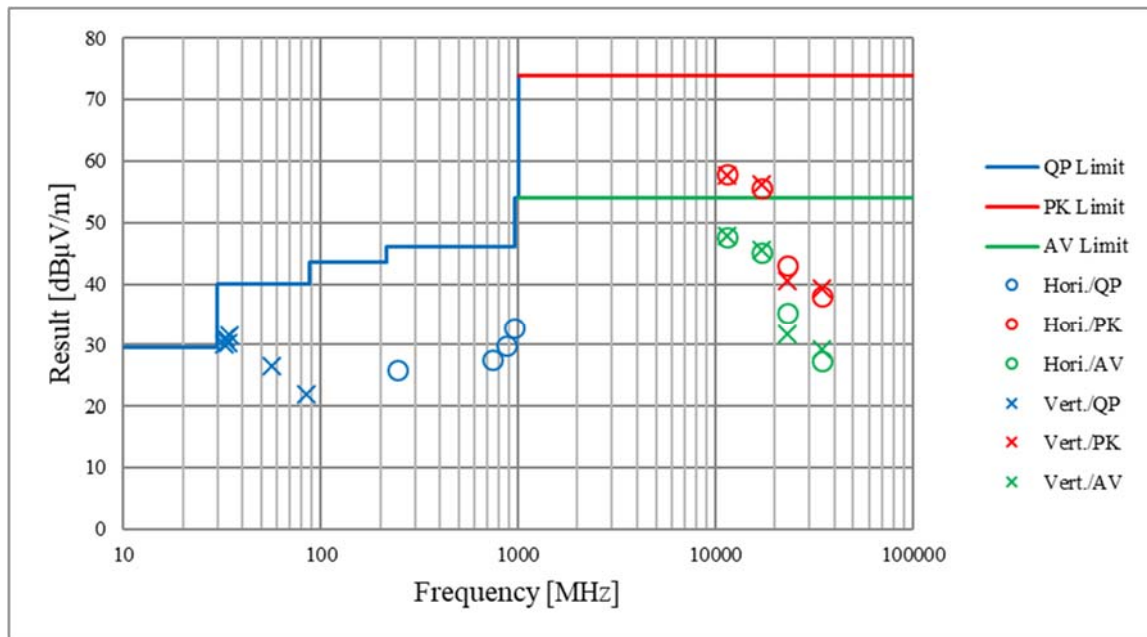
Report No.	12699044S-AM-R1
Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	June 8, 2019
Temperature / Humidity	24 deg. C / 52 % RH
Engineer	Kazuya Noda
Mode	Tx 11ac-80 MIMO 5775 MHz



* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions. Final result of restricted band edge was shown in tabular data.

Radiated Spurious Emission (Plot data, Worst case)

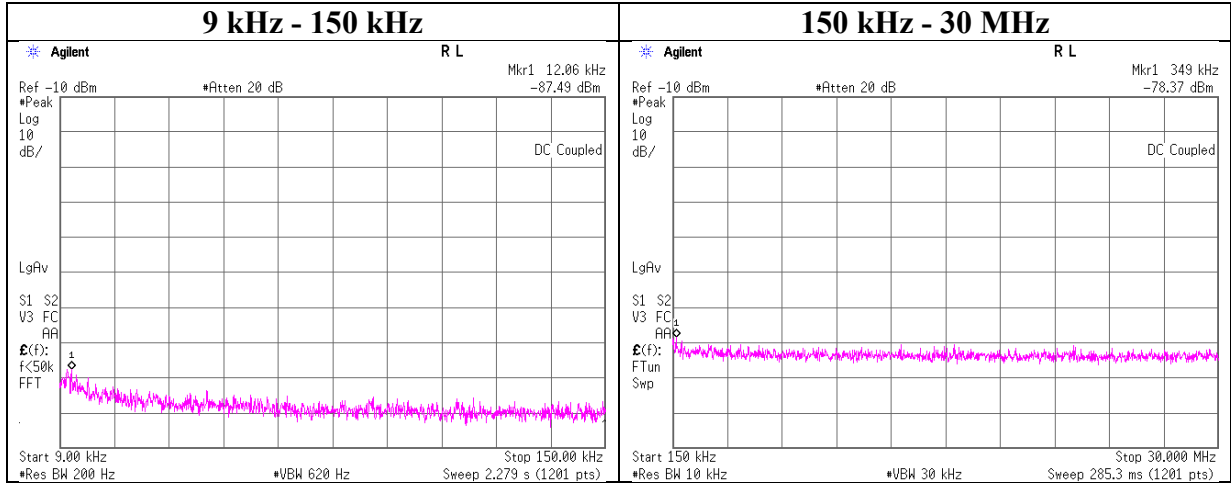
Report No.	12699044S-AM-R1					
Test place	Shonan EMC Lab.					
Semi Anechoic Chamber	No.3	No.3	No.1	No.1	No.2	No.2
Date	March 13, 2019	June 7, 2019	March 11, 2019	June 10, 2019	February 14, 2019	February 13, 2019
Temperature /	23 deg. C /	23 deg. C /	22 deg. C /	22 deg. C /	23 deg. C /	21 deg. C /
Humidity	39 % RH	56 % RH	43 % RH	60 % RH	30 % RH	31 % RH
Engineer	Takahiro Suzuki	Toshinori Yamada	Kazuya Noda	Kazuya Noda	Yasumasa Owaki	Yosuke Ishikawa
	(30 MHz - 1 GHz)	(1 GHz - 6.4 GHz)	(6.4 GHz - 13 GHz)	(13 GHz - 18 GHz)	(18 GHz - 26 GHz)	(26 GHz - 40 GHz)
Mode	Tx 11n-20 MIMO 5745 MHz					



*These plots data contains sufficient number to show the trend of characteristic features for EUT.

Conducted Spurious Emission

Report No.	12699044S-AM-R1
Test place	Shonan EMC Lab. No.5 Shielded Room
Date	February 18, 2019
Temperature / Humidity	25 deg. C / 51 % RH
Engineer	Shiro Kobayashi
Mode	Tx 11n-20 MIMO 5745 MHz



Antenna	Frequency [kHz]	Reading [dBm]	Cable Loss [dB]	Attenuator [dB]	Antenna Gain* [dBi]	N (Number of Output)	EIRP [dBm]	Distance [m]	Ground bounce [dB]	E (field strength) [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
B	12.06	-87.5	0.01	9.73	2.0	2	-72.7	300	6.0	-11.5	45.9	57.4	
	349.00	-78.4	0.01	9.74	2.0	2	-63.6	300	6.0	-2.4	16.7	19.1	

$E [dBuV/m] = EIRP [dBm] - 20 \log (Distance [m]) + Ground\ bounce [dB] + 104.8 [dBuV/m]$

$EIRP [dBm] = Reading [dBm] + Cable\ loss [dB] + Attenuator\ Loss [dB] + Antenna\ gain [dBi] + 10 * \log (N)$

N: Number of output

*2.0 dBi was applied to the test result based on KDB 789033 since antenna gain was less than 2.0 dBi.

APPENDIX 2: Test instruments

Test Instruments (1/3)

Local ID	Test Name	LIMS ID	Description	Manufacturer	Model	Serial	Last Calibration Date	Calibration Due Date	Calibration Interval (Month)
KTS-07	AT	145111	Digital Tester	SANWA	PC500	7019232	2018/10/17	2019/10/31	12
SAT10-09	AT	145132	Attenuator	Weinschel Corp.	54A-10	W5692	2018/11/25	2019/11/30	12
SAT10-12	AT	151609	Attenuator	Weinschel Corp.	54A-10	81601	2019/3/27	2020/3/31	12
SAT10-13	AT	151610	Attenuator	Weinschel Corp.	54A-10	81626	2019/3/27	2020/3/31	12
SCC-G31	AT	145042	Coaxial Cable	Junkosha	MWX241-01000KMSK MS	OCT-08-13-046	2019/4/16	2020/4/30	12
SCC-G35	AT	151612	Coaxial Cable	Junkosha	MWX241-01000KMSK MS/B	1612Q033	2019/1/25	2020/1/31	12
SCC-G36	AT	151613	Coaxial Cable	Junkosha	MWX241-01000KMSK MS/B	1612Q034	2019/1/25	2020/1/31	12
SCC-G37	AT	151614	Coaxial Cable	Junkosha	MWX241-01000KMSK MS/B	1612Q035	2018/12/25	2019/12/31	12
SCC-G38	AT	151615	Coaxial Cable	Junkosha	MWX241-01000KMSK MS/B	1612Q036	2018/12/25	2019/12/31	12
SOS-19	AT	175823	Humidity Indicator	CUSTOM	CTH-201	-	2018/12/5	2019/12/31	12
SPM-07	AT	146247	Power Meter	AGILENT	8990B	MY5100272	2019/7/16	2020/7/31	12
SPM-13	AT	169910	Power Meter	EMC Instruments Corporation	8990B	MY51000448	2019/3/6	2020/3/31	12
SPSS-04	AT	146310	Power sensor	AGILENT	N1923A	MY5326009	2019/7/16	2020/7/31	12
SPSS-05	AT	146311	Power sensor	AGILENT	N1923A	MY5349008	2019/7/16	2020/7/31	12
SPSS-06	AT	169911	Power sensor	EMC Instruments Corporation	N1923A	MY57270004	2019/3/6	2020/3/31	12
SPSS-07	AT	169912	Power sensor	EMC Instruments Corporation	N1923A	MY57290005	2019/3/6	2020/3/31	12
STM-G4	AT	145787	Terminator	Weinschel - API Technologies Corp	M1459A	U6592	2019/7/4	2020/7/31	12
SOS-09	AT	146318	Humidity Indicator	A&D	AD-5681	4061484	2018/12/5	2019/12/31	12
SRENT-15	AT	160899	Spectrum Analyzer	AGILENT (KEYSIGHT)	E4440A	MY46185516	2019/1/21	2020/1/31	12
SAT10-14	AT	154591	Attenuator	Weinschel Corp.	54A-10	81595	2019/4/16	2020/4/30	12
STS-05	AT	146212	Digital Hitester	HIOKI	3805-50	80997828	2018/10/16	2019/10/31	12
SCC-G39	AT	151616	Coaxial Cable	Junkosha	MWX241-01000KMSK MS/B	1612Q037	2018/12/25	2019/12/31	12
SSA-02	AT,RE	145800	Spectrum Analyzer	AGILENT	E4448A	MY48250106	2019/4/4	2020/4/30	12
KAT3-12	CE	144896	Attenuator	JFW IND. INC.	50HF-003N	-	2019/7/18	2020/7/31	12
SCC-C9	CE	145035	Coaxial Cable	Suhner	RG223U	-	2019/4/19	2020/4/30	12
SLS-03	CE	145540	LISN	Rohde & Schwarz	ENV216	100513	2019/2/21	2020/2/29	12
SLS-04	CE	145541	LISN	Rohde & Schwarz	ENV216	100514	2019/2/21	2020/2/29	12
SOS-04	CE	146292	Humidity Indicator	A&D	AD-5681	4061512	2018/12/5	2019/12/31	12
STM-11	CE	145764	Terminator	TME	CT-01 BP	-	2018/12/25	2019/12/31	12
STR-02	CE	145791	Test Receiver	Rohde & Schwarz	ESCI	100575	2018/10/19	2019/10/31	12

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Test Instruments (2/3)

Local ID	Test Name	LIMS ID	Description	Manufacturer	Model	Serial	Last Calibration Date	Calibration Due Date	Calibration Interval (Month)
COTS-SEMI-5	CE,RE	170932	EMI Software	TSJ	TEPTO-DV3(RE,CE,ME,PE)	-	-	-	-
SJM-09	CE,RE	145336	Measure	PROMART	SEN1935	-	-	-	-
STS-02	CE,RE	145793	Digital Hitester	HIOKI	3805-50	80997819	2019/4/2	2020/4/30	12
KJM-02	RE	146432	Measure	TAJIMA	GL19-55	-	-	-	-
KJM-09	RE	145929	Measure	KOMELON	KMC-36	-	-	-	-
KSA-08	RE	145089	Spectrum Analyzer	AGILENT	E4446A	MY46180525	2018/10/7	2019/10/31	12
SAEC-01(SVSWR)	RE	145561	Semi-Anechoic Chamber	TDK	SAEC-01(SVSWR)	1	2019/5/6	2020/5/30	12
SAEC-02(SVSWR)	RE	145598	Semi-Anechoic Chamber	TDK	SAEC-02(SVSWR)	2	2019/5/9	2020/5/31	12
SAEC-03(NSA)	RE	145565	Semi-Anechoic Chamber	TDK	SAEC-03(NSA)	3	2019/4/8	2020/4/30	12
SAEC-03(SVSWR)	RE	145566	Semi-Anechoic Chamber	TDK	SAEC-03(SVSWR)	3	2019/5/3	2020/5/31	12
SAF-03	RE	145126	Pre Amplifier	SONOMA	310N	290213	2019/2/5	2020/2/29	12
SAF-04	RE	145127	Pre Amplifier	Toyo Corporation	TPA0118-36	2072554	2019/6/4	2020/6/30	12
SAF-06	RE	145005	Pre Amplifier	Toyo Corporation	TPA0118-36	1440491	2019/2/8	2020/2/29	12
SAF-09	RE	145008	Pre Amplifier	Toyo Corporation	HAP18-26W	18	2018/9/21	2019/9/30	12
SAF-10	RE	145129	Pre Amplifier	Toyo Corporation	HAP26-40W	10	2019/3/22	2020/3/31	12
SAT10-05	RE	145136	Attenuator(above1GHz)	AGILENT	8493C-010	74864	2018/11/25	2019/11/30	12
SAT10-06	RE	145137	Attenuator	AGILENT	8493C-010	74865	2018/11/25	2019/11/30	12
SAT6-13	RE	167094	Attenuator	JFW	50HF-006N	-	2019/2/5	2020/2/29	12
SBA-03	RE	145023	Biconical Antenna	Schwarzbeck	BBA9106	91032666	2019/5/7	2020/5/31	12
SCC-C1/C2/C3/C4/C5/C10/SRSE-03	RE	145171	Coaxial Cable&RF Selector	Fujikura/Fujikura/Suhner/Suhner/TOYO	8D2W/12DSF A/141PE/141PE/141PE/141P	-/0901-271(RF Selector)	2019/4/19	2020/4/30	12
SCC-G05	RE	145039	Coaxial Cable	Junkosha	J12J102207-00	APR-30-15-037	2019/1/25	2020/1/31	12
SCC-G40	RE	166491	Coaxial Cable	Junkosha	MWX221-01000NFSN MS/B	1612S005	2019/1/25	2020/1/31	12
SCC-G41	RE	151617	Coaxial Cable	Junkosha	MWX221-01000NFSN MS/B	1612S006	2019/1/25	2020/1/31	12
SCC-G43	RE	156380	Coaxial Cable	HUBER+SUNER	SUCOFLEX_104 E	SN MY 13406/4E	2019/7/3	2020/7/31	12
SCC-G44	RE	168300	Coaxial Cable	HUBER+SUNER	SUCOFLEX 104	800070/4A	2019/3/26	2020/3/31	12
SCC-G45	RE	168301	Coaxial Cable	HUBER+SUNER	SUCOFLEX 102 E	800137/2E A	2019/3/26	2020/3/31	12
SCC-G56	RE	179539	Coaxial Cable	Huber+Suhner	SUCOFLEX 104	803289/4	2019/5/16	2020/5/31	12
SFL-03	RE	145377	Highpass Filter	MICRO-TRONICS	HPM50112	28	2018/11/16	2019/11/30	12
SHA-01	RE	145383	Horn Antenna	Schwarzbeck	BBHA9120D	9120D-725	2019/5/9	2020/5/31	12
SHA-02	RE	145384	Horn Antenna	Schwarzbeck	BBHA9120D	9120D-726	2019/6/26	2020/6/30	12

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Test Instruments (3/3)

Local ID	Test Name	LIMS ID	Description	Manufacturer	Model	Serial	Last Calibration Date	Calibration Due Date	Calibration Interval (Month)
SHA-03	RE	145501	Horn Antenna	Schwarzbeck	BBHA9120D	9120D-739	2019/6/26	2020/6/30	12
SHA-05	RE	145513	Horn Antenna	ETS LINDGREN	3160-09	00094867	2019/6/26	2020/6/30	12
SHA-06	RE	145514	Horn Antenna	ETS LINDGREN	3160-10	00092383	2019/6/26	2020/6/30	12
SLA-07	RE	145529	Logperiodic Antenna	Schwarzbeck	VUSLP9111B	196	2019/5/7	2020/5/31	12
SOS-01	RE	146316	Humidity Indicator	A&D	AD-5681	4062555	2018/10/25	2019/10/31	12
SOS-03	RE	146317	Humidity Indicator	A&D	AD-5681	4063325	2018/10/25	2019/10/31	12
SOS-05	RE	146293	Humidity Indicator	A&D	AD-5681	4062518	2018/10/25	2019/10/31	12
SSA-03	RE	145801	Spectrum Analyzer	AGILENT	E4448A	MY48250152	2018/8/30	2019/8/31	12
STR-01	RE	145790	Test Receiver	Rohde & Schwarz	ESU40	100093	2019/4/14	2020/4/30	12
STR-07	RE	146209	Test Receiver	Rohde & Schwarz	ESU26	100484	2018/9/26	2019/9/30	12
STR-08	RE	150463	Test Receiver	Rohde & Schwarz	ESW44	101581	2018/11/28	2019/11/30	12
STS-01	RE	145792	Digital Hitester	HIOKI	3805-50	80997812	2018/10/16	2019/10/31	12
STS-03	RE	146210	Digital Hitester	HIOKI	3805-50	80997823	2018/10/16	2019/10/31	12
SCC-G33 *1)	RE	145184	Coaxial Cable	Junkosha	MWX241-01000KMSK MS	-	2018/4/20	2019/4/30	12
SCC-G22 *1)	RE	145180	Coaxial Cable	Suhner	SUCOFLEX 104	296199/4	2018/5/11	2019/5/31	12

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

***Hyphens for Last Calibration Date, Calibration Due Date and Cal Int (month) are instruments that Calibration is not required (e.g. software), or instruments checked in advance before use.**

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:

CE: Conducted Emission

RE: Radiated Emission

AT: Antenna Terminal Conducted test