

Maximum Power Spectral Density

Report No. 13004393S-E-R2
Test place Shonan EMC Lab. No.3 Shielded Room
Date September 27, 2019
Temperature / Humidity 26 deg. C / 42 % RH
Engineer Takahiro Kawakami
Mode Tx, 11ac-80 (MIMO), (serial no. B-5)

Chain 0+1 MIMO Applied limit: 15.407, mobile and portable client device

Tested Frequency [MHz]	PSD (Conducted)						PSD (e.i.r.p.)					
	Antenna			Result	Limit	Margin	Antenna			Result	Limit	Margin
	Chain 0	Chain 1	Sum				Chain 0	Chain 1	Sum			
[mW/MHz]	[mW/MHz]	[mW/MHz]	[dBm/MHz]	[dBm/MHz]	[dB]	[mW/MHz]	[mW/MHz]	[mW/MHz]	[dBm/MHz]	[dBm/MHz]	[dB]	
5210	0.26	0.23	0.49	-3.08	11.00	14.08	0.33	0.37	0.70	-1.57	17.00	18.57
5290	0.22	0.21	0.43	-3.65	11.00	14.65	0.28	0.34	0.61	-2.12	17.00	19.12
5530	0.24	0.24	0.48	-3.21	11.00	14.21	0.30	0.38	0.68	-1.68	17.00	18.68
5610	0.25	0.25	0.50	-3.00	11.00	14.00	0.32	0.39	0.71	-1.47	17.00	18.47
5690	0.25	0.28	0.53	-2.73	11.00	13.73	0.32	0.45	0.76	-1.17	17.00	18.17
5775	0.13	0.14	0.27	-5.74	30.00	35.74	0.17	0.22	0.38	-4.19	36.00	40.19

Tested Frequency [MHz]	Chain 0							Chain 1						
	Duty Factor [dB]	RBW Correction Factor [dB]	PSD Reading [dBm/MHz]	Cable Loss [dB]	Atten. Loss [dB]	Antenna Gain [dBi]	PSD Result Cond. [dBm/MHz]	PSD Result e.i.r.p. [dBm/MHz]	PSD Reading [dBm/MHz]	Cable Loss [dB]	Atten. Loss [dB]	Antenna Gain [dBi]	PSD Result Cond. [dBm/MHz]	PSD Result e.i.r.p. [dBm/MHz]
5210	0.00	0.00	-19.71	3.92	9.90	1.04	-5.89	-4.85	-21.18	4.67	10.21	1.98	-6.30	-4.32
5290	0.00	0.00	-20.46	3.94	9.91	1.04	-6.61	-5.57	-21.64	4.71	10.21	1.98	-6.72	-4.74
5530	0.00	0.00	-20.14	4.00	9.91	1.04	-6.23	-5.19	-21.24	4.80	10.22	1.98	-6.22	-4.24
5610	0.00	0.00	-19.85	3.94	9.91	1.04	-6.00	-4.96	-21.01	4.76	10.23	1.98	-6.02	-4.04
5690	0.00	0.00	-19.86	3.95	9.90	1.04	-6.01	-4.97	-20.50	4.78	10.23	1.98	-5.49	-3.51
5775	0.00	6.99	-29.65	3.91	9.89	1.04	-8.86	-7.82	-30.62	4.74	10.24	1.98	-8.65	-6.67

Sample Calculation:

PSD: Power Spectral Density

The PSD within 5725 MHz to 5825 MHz are based on any 500 kHz band.

RBW Correction Factor = $10 * \log(\text{Specified bandwidth} / \text{Measured bandwidth})$

PSD Result (Conducted) = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor + RBW Correction Factor

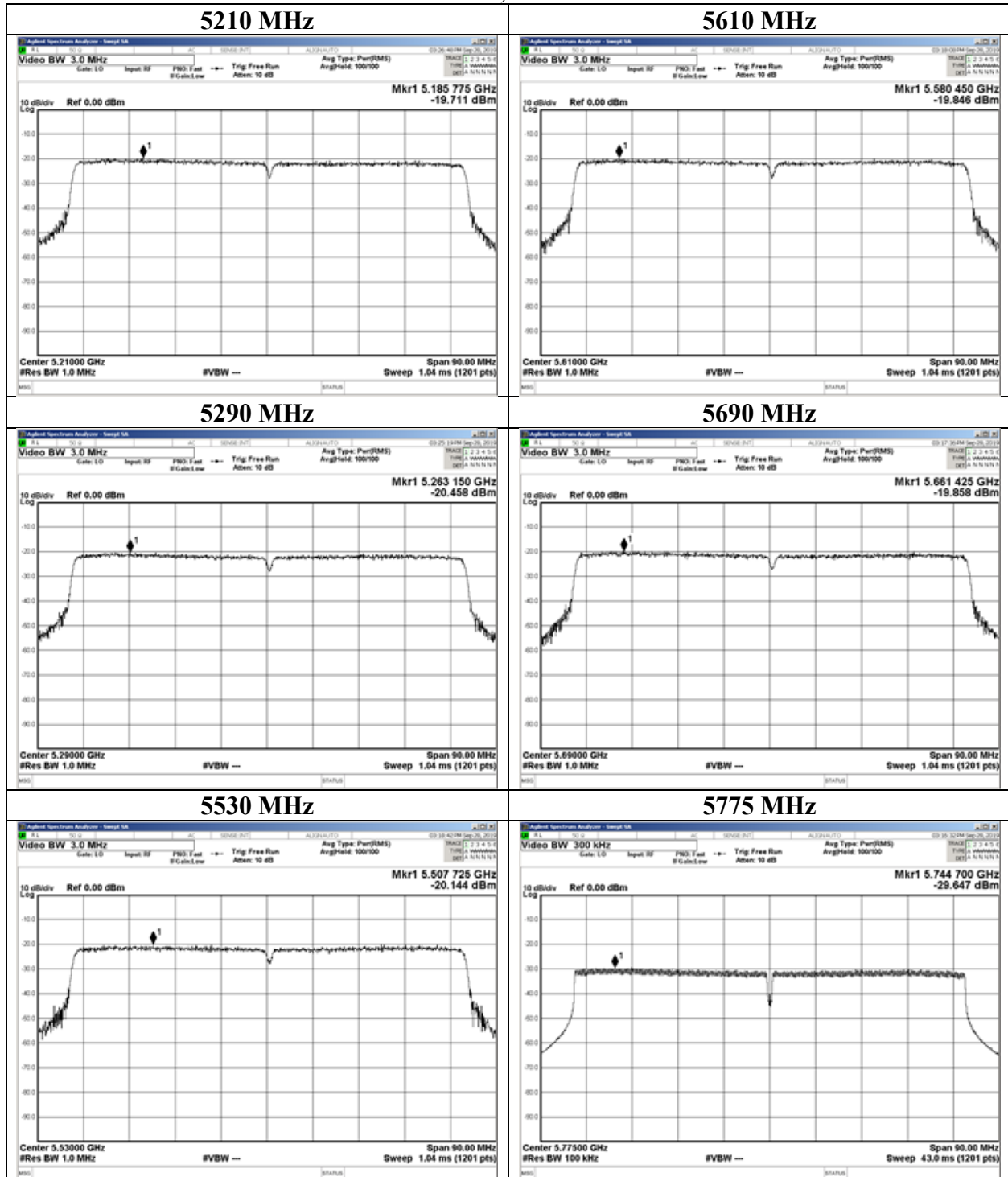
PSD Result (e.i.r.p.) = Conducted PSD Result + Antenna Gain

Although the EUT operates on Master mode, more stringent limit for Client device was applied. (W52 for FCC)

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Date	September 27, 2019
Temperature / Humidity	26 deg. C / 42 % RH
Engineer	Takahiro Kawakami
Mode	Tx, 11ac-80 (MIMO), (serial no. B-5)

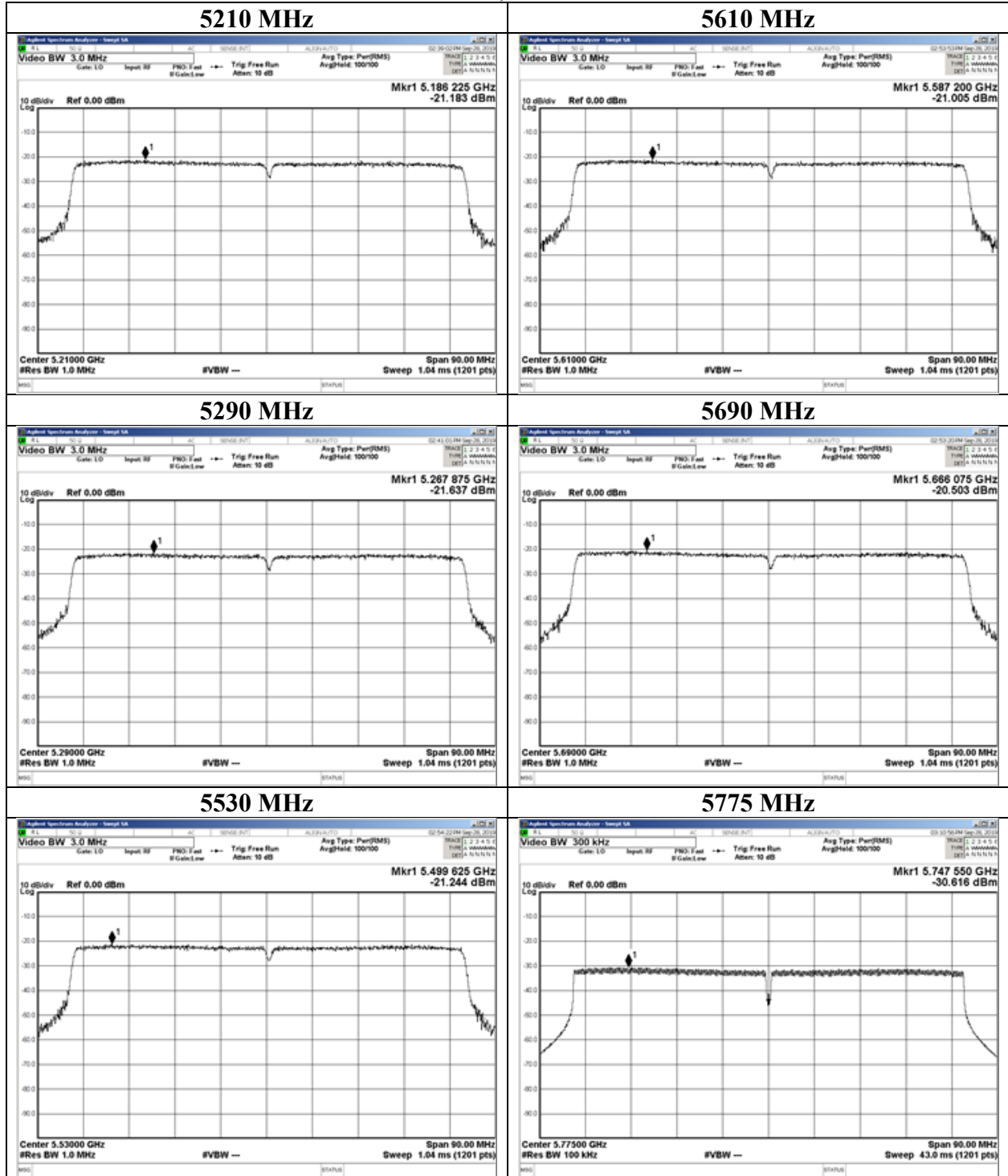
11ac-80, Chain 0



Maximum Power Spectral Density

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Test place	Shonan EMC Lab. No.3 Shielded Room
Date	September 27, 2019
Temperature / Humidity	26 deg. C / 42 % RH
Engineer	Takahiro Kawakami
Mode	Tx, 11ac-80 (MIMO), (serial no. B-5)

11ac-80, Chain 1



Radiated Spurious Emission

Report No.	13004393S-E-R2				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber (No.)	3	3	3	3	3
Date	September 6, 2019	September 10, 2019	September 12, 2019	September 14, 2019	September 15, 2019
Temperature / Humidity	24 deg. C / 61 % RH	23 deg. C / 55 % RH	24 deg. C / 54 % RH	25 deg. C / 51 % RH	24 deg. C / 63 % RH
Engineer	Makoto Hosaka (1 GHz – 6.4 GHz)	Kazuya Noda (6.4 G – 13 GHz)	Kazuya Noda (13 GHz – 18 GHz)	Takahiro Kawakami (18 GHz – 26.5 GHz)	Toshinori Yamada (26.5 GHz – 40 GHz)
Mode	Tx, 11n-20 (MIMO), 5180 MHz, (EUT serial no. A-7)				

(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	51.52	32.26	16.25	43.04	2.15	59.14	73.9	14.8	132	341	-
Hori.	15540.000	PK	48.12	39.48	11.75	40.79	-9.54	49.02	73.9	24.9	255	276	-
Hori.	5150.000	AV	39.15	32.26	16.25	43.04	2.15	46.77	53.9	7.1	132	341	VBW: 1 kHz
Hori.	15540.000	AV	37.20	39.48	11.75	40.79	-9.54	38.10	53.9	15.8	255	276	VBW: 1 kHz
Vert.	5150.000	PK	52.27	32.26	16.25	43.04	2.15	59.89	73.9	14.0	275	204	-
Vert.	15540.000	PK	49.03	39.48	11.75	40.79	-9.54	49.93	73.9	24.0	203	215	-
Vert.	5150.000	AV	39.54	32.26	16.25	43.04	2.15	47.16	53.9	6.7	275	204	VBW: 1 kHz
Vert.	15540.000	AV	37.65	39.48	11.75	40.79	-9.54	38.55	53.9	15.4	203	215	VBW: 1 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).

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

Distance factor : 1 GHz - 13 GHz : 20log(3.84 m / 3.0 m) = 2.15 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	49.51	39.20	9.16	42.69	2.15	57.33	-37.89	-27.0	10.9	159	93	-
Vert.	10360.000	PK	49.49	39.20	9.16	42.69	2.15	57.31	-37.91	-27.0	10.9	244	144	-

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

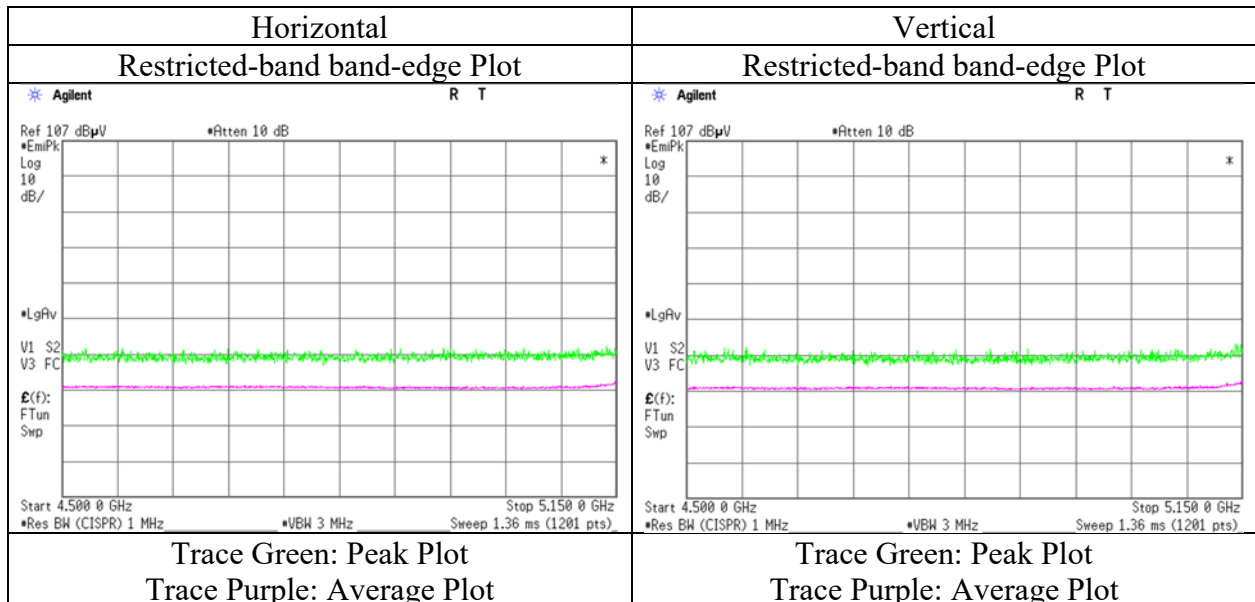
Result(EIRP[dBm])=10*LOG ((10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance:3[m]) ^ 2 / 30) * 10^3)

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

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

Distance factor : 1 GHz - 13 GHz : 20log(3.84 m / 3.0 m) = 2.15 dB

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



* 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. 13004393S-E-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber (No.) 3 3 3 3
Date September 10, 2019 September 12, 2019 September 14, 2019 September 15, 2019
Temperature / Humidity 23 deg.C / 55 %RH 24 deg.C / 54 %RH 25 deg.C / 51 %RH 24 deg.C / 63 %RH
Engineer Kazuya Noda Kazuya Noda Takahiro Kawakami Toshinori Yamada
(1 GHz - 13 GHz) (13 GHz - 18 GHz) (18 GHz - 26.5 GHz) (26.5 GHz - 40 GHz)
Mode Tx, 11n-20 (MIMO), 5240 MHz, (EUT serial no. A-7)

(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	47.74	38.80	11.73	40.60	-9.54	48.13	73.9	25.8	253	278	-
Hori.	15720.000	AV	36.26	38.80	11.73	40.60	-9.54	36.65	53.9	17.3	253	278	VBW: 1 kHz
Vert.	15720.000	PK	48.24	38.80	11.73	40.60	-9.54	48.63	73.9	25.3	208	211	-
Vert.	15720.000	AV	36.82	38.80	11.73	40.60	-9.54	37.21	53.9	16.7	208	211	VBW: 1 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).

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

Distance factor : 1 GHz - 13 GHz : 20log (3.84 m / 3.0 m) = 2.15 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	49.29	39.56	9.19	42.66	2.15	57.53	-37.69	-27.0	10.7	162	95	-
Vert.	10480.000	PK	48.34	39.56	9.19	42.66	2.15	56.58	-38.64	-27.0	11.6	228	143	-

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).

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

Distance factor : 1 GHz - 13 GHz : 20log (3.84 m / 3.0 m) = 2.15 dB

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

Radiated Spurious Emission

Report No.	13004393S-E-R2				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber (No.)	3	3	3	3	3
Date	September 6, 2019	September 10, 2019	September 12, 2019	September 14, 2019	September 15, 2019
Temperature / Humidity	24 deg. C / 61 % RH	23 deg. C / 55 %RH	24 deg. C / 54 %RH	25 deg. C / 51 %RH	24 deg. C / 63 %RH
Engineer	Makoto Hosaka (1 GHz – 6.4 GHz)	Kazuya Noda (6.4 G – 13 GHz)	Kazuya Noda (13 GHz – 18 GHz)	Takahiro Kawakami (18 GHz – 26.5 GHz)	Toshinori Yamada (26.5 GHz – 40 GHz)
Mode	Tx, 11n-20 (MIMO), 5320 MHz, (EUT serial no. A-7)				

(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	51.06	31.98	16.29	43.21	2.15	58.27	73.9	15.6	104	342	-
Hori.	10640.000	PK	49.07	39.66	9.24	42.67	2.15	57.45	73.9	16.5	152	93	-
Hori.	15960.000	PK	48.48	38.21	11.70	40.34	-9.54	48.51	73.9	25.4	144	237	-
Hori.	5350.000	AV	38.74	31.98	16.29	43.21	2.15	45.95	53.9	8.0	104	342	VBW: 1 kHz
Hori.	10640.000	AV	37.88	39.66	9.24	42.67	2.15	46.26	53.9	7.6	152	93	VBW: 1 kHz
Hori.	15960.000	AV	36.17	38.21	11.70	40.34	-9.54	36.20	53.9	17.7	144	237	VBW: 1 kHz
Vert.	5350.000	PK	52.39	31.98	16.29	43.21	2.15	59.60	73.9	14.3	261	204	-
Vert.	10640.000	PK	49.81	39.66	9.24	42.67	2.15	58.19	73.9	15.7	223	145	-
Vert.	15960.000	PK	47.95	38.21	11.70	40.34	-9.54	47.98	73.9	25.9	214	207	-
Vert.	5350.000	AV	38.70	31.98	16.29	43.21	2.15	45.91	53.9	8.0	261	204	VBW: 1 kHz
Vert.	10640.000	AV	37.91	39.66	9.24	42.67	2.15	46.29	53.9	7.6	223	145	VBW: 1 kHz
Vert.	15960.000	AV	36.08	38.21	11.70	40.34	-9.54	36.11	53.9	17.8	214	207	VBW: 1 kHz

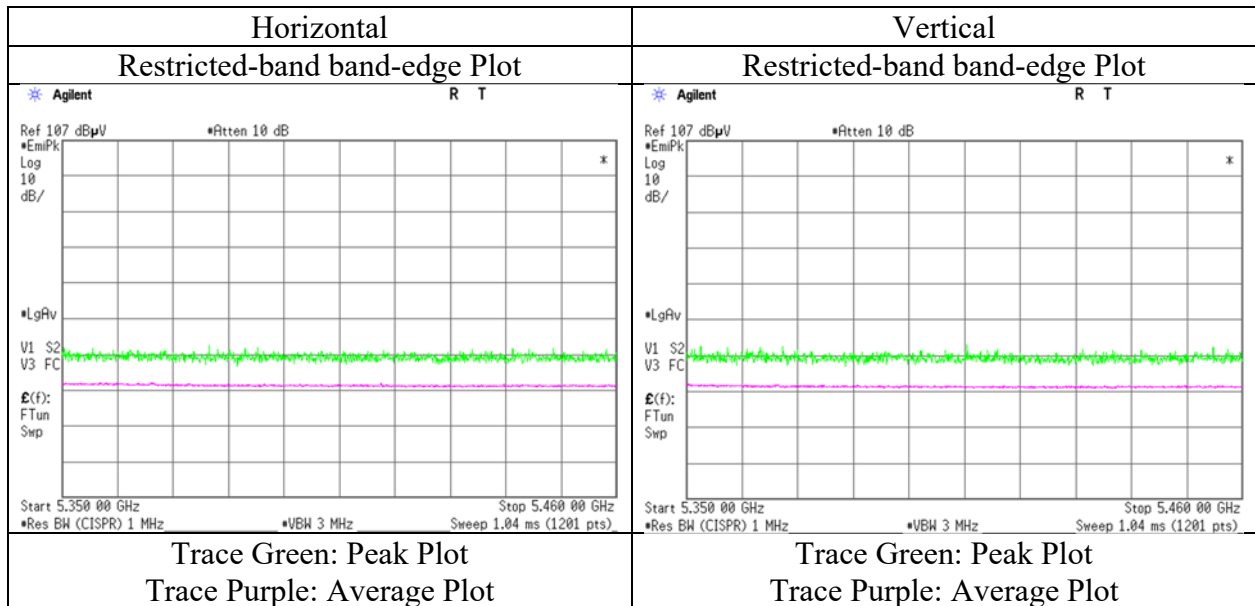
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.84\text{ m} / 3.0\text{ m}) = 2.15\text{ dB}$

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



* 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. 13004393S-E-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.3
Date September 6, 2019
Temperature / Humidity 24 deg. C / 61 % RH
Engineer Makoto Hosaka
(1 GHz – 6.4 GHz)
Mode Tx, 11n-20 (CDD), 5180 MHz, (EUT serial no. A-7)

(above 1GHz Inside of the restricted band)

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

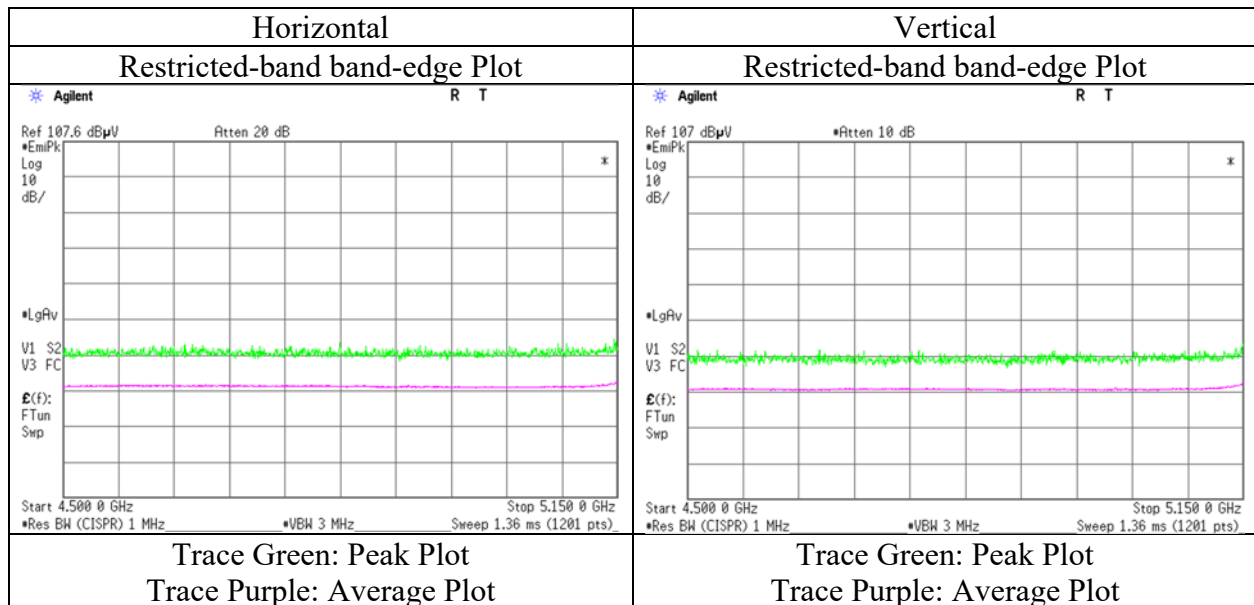
Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5150.000	PK	55.09	32.26	16.25	43.04	2.15	62.71	73.9	11.1	128	336	-
Hori.	5150.000	AV	39.18	32.26	16.25	43.04	2.15	46.80	53.9	7.1	128	336	VBW: 510Hz
Vert.	5150.000	PK	55.65	32.26	16.25	43.04	2.15	63.27	73.9	10.6	246	181	-
Vert.	5150.000	AV	39.34	32.26	16.25	43.04	2.15	46.96	53.9	6.9	246	181	VBW: 510Hz

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).

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

Distance factor : 1 GHz - 13 GHz : 20log(3.84 m / 3.0 m) = 2.15 dB



* 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. 13004393S-E-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.3
Date September 6, 2019
Temperature / Humidity 24 deg. C / 61 % RH
Engineer Makoto Hosaka
(1 GHz – 6.4 GHz)
Mode Tx, 11n-20 (CDD), 5320 MHz, (EUT serial no. A-7)

(above 1GHz Inside of the restricted band)

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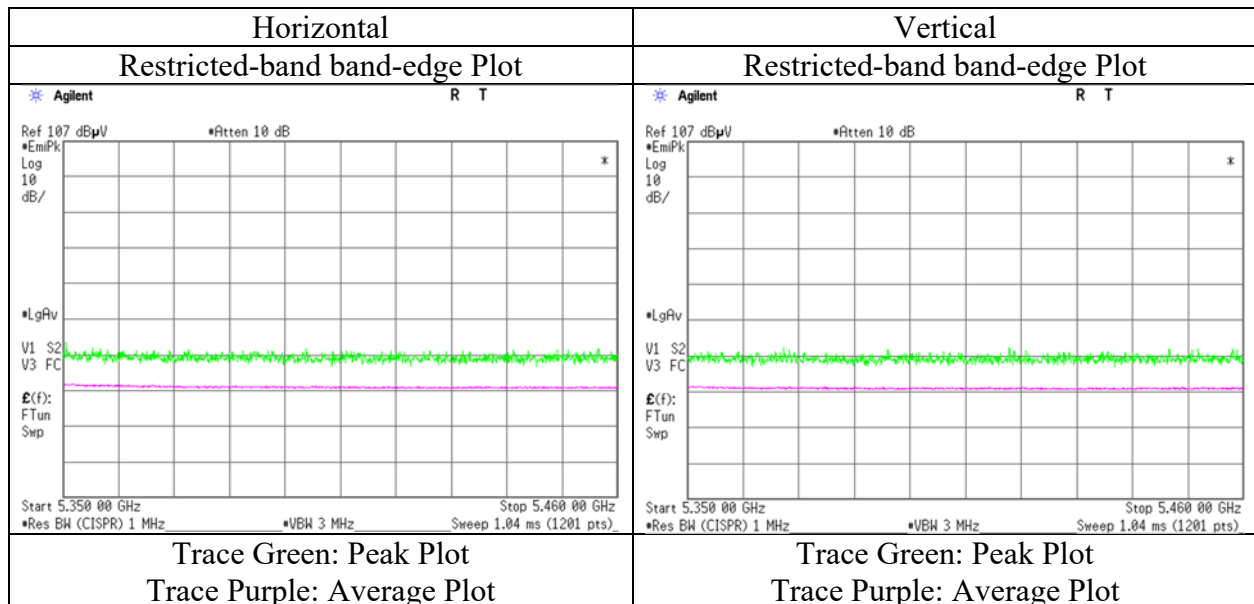
Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5350.000	PK	52.98	31.98	16.29	43.21	2.15	60.19	73.9	13.7	156	336	-
Hori.	5350.000	AV	38.47	31.98	16.29	43.21	2.15	45.68	53.9	8.2	156	336	VBW: 510Hz
Vert.	5350.000	PK	51.36	31.98	16.29	43.21	2.15	58.57	73.9	15.3	260	205	-
Vert.	5350.000	AV	38.19	31.98	16.29	43.21	2.15	45.40	53.9	8.5	260	205	VBW: 510Hz

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

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Distance factor : 1 GHz - 13 GHz : $20\log(3.84\text{ m} / 3.0\text{ m}) = 2.15\text{ dB}$



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Radiated Spurious Emission

Report No. 13004393S-E-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.3
Date September 20, 2019
Temperature / Humidity 22 deg. C / 64 % RH
Engineer Makoto Hosaka
(1 GHz – 6.4 GHz)
Mode Tx, 11n-20 (CDD), 5180 MHz, with 3DH5 hopping (EUT serial no. A-7)

(above 1GHz Inside of the restricted band)

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

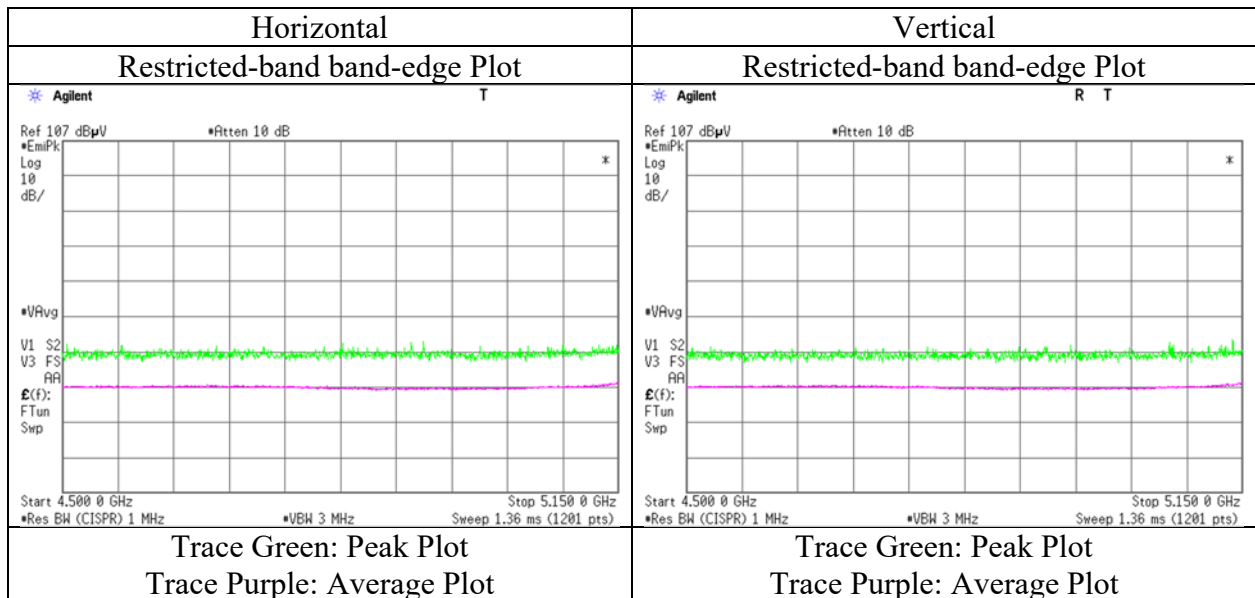
Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5150.000	PK	53.69	32.26	16.34	43.04	2.14	61.39	73.9	12.5	146	341	-
Hori.	5150.000	AV	38.81	32.26	16.34	43.04	2.14	46.51	53.9	7.3	146	341	VBW: 510 Hz
Vert.	5150.000	PK	54.22	32.26	16.34	43.04	2.14	61.92	73.9	11.9	239	339	-
Vert.	5150.000	AV	38.71	32.26	16.34	43.04	2.14	46.41	53.9	7.4	239	339	VBW: 510 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).

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

Distance factor : 1 GHz - 13 GHz : 20log(3.84 m / 3.0 m) = 2.15 dB



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Radiated Spurious Emission

Report No. 13004393S-E-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.3
Date September 20, 2019
Temperature / Humidity 22 deg. C / 64 % RH
Engineer Makoto Hosaka
(1 GHz – 6.4 GHz)
Mode Tx, 11n-20 (CDD), 5320 MHz, with 3DH5 hopping (EUT serial no. A-7)

(above 1GHz Inside of the restricted band)

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

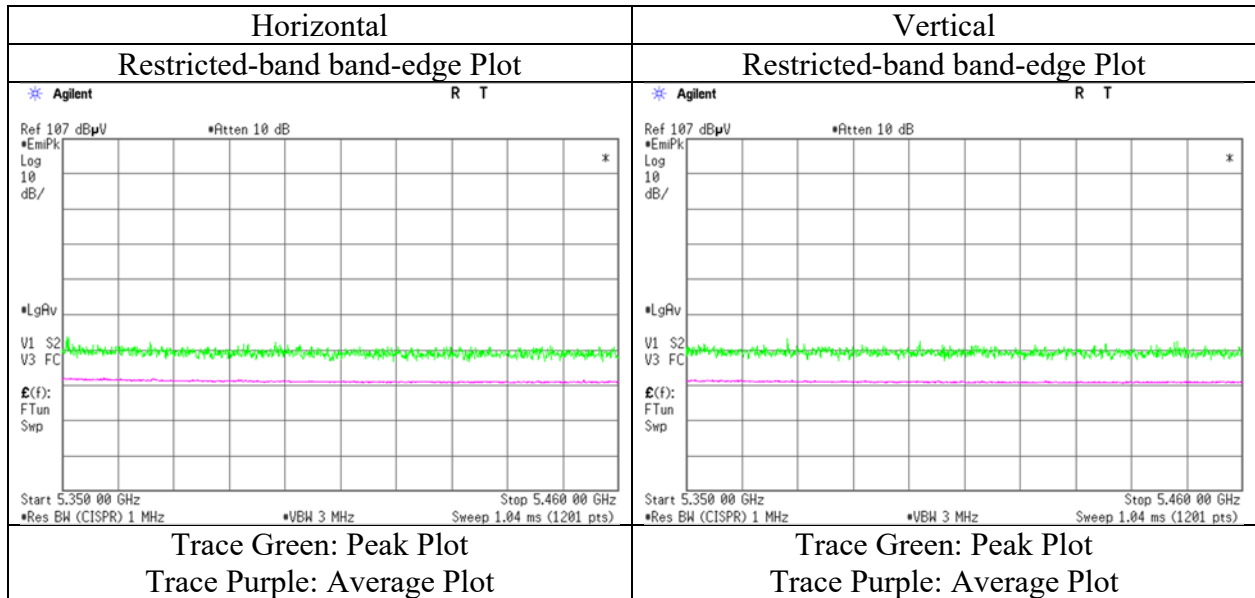
Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5350.000	PK	52.59	31.98	16.41	43.21	2.14	59.91	73.9	13.9	115	341	-
Hori.	5350.000	AV	38.82	31.98	16.41	43.21	2.14	46.14	53.9	7.7	115	341	VBW: 510 Hz
Vert.	5350.000	PK	50.69	31.98	16.41	43.21	2.14	58.01	73.9	15.8	209	340	-
Vert.	5350.000	AV	38.04	31.98	16.41	43.21	2.14	45.36	53.9	8.5	209	340	VBW: 510 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).

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

Distance factor : 1 GHz - 13 GHz : 20log(3.84 m / 3.0 m) = 2.15 dB



* 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.	13004393S-E-R2			
Test place	Shonan EMC Lab.			
Semi Anechoic Chamber (No.)	3	3	3	3
Date	September 11, 2019	September 13, 2019	September 14, 2019	September 15, 2019
Temperature / Humidity	24 deg. C / 51 % RH	25 deg. C / 50 %RH	25 deg. C / 51 %RH	24 deg. C / 63 %RH
Engineer	Kazuya Noda	Hiromasa Sato	Toshinori Yamada	Takahiro Kawakami
	(1 GHz – 13 GHz)	(13 GHz – 18 GHz)	(18 GHz – 26.5 GHz)	(26.5 GHz – 40 GHz)
Mode	Tx, 11n-20 (MIMO), 5180 MHz, (EUT serial no. B-5)			

(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.	15540.000	PK	49.42	39.48	11.75	40.79	-9.54	50.32	73.9	23.5	167	254	-
Hori.	15540.000	AV	38.02	39.48	11.75	40.79	-9.54	38.92	53.9	14.9	167	254	VBW: 1 kHz
Vert.	15540.000	PK	49.06	39.48	11.75	40.79	-9.54	49.96	73.9	23.9	171	249	-
Vert.	15540.000	AV	38.78	39.48	11.75	40.79	-9.54	39.68	53.9	14.2	171	249	VBW: 1 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).

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.79\text{ m} / 3.0\text{ m}) = 2.04\text{ dB}$

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	48.72	39.20	9.16	42.69	2.04	56.43	-38.79	-27.0	11.8	138	346	-
Vert.	10360.000	PK	48.87	39.20	9.16	42.69	2.04	56.58	-38.64	-27.0	11.6	106	90	-

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

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

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

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.79\text{ m} / 3.0\text{ m}) = 2.04\text{ dB}$

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

Radiated Spurious Emission

Report No. 13004393S-E-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber (No.) 3 3 3 3
Date September 11, 2019 September 13, 2019 September 14, 2019 September 15, 2019
Temperature / Humidity 24 deg. C / 51 % RH 25 deg. C / 50 %RH 25 deg. C / 51 %RH 24 deg. C / 63 %RH
Engineer Kazuya Noda Hiromasa Sato Toshinori Yamada Takahiro Kawakami
(1 GHz – 13 GHz) (13 GHz – 18 GHz) (18 GHz – 26.5 GHz) (26.5 GHz – 40 GHz)
Mode Tx, 11n-20 (MIMO), 5240 MHz, (EUT serial no. B-5)

(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	48.04	38.80	11.73	40.60	-9.54	48.43	73.9	25.5	153	236	-
Hori.	15720.000	AV	36.74	38.80	11.73	40.60	-9.54	37.13	53.9	16.8	153	236	VBW: 1 kHz
Vert.	15720.000	PK	47.86	38.80	11.73	40.60	-9.54	48.25	73.9	25.7	162	259	-
Vert.	15720.000	AV	37.37	38.80	11.73	40.60	-9.54	37.76	53.9	16.1	162	259	VBW: 1 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).

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

Distance factor : 1 GHz - 13 GHz : 20log (3.79 m / 3.0 m) = 2.04 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	48.98	39.56	9.19	42.66	2.04	57.11	-38.11	-27.0	11.1	108	343	-
Vert.	10480.000	PK	49.19	39.56	9.19	42.66	2.04	57.32	-37.90	-27.0	10.9	121	92	-

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).

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

Distance factor : 1 GHz - 13 GHz : 20log (3.79 m / 3.0 m) = 2.04 dB

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

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Radiated Spurious Emission

Report No.	13004393S-E-R2			
Test place	Shonan EMC Lab.			
Semi Anechoic Chamber (No.)	3	3	3	3
Date	September 11, 2019	September 13, 2019	September 14, 2019	September 15, 2019
Temperature / Humidity	24 deg. C / 51 % RH	25 deg. C / 50 %RH	25 deg. C / 51 %RH	24 deg. C / 63 %RH
Engineer	Kazuya Noda	Hiromasa Sato	Toshinori Yamada	Takahiro Kawakami
	(1 GHz – 13 GHz)	(13 GHz – 18 GHz)	(18 GHz – 26.5 GHz)	(26.5 GHz – 40 GHz)
Mode	Tx, 11n-20 (MIMO), 5320 MHz, (EUT serial no. B-5)			

(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.	10640.000	PK	49.03	39.66	9.24	42.67	2.04	57.30	73.9	16.6	313	342	-
Hori.	15960.000	PK	47.75	38.21	11.70	40.34	-9.54	47.78	73.9	26.1	159	236	-
Hori.	10640.000	AV	37.31	39.66	9.24	42.67	2.04	45.58	53.9	8.3	313	342	VBW : 1 kHz
Hori.	15960.000	AV	36.93	38.21	11.70	40.34	-9.54	36.96	53.9	16.9	159	236	VBW : 1 kHz
Vert.	10640.000	PK	49.68	39.66	9.24	42.67	2.04	57.95	73.9	16.0	105	99	-
Vert.	15960.000	PK	47.83	38.21	11.70	40.34	-9.54	47.86	73.9	26.0	150	225	-
Vert.	10640.000	AV	37.56	39.66	9.24	42.67	2.04	45.83	53.9	8.1	105	99	VBW : 1 kHz
Vert.	15960.000	AV	37.76	38.21	11.70	40.34	-9.54	37.79	53.9	16.1	150	225	VBW : 1 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).

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.79\text{ m} / 3.0\text{ m}) = 2.04\text{ dB}$

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

Radiated Spurious Emission

Report No. 13004393S-E-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.3
Date September 22, 2019
Temperature / Humidity 24 deg. C / 59 % RH
Engineer Makoto Hosaka
(1 GHz – 6.4 GHz)
Mode Tx, 11n-20 (CDD), 5180 MHz, (EUT serial no. B-5)

(above 1GHz Inside of the restricted band)

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

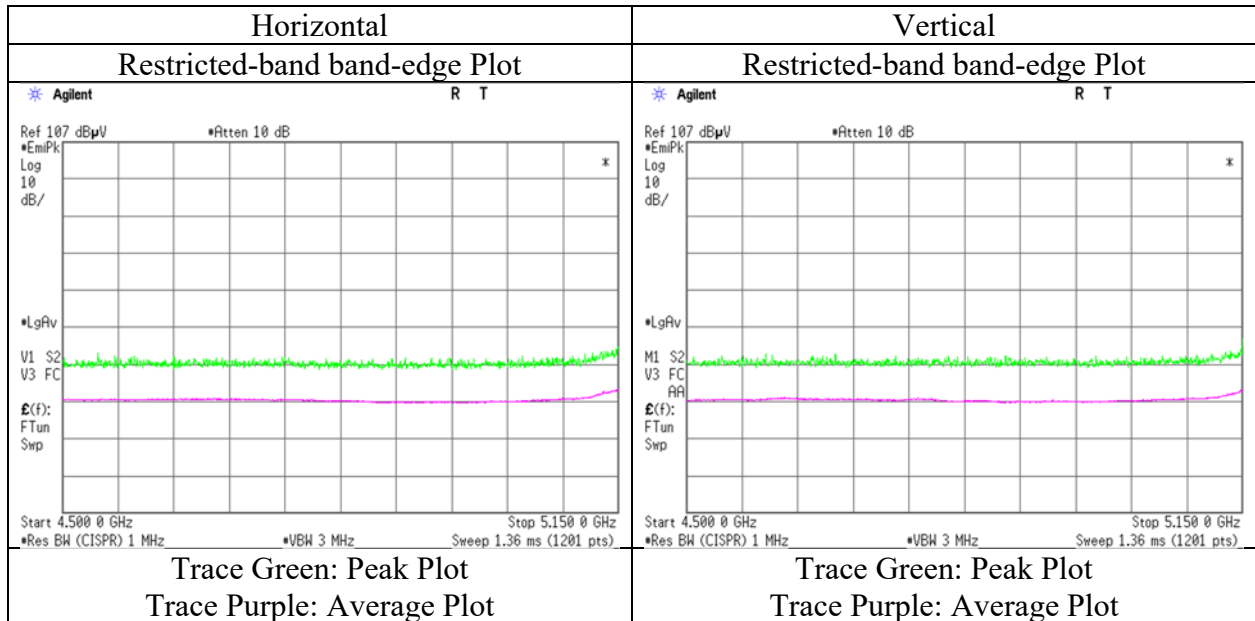
Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5150.000	PK	51.21	32.26	16.34	43.04	2.04	58.81	73.9	15.0	102	176	-
Hori.	5150.000	AV	40.64	32.26	16.34	43.04	2.04	48.24	53.9	5.6	102	176	VBW: 510 Hz
Vert.	5150.000	PK	55.49	32.26	16.34	43.04	2.04	63.09	73.9	10.8	271	175	-
Vert.	5150.000	AV	40.96	32.26	16.34	43.04	2.04	48.56	53.9	5.3	271	175	VBW: 510 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).

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.79\text{ m}/3.0\text{ m}) = 2.04\text{ dB}$



* 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. 13004393S-E-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.3
Date September 6, 2019
Temperature / Humidity 24 deg. C / 61 % RH
Engineer Makoto Hosaka
(1 GHz – 6.4 GHz)
Mode Tx, 11n-20 (CDD), 5320 MHz, (EUT serial no. B-5)

(above 1GHz Inside of the restricted band)

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

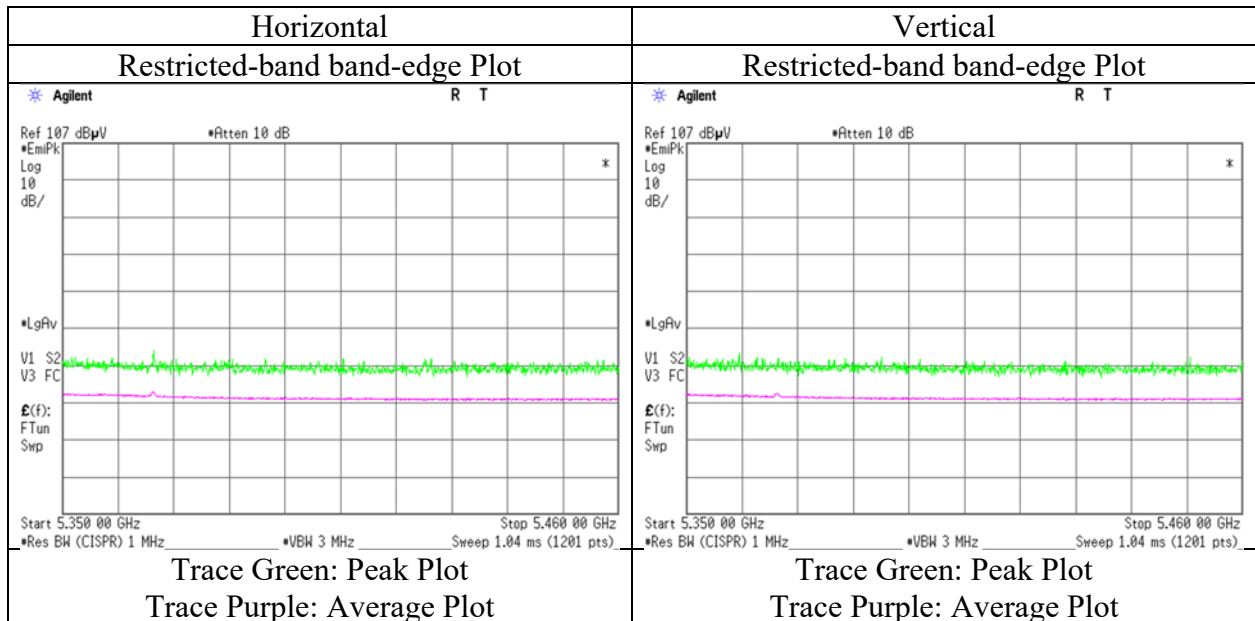
Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5350.000	PK	51.03	31.98	16.29	43.21	2.15	58.24	73.9	15.6	132	143	-
Hori.	5367.970	PK	52.16	32.03	16.29	43.22	2.15	59.41	73.9	14.4	132	143	-
Hori.	5350.000	AV	39.16	31.98	16.29	43.21	2.15	46.37	53.9	7.5	132	143	VBW: 510 Hz
Hori.	5367.970	AV	39.91	32.03	16.29	43.22	2.15	47.16	53.9	6.7	132	143	VBW: 510 Hz
Vert.	5350.000	PK	52.47	31.98	16.29	43.21	2.15	59.68	73.9	14.2	127	208	-
Vert.	5367.970	PK	51.20	32.03	16.29	43.22	2.15	58.45	73.9	15.4	127	208	-
Vert.	5350.000	AV	39.01	31.98	16.29	43.21	2.15	46.22	53.9	7.6	127	208	VBW: 510 Hz
Vert.	5367.970	AV	39.34	32.03	16.29	43.22	2.15	46.59	53.9	7.3	127	208	VBW: 510 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).

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

Distance factor : 1 GHz - 13 GHz : 20log(3.79 m / 3.0 m) = 2.04 dB



* 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. 13004393S-E-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.3
Date September 21, 2019
Temperature / Humidity 25 deg. C / 52 % RH
Engineer Takahiro Kawakami
(1 GHz – 6.4 GHz)
Mode Tx, 11n-20 (CDD), 5180 MHz, with 3DH5 hopping (EUT serial no. B-5)

(above 1GHz Inside of the restricted band)

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

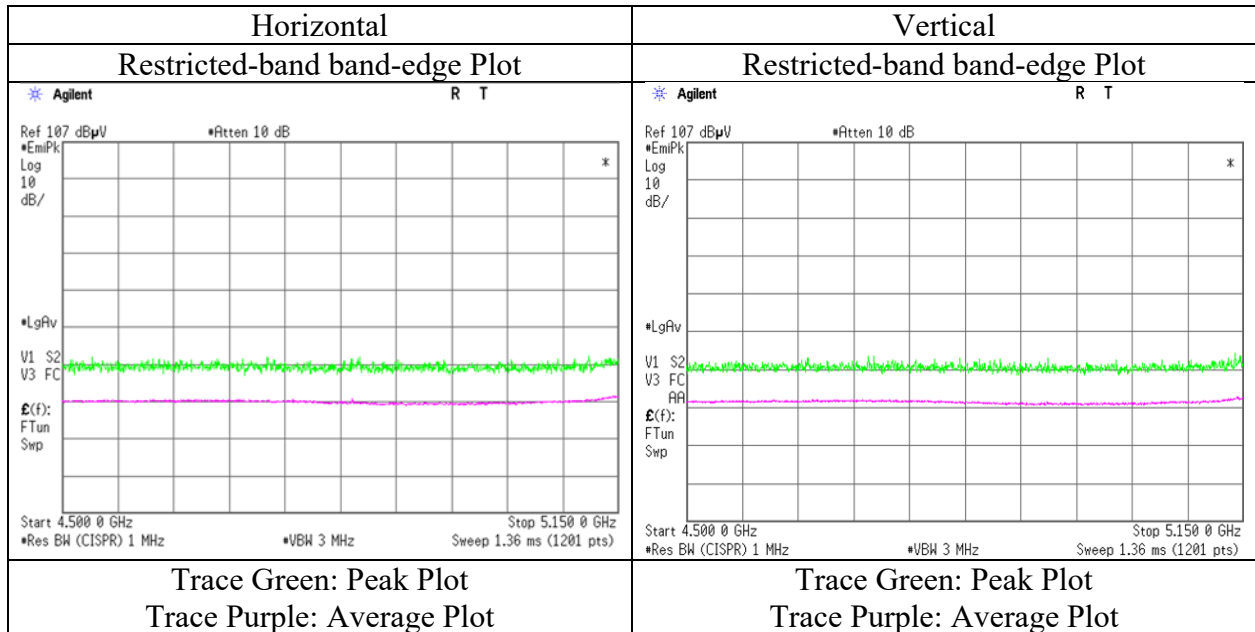
Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5150.000	PK	52.57	32.26	16.34	43.04	2.04	60.17	73.9	13.7	150	141	-
Hori.	5150.000	AV	39.26	32.26	16.34	43.04	2.04	46.86	53.9	7.0	150	141	VBW: 510 Hz
Vert.	5150.000	PK	52.37	32.26	16.34	43.04	2.04	59.97	73.9	13.9	196	208	-
Vert.	5150.000	AV	38.60	32.26	16.34	43.04	2.04	46.20	53.9	7.7	196	208	VBW: 510 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).

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.79\text{ m} / 3.0\text{ m}) = 2.04\text{ dB}$



* 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.	13004393S-E-R2		
Test place	Shonan EMC Lab.		
Semi Anechoic Chamber (No.)	3	3	3
Date	September 19, 2019	September 21, 2019	September 19, 2019
Temperature / Humidity	23 deg.C / 62 %RH	25 deg. C / 52 % RH	23 deg.C / 62 %RH
Engineer	Takahiro Suzuki	Takahiro Kawakami	Takahiro Suzuki
	(30 MHz – 1 GHz)	(1 GHz – 13 GHz)	(13 GHz – 40 GHz)
Mode	Tx, 11n-20 (CDD), 5320 MHz, with 3DH5 hopping (EUT serial no. B-5)		

(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.	151.292	QP	35.79	14.72	7.85	32.12	0.00	26.24	43.5	17.2	223	106	-
Hori.	221.885	QP	43.08	11.02	8.22	32.04	0.00	30.28	46.0	15.7	162	23	-
Hori.	239.869	QP	43.92	11.31	8.35	32.02	0.00	31.56	46.0	14.4	116	177	-
Hori.	696.027	QP	35.36	19.28	10.35	31.87	0.00	33.12	46.0	12.8	156	25	-
Hori.	720.015	QP	34.08	19.75	10.44	31.83	0.00	32.44	46.0	13.5	111	132	-
Hori.	5350.000	PK	52.41	31.98	16.29	43.21	2.04	59.51	73.9	14.3	100	1	-
Hori.	10640.000	PK	49.30	39.66	9.24	42.67	2.04	57.57	73.9	16.3	150	355	-
Hori.	15960.000	PK	46.68	38.21	11.70	40.34	-9.54	46.71	73.9	27.1	134	25	-
Hori.	5350.000	AV	39.34	31.98	16.29	43.21	2.04	46.44	53.9	7.4	100	1	VBW: 510 Hz
Hori.	10640.000	AV	36.79	39.66	9.24	42.67	2.04	45.06	53.9	8.8	150	355	VBW: 510 Hz
Hori.	15960.000	AV	33.76	38.21	11.70	40.34	-9.54	33.79	53.9	20.1	134	25	VBW: 510 Hz
Vert.	94.483	QP	43.35	9.01	7.50	32.15	0.00	27.71	43.5	15.7	114	153	-
Vert.	155.568	QP	42.26	14.86	7.89	32.11	0.00	32.90	43.5	10.6	100	162	-
Vert.	684.077	QP	35.69	19.25	10.31	31.89	0.00	33.36	46.0	12.6	100	325	-
Vert.	713.959	QP	34.39	19.62	10.42	31.84	0.00	32.59	46.0	13.4	100	354	-
Vert.	920.633	QP	26.18	21.67	11.08	30.90	0.00	28.03	46.0	17.9	100	147	-
Vert.	5350.000	PK	51.53	31.98	16.29	43.21	2.04	58.63	73.9	15.2	100	0	-
Vert.	10640.000	PK	49.61	39.66	9.24	42.67	2.04	57.88	73.9	16.0	167	352	-
Vert.	15960.000	PK	47.89	38.21	11.70	40.34	-9.54	47.92	73.9	25.9	168	64	-
Vert.	5350.000	AV	39.27	31.98	16.29	43.21	2.04	46.37	53.9	7.5	100	0	VBW: 510 Hz
Vert.	10640.000	AV	36.86	39.66	9.24	42.67	2.04	45.13	53.9	8.7	167	352	VBW: 510 Hz
Vert.	15960.000	AV	35.11	38.21	11.70	40.34	-9.54	35.14	53.9	18.7	168	64	VBW: 510 Hz

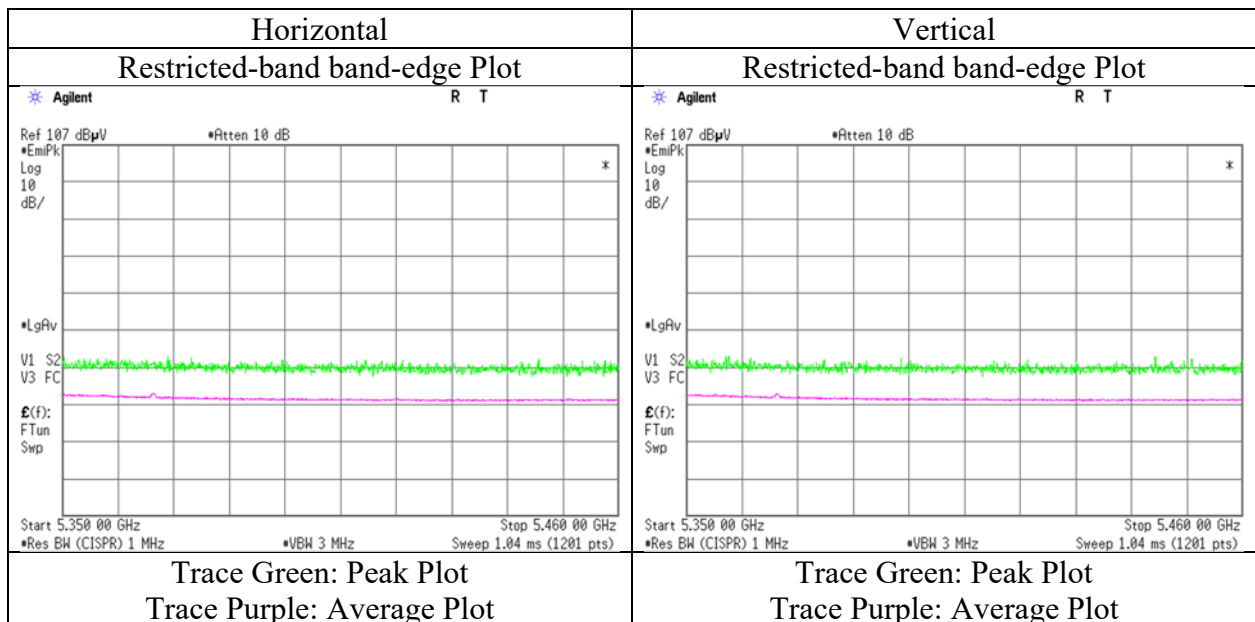
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.79\text{ m} / 3.0\text{ m}) = 2.04\text{ dB}$

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



* 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.	13004393S-E-R2					
Test place	Shonan EMC Lab.					
Semi Anechoic Chamber (No.)	3	3	3	3	3	3
Date	September 19, 2019	September 5, 2019	September 11, 2019	September 12, 2019	September 14, 2019	September 15, 2019
Temperature / Humidity	23 deg. C / 64 % RH	25 deg. C / 65 % RH	22 deg.C / 53 %RH	24 deg.C / 54 %RH	25 deg.C / 51 %RH	24 deg.C / 63 %RH
Engineer	Takahiro Suzuki (30 MHz – 1 GHz)	Makoto Hosaka (1 GHz – 6.4 GHz)	Takahiro Kawakami (6.4 G – 13 GHz)	Kazuya Noda (13 GHz – 18 GHz)	Takahiro Kawakami (18 GHz – 26.5 GHz)	Toshinori Yamada (26.5 GHz – 40 GHz)
Mode	Tx, 11ac-40 (MIMO), 5190 MHz, (EUT serial no. A-7)					

(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.	152.642	QP	37.18	14.79	7.86	32.12	0.00	27.71	43.5	15.7	208	78	-
Hori.	226.200	QP	42.07	11.03	8.25	32.04	0.00	29.31	46.0	16.6	100	186	-
Hori.	239.961	QP	43.12	11.31	8.35	32.02	0.00	30.76	46.0	15.2	100	233	-
Hori.	707.963	QP	36.86	19.51	10.40	31.85	0.00	34.92	46.0	11.0	132	1	-
Hori.	719.913	QP	36.08	19.75	10.44	31.83	0.00	34.44	46.0	11.5	128	329	-
Hori.	929.522	QP	32.93	21.65	11.10	30.82	0.00	34.86	46.0	11.1	100	304	-
Hori.	5150.000	PK	55.37	32.26	16.25	43.04	2.15	62.99	73.9	10.9	107	341	-
Hori.	15570.000	PK	47.79	39.39	11.76	40.76	-9.54	48.64	73.9	25.2	263	271	-
Hori.	5150.000	AV	42.59	32.26	16.25	43.04	2.15	50.21	53.9	3.6	107	341	VBW: 130 Hz
Hori.	15570.000	AV	36.41	39.39	11.76	40.76	-9.54	37.26	53.9	16.6	263	271	VBW: 130 Hz
Vert.	107.250	QP	45.72	11.33	7.30	32.15	0.00	32.20	43.5	11.3	100	132	-
Vert.	165.657	QP	40.84	15.29	7.92	32.10	0.00	31.95	43.5	11.5	100	336	-
Vert.	714.000	QP	35.37	19.62	10.42	31.84	0.00	33.57	46.0	12.4	100	356	-
Vert.	720.010	QP	36.18	19.75	10.44	31.83	0.00	34.54	46.0	11.4	100	349	-
Vert.	5150.000	PK	55.90	32.26	16.25	43.04	2.15	63.52	73.9	10.3	220	186	-
Vert.	15570.000	PK	48.32	39.39	11.76	40.76	-9.54	49.17	73.9	24.7	215	177	-
Vert.	5150.000	AV	42.89	32.26	16.25	43.04	2.15	50.51	53.9	3.3	220	186	VBW: 130 Hz
Vert.	15570.000	AV	36.78	39.39	11.76	40.76	-9.54	37.63	53.9	16.2	215	177	VBW: 130 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).

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

Distance factor : 1 GHz - 13 GHz : 20log (3.84 m / 3.0 m) = 2.15 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	48.68	39.29	9.17	42.68	2.15	56.61	-38.61	-27.0	11.6	137	336	-
Vert.	10380.000	PK	48.23	39.29	9.17	42.68	2.15	56.16	-39.06	-27.0	12.1	145	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).

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

Distance factor : 1 GHz - 13 GHz : 20log (3.84 m / 3.0 m) = 2.15 dB

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

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Shonan EMC Lab.

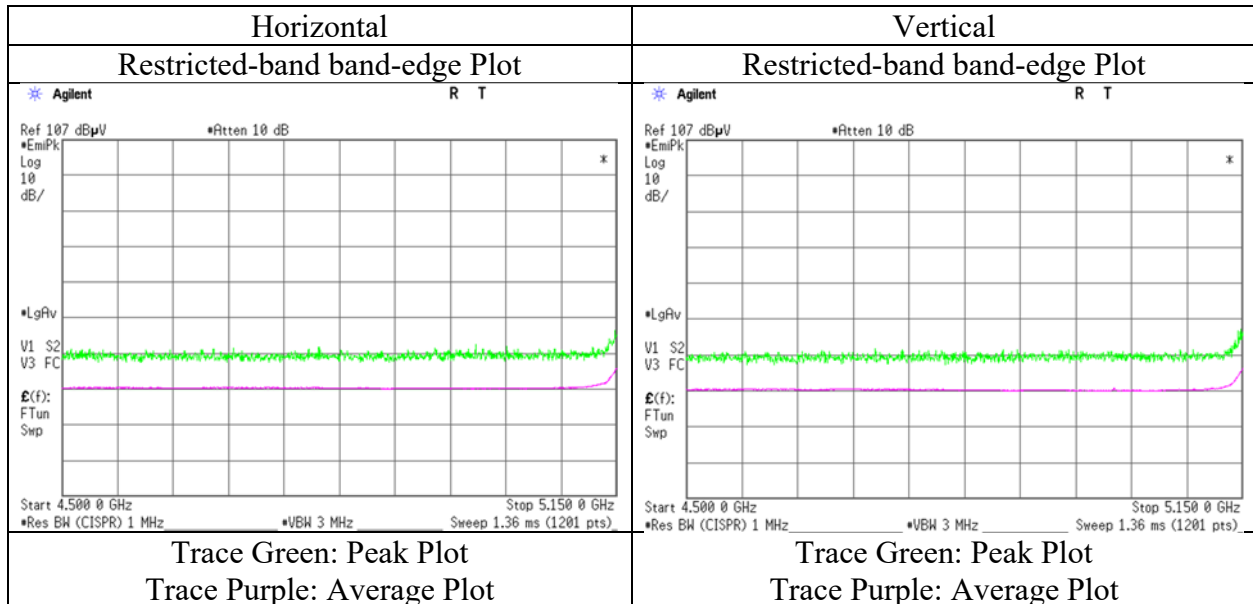
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

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Radiated Spurious Emission

Report No. 13004393S-E-R2
 Test place Shonan EMC Lab.
 Semi Anechoic Chamber (No.) 3
 Date September 5, 2019
 Temperature / Humidity 25 deg. C / 65 % RH
 Engineer Makoto Hosaka
 (1 GHz – 6.4 GHz)
 Mode Tx, 11ac-40 (MIMO), 5190 MHz, (EUT serial no. A-7)



* 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. 13004393S-E-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber (No) 3 3 3 3
Date September 11, 2019 September 12, 2019 September 14, 2019 September 15, 2019
Temperature / Humidity 22 deg.C / 53 %RH 24 deg.C / 54 %RH 25 deg.C / 51 %RH 24 deg.C / 63 %RH
Engineer Takahiro Kawakami Kazuya Noda Takahiro Kawakami Toshinori Yamada
(1 GHz - 13 GHz) (13 GHz - 18 GHz) (18 GHz - 26.5 GHz) (26.5 GHz - 40 GHz)
Mode Tx, 11ac-40 (MIMO), 5230 MHz, (EUT serial no. A-7)

(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	47.55	38.91	11.74	40.63	-9.54	48.03	73.9	25.8	239	274	-
Hori.	15690.000	AV	36.10	38.91	11.74	40.63	-9.54	36.58	53.9	17.3	239	274	VBW: 130 Hz
Vert.	15690.000	PK	47.96	38.91	11.74	40.63	-9.54	48.44	73.9	25.4	209	208	-
Vert.	15690.000	AV	36.43	38.91	11.74	40.63	-9.54	36.91	53.9	16.9	209	208	VBW: 130 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).

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

Distance factor : 1 GHz - 13 GHz : 20log (3.84 m / 3.0 m) = 2.15 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.	10460.000	PK	49.45	39.54	9.20	42.67	2.15	57.67	-37.55	-27.0	10.6	160	1	-
Vert.	10460.000	PK	50.83	39.54	9.20	42.67	2.15	59.05	-36.17	-27.0	9.2	123	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).

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

Distance factor : 1 GHz - 13 GHz : 20log (3.84 m / 3.0 m) = 2.15 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.	13004393S-E-R2				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber (No.)	3	3	3	3	3
Date	September 5, 2019	September 11, 2019	September 12, 2019	September 14, 2019	September 15, 2019
Temperature / Humidity	25 deg. C / 65 % RH	22 deg. C / 53 %RH	24 deg. C / 54 %RH	25 deg. C / 51 %RH	24 deg. C / 63 %RH
Engineer	Makoto Hosaka (1 GHz – 6.4 GHz)	Takahiro Kawakami (6.4 G – 13 GHz)	Kazuya Noda (13 GHz – 18 GHz)	Takahiro Kawakami (18 GHz – 26.5 GHz)	Toshinori Yamada (26.5 GHz – 40 GHz)
Mode	Tx, 11ac-40 (MIMO), 5310 MHz, (EUT serial no. A-7)				

(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	52.30	31.98	16.29	43.21	2.15	59.51	73.9	14.3	100	338	-
Hori.	10620.000	PK	48.24	39.64	9.23	42.67	2.15	56.59	73.9	17.3	136	305	-
Hori.	15930.000	PK	46.78	38.25	11.69	40.37	-9.54	46.81	73.9	27.0	216	239	-
Hori.	5350.000	AV	39.38	31.98	16.29	43.21	2.15	46.59	53.9	7.3	100	338	VBW: 130 Hz
Hori.	10620.000	AV	36.72	39.64	9.23	42.67	2.15	45.07	53.9	8.8	136	305	VBW: 130 Hz
Hori.	15930.000	AV	35.74	38.25	11.69	40.37	-9.54	35.77	53.9	18.1	216	239	VBW: 130 Hz
Vert.	5350.000	PK	51.71	31.98	16.29	43.21	2.15	58.92	73.9	14.9	213	185	-
Vert.	10620.000	PK	49.85	39.64	9.23	42.67	2.15	58.20	73.9	15.7	150	0	-
Vert.	15930.000	PK	47.53	38.25	11.69	40.37	-9.54	47.56	73.9	26.3	194	222	-
Vert.	5350.000	AV	39.67	31.98	16.29	43.21	2.15	46.88	53.9	7.0	213	185	VBW: 130 Hz
Vert.	10620.000	AV	36.91	39.64	9.23	42.67	2.15	45.26	53.9	8.6	150	0	VBW: 130 Hz
Vert.	15930.000	AV	35.94	38.25	11.69	40.37	-9.54	35.97	53.9	17.9	194	222	VBW: 130 Hz

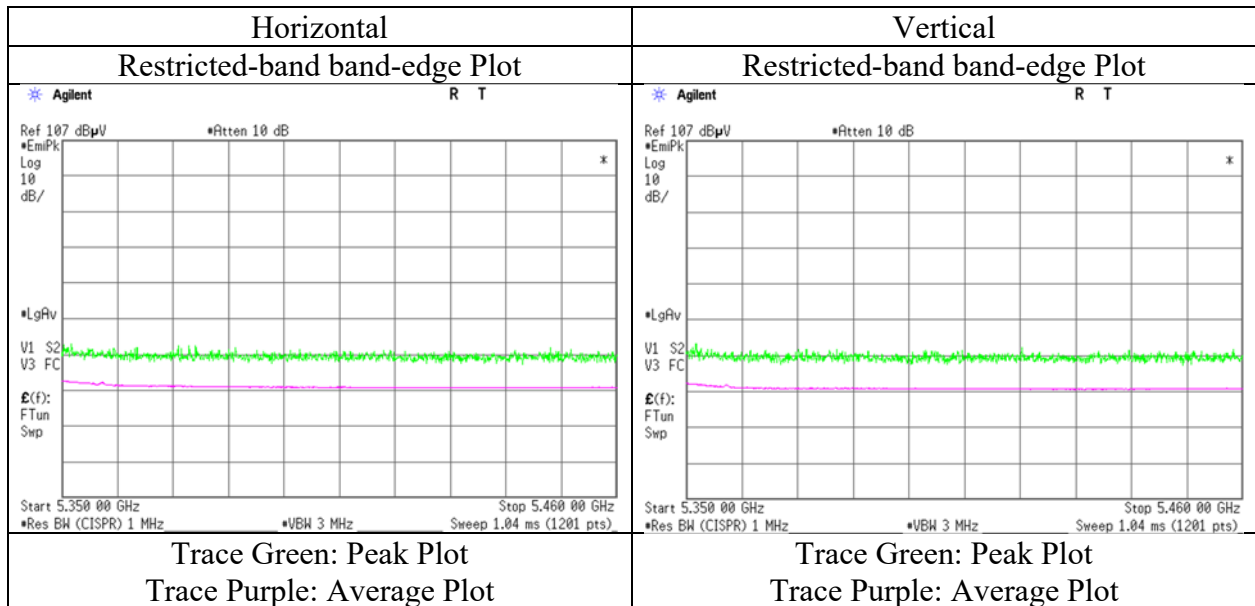
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.84\text{ m} / 3.0\text{ m}) = 2.15\text{ dB}$

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



* 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. 13004393S-E-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.3
Date September 6, 2019
Temperature / Humidity 24 deg. C / 61 % RH
Engineer Kazuya Noda
(1 GHz – 6.4 GHz)
Mode Tx, 11ac-40 (CDD), 5190 MHz, (EUT serial no. A-7)

(above 1GHz Inside of the restricted band)

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

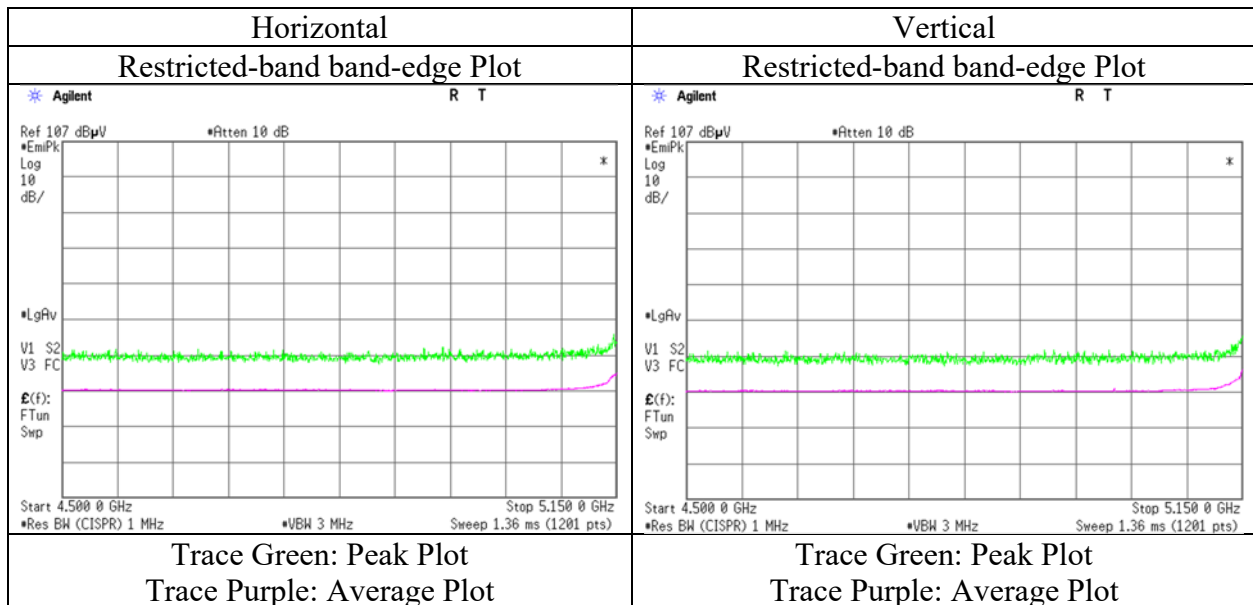
Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5150.000	PK	58.61	32.26	16.25	43.04	2.15	66.23	73.9	7.6	156	340	-
Hori.	5150.000	AV	41.75	32.26	16.25	43.04	2.15	49.37	53.9	4.5	156	340	VBW: 100 Hz
Vert.	5150.000	PK	59.37	32.26	16.25	43.04	2.15	66.99	73.9	6.9	273	206	-
Vert.	5150.000	AV	42.97	32.26	16.25	43.04	2.15	50.59	53.9	3.3	273	206	VBW: 100 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).

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

Distance factor : 1 GHz - 13 GHz : 20log(3.84 m / 3.0 m) = 2.15 dB



* 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. 13004393S-E-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.3
Date September 6, 2019
Temperature / Humidity 24 deg. C / 61 % RH
Engineer Kazuya Noda
(1 GHz – 6.4 GHz)
Mode Tx, 11ac-40 (CDD), 5310 MHz, (EUT serial no. A-7)

(above 1GHz Inside of the restricted band)

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

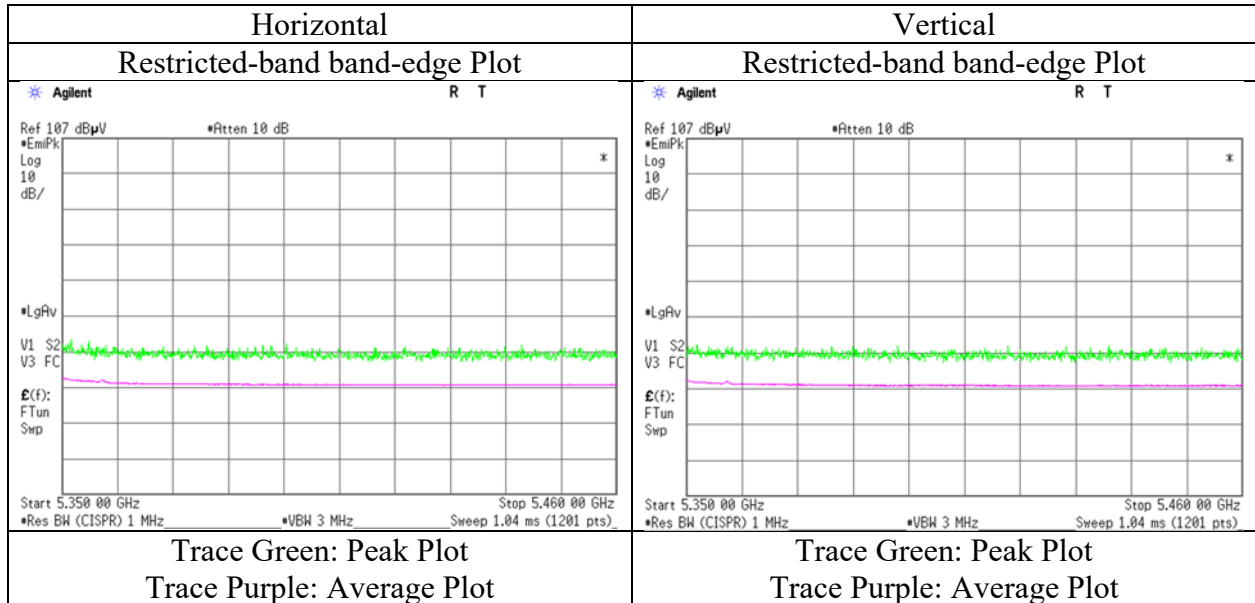
Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5350.000	PK	57.18	31.98	16.29	43.21	2.15	64.39	73.9	9.5	164	334	-
Hori.	5350.000	AV	39.25	31.98	16.29	43.21	2.15	46.46	53.9	7.4	164	334	VBW: 100 Hz
Vert.	5350.000	PK	57.17	31.98	16.29	43.21	2.15	64.38	73.9	9.5	221	179	-
Vert.	5350.000	AV	39.04	31.98	16.29	43.21	2.15	46.25	53.9	7.6	221	179	VBW: 100 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).

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

Distance factor : 1 GHz - 13 GHz : 20log(3.84 m / 3.0 m) = 2.15 dB



* 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.	13004393S-E-R2			
Test place	Shonan EMC Lab.			
Semi Anechoic Chamber (No.)	3	3	3	3
Date	September 19, 2019	September 20, 2019	September 21, 2019	September 19, 2019
Temperature / Humidity	23 deg.C / 62 %RH	22 deg.C / 64 %RH	25 deg.C / 52 %RH	23 deg.C / 62 %RH
Engineer	Takahiro Suzuki (30 MHz - 1 GHz)	Makoto Hosaka (1 GHz - 6.4 GHz)	Takahiro Kawakami (6.4 GHz - 13 GHz)	Takahiro Suzuki (13 GHz - 40 GHz)
Mode	Tx, 11ac-40 (CDD), 5190 MHz, with 3DH5 hopping (EUT serial no. A-7)			

(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.	155.546	QP	35.82	14.86	7.89	32.11	0.00	26.46	43.5	17.0	223	100	-
Hori.	233.912	QP	43.34	11.17	8.31	32.03	0.00	30.79	46.0	15.2	162	93	-
Hori.	239.899	QP	44.18	11.31	8.35	32.02	0.00	31.82	46.0	14.1	123	226	-
Hori.	695.944	QP	36.87	19.28	10.35	31.87	0.00	34.63	46.0	11.3	148	5	-
Hori.	707.958	QP	33.86	19.51	10.40	31.85	0.00	31.92	46.0	14.0	122	30	-
Hori.	929.407	QP	30.17	21.65	11.10	30.83	0.00	32.09	46.0	13.9	100	2	-
Hori.	5150.000	PK	56.97	32.26	16.34	43.04	2.14	64.67	73.9	9.2	159	327	-
Hori.	15570.000	PK	45.03	39.39	11.76	40.76	-9.54	45.88	73.9	28.0	125	87	-
Hori.	5150.000	AV	41.82	32.26	16.34	43.04	2.14	49.52	53.9	4.3	159	327	VBW: 100 Hz
Hori.	15570.000	AV	33.23	39.39	11.76	40.76	-9.54	34.08	53.9	19.8	125	87	VBW: 100 Hz
Vert.	94.520	QP	44.05	9.01	7.50	32.15	0.00	28.41	43.5	15.0	100	186	-
Vert.	166.251	QP	40.04	15.31	7.92	32.10	0.00	31.17	43.5	12.3	100	8	-
Vert.	677.898	QP	36.48	19.29	10.29	31.90	0.00	34.16	46.0	11.8	100	164	-
Vert.	713.952	QP	36.03	19.62	10.42	31.84	0.00	34.23	46.0	11.7	100	164	-
Vert.	5150.000	PK	54.99	32.26	16.34	43.04	2.14	62.69	73.9	11.2	199	340	-
Vert.	15570.000	PK	44.42	39.39	11.76	40.76	-9.54	45.27	73.9	28.6	109	118	-
Vert.	5150.000	AV	41.83	32.26	16.34	43.04	2.14	49.53	53.9	4.3	199	340	VBW: 100 Hz
Vert.	15570.000	AV	33.12	39.39	11.76	40.76	-9.54	33.97	53.9	19.9	109	118	VBW: 100 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).

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

Distance factor : 1 GHz - 13 GHz : 20log (3.84 m / 3.0 m) = 2.15 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	49.46	39.29	9.17	42.68	2.15	57.39	-37.83	-27.0	10.8	160	349	-
Vert.	10380.000	PK	49.65	39.29	9.17	42.68	2.15	57.58	-37.64	-27.0	10.6	167	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).

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

Distance factor : 1 GHz - 13 GHz : 20log (3.84 m / 3.0 m) = 2.15 dB

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

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Shonan EMC Lab.

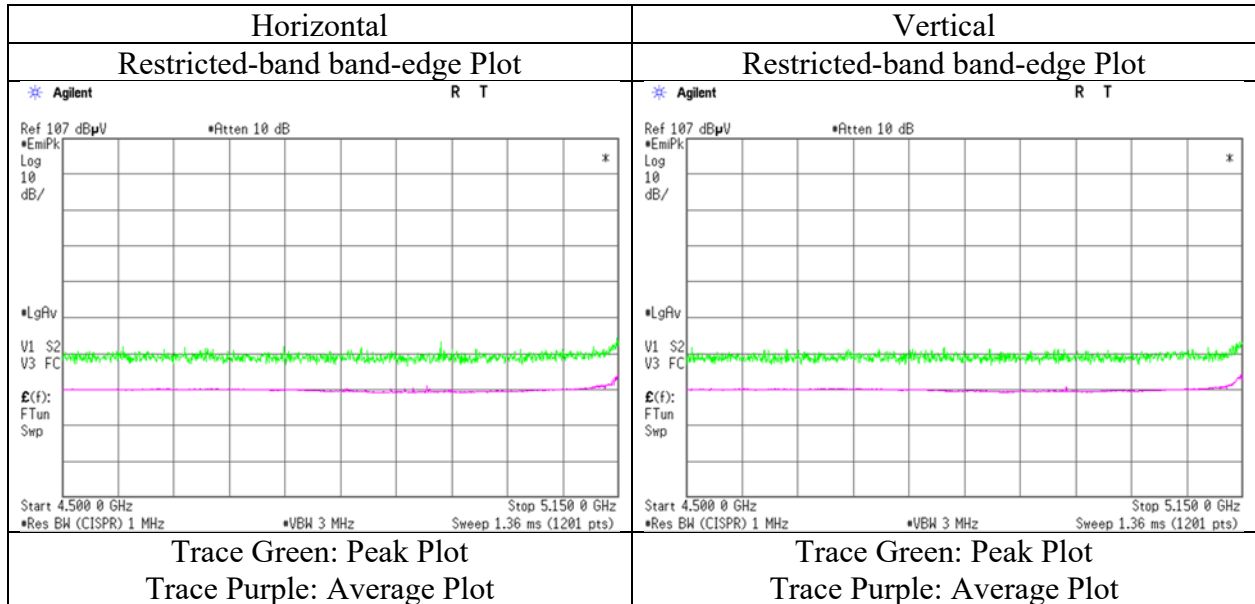
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Facsimile : +81 463 50 6401

Radiated Spurious Emission

Report No. 13004393S-E-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.3
Date September 20, 2019
Temperature / Humidity 22 deg. C / 64 % RH
Engineer Makoto Hosaka
(1 GHz – 6.4 GHz)
Mode Tx, 11ac-40 (CDD), 5190 MHz, with 3DH5 hopping (EUT serial no. A-7)



* 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. 13004393S-E-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.3
Date September 20, 2019
Temperature / Humidity 22 deg. C / 64 % RH
Engineer Makoto Hosaka
(1 GHz – 6.4 GHz)
Mode Tx, 11ac-40 (CDD), 5310 MHz, with 3DH5 hopping (EUT serial no. A-7)

(above 1GHz Inside of the restricted band)

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

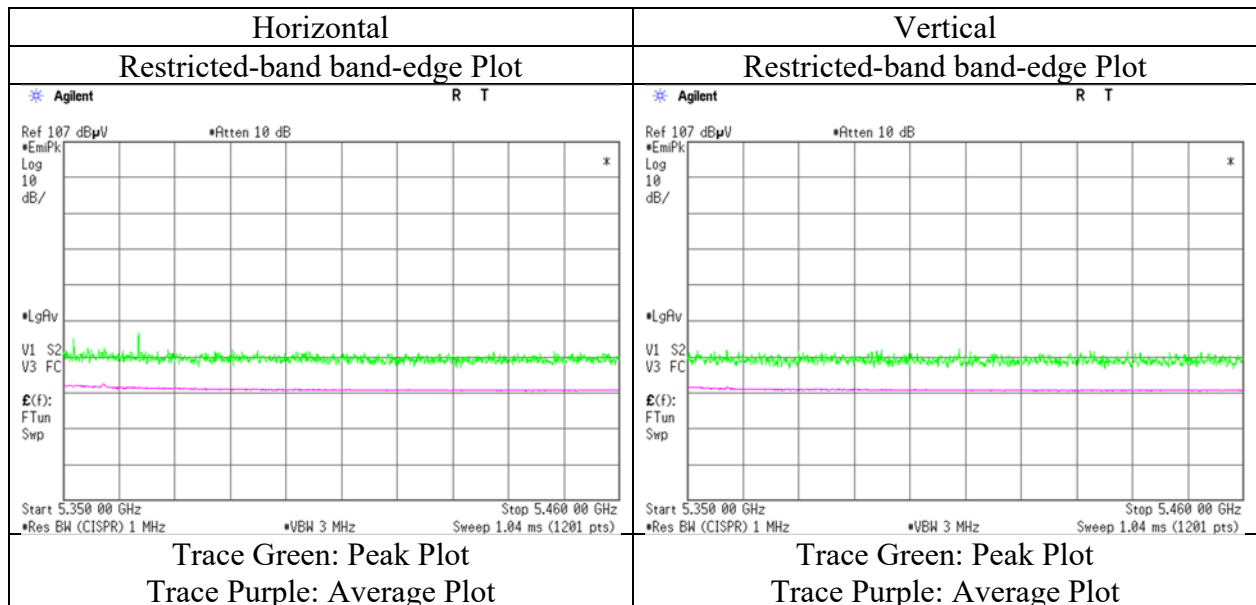
Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5350.000	PK	56.15	31.98	16.41	43.21	2.14	63.47	73.9	10.4	121	339	-
Hori.	5350.000	AV	38.69	31.98	16.41	43.21	2.14	46.01	53.9	7.8	121	339	VBW: 100 Hz
Vert.	5350.000	PK	54.11	31.98	16.41	43.21	2.14	61.43	73.9	12.4	110	355	-
Vert.	5350.000	AV	38.16	31.98	16.41	43.21	2.14	45.48	53.9	8.4	110	355	VBW: 100 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).

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

Distance factor : 1 GHz - 13 GHz : 20log(3.84 m / 3.0 m) = 2.15 dB



* 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.	13004393S-E-R2			
Test place	Shonan EMC Lab.			
Semi Anechoic Chamber (No.)	3	3	3	3
Date	September 11, 2019	September 13, 2019	September 14, 2019	September 15, 2019
Temperature / Humidity	24 deg. C / 51 % RH	25 deg. C / 50 %RH	25 deg. C / 51 %RH	24 deg. C / 63 %RH
Engineer	Kazuya Noda (1 GHz – 13 GHz)	Hiromasa Sato (13 GHz – 18 GHz)	Toshinori Yamada (18 GHz – 26.5 GHz)	Takahiro Kawakami (26.5 GHz – 40 GHz)
Mode	Tx, 11ac-40 (MIMO), 5190 MHz, (EUT serial no. B-5)			

(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.	15570.000	PK	47.41	39.39	11.76	40.76	-9.54	48.26	73.9	25.6	217	183	-
Hori.	15570.000	AV	36.03	39.39	11.76	40.76	-9.54	36.88	53.9	17.0	217	183	VBW: 130 Hz
Vert.	15570.000	PK	47.92	39.39	11.76	40.76	-9.54	48.77	73.9	25.1	166	277	-
Vert.	15570.000	AV	36.91	39.39	11.76	40.76	-9.54	37.76	53.9	16.1	166	277	VBW: 130 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).

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.79\text{ m} / 3.0\text{ m}) = 2.04\text{ dB}$

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.	10380.000	PK	48.76	39.29	9.17	42.68	2.04	56.58	-38.64	-27.0	11.6	144	346	-
Vert.	10380.000	PK	48.76	39.29	9.17	42.68	2.04	56.58	-38.64	-27.0	11.6	136	108	-

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

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

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

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.79\text{ m} / 3.0\text{ m}) = 2.04\text{ dB}$

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

Radiated Spurious Emission

Report No.	13004393S-E-R2			
Test place	Shonan EMC Lab.			
Semi Anechoic Chamber (No)	3	3	3	3
Date	September 11, 2019	September 13, 2019	September 14, 2019	September 15, 2019
Temperature / Humidity	24 deg.C / 51 % RH	25 deg.C / 50 %RH	25 deg.C / 51 %RH	24 deg.C / 63 %RH
Engineer	Kazuya Noda	Hiromasa Sato	Toshinori Yamada	Takahiro Kawakami
	(1 GHz – 13 GHz)	(13 GHz – 18 GHz)	(18 GHz – 26.5 GHz)	(26.5 GHz – 40 GHz)
Mode	Tx, 11ac-40 (MIMO), 5230 MHz, (EUT serial no. B-5)			

(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	47.54	38.91	11.74	40.63	-9.54	48.02	73.9	25.8	179	276	-
Hori.	15690.000	AV	36.95	38.91	11.74	40.63	-9.54	37.43	53.9	16.4	179	276	VBW: 130 Hz
Vert.	15690.000	PK	47.71	38.91	11.74	40.63	-9.54	48.19	73.9	25.7	198	129	-
Vert.	15690.000	AV	36.13	38.91	11.74	40.63	-9.54	36.61	53.9	17.2	198	129	VBW: 130 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).

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.79\text{ m} / 3.0\text{ m}) = 2.04\text{ dB}$

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	48.49	39.54	9.20	42.67	2.04	56.60	-38.62	-27.0	11.6	122	345	-
Vert.	10460.000	PK	49.12	39.54	9.20	42.67	2.04	57.23	-37.99	-27.0	11.0	113	101	-

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

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

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

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.79\text{ m} / 3.0\text{ m}) = 2.04\text{ dB}$

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

Radiated Spurious Emission

Report No.	13004393S-E-R2			
Test place	Shonan EMC Lab.			
Semi Anechoic Chamber (No.)	3	3	3	3
Date	September 11, 2019	September 13, 2019	September 14, 2019	September 15, 2019
Temperature / Humidity	24 deg. C / 51 % RH	25 deg. C / 50 %RH	25 deg. C / 51 %RH	24 deg. C / 63 %RH
Engineer	Kazuya Noda	Hiromasa Sato	Toshinori Yamada	Takahiro Kawakami
	(1 GHz – 13 GHz)	(13 GHz – 18 GHz)	(18 GHz – 26.5 GHz)	(26.5 GHz – 40 GHz)
Mode	Tx, 11ac-40 (MIMO), 5310 MHz, (EUT serial no. B-5)			

(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.	10620.000	PK	48.46	39.64	9.23	42.67	2.04	56.70	73.9	17.2	270	345	-
Hori.	15930.000	PK	48.23	38.25	11.69	40.37	-9.54	48.26	73.9	25.6	150	238	-
Hori.	10620.000	AV	37.11	39.64	9.23	42.67	2.04	45.35	53.9	8.5	270	345	VBW: 130 Hz
Hori.	15930.000	AV	35.43	38.25	11.69	40.37	-9.54	35.46	53.9	18.4	150	238	VBW: 130 Hz
Vert.	10620.000	PK	49.24	39.64	9.23	42.67	2.04	57.48	73.9	16.4	103	101	-
Vert.	15930.000	PK	46.70	38.25	11.69	40.37	-9.54	46.73	73.9	27.1	157	254	-
Vert.	10620.000	AV	37.45	39.64	9.23	42.67	2.04	45.69	53.9	8.2	103	101	VBW: 130 Hz
Vert.	15930.000	AV	35.21	38.25	11.69	40.37	-9.54	35.24	53.9	18.6	157	254	VBW: 130 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).

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.79\text{ m} / 3.0\text{ m}) = 2.04\text{ dB}$

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

Radiated Spurious Emission

Report No. 13004393S-E-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.3
Date September 6, 2019
Temperature / Humidity 24 deg. C / 61 % RH
Engineer Kazuya Noda
(1 GHz – 6.4 GHz)
Mode Tx, 11ac-40 (CDD), 5190 MHz, (EUT serial no. B-5)

(above 1GHz Inside of the restricted band)

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

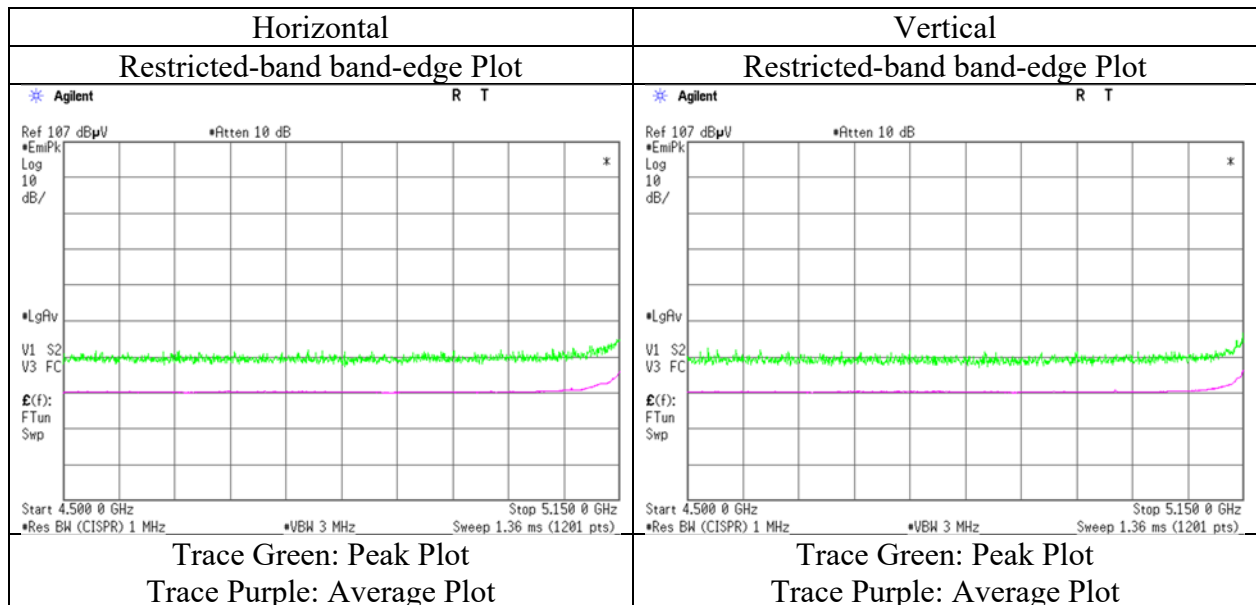
Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5150.000	PK	58.73	32.26	16.25	43.04	2.04	66.24	73.9	7.6	170	143	-
Hori.	5150.000	AV	42.67	32.26	16.25	43.04	2.04	50.18	53.9	3.7	170	143	VBW: 100 Hz
Vert.	5150.000	PK	59.15	32.26	16.25	43.04	2.04	66.66	73.9	7.2	183	177	-
Vert.	5150.000	AV	43.21	32.26	16.25	43.04	2.04	50.72	53.9	3.1	183	177	VBW: 100 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).

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.79 \text{ m} / 3.0 \text{ m}) = 2.04 \text{ dB}$



* 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. 13004393S-E-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.3
Date September 6, 2019
Temperature / Humidity 24 deg. C / 61 % RH
Engineer Kazuya Noda
(1 GHz – 6.4 GHz)
Mode Tx, 11ac-40 (CDD), 5310 MHz, (EUT serial no. B-5)

(above 1GHz Inside of the restricted band)

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

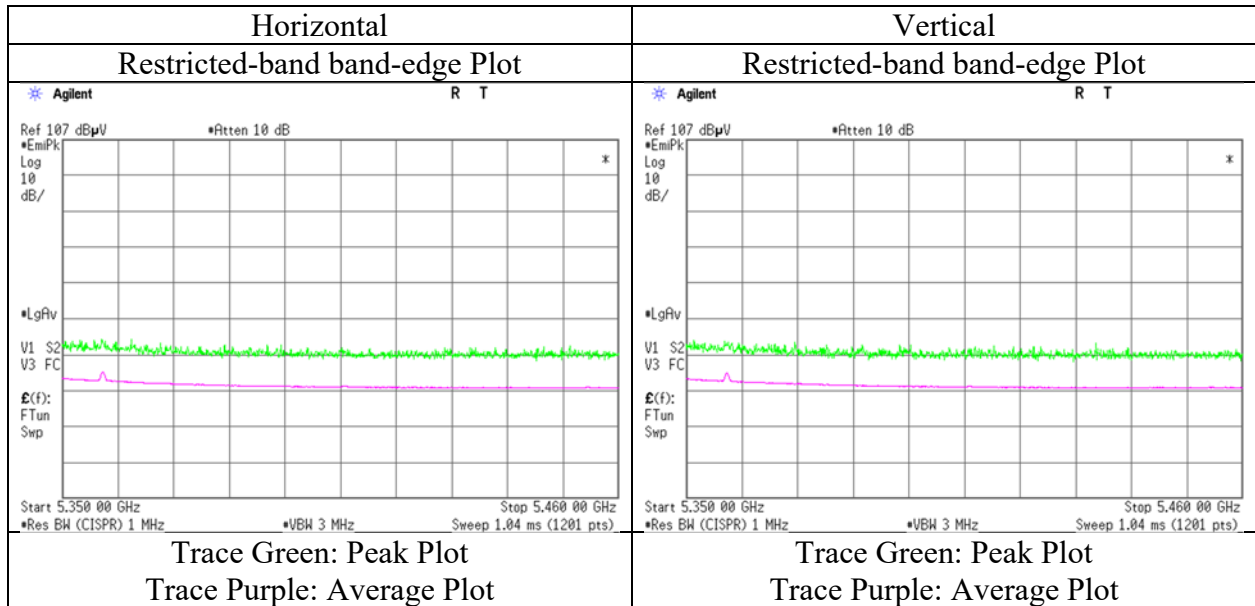
Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5350.000	PK	58.48	31.98	16.29	43.21	2.04	65.58	73.9	8.3	154	142	-
Hori.	5357.992	PK	56.53	32.00	16.29	43.21	2.04	63.65	73.9	10.2	154	142	-
Hori.	5350.000	AV	39.92	31.98	16.29	43.21	2.04	47.02	53.9	6.8	154	142	VBW: 100 Hz
Hori.	5357.992	AV	42.20	32.00	16.29	43.21	2.04	49.32	53.9	4.5	154	142	VBW: 100 Hz
Vert.	5350.000	PK	58.87	31.98	16.29	43.21	2.04	65.97	73.9	7.9	104	177	-
Vert.	5358.022	PK	56.89	32.00	16.29	43.21	2.04	64.01	73.9	9.8	104	177	-
Vert.	5350.000	AV	39.88	31.98	16.29	43.21	2.04	46.98	53.9	6.9	104	177	VBW: 100 Hz
Vert.	5358.022	AV	41.72	32.00	16.29	43.21	2.04	48.84	53.9	5.0	104	177	VBW: 100 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).

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

Distance factor : 1 GHz - 13 GHz : 20log(3.79 m / 3.0 m) = 2.04 dB



* 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. 13004393S-E-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.3
Date September 12, 2019
Temperature / Humidity 21 deg. C / 58 % RH
Engineer Takahiro Suzuki
(1 GHz – 6.4 GHz)
Mode Tx, 11ac-40 (CDD), 5190 MHz, with 3DH5 hopping (EUT serial no. B-5)

(above 1GHz Inside of the restricted band)

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

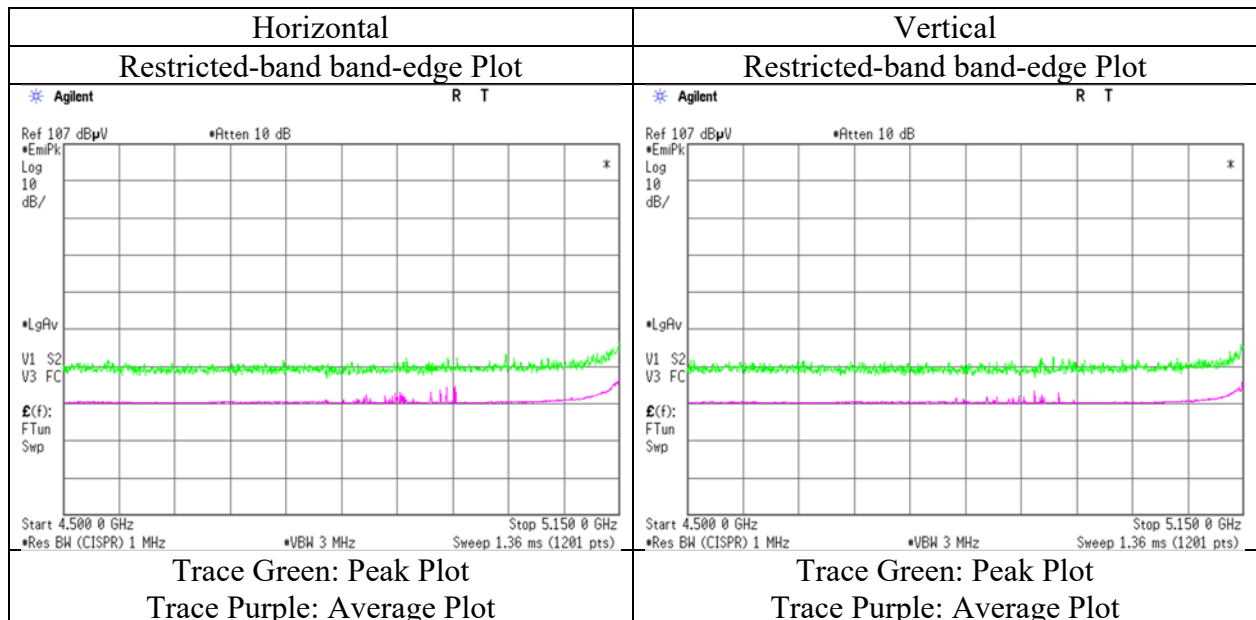
Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5150.000	PK	59.94	32.26	16.25	43.04	2.04	67.45	73.9	6.4	100	351	-
Hori.	5150.000	AV	43.82	32.26	16.25	43.04	2.04	51.33	53.9	2.5	100	351	VBW: 100 Hz
Vert.	5150.000	PK	58.66	32.26	16.25	43.04	2.04	66.17	73.9	7.7	182	1	-
Vert.	5150.000	AV	42.98	32.26	16.25	43.04	2.04	50.49	53.9	3.4	182	1	VBW: 100 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).

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.79\text{ m}/3.0\text{ m}) = 2.04\text{ dB}$



* 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. 13004393S-E-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.3
Date September 12, 2019
Temperature / Humidity 21 deg. C / 58 % RH
Engineer Takahiro Suzuki
(1 GHz – 6.4 GHz)
Mode Tx, 11ac-40 (CDD), 5310 MHz, with 3DH5 hopping (EUT serial no. B-5)

(above 1GHz Inside of the restricted band)

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

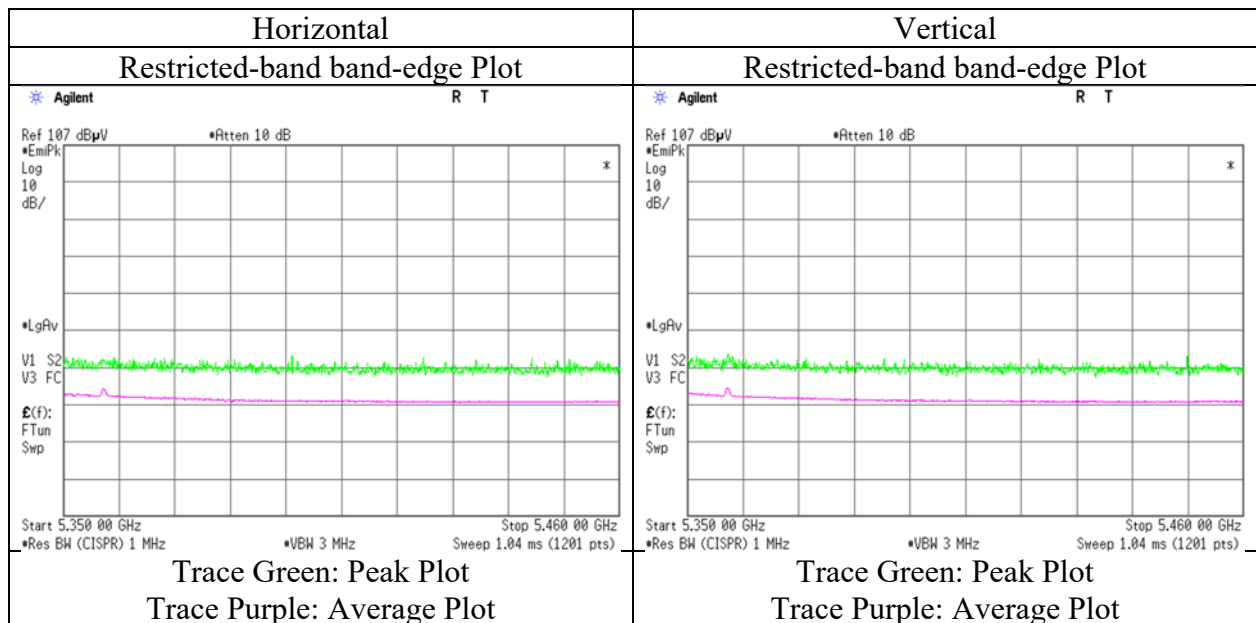
Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5350.000	PK	58.85	31.98	16.29	43.21	2.04	65.95	73.9	7.9	103	354	-
Hori.	5357.992	PK	56.61	32.00	16.29	43.21	2.04	63.73	73.9	10.1	103	354	-
Hori.	5350.000	AV	39.50	31.98	16.29	43.21	2.04	46.60	53.9	7.3	103	354	VBW: 100 Hz
Hori.	5357.992	AV	41.95	32.00	16.29	43.21	2.04	49.07	53.9	4.8	103	354	VBW: 100 Hz
Vert.	5350.000	PK	59.95	31.98	16.29	43.21	2.04	67.05	73.9	6.8	131	354	-
Vert.	5358.022	PK	54.19	32.00	16.29	43.21	2.04	61.31	73.9	12.5	131	354	-
Vert.	5350.000	AV	39.90	31.98	16.29	43.21	2.04	47.00	53.9	6.9	131	354	VBW: 100 Hz
Vert.	5358.022	AV	41.41	32.00	16.29	43.21	2.04	48.53	53.9	5.3	131	354	VBW: 100 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).

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

Distance factor : 1 GHz - 13 GHz : 20log(3.79 m / 3.0 m) = 2.04 dB



* 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.	13004393S-E-R2				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber (No.)	3	3	3	3	3
Date	September 5, 2019	September 11, 2019	September 12, 2019	September 14, 2019	September 15, 2019
Temperature / Humidity	25 deg. C / 65 % RH	22 deg. C / 53 % RH	24 deg. C / 54 % RH	25 deg. C / 51 % RH	24 deg. C / 63 % RH
Engineer	Kazuya Noda (1 GHz – 6.4 GHz)	Takahiro Kawakami (6.4 GHz – 13 GHz)	Kazuya Noda (13 GHz – 18 GHz)	Takahiro Kawakami (18 GHz – 26.5 GHz)	Toshinori Yamada (26.5 GHz – 40 GHz)
Mode	Tx, 11ac-80 (MIMO), 5210 MHz, (EUT serial no. A-7)				

(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	56.70	32.26	16.25	43.04	2.15	64.32	73.9	9.5	103	342	-
Hori.	15630.000	PK	48.28	39.17	11.74	40.69	-9.54	48.96	73.9	24.9	251	221	-
Hori.	5150.000	AV	43.72	32.26	16.25	43.04	2.15	51.34	53.9	2.5	103	342	VBW: 270 Hz
Hori.	15630.000	AV	36.45	39.17	11.74	40.69	-9.54	37.13	53.9	16.7	251	221	VBW: 270 Hz
Vert.	5150.000	PK	55.73	32.26	16.25	43.04	2.15	63.35	73.9	10.5	163	327	-
Vert.	15630.000	PK	48.49	39.17	11.74	40.69	-9.54	49.17	73.9	24.7	233	224	-
Vert.	5150.000	AV	43.74	32.26	16.25	43.04	2.15	51.36	53.9	2.5	163	327	VBW: 270 Hz
Vert.	15630.000	AV	36.42	39.17	11.74	40.69	-9.54	37.10	53.9	16.8	233	224	VBW: 270 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).

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

Distance factor : 1 GHz - 13 GHz : 20log(3.84 m / 3.0 m) = 2.15 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	47.77	39.45	9.18	42.68	2.15	55.87	-39.35	-27.0	12.4	148	285	-
Vert.	10420.000	PK	48.79	39.45	9.18	42.68	2.15	56.89	-38.33	-27.0	11.3	139	0	-

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

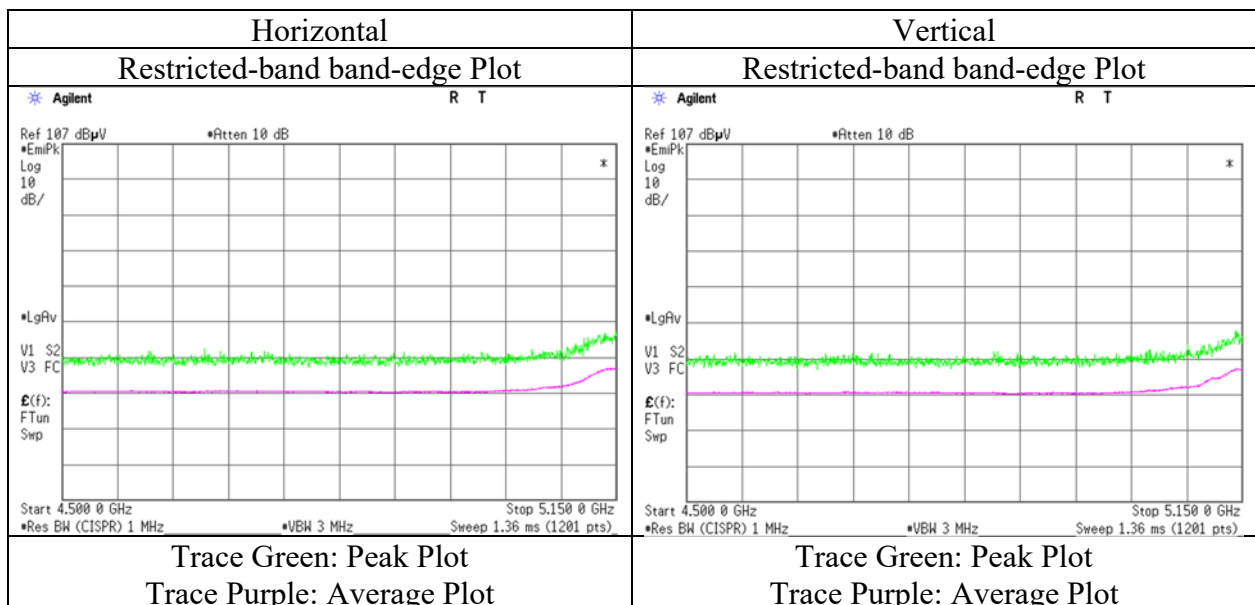
Result(EIRP[dBm])=10*LOG (({ 10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance:3[m]) ^ 2 } / 30) *10^3)

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

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

Distance factor : 1 GHz - 13 GHz : 20log(3.84 m / 3.0 m) = 2.15 dB

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



* 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.	13004393S-E-R2				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber (No.)	3	3	3	3	3
Date	September 5, 2019	September 11, 2019	September 12, 2019	September 14, 2019	September 15, 2019
Temperature / Humidity	25 deg. C / 65 % RH	22 deg. C / 53 %RH	24 deg. C / 54 %RH	25 deg. C / 51 %RH	24 deg. C / 63 %RH
Engineer	Kazuya Noda (1 GHz – 6.4 GHz)	Takahiro Kawakami (6.4 G – 13 GHz)	Kazuya Noda (13 GHz – 18 GHz)	Takahiro Kawakami (18 GHz – 26.5 GHz)	Toshinori Yamada (26.5 GHz – 40 GHz)
Mode	Tx, 11ac-80 (MIMO), 5290 MHz, (EUT serial no. A-7)				

(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	52.67	31.98	16.29	43.21	2.15	59.88	73.9	14.0	114	339	-
Hori.	15870.000	PK	47.33	38.35	11.71	40.44	-9.54	47.41	73.9	26.4	214	236	-
Hori.	5350.000	AV	39.31	31.98	16.29	43.21	2.15	46.52	53.9	7.3	114	339	VBW: 270 Hz
Hori.	15870.000	AV	35.84	38.35	11.71	40.44	-9.54	35.92	53.9	17.9	214	236	VBW: 270 Hz
Vert.	5350.000	PK	52.94	31.98	16.29	43.21	2.15	60.15	73.9	13.7	176	334	-
Vert.	15870.000	PK	47.41	38.35	11.71	40.44	-9.54	47.49	73.9	26.4	199	224	-
Vert.	5350.000	AV	39.22	31.98	16.29	43.21	2.15	46.43	53.9	7.4	176	334	VBW: 270 Hz
Vert.	15870.000	AV	36.04	38.35	11.71	40.44	-9.54	36.12	53.9	17.7	199	224	VBW: 270 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).

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

Distance factor : 1 GHz - 13 GHz : 20log(3.84 m / 3.0 m) = 2.15 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.	10580.000	PK	47.60	39.65	9.23	42.67	2.15	55.96	-39.26	-27.0	12.3	100	0	-
Vert.	10580.000	PK	47.65	39.65	9.23	42.67	2.15	56.01	-39.21	-27.0	12.2	100	0	-

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

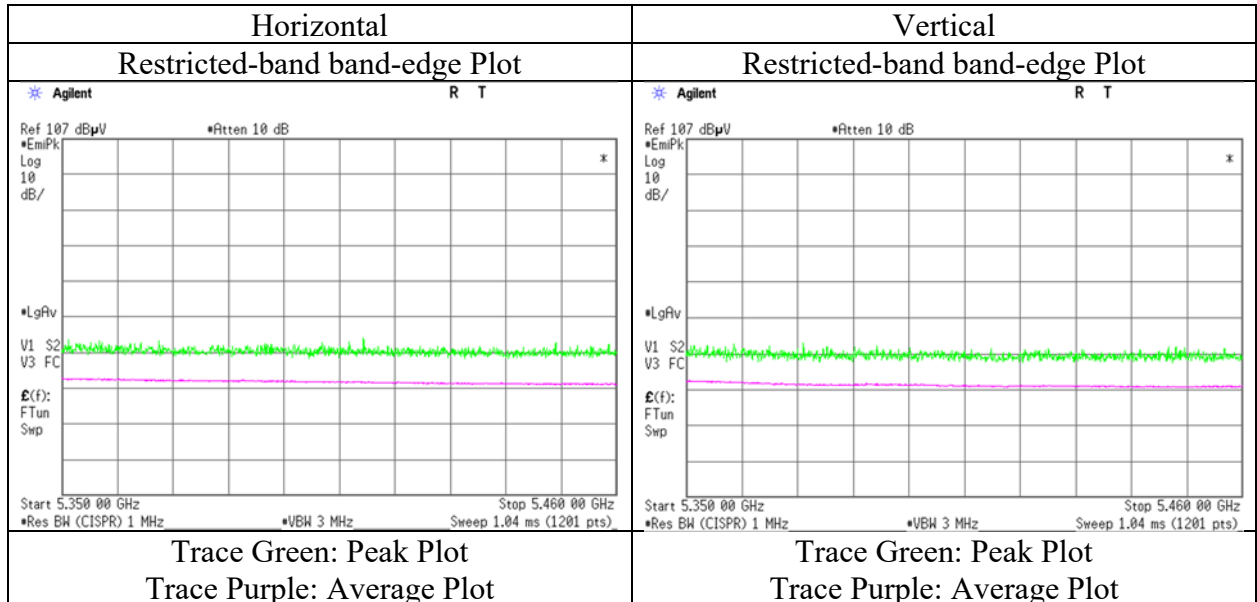
Result(EIRP[dBm])=10*LOG ((10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance:3[m]) ^ 2 / 30) *10^3)

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

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

Distance factor : 1 GHz - 13 GHz : 20log(3.84 m / 3.0 m) = 2.15 dB

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



* 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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Facsimile : +81 463 50 6401

Radiated Spurious Emission

Report No. 13004393S-E-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.3
Date September 5, 2019
Temperature / Humidity 25 deg. C / 65 % RH
Engineer Kazuya Noda
(1 GHz – 6.4 GHz)
Mode Tx, 11ac-80 (CDD), 5210 MHz, (EUT serial no. A-7)

(above 1GHz Inside of the restricted band)

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

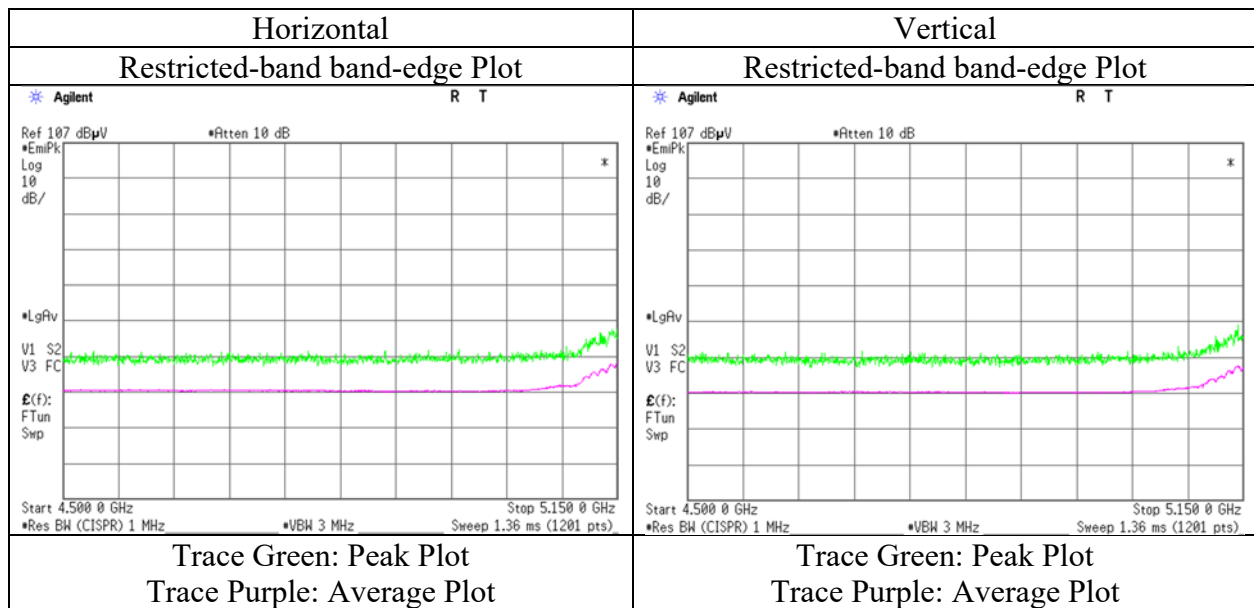
Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5143.000	PK	56.20	32.27	16.25	43.04	2.15	63.83	73.9	10.0	197	345	-
Hori.	5150.000	PK	58.20	32.26	16.25	43.04	2.15	65.82	73.9	8.0	197	345	-
Hori.	5143.000	AV	44.34	32.27	16.25	43.04	2.15	51.97	53.9	1.9	197	345	VBW: 120 Hz
Hori.	5150.000	AV	45.05	32.26	16.25	43.04	2.15	52.67	53.9	1.2	197	345	VBW: 120 Hz
Vert.	5143.000	PK	56.33	32.27	16.25	43.04	2.15	63.96	73.9	9.9	220	337	-
Vert.	5150.000	PK	56.22	32.26	16.25	43.04	2.15	63.84	73.9	10.0	220	337	-
Vert.	5143.000	AV	44.34	32.27	16.25	43.04	2.15	51.97	53.9	1.9	220	337	VBW: 120 Hz
Vert.	5150.000	AV	43.94	32.26	16.25	43.04	2.15	51.56	53.9	2.3	220	337	VBW: 120 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).

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.84\text{ m} / 3.0\text{ m}) = 2.15\text{ dB}$



* 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. 13004393S-E-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.3
Date September 5, 2019
Temperature / Humidity 25 deg. C / 65 % RH
Engineer Kazuya Noda
(1 GHz – 6.4 GHz)
Mode Tx, 11ac-80 (CDD), 5290 MHz, (EUT serial no. A-7)

(above 1GHz Inside of the restricted band)

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

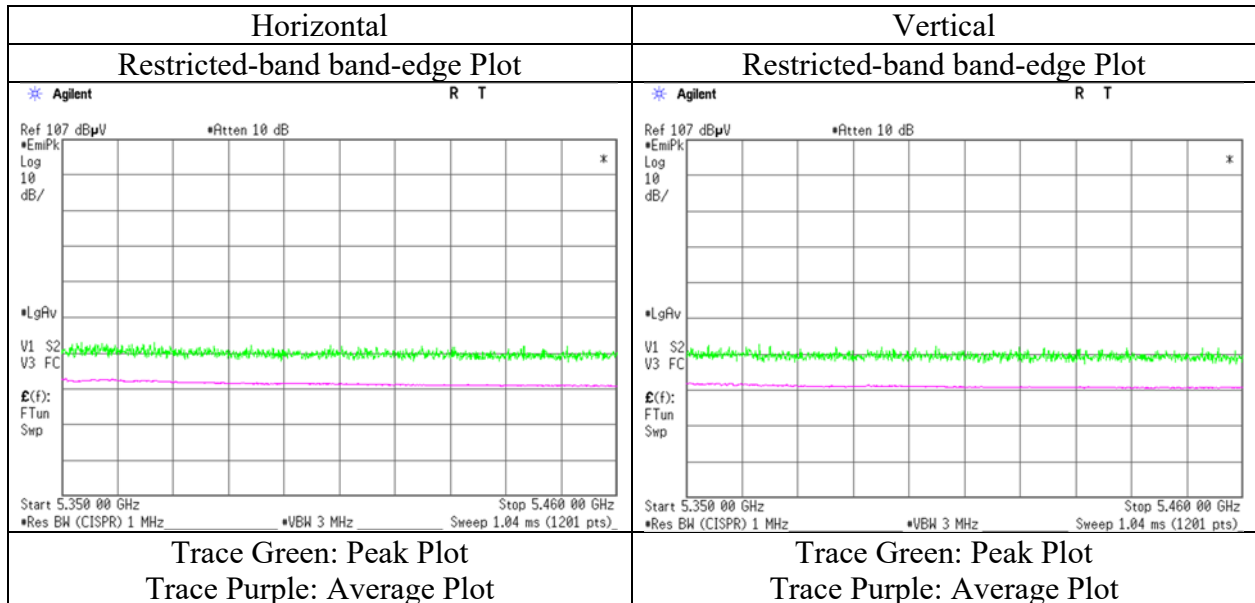
Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5350.000	PK	51.97	31.98	16.29	43.21	2.15	59.18	73.9	14.7	147	340	-
Hori.	5350.000	AV	39.45	31.98	16.29	43.21	2.15	46.66	53.9	7.2	147	340	VBW: 120 Hz
Vert.	5350.000	PK	50.37	31.98	16.29	43.21	2.15	57.58	73.9	16.3	127	335	-
Vert.	5350.000	AV	38.47	31.98	16.29	43.21	2.15	45.68	53.9	8.2	127	335	VBW: 120 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).

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

Distance factor : 1 GHz - 13 GHz : 20log(3.84 m / 3.0 m) = 2.15 dB



* 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. 13004393S-E-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.3
Date September 20, 2019
Temperature / Humidity 22 deg. C / 64 % RH
Engineer Makoto Hosaka
(1 GHz – 6.4 GHz)
Mode Tx, 11ac-80 (CDD), 5210 MHz, with 3DH5 hopping (EUT serial no. A-7)

(above 1GHz Inside of the restricted band)

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

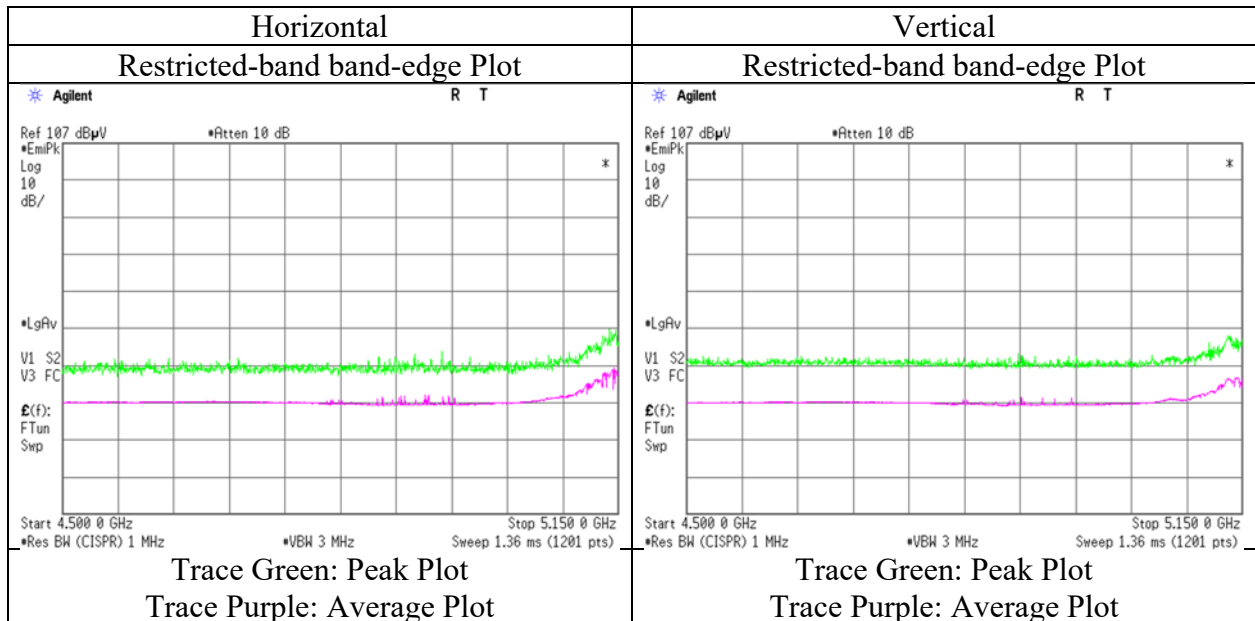
Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5142.583	PK	58.50	32.27	16.34	43.04	2.14	66.21	73.9	7.6	189	341	-
Hori.	5150.000	PK	57.08	32.26	16.34	43.04	2.14	64.78	73.9	9.1	189	341	-
Hori.	5142.583	AV	45.05	32.27	16.34	43.04	2.14	52.76	53.9	1.1	189	341	VBW: 120 Hz
Hori.	5150.000	AV	44.21	32.26	16.34	43.04	2.14	51.91	53.9	1.9	189	341	VBW: 120 Hz
Vert.	5142.583	PK	55.99	32.27	16.34	43.04	2.14	63.70	73.9	10.2	227	339	-
Vert.	5150.000	PK	56.34	32.26	16.34	43.04	2.14	64.04	73.9	9.8	227	339	-
Vert.	5142.583	AV	43.81	32.27	16.34	43.04	2.14	51.52	53.9	2.3	227	339	VBW: 120 Hz
Vert.	5150.000	AV	43.06	32.26	16.34	43.04	2.14	50.76	53.9	3.1	227	339	VBW: 120 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).

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

Distance factor : 1 GHz - 13 GHz : 20log(3.84 m / 3.0 m) = 2.15 dB



* 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. 13004393S-E-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.3
Date September 20, 2019
Temperature / Humidity 22 deg. C / 64 % RH
Engineer Makoto Hosaka
(1 GHz – 6.4 GHz)
Mode Tx, 11ac-80 (CDD), 5290 MHz, with 3DH5 hopping (EUT serial no. A-7)

(above 1GHz Inside of the restricted band)

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

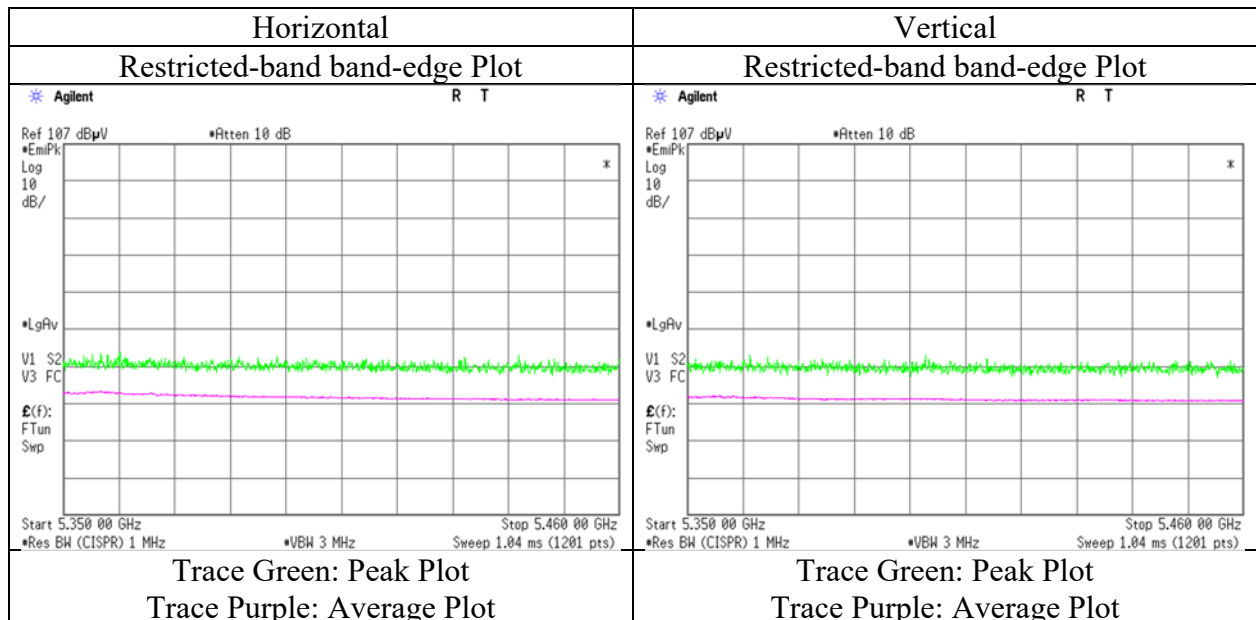
Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5350.000	PK	52.64	31.98	16.41	43.21	2.14	59.96	73.9	13.9	145	329	-
Hori.	5350.000	AV	39.76	31.98	16.41	43.21	2.14	47.08	53.9	6.8	145	329	VBW: 120 Hz
Vert.	5350.000	PK	50.84	31.98	16.41	43.21	2.14	58.16	73.9	15.7	231	340	-
Vert.	5350.000	AV	38.40	31.98	16.41	43.21	2.14	45.72	53.9	8.1	231	340	VBW: 120 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).

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

Distance factor : 1 GHz - 13 GHz : 20log(3.84 m / 3.0 m) = 2.15 dB



* 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.	13004393S-E-R2			
Test place	Shonan EMC Lab.			
Semi Anechoic Chamber (No.)	3	3	3	3
Date	September 11, 2019	September 13, 2019	September 14, 2019	September 15, 2019
Temperature / Humidity	24 deg. C / 51 % RH	25 deg. C / 50 %RH	25 deg. C / 51 %RH	24 deg. C / 63 %RH
Engineer	Kazuya Noda	Hiromasa Sato	Toshinori Yamada	Takahiro Kawakami
	(1 GHz – 13 GHz)	(13 GHz – 18 GHz)	(18 GHz – 26.5 GHz)	(26.5 GHz – 40 GHz)
Mode	Tx, 11ac-80 (MIMO), 5210 MHz, (EUT serial no. B-5)			

(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.	15630.000	PK	47.80	39.17	11.74	40.69	-9.54	48.48	73.9	25.4	167	236	-
Hori.	15630.000	AV	36.09	39.17	11.74	40.69	-9.54	36.77	53.9	17.1	167	236	VBW: 270 Hz
Vert.	15630.000	PK	47.35	39.17	11.74	40.69	-9.54	48.03	73.9	25.8	178	203	-
Vert.	15630.000	AV	36.02	39.17	11.74	40.69	-9.54	36.70	53.9	17.2	178	203	VBW: 270 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).

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.79\text{ m} / 3.0\text{ m}) = 2.04\text{ dB}$

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.	10420.000	PK	48.47	39.45	9.18	42.68	2.04	56.46	-38.76	-27.0	11.8	127	345	-
Vert.	10420.000	PK	48.57	39.45	9.18	42.68	2.04	56.56	-38.66	-27.0	11.7	117	91	-

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

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

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

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.79\text{ m} / 3.0\text{ m}) = 2.04\text{ dB}$

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.	13004393S-E-R2			
Test place	Shonan EMC Lab.			
Semi Anechoic Chamber (No.)	3	3	3	3
Date	September 11, 2019	September 13, 2019	September 14, 2019	September 15, 2019
Temperature / Humidity	24 deg. C / 51 % RH	25 deg. C / 50 %RH	25 deg. C / 51 %RH	24 deg. C / 63 %RH
Engineer	Kazuya Noda	Hiromasa Sato	Toshinori Yamada	Takahiro Kawakami
	(1 GHz – 13 GHz)	(13 GHz – 18 GHz)	(18 GHz – 26.5 GHz)	(26.5 GHz – 40 GHz)
Mode	Tx, 11ac-80 (MIMO), 5290 MHz, (EUT serial no. B-5)			

(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.	15870.000	PK	46.90	38.35	11.71	40.44	-9.54	46.98	73.9	26.9	173	237	-
Hori.	15870.000	AV	36.27	38.35	11.71	40.44	-9.54	36.35	53.9	17.5	173	237	VBW: 270 Hz
Vert.	15870.000	PK	46.97	38.35	11.71	40.44	-9.54	47.05	73.9	26.8	195	255	-
Vert.	15870.000	AV	36.28	38.35	11.71	40.44	-9.54	36.36	53.9	17.5	195	255	VBW: 270 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).

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

Distance factor : 1 GHz - 13 GHz : 20log (3.79 m / 3.0 m) = 2.04 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.	10580.000	PK	48.72	39.65	9.23	42.67	2.04	56.97	-38.25	-27.0	11.3	171	342	-
Vert.	10580.000	PK	48.20	39.65	9.23	42.67	2.04	56.45	-38.77	-27.0	11.8	113	107	-

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).

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

Distance factor : 1 GHz - 13 GHz : 20log (3.79 m / 3.0 m) = 2.04 dB

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

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Radiated Spurious Emission

Report No. 13004393S-E-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.3
Date September 5, 2019
Temperature / Humidity 25 deg. C / 65 % RH
Engineer Makoto Hosaka
(1 GHz – 6.4 GHz)
Mode Tx, 11ac-80 (CDD), 5210 MHz, (EUT serial no. B-5)

(above 1GHz Inside of the restricted band)

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

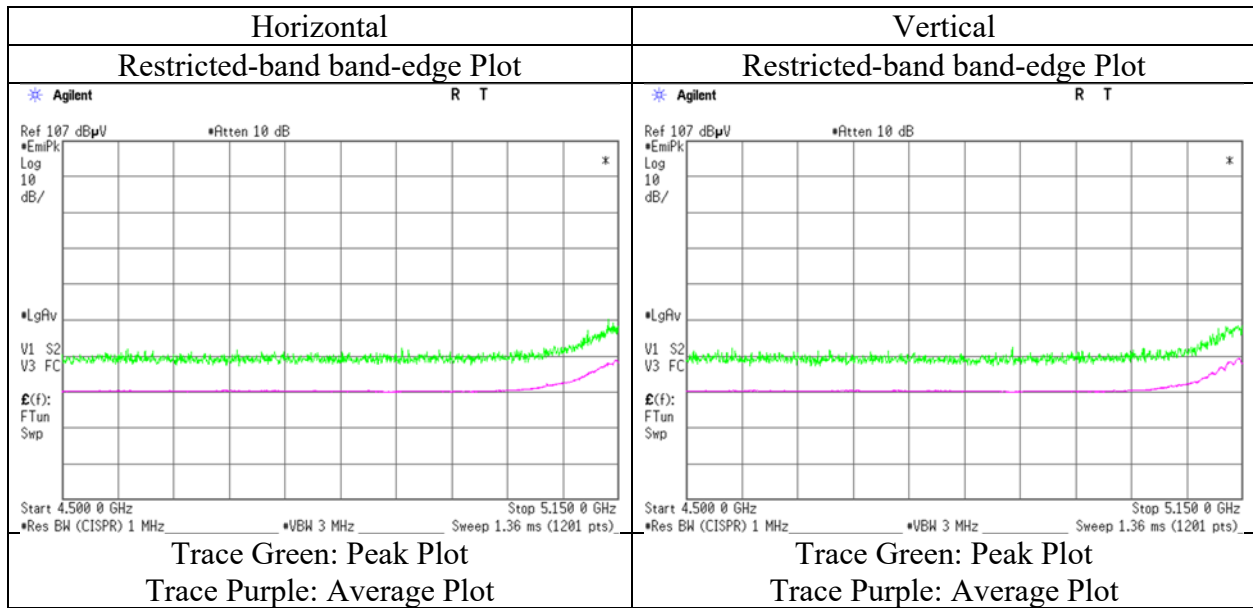
Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5144.500	PK	57.18	32.27	16.25	43.04	2.15	64.81	73.9	9.0	109	173	-
Hori.	5150.000	PK	57.46	32.26	16.25	43.04	2.15	65.08	73.9	8.8	109	173	-
Hori.	5144.500	AV	45.08	32.27	16.25	43.04	2.15	52.71	53.9	1.1	109	173	VBW: 120 Hz
Hori.	5150.000	AV	45.25	32.26	16.25	43.04	2.15	52.87	53.9	1.0	109	173	VBW: 120 Hz
Vert.	5144.500	PK	58.81	32.27	16.25	43.04	2.15	66.44	73.9	7.4	183	185	-
Vert.	5150.000	PK	57.41	32.26	16.25	43.04	2.15	65.03	73.9	8.8	183	185	-
Vert.	5144.500	AV	45.53	32.27	16.25	43.04	2.15	53.16	53.9	0.7	183	185	VBW: 120 Hz
Vert.	5150.000	AV	44.70	32.26	16.25	43.04	2.15	52.32	53.9	1.5	183	185	VBW: 120 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).

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

Distance factor : 1 GHz - 13 GHz : 20log(3.79 m / 3.0 m) = 2.04 dB



* 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. 13004393S-E-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.3
Date September 5, 2019
Temperature / Humidity 25 deg. C / 65 % RH
Engineer Makoto Hosaka
(1 GHz – 6.4 GHz)
Mode Tx, 11ac-80 (CDD), 5290 MHz, (EUT serial no. B-5)

(above 1GHz Inside of the restricted band)

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

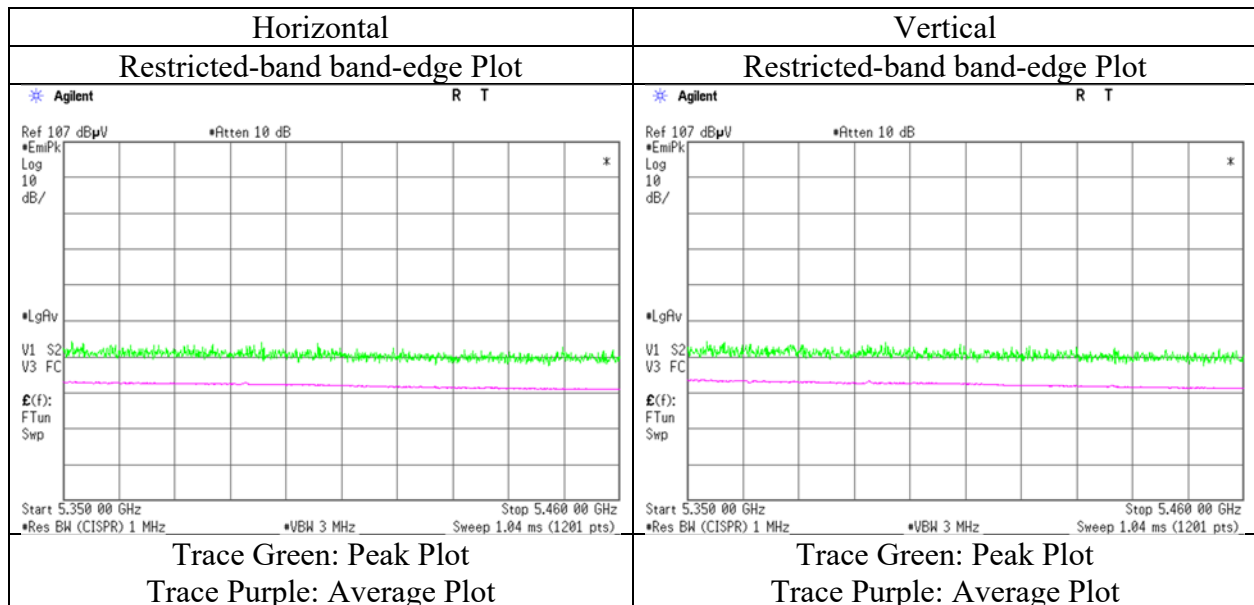
Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5350.000	PK	51.91	31.98	16.29	43.21	2.15	59.12	73.9	14.7	143	139	-
Hori.	5350.000	AV	39.70	31.98	16.29	43.21	2.15	46.91	53.9	6.9	143	139	VBW: 120 Hz
Vert.	5350.000	PK	54.31	31.98	16.29	43.21	2.15	61.52	73.9	12.3	238	198	-
Vert.	5350.000	AV	40.17	31.98	16.29	43.21	2.15	47.38	53.9	6.5	238	198	VBW: 120 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).

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.79\text{ m}/3.0\text{ m}) = 2.04\text{ dB}$



* 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. 13004393S-E-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.3
Date September 21, 2019
Temperature / Humidity 25 deg. C / 52 % RH
Engineer Takahiro Kawakami
(1 GHz – 6.4 GHz)
Mode Tx, 11ac-80 (CDD), 5210 MHz, with 3DH5 hopping (EUT serial no. B-5)

(above 1GHz Inside of the restricted band)

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

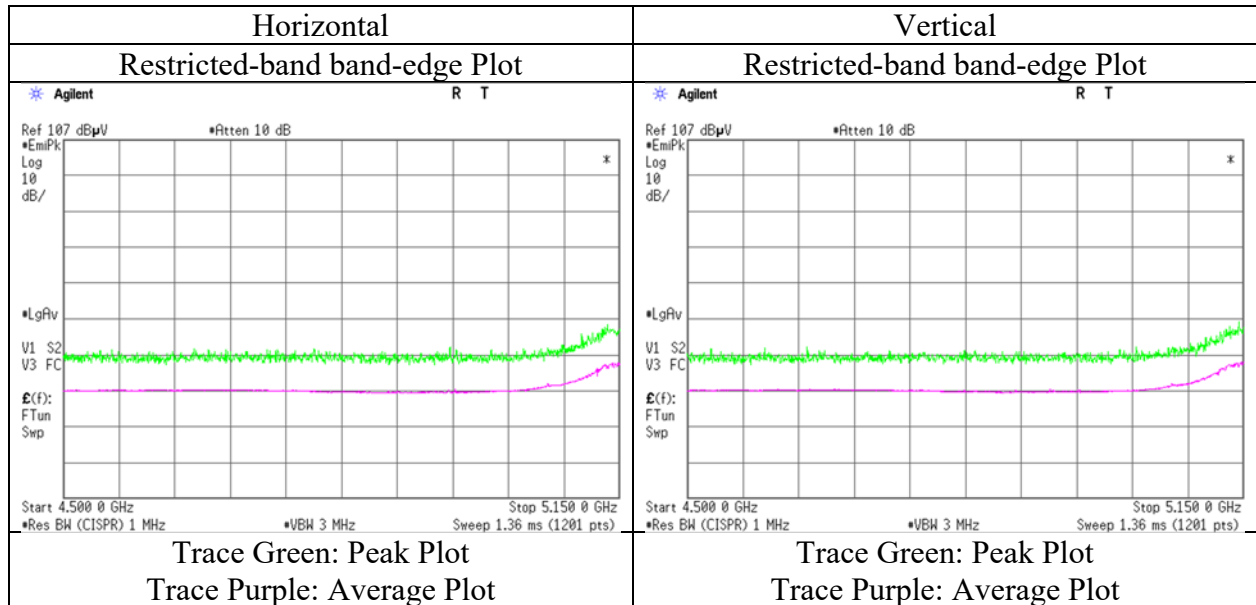
Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5150.000	PK	57.30	32.26	16.34	43.04	2.04	64.90	73.9	9.0	165	174	-
Hori.	5150.000	AV	44.76	32.26	16.34	43.04	2.04	52.36	53.9	1.5	165	174	VBW: 120 Hz
Vert.	5150.000	PK	55.89	32.26	16.34	43.04	2.04	63.49	73.9	10.4	295	202	-
Vert.	5150.000	AV	43.56	32.26	16.34	43.04	2.04	51.16	53.9	2.7	295	202	VBW: 120 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).

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.79\text{ m}/3.0\text{ m}) = 2.04\text{ dB}$



* 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. 13004393S-E-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.3
Date September 21, 2019
Temperature / Humidity 25 deg. C / 52 % RH
Engineer Takahiro Kawakami
(1 GHz – 6.4 GHz)
Mode Tx, 11ac-80 (CDD), 5290 MHz, with 3DH5 hopping (EUT serial no. B-5)

(above 1GHz Inside of the restricted band)

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

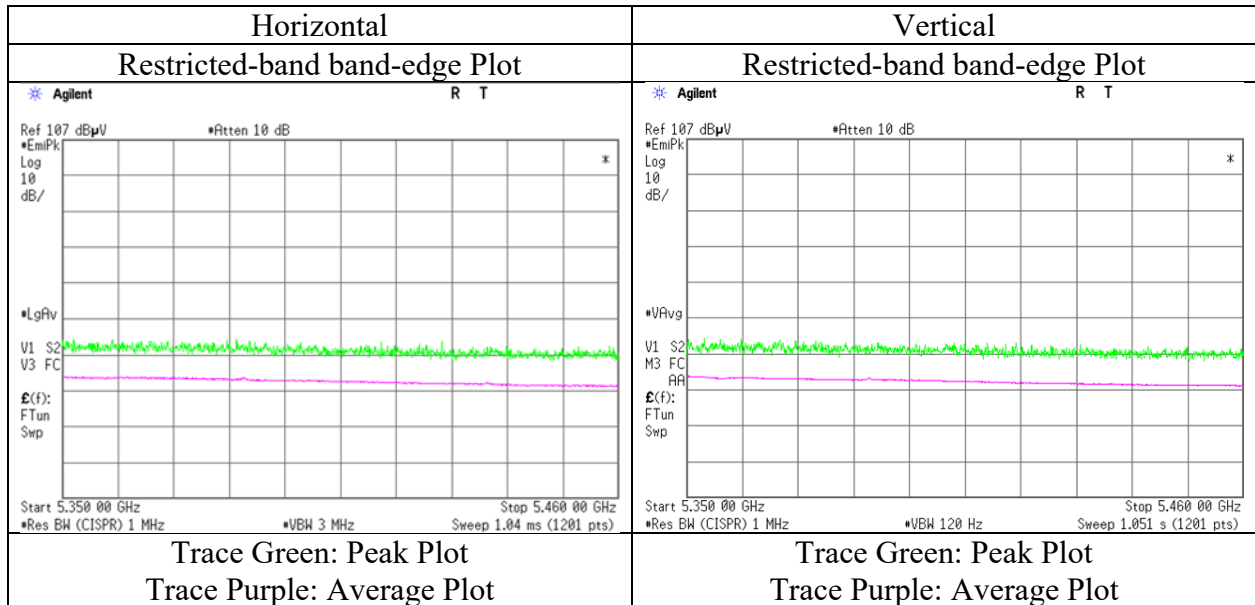
Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5350.000	PK	51.28	31.98	16.41	43.21	2.04	58.50	73.9	15.4	172	176	-
Hori.	5350.000	AV	40.42	31.98	16.41	43.21	2.04	47.64	53.9	6.2	172	176	VBW: 120 Hz
Vert.	5350.000	PK	54.15	31.98	16.41	43.21	2.04	61.37	73.9	12.5	264	178	-
Vert.	5350.000	AV	40.25	31.98	16.41	43.21	2.04	47.47	53.9	6.4	264	178	VBW: 120 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).

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.79 \text{ m} / 3.0 \text{ m}) = 2.04 \text{ dB}$



* 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.	13004393S-E-R2				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber (No.)	3	3	3	3	3
Date	September 6, 2019	September 10, 2019	September 12, 2019	September 14, 2019	September 15, 2019
Temperature / Humidity	24 deg. C / 61 %RH	23 deg. C / 55 %RH	24 deg. C / 54 %RH	25 deg. C / 51 %RH	24 deg. C / 63 %RH
Engineer	Makoto Hosaka (1 GHz - 6.4 GHz)	Kazuya Noda (6.4 GHz - 13 GHz)	Kazuya Noda (13 GHz - 18 GHz)	Takahiro Kawakami (18 GHz - 26.5 GHz)	Toshinori Yamada (26.5 GHz - 40 GHz)
Mode	Tx, 11n-20 (MIMO), 5500 MHz, (EUT serial no. A-7)				

(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	50.81	32.32	16.32	43.30	2.15	58.30	73.9	15.6	125	344	-
Hori.	11000.000	PK	48.89	40.38	9.36	42.70	2.15	58.08	73.9	15.8	155	88	-
Hori.	5460.000	AV	38.81	32.32	16.32	43.30	2.15	46.30	53.9	7.6	125	344	VBW: 1 kHz
Hori.	11000.000	AV	37.55	40.38	9.36	42.70	2.15	46.74	53.9	7.1	155	88	VBW: 1 kHz
Vert.	5460.000	PK	50.03	32.32	16.32	43.30	2.15	57.52	73.9	16.3	108	256	-
Vert.	11000.000	PK	48.78	40.38	9.36	42.70	2.15	57.97	73.9	15.9	229	145	-
Vert.	5460.000	AV	38.53	32.32	16.32	43.30	2.15	46.02	53.9	7.8	108	256	VBW: 1 kHz
Vert.	11000.000	AV	37.58	40.38	9.36	42.70	2.15	46.77	53.9	7.1	229	145	VBW: 1 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).

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.84\text{ m} / 3.0\text{ m}) = 2.15\text{ dB}$

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	55.47	32.34	16.33	43.31	2.15	62.98	-32.24	-27.0	5.2	125	344	-
Hori.	16500.000	PK	46.65	39.24	12.48	40.44	-9.54	48.39	-46.83	-27.0	19.8	268	91	-
Vert.	5470.000	PK	51.74	32.34	16.33	43.31	2.15	59.25	-35.97	-27.0	9.0	108	256	-
Vert.	16500.000	PK	46.81	39.24	12.48	40.44	-9.54	48.55	-46.67	-27.0	19.7	224	165	-

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

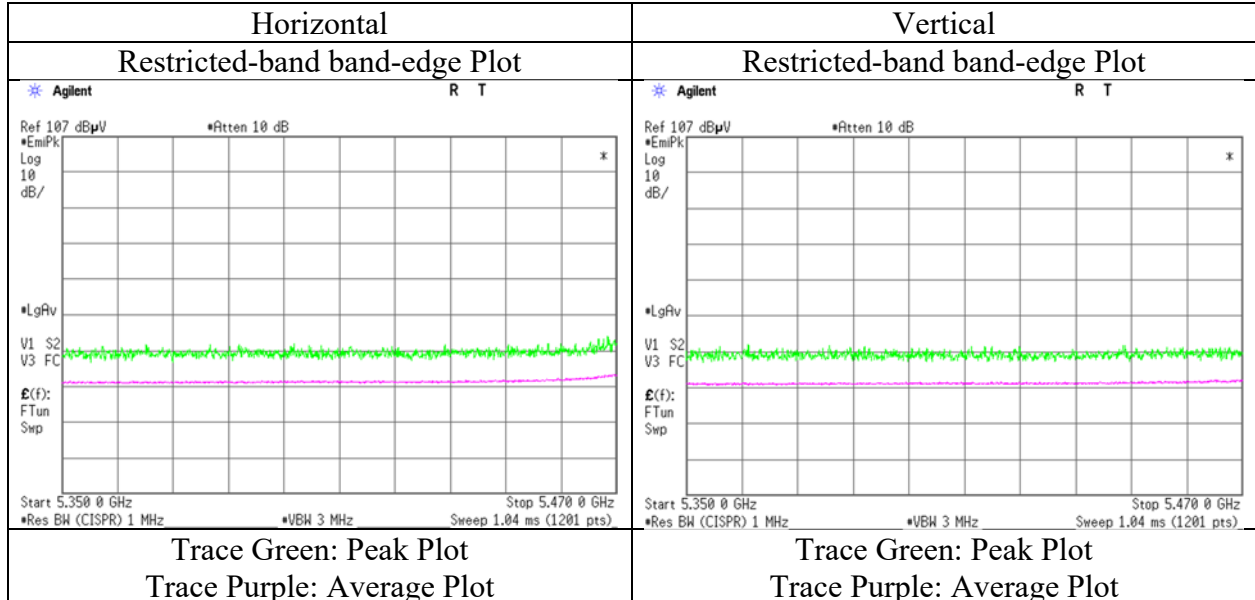
Result(EIRP[dBm]) = $10 * \text{LOG}(\{ \{ 10 \wedge (\text{Electric Field Strength [dBuV/m] / 20} * 10 \wedge (-6) * \text{Distance:3[m]} \wedge 2} / 30) * 10 \wedge 3 \}$

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

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.84\text{ m} / 3.0\text{ m}) = 2.15\text{ dB}$

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



* 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.	13004393S-E-R2				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber (No.)	3	3	3	3	3
Date	September 11, 2019	September 10, 2019	September 12, 2019	September 14, 2019	September 15, 2019
Temperature / Humidity	22 deg.C / 53 %RH	23 deg.C / 55 %RH	24 deg.C / 54 %RH	25 deg.C / 51 %RH	24 deg.C / 63 %RH
Engineer	Takahiro Kawakami	Kazuya Noda	Kazuya Noda	Takahiro Kawakami	Toshinori Yamada
Mode	(1 GHz – 6.4 GHz)	(6.4 G – 13 GHz)	(13 GHz – 18 GHz)	(18 GHz – 26.5 GHz)	(26.5 GHz – 40 GHz)
	Tx, 11n-20 (MIMO), 5580 MHz, (EUT serial no. A-7)				

(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	48.79	39.92	9.53	42.67	2.15	57.72	73.9	16.1	111	114	-
Hori.	11160.000	AV	37.56	39.92	9.53	42.67	2.15	46.49	53.9	7.4	111	114	VBW: 1 kHz
Vert.	11160.000	PK	48.83	39.92	9.53	42.67	2.15	57.76	73.9	16.1	147	144	-
Vert.	11160.000	AV	37.85	39.92	9.53	42.67	2.15	46.78	53.9	7.1	147	144	VBW: 1 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).

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.84\text{ m} / 3.0\text{ m}) = 2.15\text{ dB}$

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	46.87	39.38	12.43	40.40	-9.54	48.74	-46.48	-27.0	19.5	268	318	-
Vert.	16740.000	PK	46.70	39.38	12.43	40.40	-9.54	48.57	-46.65	-27.0	19.7	225	248	-

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).

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.84\text{ m} / 3.0\text{ m}) = 2.15\text{ dB}$

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.	13004393S-E-R2				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber (No.)	3	3	3	3	3
Date	September 6, 2019	September 10, 2019	September 12, 2019	September 14, 2019	September 15, 2019
Temperature / Humidity	24 deg. C / 61 % RH	23 deg. C / 55 % RH	24 deg. C / 54 % RH	25 deg. C / 51 % RH	24 deg. C / 63 % RH
Engineer	Makoto Hosaka (1 GHz - 6.4 GHz)	Kazuya Noda (6.4 GHz - 13 GHz)	Kazuya Noda (13 GHz - 18 GHz)	Takahiro Kawakami (18 GHz - 26.5 GHz)	Toshinori Yamada (26.5 GHz - 40 GHz)
Mode	Tx, 11n-20 (MIMO), 5700 MHz, (EUT serial no. A-7)				

(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	49.26	39.95	9.78	42.62	2.15	58.52	73.9	15.4	119	82	-
Hori.	11400.000	AV	37.76	39.95	9.78	42.62	2.15	47.02	53.9	6.9	119	82	VBW: 1 kHz
Vert.	11400.000	PK	49.05	39.95	9.78	42.62	2.15	58.31	73.9	15.6	241	141	-
Vert.	11400.000	AV	37.67	39.95	9.78	42.62	2.15	46.93	53.9	7.0	241	141	VBW: 1 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).

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.84\text{ m} / 3.0\text{ m}) = 2.15\text{ dB}$
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	54.88	32.68	16.55	43.33	2.15	62.93	-32.29	-27.0	5.3	112	329	-
Hori.	17100.000	PK	46.73	40.33	12.36	40.32	-9.54	49.56	-45.66	-27.0	18.7	253	123	-
Vert.	5725.000	PK	53.43	32.68	16.55	43.33	2.15	61.48	-33.74	-27.0	6.7	105	253	-
Vert.	17100.000	PK	46.19	40.33	12.36	40.32	-9.54	49.02	-46.20	-27.0	19.2	215	359	-

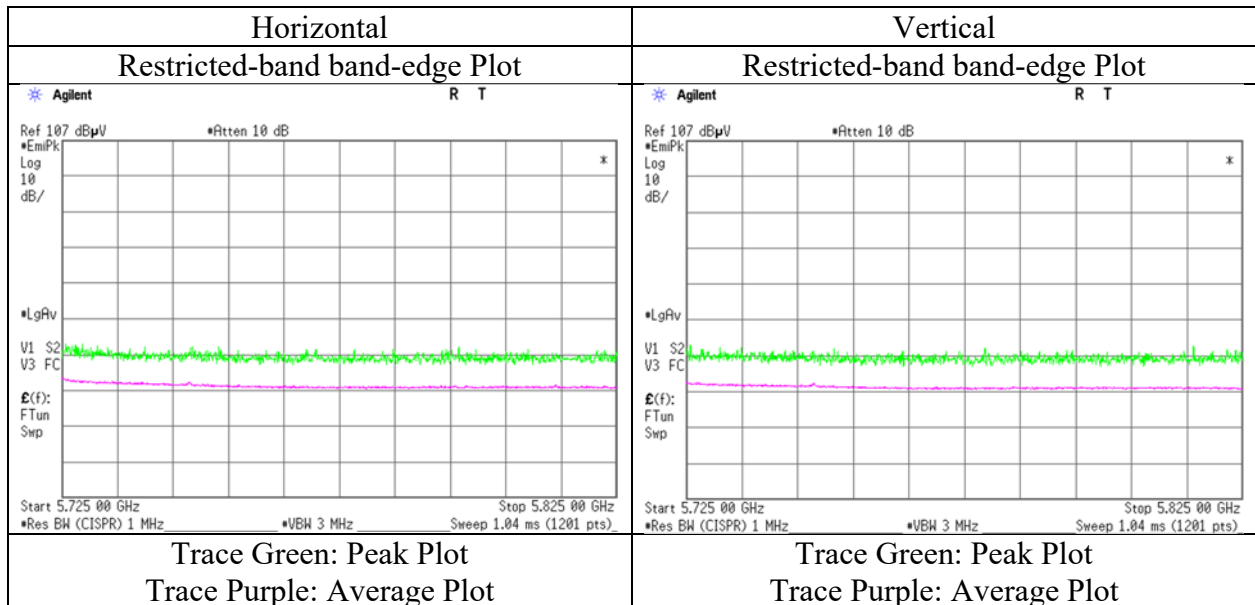
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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

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

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.84\text{ m} / 3.0\text{ m}) = 2.15\text{ dB}$
13 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.54\text{ dB}$



* 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. 13004393S-E-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.3
Date September 6, 2019
Temperature / Humidity 24 deg. C / 61 % RH
Engineer Makoto Hosaka
(1 GHz – 6.4 GHz)
Mode Tx, 11n-20 (CDD), 5500 MHz, (EUT serial no. A-7)

(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	50.31	32.32	16.32	43.30	2.15	57.80	73.9	16.1	166	-	-
Hori.	5460.000	AV	38.33	32.32	16.32	43.30	2.15	45.82	53.9	8.0	166	-	VBW: 510Hz
Vert.	5460.000	PK	50.07	32.32	16.32	43.30	2.15	57.56	73.9	16.3	109	-	-
Vert.	5460.000	AV	38.09	32.32	16.32	43.30	2.15	45.58	53.9	8.3	109	-	VBW: 510Hz

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).

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

Distance factor : 1 GHz - 13 GHz : 20log (3.84 m / 3.0 m) = 2.15 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	55.04	32.34	16.33	43.31	2.15	62.55	-32.67	-27.0	5.6	166	339	-
Vert.	5470.000	PK	52.25	32.34	16.33	43.31	2.15	59.76	-35.46	-27.0	8.4	109	256	-

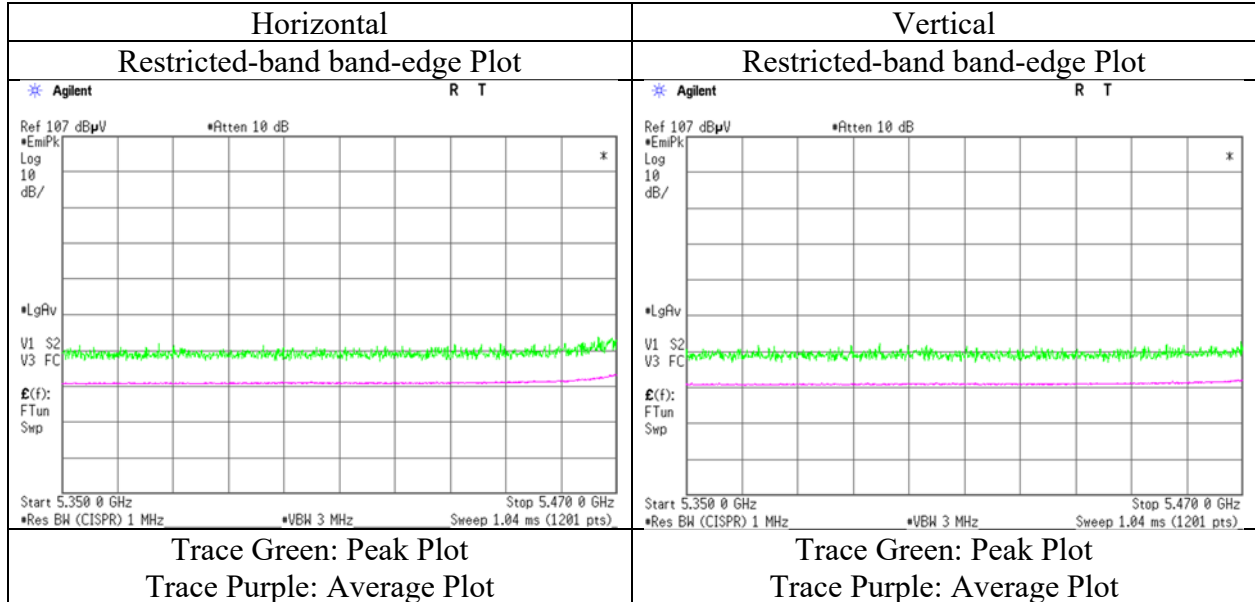
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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).

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

Distance factor : 1 GHz - 13 GHz : 20log (3.84 m / 3.0 m) = 2.15 dB



* 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. 13004393S-E-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.3
Date September 6, 2019
Temperature / Humidity 24 deg. C / 61 % RH
Engineer Makoto Hosaka
(1 GHz – 6.4 GHz)
Mode Tx, 11n-20 (CDD), 5700 MHz, (EUT serial no. A-7)

(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	55.72	32.68	16.55	43.33	2.15	63.77	-31.45	-27.0	4.4	119	340	-
Vert.	5725.000	PK	53.43	32.68	16.55	43.33	2.15	61.48	-33.74	-27.0	6.7	148	271	-

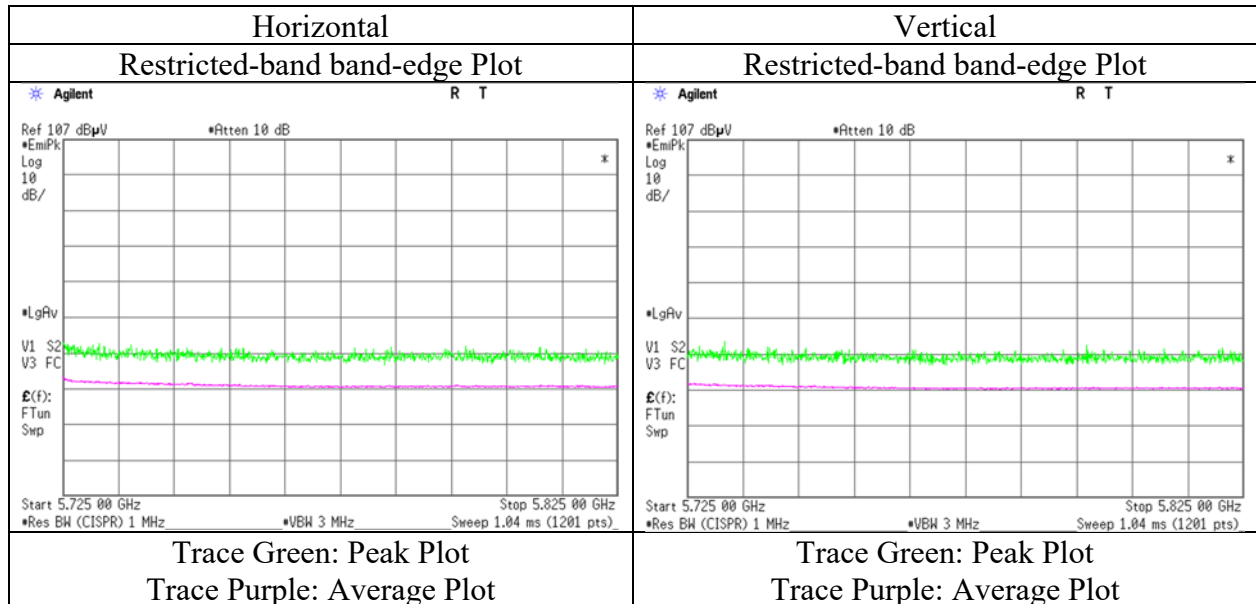
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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).

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

Distance factor : 1 GHz- 13 GHz : 20log (3.84 m / 3.0 m) = 2.15 dB



* 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. 13004393S-E-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.3
Date September 20, 2019
Temperature / Humidity 22 deg. C / 64 % RH
Engineer Makoto Hosaka
(1 GHz – 6.4 GHz)
Mode Tx, 11n-20 (CDD), 5500 MHz, with 3DH5 hopping (EUT serial no. A-7)

(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	51.15	32.32	16.47	43.30	2.14	58.78	73.9	15.1	110	348	-
Hori.	5460.000	AV	38.54	32.32	16.47	43.30	2.14	46.17	53.9	7.7	110	348	VBW: 510 Hz
Vert.	5460.000	PK	50.63	32.32	16.47	43.30	2.14	58.26	73.9	15.6	101	332	-
Vert.	5460.000	AV	38.04	32.32	16.47	43.30	2.14	45.67	53.9	8.2	101	332	VBW: 510 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).

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.84\text{ m} / 3.0\text{ m}) = 2.15\text{ dB}$

(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	56.46	32.34	16.47	43.31	2.14	64.10	-31.12	-27.0	4.1	110	348	-
Vert.	5470.000	PK	53.34	32.34	16.47	43.31	2.14	60.98	-34.24	-27.0	7.2	101	332	-

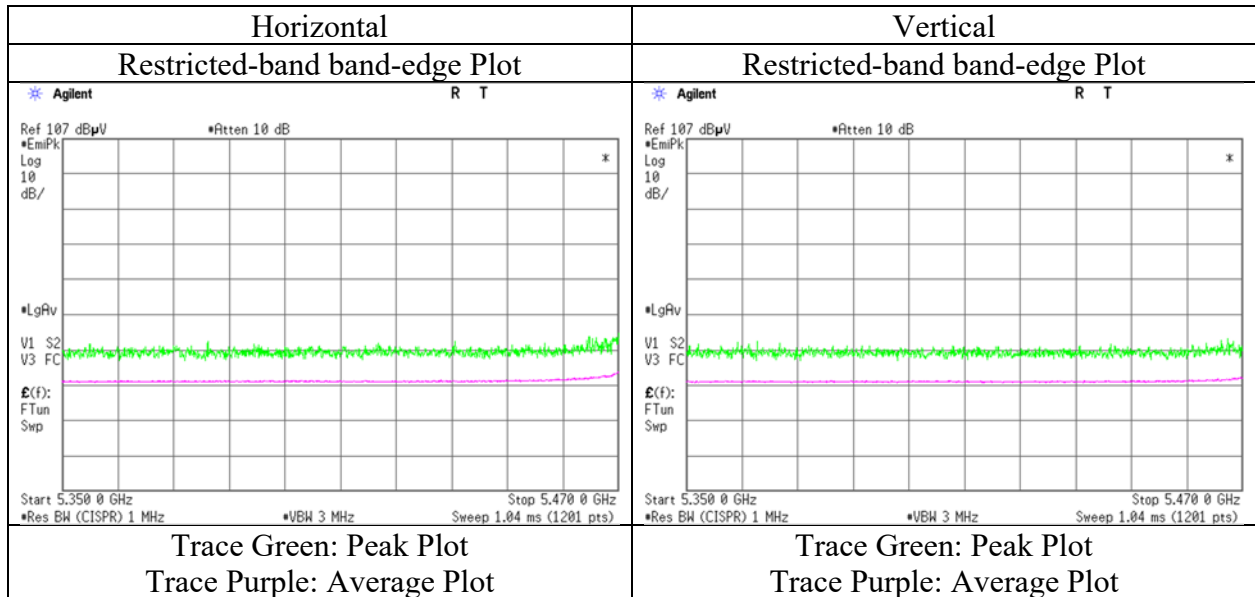
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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).

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.84\text{ m} / 3.0\text{ m}) = 2.15\text{ dB}$



* 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. 13004393S-E-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.3
Date September 20, 2019
Temperature / Humidity 22 deg. C / 64 % RH
Engineer Makoto Hosaka
(1 GHz – 6.4 GHz)
Mode Tx, 11n-20 (CDD), 5700 MHz, with 3DH5 hopping (EUT serial no. A-7)

(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	50.68	32.68	16.59	43.33	2.04	58.66	-36.56	-27.0	9.5	188	352	-
Vert.	5725.000	PK	50.91	32.68	16.59	43.33	2.04	58.89	-36.33	-27.0	9.3	231	220	-

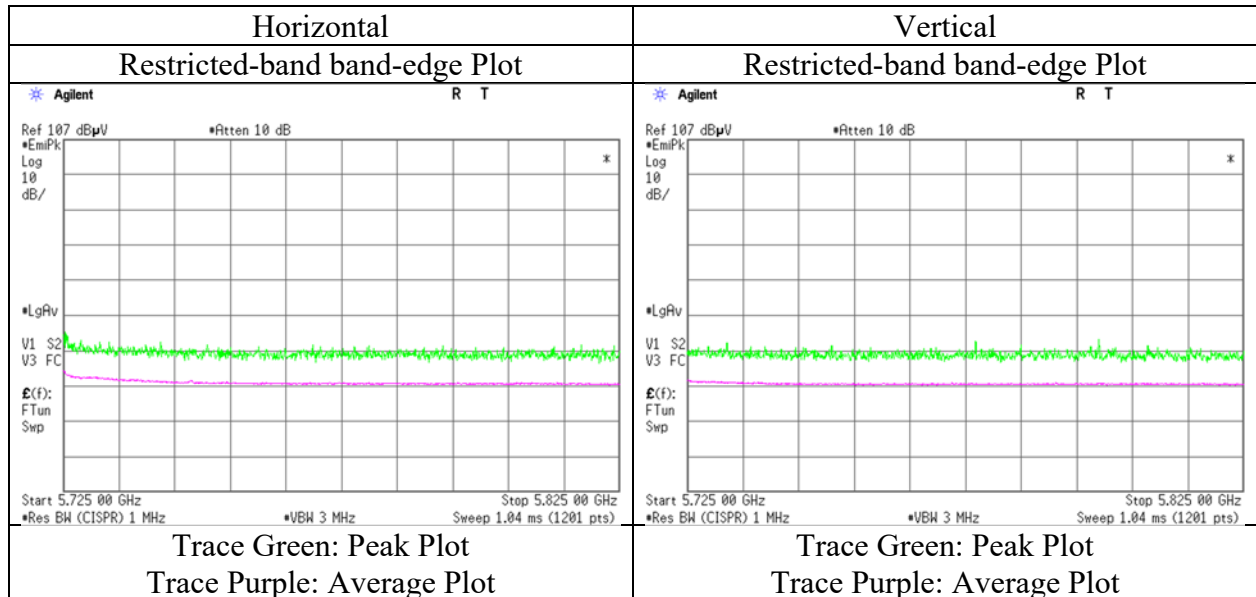
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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).

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

Distance factor : 1 GHz - 13 GHz : 20log (3.84 m / 3.0 m) = 2.15 dB



* 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. 13004393S-E-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber (No.) 3
Date September 11, 2019 September 13, 2019 September 14, 2019 September 15, 2019
Temperature / Humidity 24 deg. C / 51 % RH 25 deg. C / 50 %RH 25 deg. C / 51 %RH 24 deg. C / 63 %RH
Engineer Kazuya Noda Hiromasa Sato Toshinori Yamada Takahiro Kawakami
(1 GHz – 13 GHz) (13 GHz – 18 GHz) (18 GHz – 26.5 GHz) (26.5 GHz – 40 GHz)
Mode Tx, 11n-20 (MIMO), 5500 MHz, (EUT serial no. B-5)

(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.	11000.000	PK	48.82	40.38	9.36	42.70	2.04	57.90	73.9	16.0	277	338	-
Hori.	11000.000	AV	37.22	40.38	9.36	42.70	2.04	46.30	53.9	7.6	277	338	VBW: 1 kHz
Vert.	11000.000	PK	49.45	40.38	9.36	42.70	2.04	58.53	73.9	15.3	231	167	-
Vert.	11000.000	AV	37.55	40.38	9.36	42.70	2.04	46.63	53.9	7.2	231	167	VBW: 1 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).

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.79\text{ m} / 3.0\text{ m}) = 2.04\text{ dB}$

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.	16500.000	PK	47.75	39.24	12.48	40.44	-9.54	49.49	-45.73	-27.0	18.7	205	278	-
Vert.	16500.000	PK	47.78	39.24	12.48	40.44	-9.54	49.52	-45.70	-27.0	18.7	182	211	-

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).

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.79\text{ m} / 3.0\text{ m}) = 2.04\text{ dB}$

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.	13004393S-E-R2				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber (No.)	3	3	3	3	3
Date	September 20, 2019	September 11, 2019	September 13, 2019	September 14, 2019	September 15, 2019
Temperature / Humidity	24 deg.C / 58 %RH	24 deg.C / 51 %RH	25 deg.C / 50 %RH	25 deg.C / 51 %RH	24 deg.C / 63 %RH
Engineer	Takahiro Suzuki (30 MHz - 1 GHz)	Kazuya Noda (1 GHz - 13 GHz)	Hiromasa Sato (13 GHz - 18 GHz)	Toshinori Yamada (18 GHz - 26.5 GHz)	Takahiro Kawakami (26.5 GHz - 40 GHz)
Mode	Tx, 11n-20 (MIMO), 5580 MHz, (EUT serial no. B-5)				

(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.	151.500	QP	35.66	14.73	7.85	32.12	0.00	26.12	43.5	17.3	225	116	-
Hori.	221.948	QP	43.19	11.02	8.22	32.04	0.00	30.39	46.0	15.6	160	358	-
Hori.	239.848	QP	43.68	11.31	8.35	32.02	0.00	31.32	46.0	14.6	121	1	-
Hori.	695.901	QP	36.04	19.28	10.35	31.87	0.00	33.80	46.0	12.2	155	13	-
Hori.	719.973	QP	34.02	19.75	10.44	31.83	0.00	32.38	46.0	13.6	118	181	-
Hori.	11160.000	PK	48.92	39.92	9.53	42.67	2.04	57.74	73.9	16.1	108	11	-
Hori.	11160.000	AV	37.41	39.92	9.53	42.67	2.04	46.23	53.9	7.6	108	11	VBW: 1 kHz
Vert.	94.363	QP	43.56	8.99	7.51	32.15	0.00	27.91	43.5	15.5	116	298	-
Vert.	157.143	QP	42.06	14.95	7.90	32.11	0.00	32.80	43.5	10.7	100	164	-
Vert.	695.942	QP	36.13	19.28	10.35	31.87	0.00	33.89	46.0	12.1	100	358	-
Vert.	707.923	QP	35.00	19.51	10.40	31.85	0.00	33.06	46.0	12.9	100	1	-
Vert.	927.300	QP	26.32	21.69	11.10	30.84	0.00	28.27	46.0	17.7	100	357	-
Vert.	11160.000	PK	49.10	39.92	9.53	42.67	2.04	57.92	73.9	15.9	186	206	-
Vert.	11160.000	AV	37.76	39.92	9.53	42.67	2.04	46.58	53.9	7.3	186	206	VBW: 1 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).

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

Distance factor : 1 GHz - 13 GHz : 20log (3.79 m / 3.0 m) = 2.04 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	46.64	39.38	12.43	40.40	-9.54	48.51	-46.71	-27.0	19.7	192	334	-
Vert.	16740.000	PK	46.95	39.38	12.43	40.40	-9.54	48.82	-46.40	-27.0	19.4	183	199	-

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).

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

Distance factor : 1 GHz - 13 GHz : 20log (3.79 m / 3.0 m) = 2.04 dB

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

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Radiated Spurious Emission

Report No.	13004393S-E-R2			
Test place	Shonan EMC Lab.			
Semi Anechoic Chamber (No.)	3	3	3	3
Date	September 11, 2019	September 13, 2019	September 14, 2019	September 15, 2019
Temperature / Humidity	24 deg. C / 51 % RH	25 deg. C / 50 %RH	25 deg. C / 51 %RH	24 deg. C / 63 %RH
Engineer	Kazuya Noda	Hiromasa Sato	Toshinori Yamada	Takahiro Kawakami
	(1 GHz – 13 GHz)	(13 GHz – 18 GHz)	(18 GHz – 26.5 GHz)	(26.5 GHz – 40 GHz)
Mode	Tx, 11n-20 (MIMO), 5700 MHz, (EUT serial no. B-5)			

(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	48.54	39.95	9.78	42.62	2.04	57.69	73.9	16.2	195	301	-
Hori.	11400.000	AV	37.35	39.95	9.78	42.62	2.04	46.50	53.9	7.4	195	301	VBW: 1 kHz
Vert.	11400.000	PK	49.02	39.95	9.78	42.62	2.04	58.17	73.9	15.7	176	101	-
Vert.	11400.000	AV	37.52	39.95	9.78	42.62	2.04	46.67	53.9	7.2	176	101	VBW: 1 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).

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

Distance factor : 1 GHz - 13 GHz : 20log (3.79 m / 3.0 m) = 2.04 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.	17100.000	PK	47.29	40.33	12.36	40.32	-9.54	50.12	-45.10	-27.0	18.1	221	264	-
Vert.	17100.000	PK	47.01	40.33	12.36	40.32	-9.54	49.84	-45.38	-27.0	18.4	207	337	-

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).

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

Distance factor : 1 GHz - 13 GHz : 20log (3.79 m / 3.0 m) = 2.04 dB

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

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Radiated Spurious Emission

Report No. 13004393S-E-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.3
Date September 22, 2019
Temperature / Humidity 24 deg. C / 59 % RH
Engineer Makoto Hosaka
(1 GHz – 6.4 GHz)
Mode Tx, 11n-20 (CDD), 5500 MHz, (EUT serial no. B-5)

(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	50.23	32.32	16.47	43.30	2.04	57.76	73.9	16.1	103	177	-
Hori.	5460.000	AV	38.32	32.32	16.47	43.30	2.04	45.85	53.9	8.0	103	177	VBW: 510 Hz
Vert.	5460.000	PK	51.65	32.32	16.47	43.30	2.04	59.18	73.9	14.7	272	174	-
Vert.	5460.000	AV	39.39	32.32	16.47	43.30	2.04	46.92	53.9	6.9	272	174	VBW: 510 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).

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.79\text{ m} / 3.0\text{ m}) = 2.04\text{ dB}$

(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	50.86	32.34	16.47	43.31	2.04	58.40	-36.82	-27.0	9.8	103	177	-
Vert.	5470.000	PK	52.76	32.34	16.47	43.31	2.04	60.30	-34.92	-27.0	7.9	272	174	-

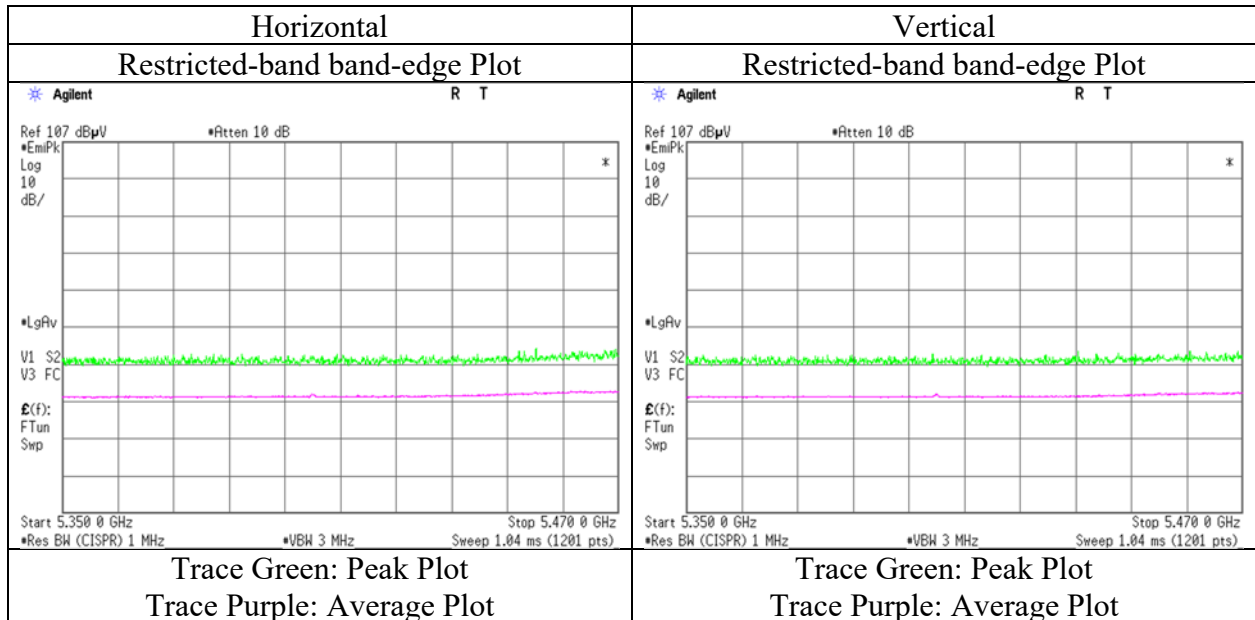
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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).

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.79\text{ m} / 3.0\text{ m}) = 2.04\text{ dB}$



* 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. 13004393S-E-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.3
Date September 22, 2019
Temperature / Humidity 24 deg. C / 59 % RH
Engineer Makoto Hosaka
(1 GHz – 6.4 GHz)
Mode Tx, 11n-20 (CDD), 5700 MHz, (EUT serial no. B-5)

(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	49.89	32.68	16.59	43.33	2.04	57.87	-37.35	-27.0	10.3	103	169	-
Vert.	5725.000	PK	50.53	32.68	16.59	43.33	2.04	58.51	-36.71	-27.0	9.7	182	182	-

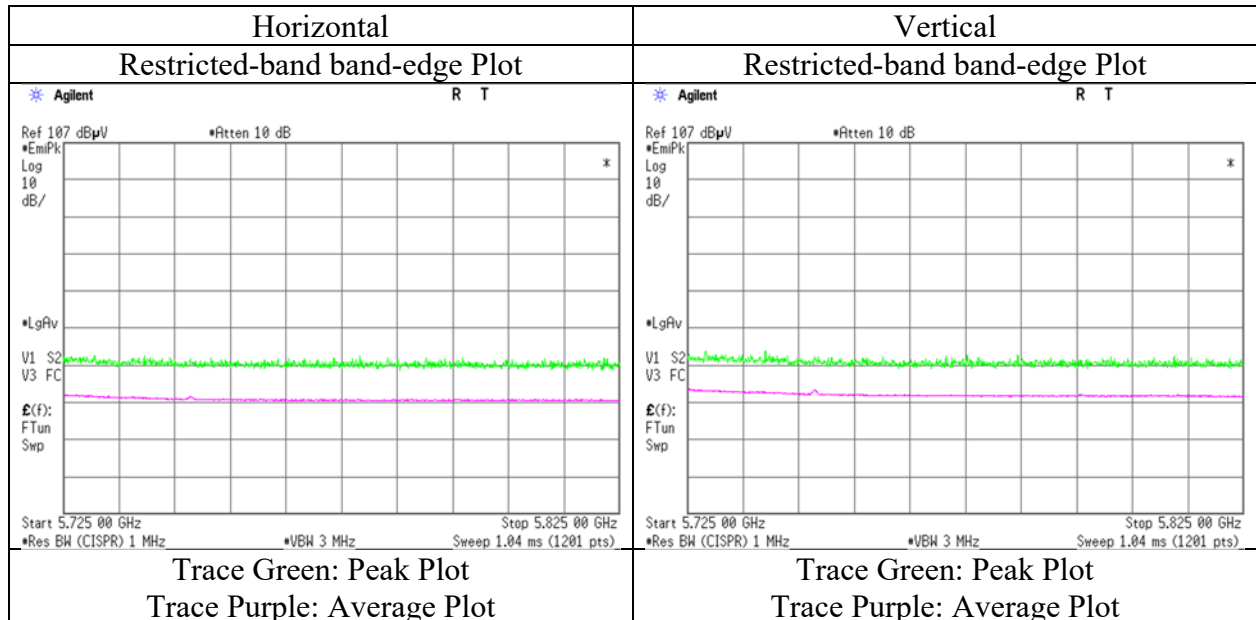
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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).

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

Distance factor : 1 GHz- 13 GHz : 20log (3.79 m / 3.0 m) = 2.04 dB



* 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. 13004393S-E-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.3
Date September 21, 2019
Temperature / Humidity 25 deg. C / 52 % RH
Engineer Takahiro Kawakami
(1 GHz – 6.4 GHz)
Mode Tx, 11n-20 (CDD), 5500 MHz, with 3DH5 hopping (EUT serial no. B-5)

(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	50.58	32.32	16.47	43.30	2.04	58.11	73.9	15.7	153	172	-
Hori.	5460.000	AV	38.81	32.32	16.47	43.30	2.04	46.34	53.9	7.5	153	172	VBW: 510 Hz
Vert.	5460.000	PK	51.06	32.32	16.47	43.30	2.04	58.59	73.9	15.3	249	192	-
Vert.	5460.000	AV	38.69	32.32	16.47	43.30	2.04	46.22	53.9	7.6	249	192	VBW: 510 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).

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.79\text{ m} / 3.0\text{ m}) = 2.04\text{ dB}$

(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	51.40	32.34	16.47	43.31	2.04	58.94	-36.28	-27.0	9.2	153	172	-
Vert.	5470.000	PK	51.29	32.34	16.47	43.31	2.04	58.83	-36.39	-27.0	9.3	249	192	-

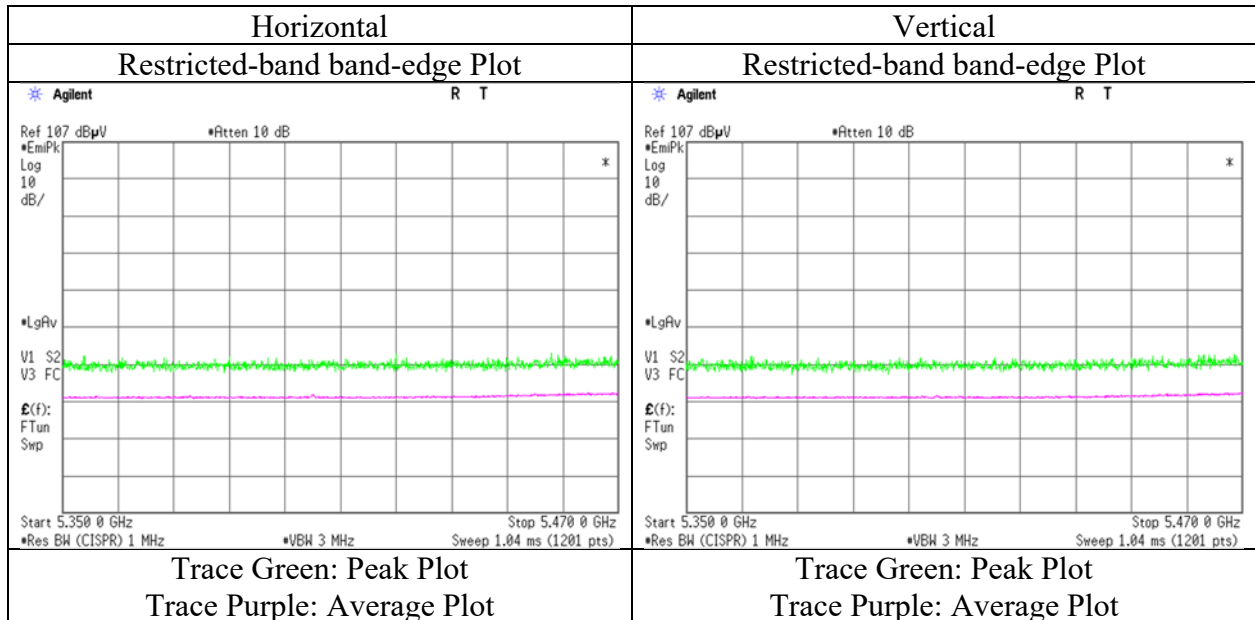
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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).

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.79\text{ m} / 3.0\text{ m}) = 2.04\text{ dB}$



* 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. 13004393S-E-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.3
Date September 21, 2019
Temperature / Humidity 25 deg. C / 52 % RH
Engineer Takahiro Kawakami
(1 GHz – 6.4 GHz)
Mode Tx, 11n-20 (CDD), 5700 MHz, with 3DH5 hopping (EUT serial no. B-5)

(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	50.68	32.68	16.59	43.33	2.04	58.66	-36.56	-27.0	9.5	188	352	-
Vert.	5725.000	PK	50.91	32.68	16.59	43.33	2.04	58.89	-36.33	-27.0	9.3	231	220	-

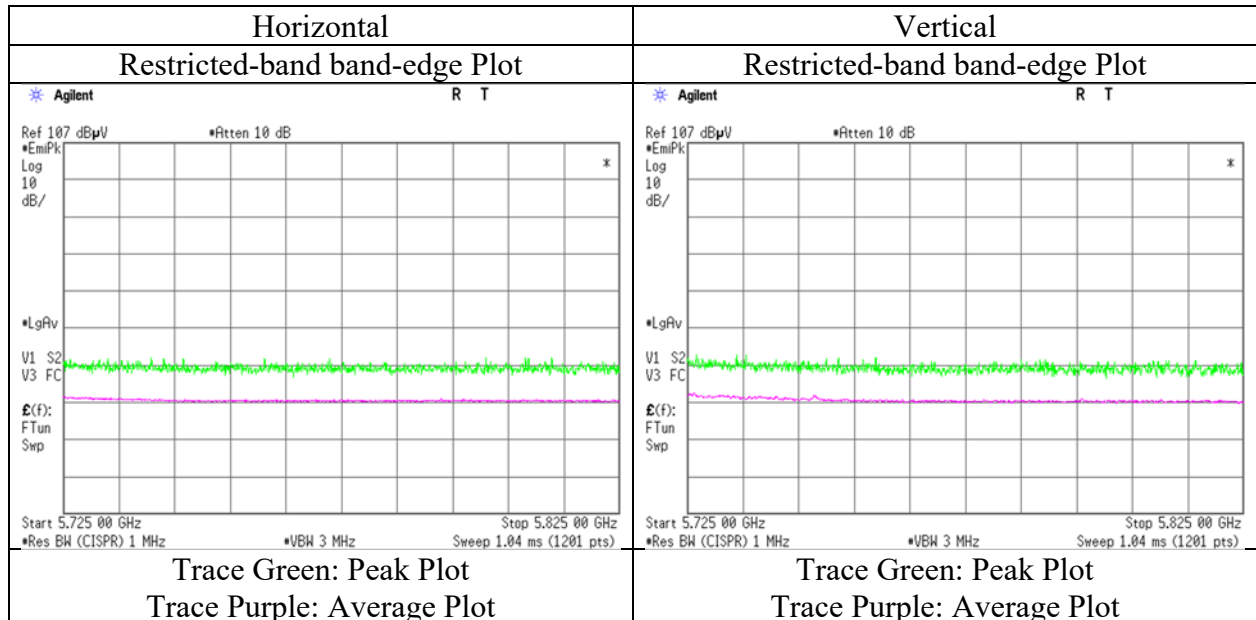
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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).

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

Distance factor : 1 GHz- 13 GHz: 20log (3.79 m / 3.0 m) = 2.04 dB



* 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.	13004393S-E-R2				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber (No.)	3	3	3	3	3
Date	September 6, 2019	September 11, 2019	September 12, 2019	September 14, 2019	September 15, 2019
Temperature / Humidity	24 deg. C / 61 %RH	22 deg. C / 53 %RH	24 deg. C / 54 %RH	25 deg. C / 51 %RH	24 deg. C / 63 %RH
Engineer	Kazuya Noda (1 GHz – 6.4 GHz)	Takahiro Kawakami (6.4 G – 13 GHz)	Kazuya Noda (13 GHz – 18 GHz)	Takahiro Kawakami (18 GHz – 26.5 GHz)	Toshinori Yamada (26.5 GHz – 40 GHz)
Mode	Tx, 11ac-40 (MIMO), 5510 MHz, (serial no. A-7)				

(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	53.56	32.32	16.32	43.30	2.15	61.05	73.9	12.8	106	335	-
Hori.	11020.000	PK	48.73	40.34	9.38	42.70	2.15	57.90	73.9	16.0	100	0	-
Hori.	5460.000	AV	39.09	32.32	16.32	43.30	2.15	46.58	53.9	7.3	106	335	VBW: 130 Hz
Hori.	11020.000	AV	36.45	40.34	9.38	42.70	2.15	45.62	53.9	8.2	100	0	VBW: 130 Hz
Vert.	5460.000	PK	49.70	32.32	16.32	43.30	2.15	57.19	73.9	16.7	150	330	-
Vert.	11020.000	PK	48.73	40.34	9.38	42.70	2.15	57.90	73.9	16.0	100	0	-
Vert.	5460.000	AV	37.87	32.32	16.32	43.30	2.15	45.36	53.9	8.5	150	330	VBW: 130 Hz
Vert.	11020.000	AV	36.36	40.34	9.38	42.70	2.15	45.53	53.9	8.3	100	0	VBW: 130 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).

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.84\text{ m} / 3.0\text{ m}) = 2.15\text{ dB}$

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	58.87	32.34	16.33	43.31	2.15	66.38	-28.84	-27.0	1.8	106	335	-
Hori.	16530.000	PK	46.63	39.26	12.48	40.43	-9.54	48.40	-46.82	-27.0	19.8	268	101	-
Vert.	5470.000	PK	53.85	32.34	16.33	43.31	2.15	61.36	-33.86	-27.0	6.8	150	330	-
Vert.	16530.000	PK	46.88	39.26	12.48	40.43	-9.54	48.65	-46.57	-27.0	19.6	203	220	-

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

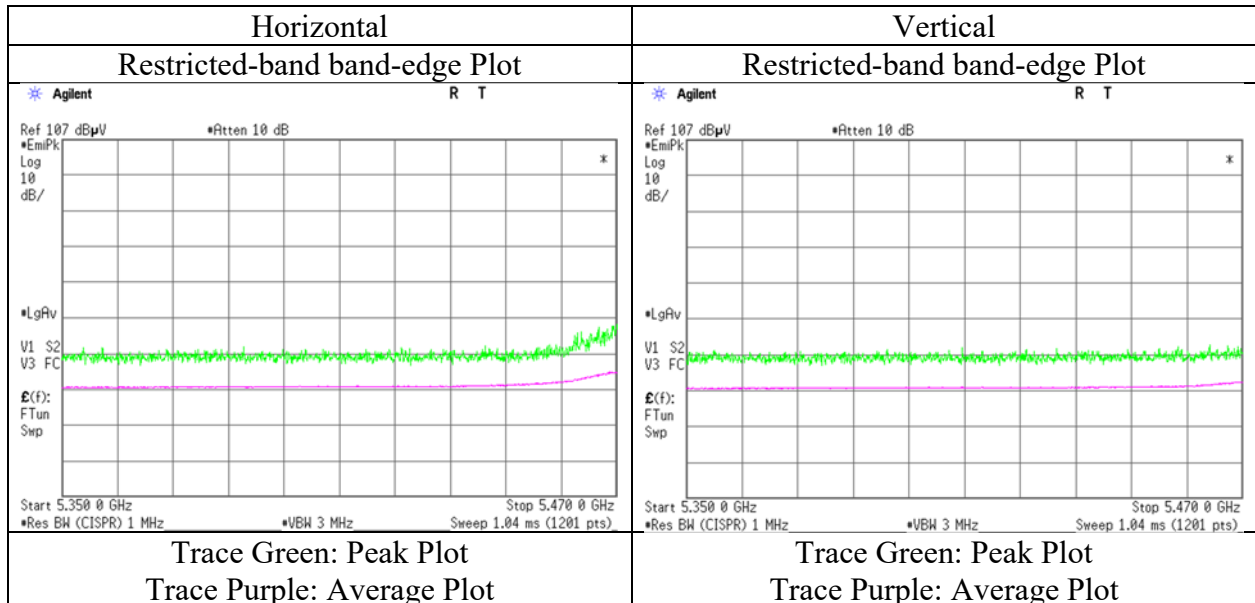
Result(EIRP[dBm])= $10\cdot\text{LOG}(\{ \{ 10^{\wedge}(\text{Electric Field Strength [dBuV/m] / 20 } * 10^{\wedge}(-6) * \text{Distance:3[m]})^{\wedge}2 \} / 30 \} * 10^{\wedge}3)$

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

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.84\text{ m} / 3.0\text{ m}) = 2.15\text{ dB}$

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



* 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.	13004393S-E-R2			
Test place	Shonan EMC Lab.			
Semi Anechoic Chamber (No.)	3	3	3	3
Date	September 11, 2019	September 12, 2019	September 14, 2019	September 15, 2019
Temperature / Humidity	22 deg.C / 53 %RH	24 deg.C / 54 %RH	25 deg.C / 51 %RH	24 deg.C / 63 %RH
Engineer	Takahiro Kawakami (1 GHz - 13 GHz)	Kazuya Noda (13 GHz - 18 GHz)	Takahiro Kawakami (18 GHz - 26.5 GHz)	Toshinori Yamada (26.5 GHz - 40 GHz)
Mode	Tx, 11ac-40 (MIMO), 5550 MHz, (EUT serial no. A-7)			

(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	48.88	40.12	9.48	42.68	2.15	57.95	73.9	15.9	133	357	-
Hori.	11100.000	AV	36.61	40.12	9.48	42.68	2.15	45.68	53.9	8.2	133	357	VBW: 130 Hz
Vert.	11100.000	PK	48.23	40.12	9.48	42.68	2.15	57.30	73.9	16.6	150	54	-
Vert.	11100.000	AV	36.58	40.12	9.48	42.68	2.15	45.65	53.9	8.2	150	54	VBW: 130 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).

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.84\text{ m} / 3.0\text{ m}) = 2.15\text{ dB}$

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	46.32	39.24	12.45	40.41	-9.54	48.06	-47.16	-27.0	20.2	221	87	-
Vert.	16650.000	PK	46.93	39.24	12.45	40.41	-9.54	48.67	-46.55	-27.0	19.6	231	302	-

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

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

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

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.84\text{ m} / 3.0\text{ m}) = 2.15\text{ dB}$

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.	13004393S-E-R2				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber (No.)	3	3	3	3	3
Date	September 6, 2019	September 11, 2019	September 12, 2019	September 14, 2019	September 15, 2019
Temperature / Humidity	24 deg. C / 61 %RH	22 deg. C / 53 %RH	24 deg. C / 54 %RH	25 deg. C / 51 %RH	24 deg. C / 63 %RH
Engineer	Kazuya Noda (1 GHz – 6.4 GHz)	Takahiro Kawakami (6.4 GHz – 13 GHz)	Kazuya Noda (13 GHz – 18 GHz)	Takahiro Kawakami (18 GHz – 26.5 GHz)	Toshinori Yamada (26.5 GHz – 40 GHz)
Mode	Tx, 11ac-40 (MIMO), 5670 MHz, (EUT serial no. A-7)				

(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	48.43	39.83	9.73	42.63	2.15	57.51	73.9	16.3	155	75	-
Hori.	11340.000	AV	37.26	39.83	9.73	42.63	2.15	46.34	53.9	7.5	155	75	VBW: 130 Hz
Vert.	11340.000	PK	48.47	39.83	9.73	42.63	2.15	57.55	73.9	16.3	147	98	-
Vert.	11340.000	AV	37.18	39.83	9.73	42.63	2.15	46.26	53.9	7.6	147	98	VBW: 130 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).

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.84\text{ m} / 3.0\text{ m}) = 2.15\text{ dB}$

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.	17010.000	PK	45.42	40.24	12.37	40.35	-9.54	48.14	-47.08	-27.00	20.1	249	92	-
Vert.	17010.000	PK	45.65	40.24	12.37	40.35	-9.54	48.37	-46.85	-27.00	19.9	248	339	-

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

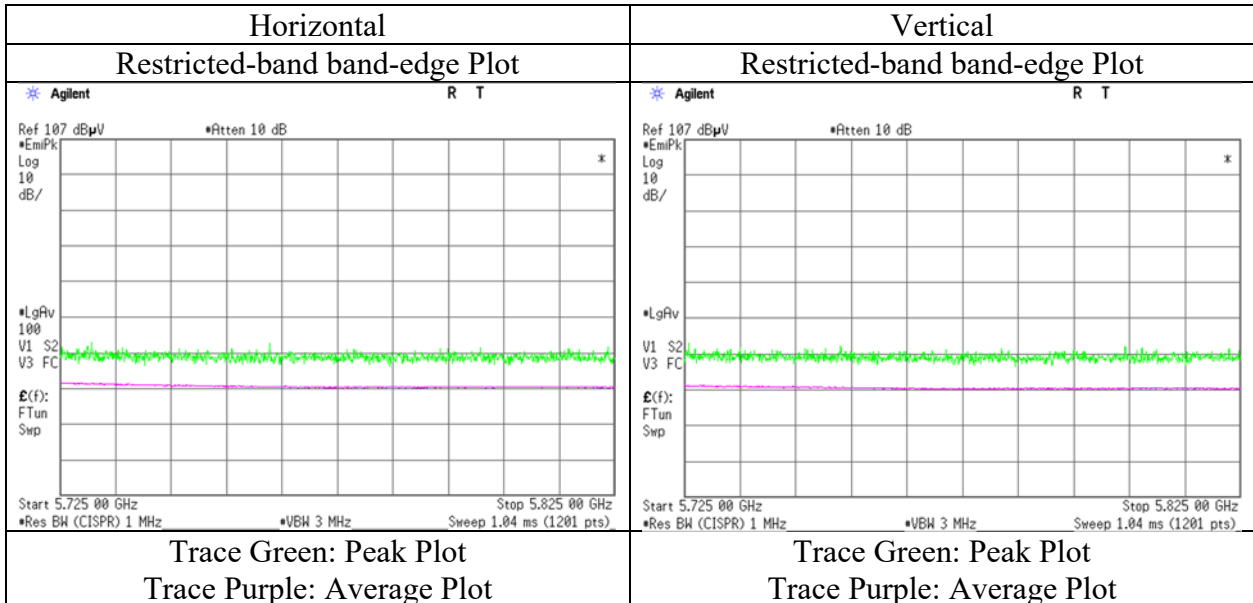
Result(EIRP[dBm])= $10\cdot\text{LOG}(\{10^{\wedge}(\text{Electric Field Strength [dBuV/m] / 20) * 10^{\wedge}(-6) * \text{Distance:3[m]}^{\wedge}2 \} / 30) * 10^{\wedge}3)$

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

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.84\text{ m} / 3.0\text{ m}) = 2.15\text{ dB}$

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



* 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. 13004393S-E-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.3
Date September 6, 2019
Temperature / Humidity 24 deg. C / 61 % RH
Engineer Kazuya Noda
(1 GHz – 6.4 GHz)
Mode Tx, 11ac-40 (CDD), 5510 MHz, (EUT serial no. A-7)

(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	54.41	32.32	16.32	43.30	2.15	61.90	73.9	12.0	116	340	-
Hori.	5460.000	AV	38.04	32.32	16.32	43.30	2.15	45.53	53.9	8.3	116	340	VBW: 100 Hz
Vert.	5460.000	PK	54.34	32.32	16.32	43.30	2.15	61.83	73.9	12.0	230	180	-
Vert.	5460.000	AV	37.98	32.32	16.32	43.30	2.15	45.47	53.9	8.4	230	180	VBW: 100 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).

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

Distance factor : 1 GHz - 13 GHz : 20log (3.84 m / 3.0 m) = 2.15 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	58.76	32.34	16.33	43.31	2.15	66.27	-28.95	-27.0	1.9	116	340	-
Vert.	5470.000	PK	58.48	32.34	16.33	43.31	2.15	65.99	-29.23	-27.0	2.2	230	180	-

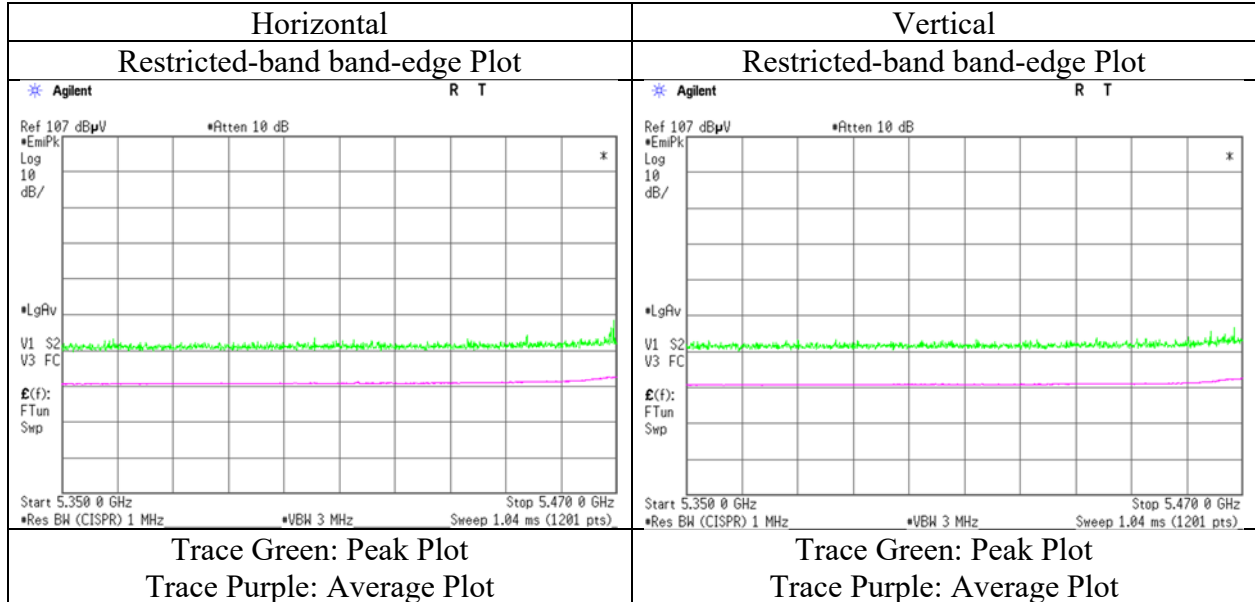
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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).

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

Distance factor : 1 GHz - 13 GHz : 20log (3.84 m / 3.0 m) = 2.15 dB



* 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. 13004393S-E-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.3
Date September 6, 2019
Temperature / Humidity 24 deg. C / 61 % RH
Engineer Kazuya Noda
(1 GHz – 6.4 GHz)
Mode Tx, 11ac-40 (CDD), 5670 MHz, (EUT serial no. A-7)

(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	56.49	32.68	16.55	43.33	2.15	64.54	-30.68	-27.0	3.6	110	341	-
Vert.	5725.000	PK	54.48	32.68	16.55	43.33	2.15	62.53	-32.69	-27.0	5.6	201	196	-

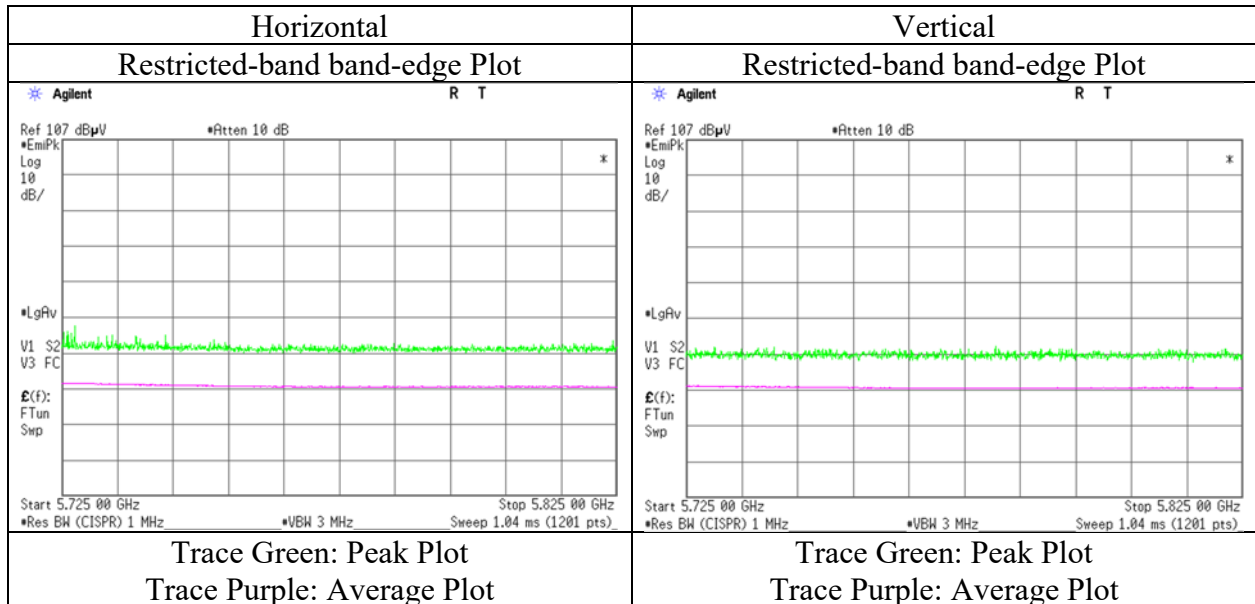
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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).

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

Distance factor : 1 GHz- 13 GHz : 20log (3.84 m / 3.0 m) = 2.15 dB



* 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. 13004393S-E-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.3
Date September 20, 2019
Temperature / Humidity 22 deg. C / 64 % RH
Engineer Makoto Hosaka
(1 GHz – 6.4 GHz)
Mode Tx, 11ac-40 (CDD), 5510 MHz, with 3DH5 hopping (EUT serial no. A-7)

(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	51.93	32.32	16.47	43.30	2.14	59.56	73.9	14.3	117	334	-
Hori.	5460.000	AV	38.03	32.32	16.47	43.30	2.14	45.66	53.9	8.2	117	334	VBW: 100 Hz
Vert.	5460.000	PK	51.28	32.32	16.47	43.30	2.14	58.91	73.9	14.9	103	264	-
Vert.	5460.000	AV	37.66	32.32	16.47	43.30	2.14	45.29	53.9	8.6	103	264	VBW: 100 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).

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.84\text{ m} / 3.0\text{ m}) = 2.15\text{ dB}$

(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	56.96	32.34	16.47	43.31	2.14	64.60	-30.62	-27.0	3.6	117	334	-
Vert.	5470.000	PK	51.40	32.34	16.47	43.31	2.14	59.04	-36.18	-27.0	9.1	103	264	-

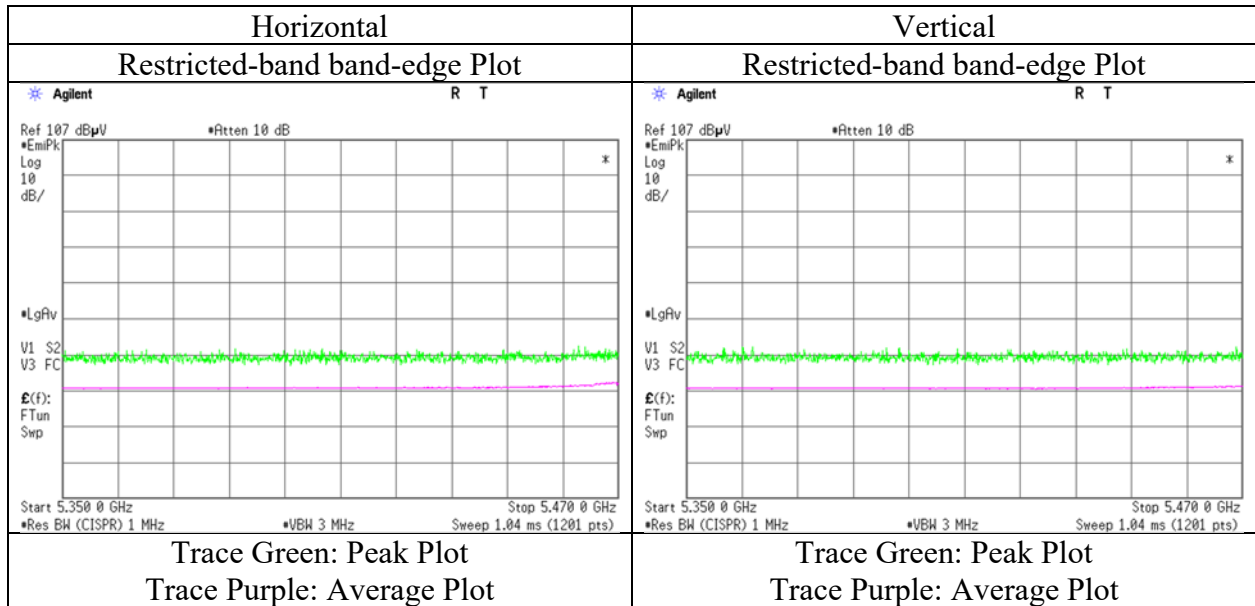
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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).

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.84\text{ m} / 3.0\text{ m}) = 2.15\text{ dB}$



* 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. 13004393S-E-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.3
Date September 20, 2019
Temperature / Humidity 22 deg. C / 64 % RH
Engineer Makoto Hosaka
(1 GHz – 6.4 GHz)
Mode Tx, 11ac-40 (CDD), 5670 MHz, with 3DH5 hopping (EUT serial no. A-7)

(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	56.89	32.68	16.59	43.33	2.14	64.97	-30.25	-27.0	3.2	110	330	-
Vert.	5725.000	PK	49.20	32.68	16.59	43.33	2.14	57.28	-37.94	-27.0	10.9	153	348	-

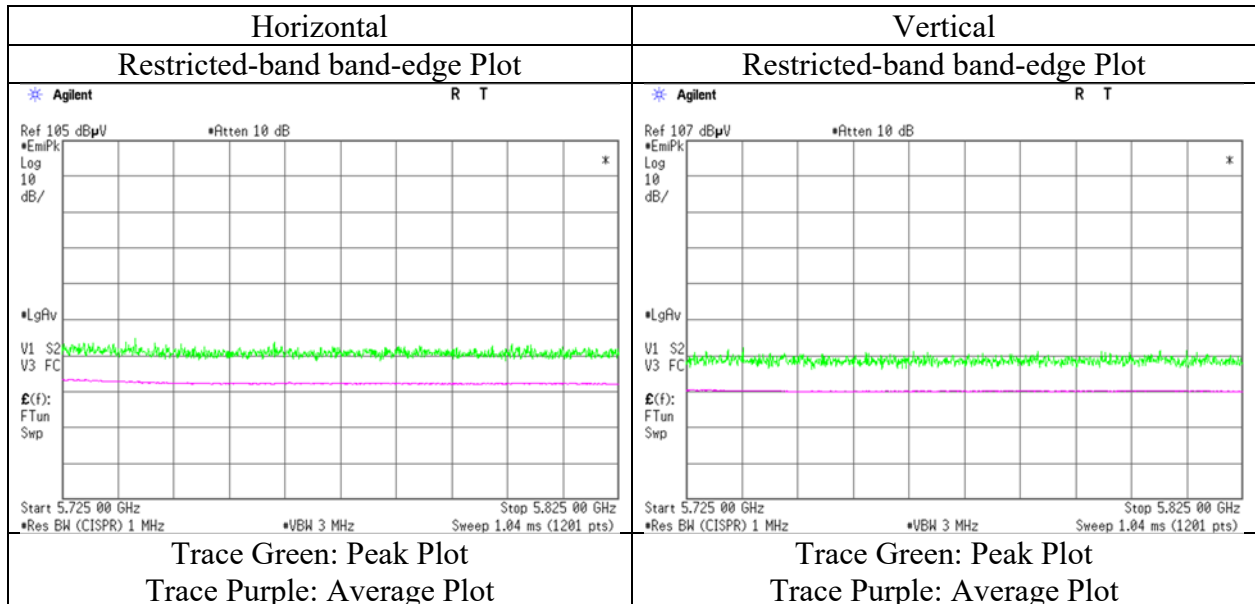
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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).

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

Distance factor : 1 GHz- 13 GHz : 20log (3.84 m / 3.0 m) = 2.15 dB



* 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.	13004393S-E-R2			
Test place	Shonan EMC Lab.			
Semi Anechoic Chamber (No.)	3	3	3	3
Date	September 11, 2019	September 13, 2019	September 14, 2019	September 15, 2019
Temperature / Humidity	24 deg. C / 51 % RH	25 deg. C / 50 %RH	25 deg. C / 51 %RH	24 deg. C / 63 %RH
Engineer	Kazuya Noda	Hiromasa Sato	Toshinori Yamada	Takahiro Kawakami
	(1 GHz – 13 GHz)	(13 GHz – 18 GHz)	(18 GHz – 26.5 GHz)	(26.5 GHz – 40 GHz)
Mode	Tx, 11ac-40 (MIMO), 5510 MHz, (serial no. B-5)			

(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.	11020.000	PK	48.43	40.34	9.38	42.70	2.04	57.49	73.9	16.4	129	309	-
Hori.	11020.000	AV	36.93	40.34	9.38	42.70	2.04	45.99	53.9	7.9	129	309	VBW: 130 Hz
Vert.	11020.000	PK	47.95	40.34	9.38	42.70	2.04	57.01	73.9	16.9	137	41	-
Vert.	11020.000	AV	36.87	40.34	9.38	42.70	2.04	45.93	53.9	8.0	137	41	VBW: 130 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).

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

Distance factor : 1 GHz - 13 GHz : 20log (3.79 m / 3.0 m) = 2.04 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.	16530.000	PK	47.74	39.26	12.48	40.43	-9.54	49.51	-45.71	-27.0	18.7	196	247	-
Vert.	16530.000	PK	46.81	39.26	12.48	40.43	-9.54	48.58	-46.64	-27.0	19.6	163	224	-

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).

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

Distance factor : 1 GHz - 13 GHz : 20log (3.79 m / 3.0 m) = 2.04 dB

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

Radiated Spurious Emission

Report No. 13004393S-E-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber (No.) 3
Date September 11, 2019 September 13, 2019 September 14, 2019 September 15, 2019
Temperature / Humidity 24 deg. C / 51 % RH 25 deg. C / 50 %RH 25 deg. C / 51 %RH 24 deg. C / 63 %RH
Engineer Kazuya Noda Hiromasa Sato Toshinori Yamada Takahiro Kawakami
(1 GHz – 13 GHz) (13 GHz – 18 GHz) (18 GHz – 26.5 GHz) (26.5 GHz – 40 GHz)
Mode Tx, 11ac-40 (MIMO), 5550 MHz, (EUT serial no. B-5)

(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	48.53	40.12	9.48	42.68	2.04	57.49	73.9	16.4	119	344	-
Hori.	11100.000	AV	37.12	40.12	9.48	42.68	2.04	46.08	53.9	7.8	119	344	VBW: 130 Hz
Vert.	11100.000	PK	48.27	40.12	9.48	42.68	2.04	57.23	73.9	16.6	214	157	-
Vert.	11100.000	AV	37.33	40.12	9.48	42.68	2.04	46.29	53.9	7.6	214	157	VBW: 130 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).

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

Distance factor : 1 GHz - 13 GHz : 20log (3.79 m / 3.0 m) = 2.04 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	47.10	39.24	12.45	40.41	-9.54	48.84	-46.38	-27.0	19.4	194	302	-
Vert.	16650.000	PK	46.34	39.24	12.45	40.41	-9.54	48.08	-47.14	-27.0	20.1	157	260	-

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).

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

Distance factor : 1 GHz - 13 GHz : 20log (3.79 m / 3.0 m) = 2.04 dB

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

Radiated Spurious Emission

Report No.	13004393S-E-R2			
Test place	Shonan EMC Lab.			
Semi Anechoic Chamber (No.)	3	3	3	3
Date	September 11, 2019	September 13, 2019	September 14, 2019	September 15, 2019
Temperature / Humidity	24 deg. C / 51 % RH	25 deg. C / 50 %RH	25 deg. C / 51 %RH	24 deg. C / 63 %RH
Engineer	Kazuya Noda	Hiromasa Sato	Toshinori Yamada	Takahiro Kawakami
	(1 GHz – 13 GHz)	(13 GHz – 18 GHz)	(18 GHz – 26.5 GHz)	(26.5 GHz – 40 GHz)
Mode	Tx, 11ac-40 (MIMO), 5670 MHz, (EUT serial no. B-5)			

(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	48.81	39.83	9.73	42.63	2.04	57.78	73.9	16.1	133	344	-
Hori.	11340.000	AV	36.91	39.83	9.73	42.63	2.04	45.88	53.9	8.0	133	344	VBW: 130 Hz
Vert.	11340.000	PK	48.84	39.83	9.73	42.63	2.04	57.81	73.9	16.0	194	102	-
Vert.	11340.000	AV	37.11	39.83	9.73	42.63	2.04	46.08	53.9	7.8	194	102	VBW: 130 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).

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

Distance factor : 1 GHz - 13 GHz : 20log (3.79 m / 3.0 m) = 2.04 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.	17010.000	PK	46.58	40.24	12.37	40.35	-9.54	49.30	-45.92	-27.0	18.9	155	218	-
Vert.	17010.000	PK	46.97	40.24	12.37	40.35	-9.54	49.69	-45.53	-27.0	18.5	213	290	-

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).

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

Distance factor : 1 GHz - 13 GHz : 20log (3.79 m / 3.0 m) = 2.04 dB

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

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Radiated Spurious Emission

Report No. 13004393S-E-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.3
Date September 6, 2019
Temperature / Humidity 24 deg. C / 61 % RH
Engineer Kazuya Noda
(1 GHz – 6.4 GHz)
Mode Tx, 11ac-40 (CDD), 5510 MHz, (EUT serial no. B-5)

(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	53.74	32.32	16.32	43.30	2.04	61.12	73.9	12.7	148	139	-
Hori.	5460.000	AV	38.39	32.32	16.32	43.30	2.04	45.77	53.9	8.1	148	139	VBW: 100 Hz
Vert.	5460.000	PK	54.35	32.32	16.32	43.30	2.04	61.73	73.9	12.1	105	181	-
Vert.	5460.000	AV	38.70	32.32	16.32	43.30	2.04	46.08	53.9	7.8	105	181	VBW: 100 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).

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.79\text{ m} / 3.0\text{ m}) = 2.04\text{ dB}$

(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	57.21	32.34	16.33	43.31	2.04	64.61	-30.61	-27.0	3.6	148	139	-
Vert.	5470.000	PK	58.62	32.34	16.33	43.31	2.04	66.02	-29.20	-27.0	2.2	105	181	-

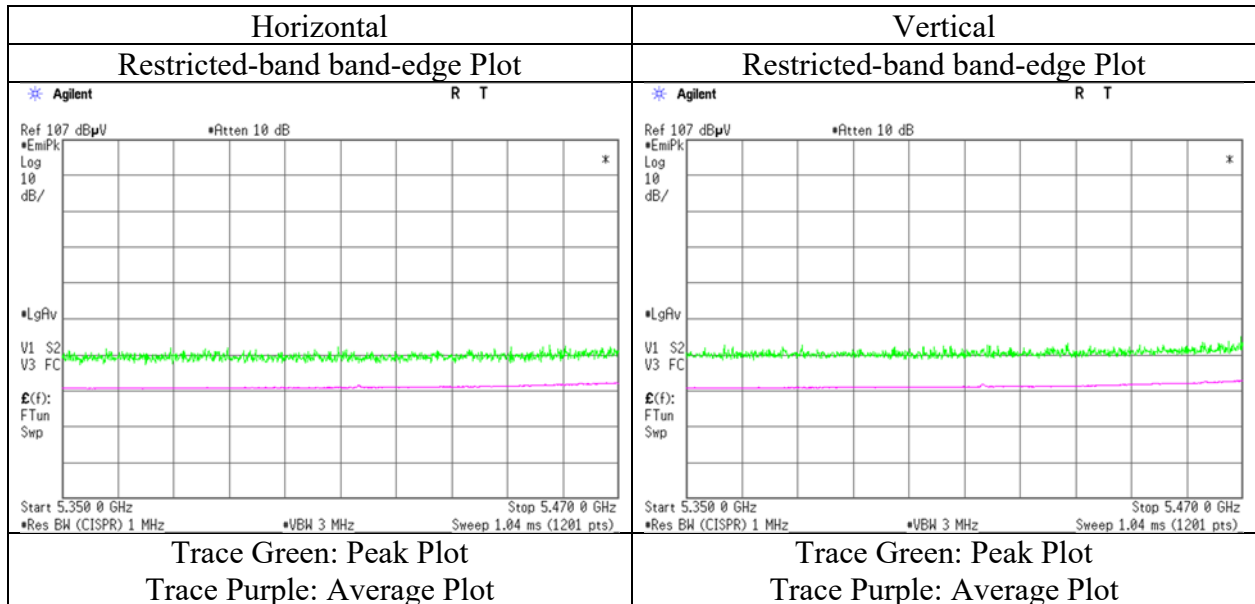
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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).

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.79\text{ m} / 3.0\text{ m}) = 2.04\text{ dB}$



* 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. 13004393S-E-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.3
Date September 6, 2019
Temperature / Humidity 24 deg. C / 61 % RH
Engineer Kazuya Noda
(1 GHz – 6.4 GHz)
Mode Tx, 11ac-40 (CDD), 5670 MHz, (EUT serial no. B-5)

(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	54.83	32.68	16.55	43.33	2.04	62.77	-32.45	-27.0	5.4	133	353	-
Vert.	5725.000	PK	55.39	32.68	16.55	43.33	2.04	63.33	-31.89	-27.0	4.8	161	198	-

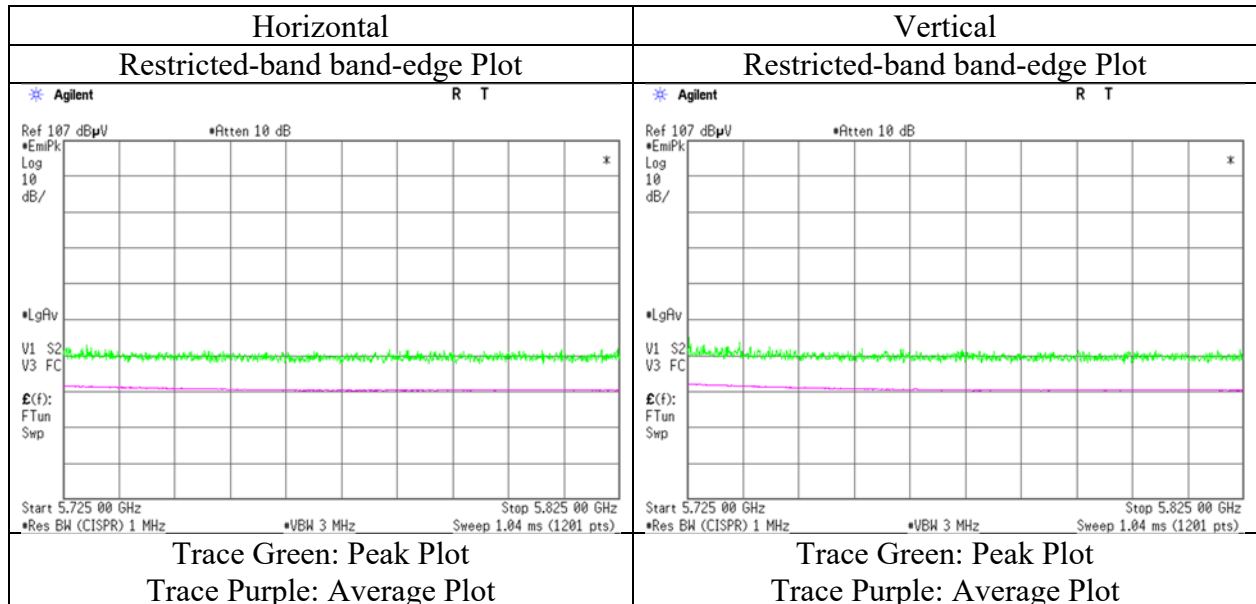
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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).

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

Distance factor : 1 GHz- 13 GHz: 20log (3.79 m / 3.0 m) = 2.04 dB



* 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. 13004393S-E-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.3
Date September 21, 2019
Temperature / Humidity 25 deg. C / 52 % RH
Engineer Takahiro Kawakami
(1 GHz – 6.4 GHz)
Mode Tx, 11ac-40 (CDD), 5510 MHz, with 3DH5 hopping (EUT serial no. B-5)

(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	54.13	32.32	16.47	43.30	2.04	61.66	73.9	12.2	100	177	-
Hori.	5460.000	AV	39.03	32.32	16.47	43.30	2.04	46.56	53.9	7.3	100	177	VBW: 100 Hz
Vert.	5460.000	PK	52.02	32.32	16.47	43.30	2.04	59.55	73.9	14.3	190	206	-
Vert.	5460.000	AV	38.74	32.32	16.47	43.30	2.04	46.27	53.9	7.6	190	206	VBW: 100 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).

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.79\text{ m} / 3.0\text{ m}) = 2.04\text{ dB}$

(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	53.23	32.34	16.47	43.31	2.04	60.77	-34.45	-27.0	7.4	100	177	-
Vert.	5470.000	PK	51.82	32.34	16.47	43.31	2.04	59.36	-35.86	-27.0	8.8	190	206	-

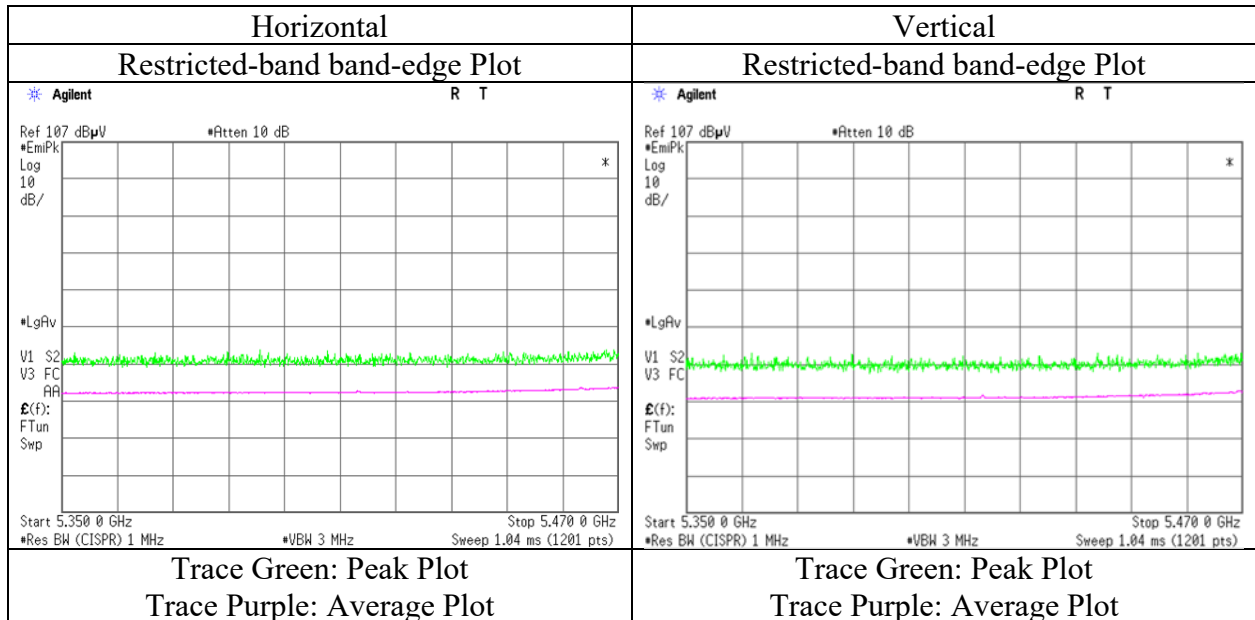
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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).

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.79\text{ m} / 3.0\text{ m}) = 2.04\text{ dB}$



* 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. 13004393S-E-R2
 Test place Shonan EMC Lab.
 Semi Anechoic Chamber No.3
 Date September 21, 2019
 Temperature / Humidity 25 deg. C / 52 % RH
 Engineer Takahiro Kawakami
 (1 GHz – 6.4 GHz)
 Mode Tx, 11ac-40 (CDD), 5670 MHz, with 3DH5 hopping (EUT serial no. B-5)

(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	51.86	32.68	16.59	43.33	2.04	59.84	-35.38	-27.0	8.3	100	164	-
Vert.	5725.000	PK	52.13	32.68	16.59	43.33	2.04	60.11	-35.11	-27.0	8.1	200	204	-

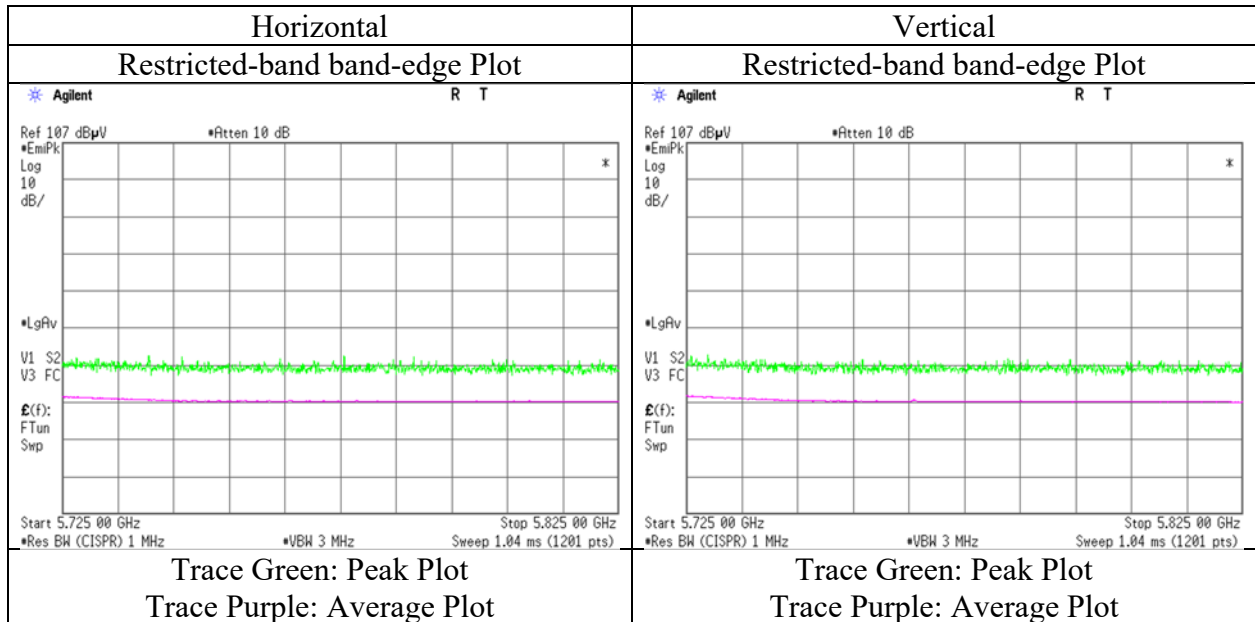
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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).

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

Distance factor : 1 GHz- 13 GHz: 20log (3.79 m / 3.0 m) = 2.04 dB



* 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.	13004393S-E-R2				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber (No.)	3	3	3	3	3
Date	September 5, 2019	September 11, 2019	September 12, 2019	September 14, 2019	September 15, 2019
Temperature / Humidity	25 deg. C / 65 % RH	22 deg. C / 53 % RH	24 deg. C / 54 % RH	25 deg. C / 51 % RH	24 deg. C / 63 % RH
Engineer	Kazuya Noda (1 GHz – 6.4 GHz)	Takahiro Kawakami (6.4 GHz – 13 GHz)	Kazuya Noda (13 GHz – 18 GHz)	Takahiro Kawakami (18 GHz – 26.5 GHz)	Toshinori Yamada (26.5 GHz – 40 GHz)
Mode	Tx, 11ac-80 (MIMO), 5530 MHz, (EUT serial no. A-7)				

(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	54.53	32.32	16.32	43.30	2.15	62.02	73.9	11.8	108	334	-
Hori.	11060.000	PK	47.86	40.24	9.42	42.69	2.15	56.98	73.9	16.9	144	0	-
Hori.	5460.000	AV	39.81	32.32	16.32	43.30	2.15	47.30	53.9	6.6	108	334	VBW: 270 Hz
Hori.	11060.000	AV	36.52	40.24	9.42	42.69	2.15	45.64	53.9	8.2	144	0	VBW: 270 Hz
Vert.	5460.000	PK	52.04	32.32	16.32	43.30	2.15	59.53	73.9	14.3	108	258	-
Vert.	11060.000	PK	47.68	40.24	9.42	42.69	2.15	56.80	73.9	17.1	154	96	-
Vert.	5460.000	AV	39.23	32.32	16.32	43.30	2.15	46.72	53.9	7.1	108	258	VBW: 270 Hz
Vert.	11060.000	AV	36.60	40.24	9.42	42.69	2.15	45.72	53.9	8.1	154	96	VBW: 270 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).

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

Distance factor : 1 GHz - 13 GHz : 20log(3.84 m / 3.0 m) = 2.15 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	55.16	32.34	16.33	43.31	2.15	62.67	-32.55	-27.0	5.5	108	334	-
Hori.	16590.000	PK	46.66	39.22	12.47	40.42	-9.54	48.39	-46.83	-27.0	19.8	185	86	-
Vert.	5470.000	PK	51.62	32.34	16.33	43.31	2.15	59.13	-36.09	-27.0	9.0	108	258	-
Vert.	16590.000	PK	46.81	39.22	12.47	40.42	-9.54	48.54	-46.68	-27.00	19.7	214	206	-

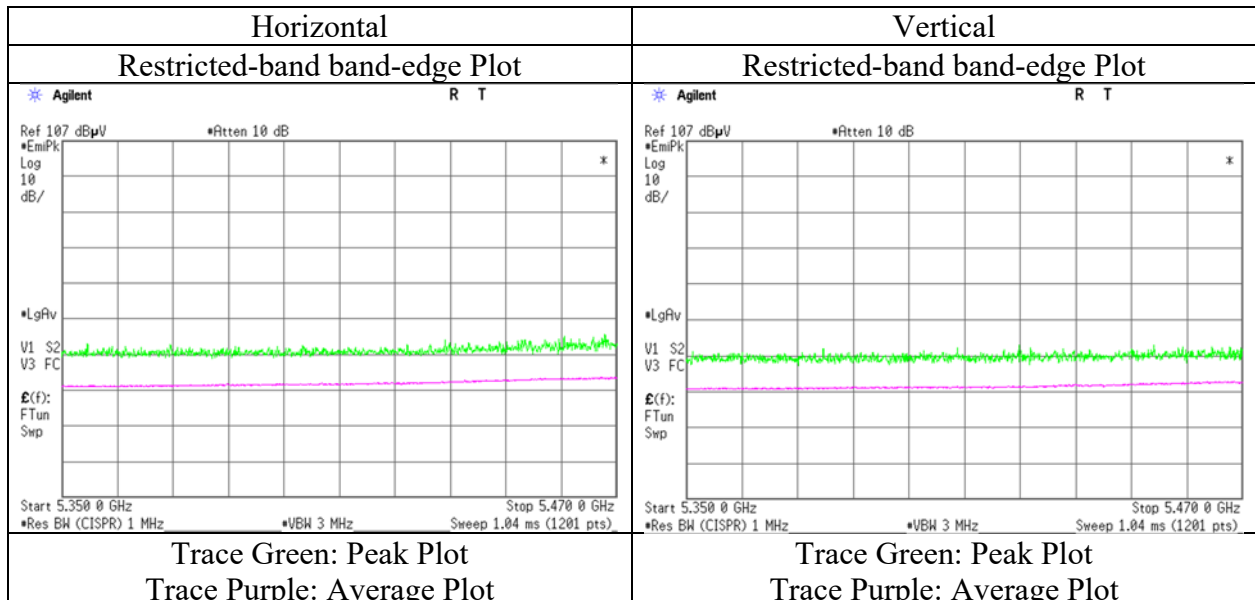
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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).

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

Distance factor : 1 GHz - 13 GHz : 20log(3.84 m / 3.0 m) = 2.15 dB
13 GHz - 40 GHz : 20log(1.0 m / 3.0 m) = -9.54 dB



* 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.	13004393S-E-R2				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber (No.)	3	3	3	3	3
Date	September 5, 2019	September 11, 2019	September 12, 2019	September 14, 2019	September 15, 2019
Temperature / Humidity	25 deg. C / 65 %RH	24 deg. C / 51 %RH	24 deg. C / 54 %RH	25 deg. C / 51 %RH	24 deg. C / 63 %RH
Engineer	Kazuya Noda (1 GHz - 6.4 GHz)	Kazuya Noda (6.4 GHz - 13 GHz)	Kazuya Noda (13 GHz - 18 GHz)	Takahiro Kawakami (18 GHz - 26.5 GHz)	Toshinori Yamada (26.5 GHz - 40 GHz)
Mode	Tx, 11ac-80 (MIMO), 5610 MHz, (EUT serial no. A-7)				

(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	48.82	39.82	9.60	42.66	2.15	57.73	73.9	16.1	201	81	-
Hori.	11220.000	AV	37.31	39.82	9.60	42.66	2.15	46.22	53.9	7.6	201	81	VBW: 270 Hz
Vert.	11220.000	PK	49.07	39.82	9.60	42.66	2.15	57.98	73.9	15.9	355	219	-
Vert.	11220.000	AV	38.06	39.82	9.60	42.66	2.15	46.97	53.9	6.9	355	219	VBW: 270 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).

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.84\text{ m} / 3.0\text{ m}) = 2.15\text{ dB}$

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	51.59	32.68	16.55	43.33	2.15	59.64	-35.58	-27.0	8.5	118	342	-
Hori.	16830.000	PK	45.98	39.63	12.41	40.38	-9.54	48.10	-47.12	-27.0	20.1	244	84	-
Vert.	5725.000	PK	49.91	32.68	16.55	43.33	2.15	57.96	-37.26	-27.0	10.2	104	257	-
Vert.	16830.000	PK	46.24	39.63	12.41	40.38	-9.54	48.36	-46.86	-27.0	19.9	222	357	-

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

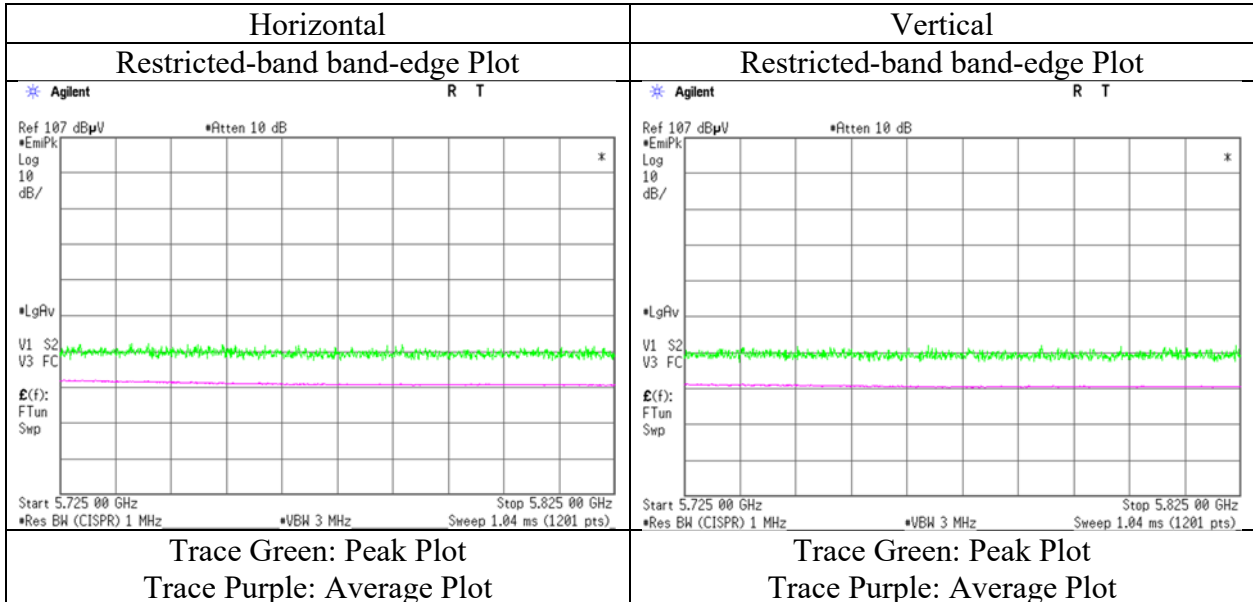
Result(EIRP[dBm])=10*LOG (({ 10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance:3[m]) ^ 2 } / 30) * 10 ^ 3)

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

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.84\text{ m} / 3.0\text{ m}) = 2.15\text{ dB}$

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



* 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. 13004393S-E-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.3
Date September 5, 2019
Temperature / Humidity 25 deg. C / 65 % RH
Engineer Kazuya Noda
(1 GHz – 6.4 GHz)
Mode Tx, 11ac-80 (CDD), 5530 MHz, (EUT serial no. A-7)

(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	54.41	32.32	16.32	43.30	2.15	61.90	73.9	12.0	116	340	-
Hori.	5460.000	AV	38.04	32.32	16.32	43.30	2.15	45.53	53.9	8.3	116	340	VBW: 120 Hz
Vert.	5460.000	PK	54.34	32.32	16.32	43.30	2.15	61.83	73.9	12.0	230	180	-
Vert.	5460.000	AV	37.98	32.32	16.32	43.30	2.15	45.47	53.9	8.4	230	180	VBW: 120 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).

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

Distance factor : 1 GHz - 13 GHz : 20log(3.84 m / 3.0 m) = 2.15 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.	5466.200	PK	57.73	32.33	16.32	43.30	2.15	65.23	-29.99	-27.0	2.9	115	341	-
Hori.	5470.000	PK	60.04	32.34	16.33	43.31	2.15	67.55	-27.67	-27.0	0.6	115	341	-
Vert.	5466.200	PK	53.85	32.33	16.32	43.30	2.15	61.35	-33.87	-27.0	6.8	177	329	-
Vert.	5470.000	PK	56.28	32.34	16.33	43.31	2.15	63.79	-31.43	-27.0	4.4	177	329	-

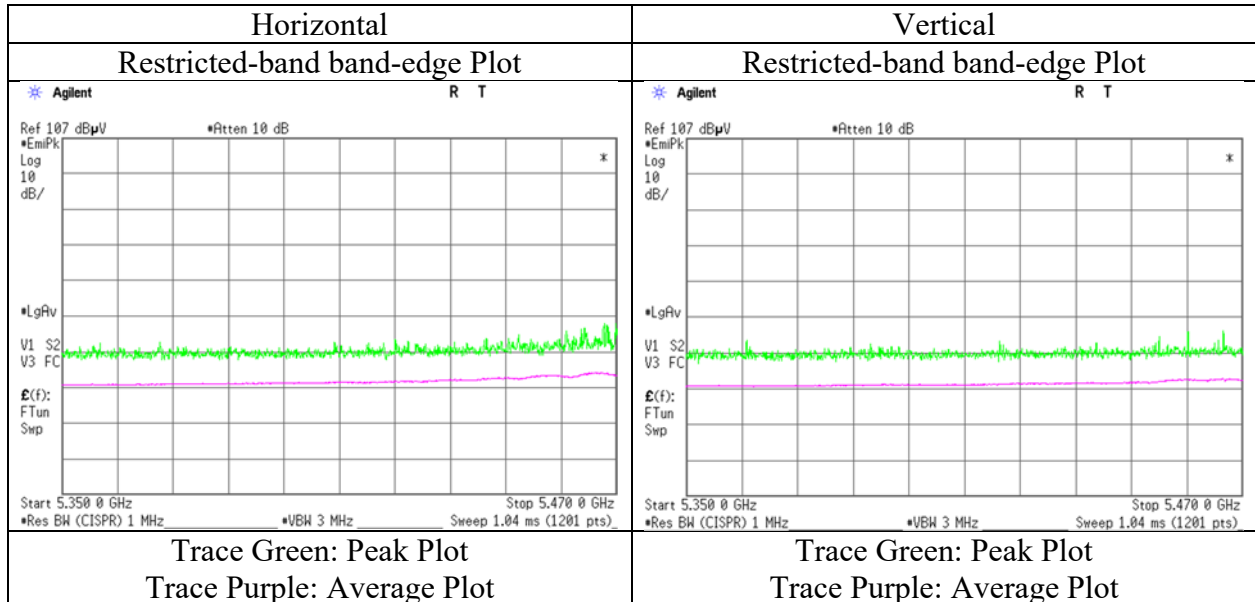
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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).

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

Distance factor : 1 GHz - 13 GHz : 20log(3.84 m / 3.0 m) = 2.15 dB



* 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. 13004393S-E-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.3
Date September 5, 2019
Temperature / Humidity 25 deg. C / 65 % RH
Engineer Kazuya Noda
(1 GHz – 6.4 GHz)
Mode Tx, 11ac-80 (CDD), 5610 MHz, (EUT serial no. A-7)

(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	50.46	32.68	16.55	43.33	2.15	58.51	-36.71	-27.0	9.7	159	326	-
Vert.	5725.000	PK	50.33	32.68	16.55	43.33	2.15	58.38	-36.84	-27.0	9.8	107	251	-

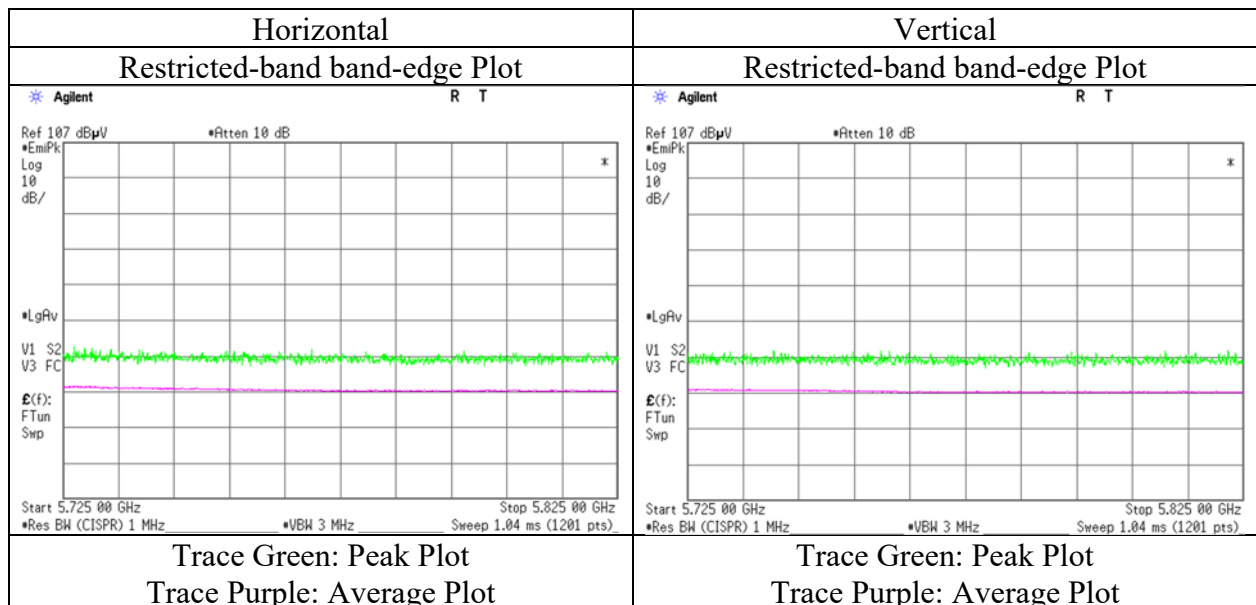
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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).

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

Distance factor : 1 GHz- 13 GHz : 20log (3.84 m / 3.0 m) = 2.15 dB



* 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. 13004393S-E-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.3
Date September 20, 2019
Temperature / Humidity 22 deg. C / 64 % RH
Engineer Makoto Hosaka
(1 GHz – 6.4 GHz)
Mode Tx, 11ac-80 (CDD), 5530 MHz, with 3DH5 hopping (EUT serial no. A-7)

(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	56.88	32.32	16.47	43.30	2.14	64.51	73.9	9.3	153	335	-
Hori.	5460.000	AV	39.72	32.32	16.47	43.30	2.14	47.35	53.9	6.5	153	335	VBW: 120 Hz
Vert.	5460.000	PK	53.80	32.32	16.47	43.30	2.14	61.43	73.9	12.4	174	331	-
Vert.	5460.000	AV	39.10	32.32	16.47	43.30	2.14	46.73	53.9	7.1	174	331	VBW: 120 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).

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.84\text{ m} / 3.0\text{ m}) = 2.15\text{ dB}$

(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	59.57	32.34	16.47	43.31	2.14	67.21	-28.01	-27.0	1.0	153	335	-
Vert.	5470.000	PK	55.35	32.34	16.47	43.31	2.14	62.99	-32.23	-27.0	5.2	174	331	-

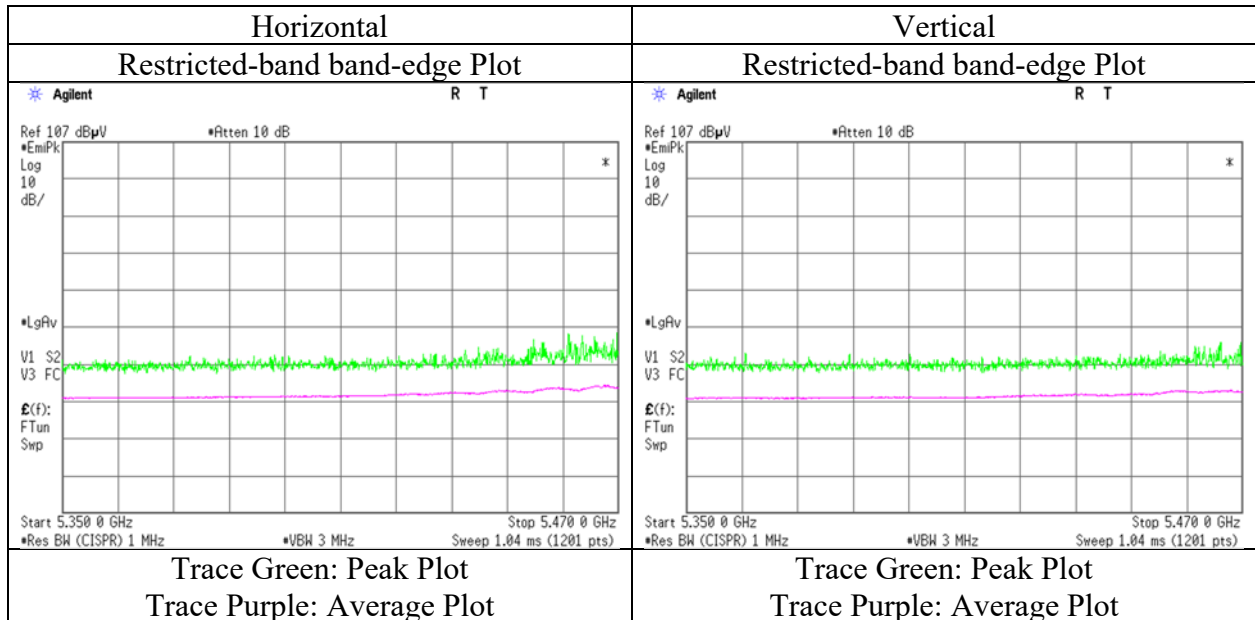
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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).

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.84\text{ m} / 3.0\text{ m}) = 2.15\text{ dB}$



* 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. 13004393S-E-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.3
Date September 20, 2019
Temperature / Humidity 22 deg. C / 64 % RH
Engineer Makoto Hosaka
(1 GHz – 6.4 GHz)
Mode Tx, 11ac-80 (CDD), 5610 MHz, with 3DH5 hopping (EUT serial no. A-7)

(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	50.15	32.68	16.59	43.33	2.14	58.23	-36.99	-27.0	9.9	165	337	-
Vert.	5725.000	PK	48.51	32.68	16.59	43.33	2.14	56.59	-38.63	-27.0	11.6	147	270	-

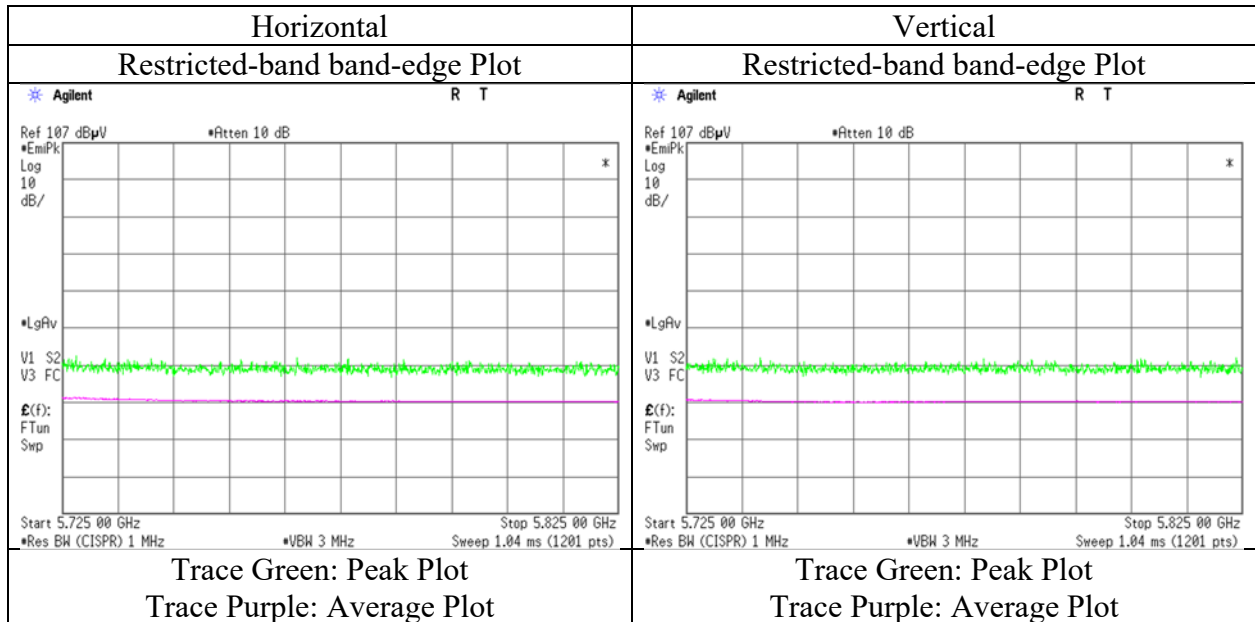
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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).

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

Distance factor : 1 GHz- 13 GHz: 20log (3.84 m / 3.0 m) = 2.15 dB



* 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.	13004393S-E-R2			
Test place	Shonan EMC Lab.			
Semi Anechoic Chamber (No.)	3	3	3	3
Date	September 11, 2019	September 13, 2019	September 14, 2019	September 15, 2019
Temperature / Humidity	24 deg. C / 51 % RH	25 deg. C / 50 %RH	25 deg. C / 51 %RH	24 deg. C / 63 %RH
Engineer	Kazuya Noda	Hiromasa Sato	Toshinori Yamada	Takahiro Kawakami
	(1 GHz – 13 GHz)	(13 GHz – 18 GHz)	(18 GHz – 26.5 GHz)	(26.5 GHz – 40 GHz)
Mode	Tx, 11ac-80 (MIMO), 5530 MHz, (EUT serial no. B-5)			

(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.	11060.000	PK	48.35	40.24	9.42	42.69	2.04	57.36	73.9	16.5	127	14	-
Hori.	11060.000	AV	37.03	40.24	9.42	42.69	2.04	46.04	53.9	7.9	127	14	VBW: 270 Hz
Vert.	11060.000	PK	48.61	40.24	9.42	42.69	2.04	57.62	73.9	16.3	219	202	-
Vert.	11060.000	AV	37.31	40.24	9.42	42.69	2.04	46.32	53.9	7.6	219	202	VBW: 270 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).

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.79\text{ m} / 3.0\text{ m}) = 2.04\text{ dB}$

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.	16590.000	PK	46.82	39.22	12.47	40.42	-9.54	48.55	-46.67	-27.0	19.7	197	208	-
Vert.	16590.000	PK	46.68	39.22	12.47	40.42	-9.54	48.41	-46.81	-27.0	19.8	188	200	-

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

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

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

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.79\text{ m} / 3.0\text{ m}) = 2.04\text{ dB}$

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.	13004393S-E-R2			
Test place	Shonan EMC Lab.			
Semi Anechoic Chamber (No.)	3	3	3	3
Date	September 11, 2019	September 13, 2019	September 14, 2019	September 15, 2019
Temperature / Humidity	24 deg. C / 51 % RH	25 deg. C / 50 % RH	25 deg. C / 51 % RH	24 deg. C / 63 % RH
Engineer	Kazuya Noda (1 GHz – 13 GHz)	Hiromasa Sato (13 GHz – 18 GHz)	Toshinori Yamada (18 GHz – 26.5 GHz)	Takahiro Kawakami (26.5 GHz – 40 GHz)
Mode	Tx, 11ac-80 (MIMO), 5610 MHz, (EUT serial no. B-5)			

(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	48.48	39.82	9.60	42.66	2.04	57.28	73.9	16.6	368	335	-
Hori.	11220.000	AV	37.10	39.82	9.60	42.66	2.04	45.90	53.9	8.0	368	335	VBW: 270 Hz
Vert.	11220.000	PK	49.05	39.82	9.60	42.66	2.04	57.85	73.9	16.0	274	204	-
Vert.	11220.000	AV	37.58	39.82	9.60	42.66	2.04	46.38	53.9	7.5	274	204	VBW: 270 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).

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

Distance factor : 1 GHz - 13 GHz : 20log (3.79 m / 3.0 m) = 2.04 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.	16830.000	PK	46.24	39.63	12.41	40.38	-9.54	48.36	-46.86	-27.0	19.9	177	294	-
Vert.	16830.000	PK	46.95	39.63	12.41	40.38	-9.54	49.07	-46.15	-27.0	19.2	155	255	-

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).

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

Distance factor : 1 GHz - 13 GHz : 20log (3.79 m / 3.0 m) = 2.04 dB

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

Radiated Spurious Emission

Report No. 13004393S-E-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.3
Date September 5, 2019
Temperature / Humidity 25 deg. C / 65 % RH
Engineer Makoto Hosaka
(1 GHz – 6.4 GHz)
Mode Tx, 11ac-80 (CDD), 5530 MHz, (EUT serial no. B-5)

(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	53.93	32.32	16.32	43.30	2.15	61.42	73.9	12.4	104	167	-
Hori.	5460.000	AV	41.76	32.32	16.32	43.30	2.15	49.25	53.9	4.6	104	167	VBW: 120 Hz
Vert.	5460.000	PK	53.64	32.32	16.32	43.30	2.15	61.13	73.9	12.7	161	187	-
Vert.	5460.000	AV	41.30	32.32	16.32	43.30	2.15	48.79	53.9	5.1	161	187	VBW: 120 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).

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.79\text{ m} / 3.0\text{ m}) = 2.04\text{ dB}$

(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	57.21	32.34	16.33	43.31	2.04	64.61	-30.61	-27.0	3.6	148	139	-
Vert.	5470.000	PK	58.62	32.34	16.33	43.31	2.04	66.02	-29.20	-27.0	2.2	105	181	-

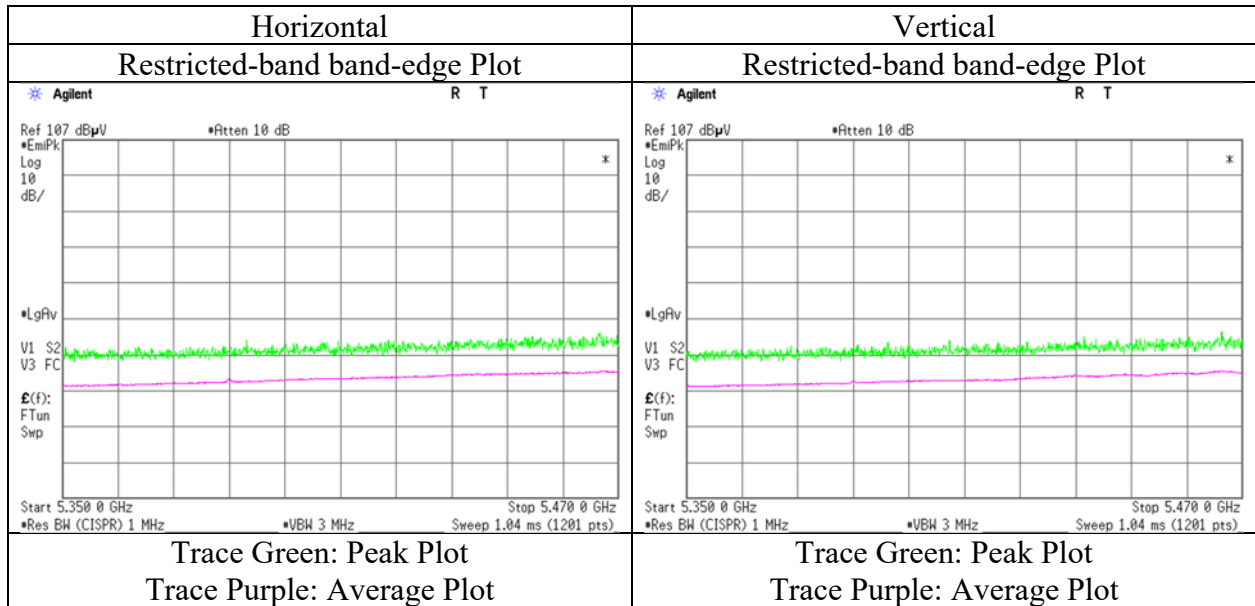
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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).

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.79\text{ m} / 3.0\text{ m}) = 2.04\text{ dB}$



* 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. 13004393S-E-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.3
Date September 5, 2019
Temperature / Humidity 25 deg. C / 65 % RH
Engineer Makoto Hosaka
(1 GHz – 6.4 GHz)
Mode Tx, 11ac-80 (CDD), 5610 MHz, (EUT serial no. B-5)

(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	50.04	32.68	16.55	43.33	2.15	58.09	-37.13	-27.0	10.1	102	160	-
Vert.	5725.000	PK	50.99	32.68	16.55	43.33	2.15	59.04	-36.18	-27.0	9.1	149	238	-

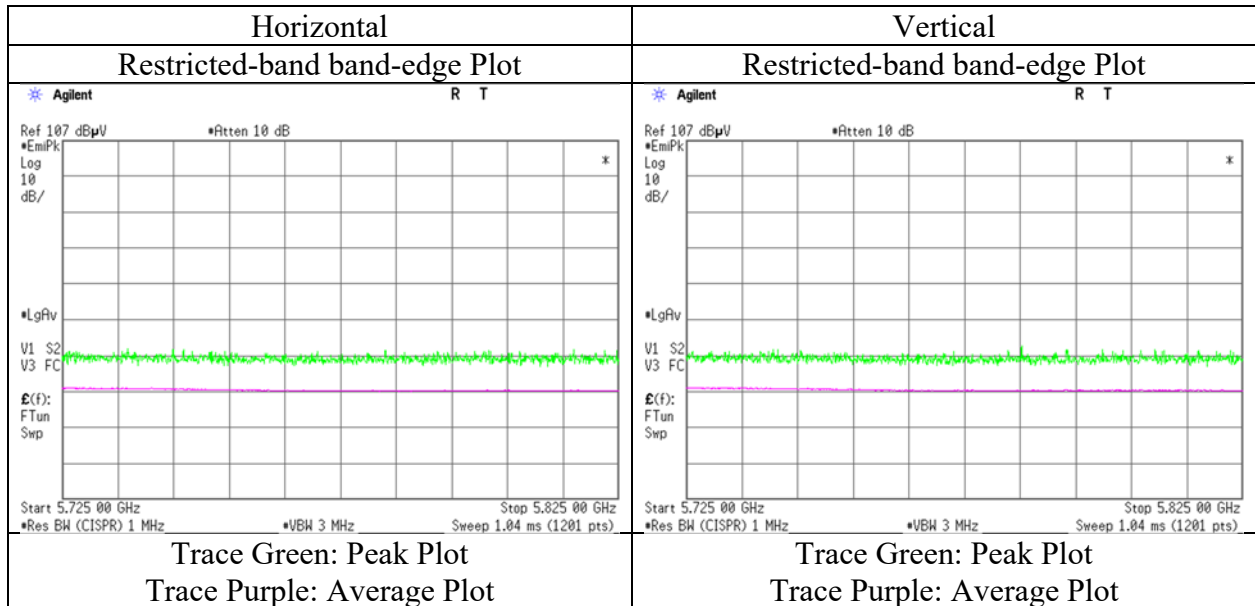
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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).

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

Distance factor : 1 GHz- 13 GHz: 20log (3.79 m / 3.0 m) = 2.04 dB



* 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. 13004393S-E-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.3
Date September 21, 2019
Temperature / Humidity 25 deg. C / 52 % RH
Engineer Takahiro Kawakami
(1 GHz – 6.4 GHz)
Mode Tx, 11ac-80 (CDD), 5530 MHz, with 3DH5 hopping (EUT serial no. B-5)

(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	53.45	32.32	16.47	43.30	2.04	60.98	73.9	12.9	119	173	-
Hori.	5460.000	AV	41.15	32.32	16.47	43.30	2.04	48.68	53.9	5.2	119	173	VBW: 120 Hz
Vert.	5460.000	PK	54.74	32.32	16.47	43.30	2.04	62.27	73.9	11.6	167	190	-
Vert.	5460.000	AV	41.67	32.32	16.47	43.30	2.04	49.20	53.9	4.7	167	190	VBW: 120 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).

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.79\text{ m} / 3.0\text{ m}) = 2.04\text{ dB}$

(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	53.64	32.34	16.47	43.31	2.04	61.18	-34.04	-27.0	7.0	119	173	-
Vert.	5470.000	PK	55.68	32.34	16.47	43.31	2.04	63.22	-32.00	-27.0	5.0	167	190	-

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).

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.79\text{ m} / 3.0\text{ m}) = 2.04\text{ dB}$



* 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. 13004393S-E-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.3
Date September 21, 2019
Temperature / Humidity 25 deg. C / 52 % RH
Engineer Takahiro Kawakami
(1 GHz – 6.4 GHz)
Mode Tx, 11ac-80 (CDD), 5610 MHz, with 3DH5 hopping (EUT serial no. B-5)

(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	51.19	32.68	16.59	43.33	2.04	59.17	-36.05	-27.0	9.0	113	158	-
Vert.	5725.000	PK	51.15	32.68	16.59	43.33	2.04	59.13	-36.09	-27.0	9.0	190	219	-

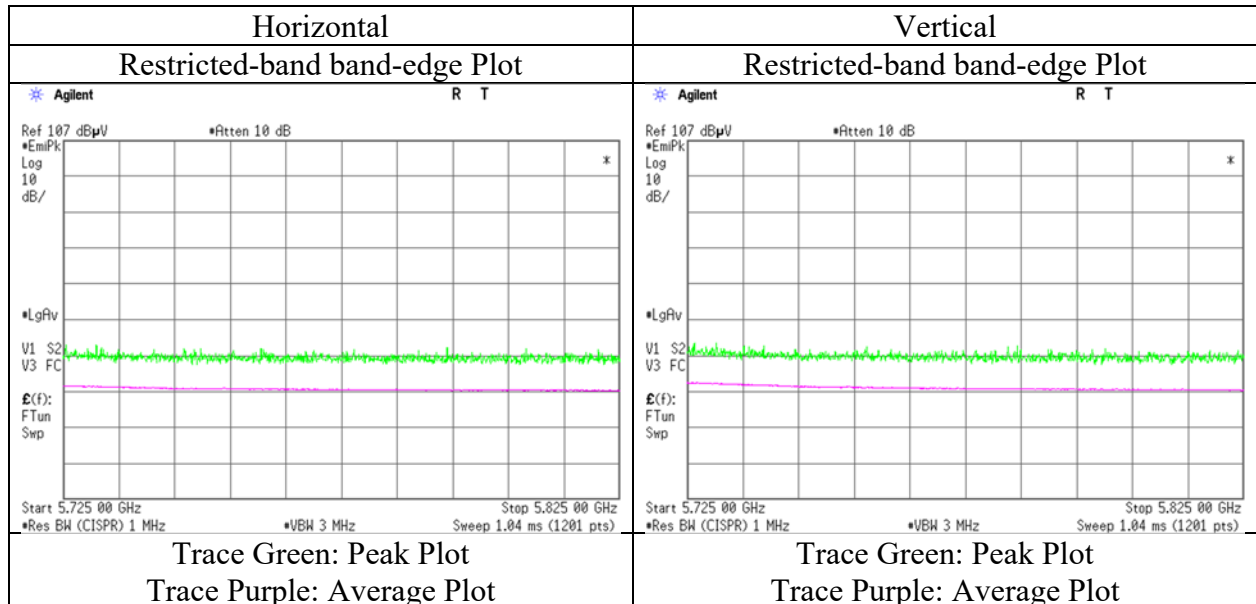
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

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).

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

Distance factor : 1 GHz- 13 GHz : 20log (3.79 m / 3.0 m) = 2.04 dB



* 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.	13004393S-E-R2			
Test place	Shonan EMC Lab.			
Semi Anechoic Chamber (No.)	3	3	3	3
Date	September 7, 2019	September 10, 2019	September 12, 2019	September 14, 2019
Temperature / Humidity	23 deg.C / 58 % RH	23 deg.C / 55 %RH	24 deg.C / 54 %RH	25 deg.C / 51 %RH
Engineer	Kazuya Noda	Kazuya Noda	Kazuya Noda	Takahiro Kawakami
Mode	(1 GHz – 13 GHz) Tx, 11n-20 (MIMO), 5745 MHz, (EUT serial no. A-7)	(13 GHz – 18 GHz)	(18 GHz – 26.5 GHz)	(26.5 GHz – 40 GHz)

(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	48.68	40.08	9.90	42.60	2.15	58.21	73.9	15.6	110	108	-
Hori.	11490.000	AV	37.73	40.08	9.90	42.60	2.15	47.26	53.9	6.6	110	108	VBW: 1 kHz
Vert.	11490.000	PK	48.55	40.08	9.90	42.60	2.15	58.08	73.9	15.8	115	144	-
Vert.	11490.000	AV	37.39	40.08	9.90	42.60	2.15	46.92	53.9	6.9	115	144	VBW: 1 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).

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

Distance factor : 1 GHz - 13 GHz : 20log (3.84 m / 3.0 m) = 2.15 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	49.84	32.46	16.47	43.33	2.15	57.59	-37.63	-27.0	10.6	113	339	-
Hori.	5700.000	PK	50.23	32.61	16.53	43.33	2.15	58.19	-37.03	10.0	47.0	113	339	-
Hori.	5720.000	PK	54.32	32.66	16.54	43.33	2.15	62.34	-32.88	15.6	48.4	113	339	-
Hori.	5725.000	PK	60.74	32.68	16.55	43.33	2.15	68.79	-26.43	27.0	53.4	113	339	-
Hori.	17235.000	PK	46.65	40.77	12.36	40.29	-9.54	49.95	-45.27	-27.0	18.3	219	92	-
Vert.	5650.000	PK	49.42	32.46	16.47	43.33	2.15	57.17	-38.05	-27.0	11.0	101	260	-
Vert.	5700.000	PK	49.79	32.61	16.53	43.33	2.15	57.75	-37.47	10.0	47.4	101	260	-
Vert.	5720.000	PK	52.72	32.66	16.54	43.33	2.15	60.74	-34.48	15.6	50.0	101	260	-
Vert.	5725.000	PK	55.44	32.68	16.55	43.33	2.15	63.49	-31.73	27.0	58.7	101	260	-
Vert.	17235.000	PK	46.70	40.77	12.36	40.29	-9.54	50.00	-45.22	-27.0	18.2	217	351	-

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

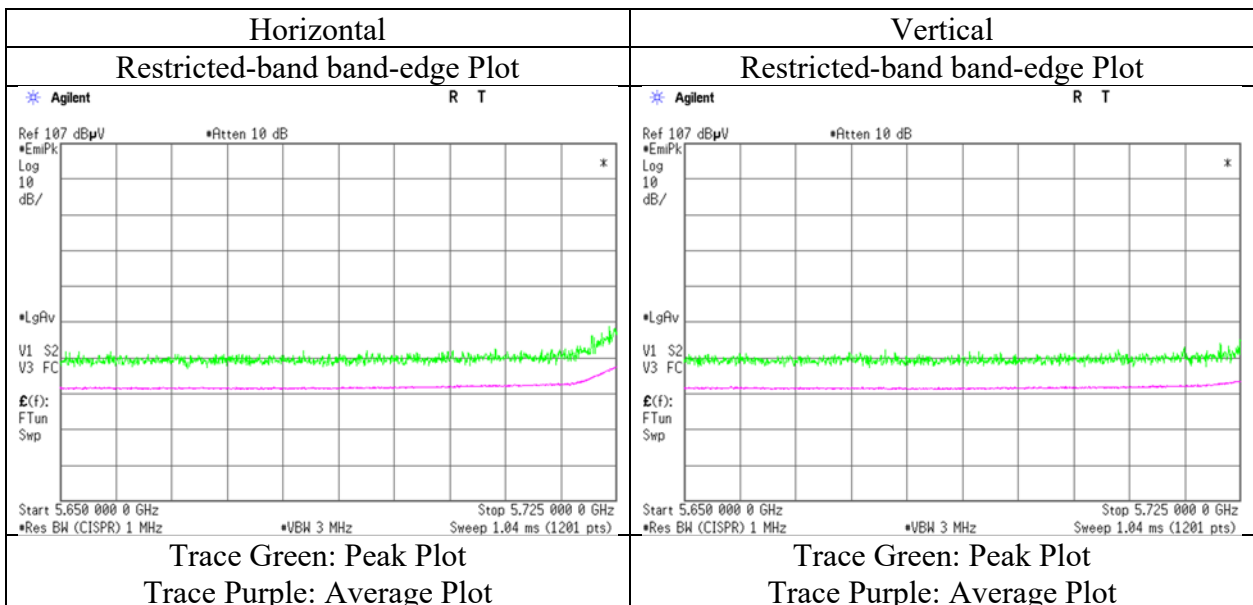
Result(EIRP[dBm])=10*LOG (({ 10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance:3[m] } ^ 2) / 30) *10^3)

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

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

Distance factor : 1 GHz - 13 GHz : 20log (3.84 m / 3.0 m) = 2.15 dB

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



* 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. 13004393S-E-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber (No.) 3 3 3 3 3
Date September 11, 2019 September 10, 2019 September 12, 2019 September 14, 2019 September 15, 2019
Temperature / Humidity 22 deg.C / 53 %RH 23 deg.C / 55 %RH 24 deg.C / 54 %RH 25 deg.C / 51 %RH 24 deg.C / 63 %RH
Engineer Takahiro Kawakami Kazuyua Noda Kazuyua Noda Takahiro Kawakami Toshinori Yamada
Mode (1 GHz – 6.4 GHz) (6.4 GHz – 13 GHz) (13 GHz – 18 GHz) (18 GHz – 26.5 GHz) (26.5 GHz – 40 GHz)
Tx, 11n-20 (MIMO), 5785 MHz, (EUT serial no. A-7)

(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	48.41	39.96	9.91	42.56	2.15	57.87	73.9	16.0	114	108	-
Hori.	11570.000	AV	37.43	39.96	9.91	42.56	2.15	46.89	53.9	7.0	114	108	VBW: 1 kHz
Vert.	11570.000	PK	48.53	39.96	9.91	42.56	2.15	57.99	73.9	15.9	132	48	-
Vert.	11570.000	AV	37.27	39.96	9.91	42.56	2.15	46.73	53.9	7.1	132	48	VBW: 1 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).

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

Distance factor : 1 GHz - 13 GHz : 20log (3.84 m / 3.0 m) = 2.15 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.	17355.000	PK	46.49	41.40	12.34	40.26	-9.54	50.43	-44.79	-27.0	17.8	249	69	-
Vert.	17355.000	PK	46.66	41.40	12.34	40.26	-9.54	50.60	-44.62	-27.0	17.6	203	328	-

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).

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

Distance factor : 1 GHz - 13 GHz : 20log (3.84 m / 3.0 m) = 2.15 dB

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