Radiated Spurious Emission

Report No.	13024969S-AE-R3					
Test place	Shonan EMC Lab.					
Semi Anechoic Chamber (No.)	3	3	3	3	3	3
Date	December 12, 2019	November 27, 2019	December 8, 2019	December 5, 2019	December 3, 2019	November 28, 2019
Temperature / Humidity	22 deg. C / 42 % RH	23 deg. C / 43 % RH	23 deg. C / 32 % RH	22 deg. C / 38 % RH	22 deg. C / 43 % RH	22 deg. C / 48 % RH
Engineer	Takahiro Suzuki (30 MHz – 1000 MHz)	Takahiro Kawakami (1 GHz – 6.4 GHz)	Takahiro Kawakami (6.4 GHz – 13 GHz)	Takahiro Kawakami (13 GHz – 18 GHz)	Takahiro Kawakami (18 GHz – 26.5 GHz)	Takahiro Kawakami (26.5 GHz – 40 GHz)
Mode	Tx, 11a 5180 MHz					

(below 1GHz and above 1GHz Inside of the restricted band)

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	34.730	QP	23.56	16.67	6.57	32.19	0.00	14.61	40.0	25.3	132	358	
Hori.	37.829	QP	24.09	15.49	6.62	32.19	0.00	14.01	40.0	25.9	108	249	
Hori.	131.278	QP	23.26	13.79	7.46	32.13	0.00	12.38	43.5	31.1	119	209	
Hori.	5150.000	PK	50.58	32.26	16.17	43.04	2.35	58.32	73.9	15.5	251	89	
Hori.	15540.000	PK	53.05	39.01	11.51	40.79	-9.54	53.24	73.9	20.6	180	11	
Hori.	5150.000	AV	37.62	32.26	16.17	43.04	2.35	45.36	53.9	**8.5**	251	89	VBW:10 Hz
Hori.	15540.000	AV	41.33	39.01	11.51	40.79	-9.54	41.52	53.9	12.3	180	11	VBW:10 Hz
Vert.	51.539	QP	23.29	10.54	6.79	32.19	0.00	8.43	40.0	31.5	100	1	
Vert.	53.478	QP	23.56	9.89	6.77	32.19	0.00	8.03	40.0	31.9	100	10	
Vert.	71.315	QP	26.05	6.30	6.90	32.17	0.00	7.08	40.0	32.9	100	5	
Vert.	81.380	QP	25.37	6.46	7.60	32.16	0.00	7.27	40.0	32.7	100	109	
Vert.	609.903	QP	22.79	19.12	10.03	31.94	0.00	20.00	46.0	**26.0**	100	92	
Vert.	5150.000	PK	50.93	32.26	16.17	43.04	2.35	58.67	73.9	15.2	334	140	
Vert.	15540.000	PK	53.24	39.01	11.51	40.79	-9.54	53.43	73.9	**20.4**	180	9	
Vert.	5150.000	AV	37.11	32.26	16.17	43.04	2.35	44.85	53.9	**9.0**	334	140	VBW:10 Hz
Vert.	15540.000	AV	40.87	39.01	11.51	40.79	-9.54	41.06	53.9	**12.8**	180	9	VBW:10 Hz

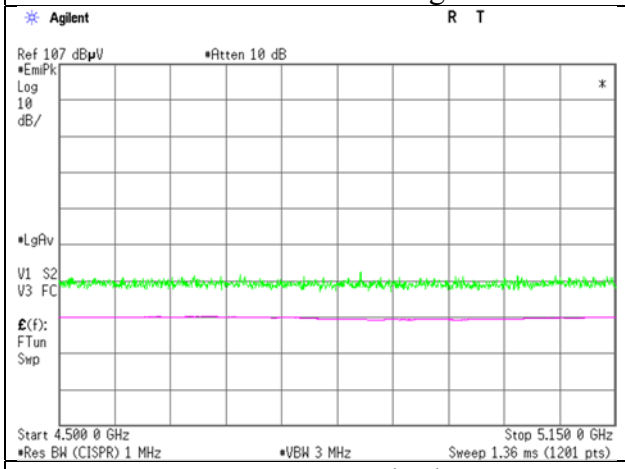
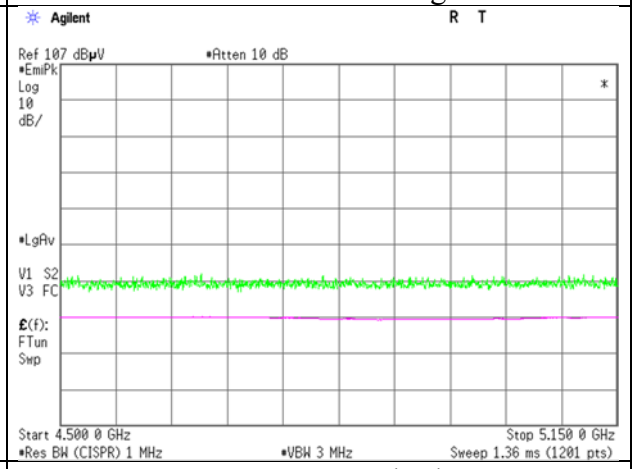
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).
Distance factor : 1 GHz - 13 GHz : 20log (3.93 m / 3.0 m) = 2.35 dB
13 GHz - 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	49.89	39.20	9.18	42.69	2.35	57.93	-37.29	-27.0	**10.2**	100	0	
Vert.	10360.000	PK	49.85	39.20	9.18	42.69	2.35	57.89	-37.33	-27.0	10.3	100	0	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Resrult(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 (3.93 m / 3.0 m) = 2.35 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Horizontal	Vertical
Restricted-band band-edge Plot	Restricted-band band-edge Plot
	
Trace Green: Peak Plot Trace Purple: Average Plot	Trace Green: Peak Plot Trace Purple: Average Plot

* 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.	13024969S-AE-R3				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber (No.)	3	3	3	3	3
Date	November 27, 2019	December 8, 2019	December 5, 2019	December 3, 2019	November 28, 2019
Temperature / Humidity	23 deg. C / 43 % RH	23 deg. C / 32 % RH	22 deg. C / 38 % RH	22 deg. C / 43 % RH	22 deg. C / 48 % RH
Engineer	Hiromasa Sato	Takahiro Kawakami	Takahiro Kawakami	Takahiro Kawakami	Takahiro Kawakami
	(1 GHz – 6.4 GHz)	(6.4 GHz – 13 GHz)	(13 GHz – 18 GHz)	(18 GHz – 26.5 GHz)	(26.5 GHz – 40 GHz)
Mode	Tx, 11a 5240 MHz				

(above 1GHz Inside of the restricted band)

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	15720.000	PK	51.85	38.49	11.62	40.60	-9.54	51.82	73.90	22.0	181	13	
Hori.	15720.000	AV	40.22	38.49	11.62	40.60	-9.54	40.19	53.9	**13.7**	181	13	VBW:10 Hz
Vert.	15720.000	PK	50.69	38.49	11.62	40.60	-9.54	50.66	73.9	23.2	134	11	
Vert.	15720.000	AV	38.86	38.49	11.62	40.60	-9.54	38.83	53.9	15.0	134	11	VBW:10 Hz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).
Distance factor : 1 GHz - 13 GHz : 20log (3.93 m / 3.0 m) = 2.35 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	49.33	39.56	9.18	42.66	2.35	57.76	-37.46	-27.0	10.4	100	0	
Vert.	10480.000	PK	49.96	39.56	9.18	42.66	2.35	58.39	-36.83	-27.0	**9.8**	100	0	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Resrult(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 (3.93 m / 3.0 m) = 2.35 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Radiated Spurious Emission

Report No.	13024969S-AE-R3				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber (No.)	3	3	3	3	3
Date	November 27, 2019	December 8, 2019	December 5, 2019	December 3, 2019	November 28, 2019
Temperature / Humidity	23 deg. C / 43 % RH	23 deg. C / 32 % RH	22 deg. C / 38 % RH	22 deg. C / 43 % RH	22 deg. C / 48 % RH
Engineer	Hiromasa Sato	Takahiro Kawakami	Takahiro Kawakami	Takahiro Kawakami	Takahiro Kawakami
	(1 GHz – 6.4 GHz)	(6.4 G – 13 GHz)	(13 GHz – 18 GHz)	(18 GHz – 26.5 GHz)	(26.5 GHz – 40 GHz)
Mode	Tx, 11a 5320 MHz				

(above 1GHz Inside of the restricted band)

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

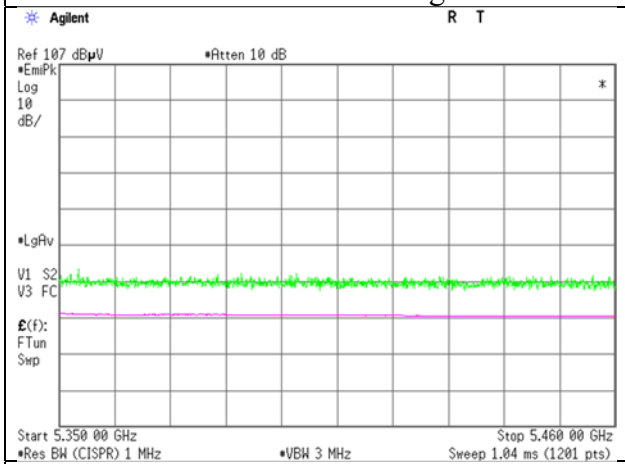
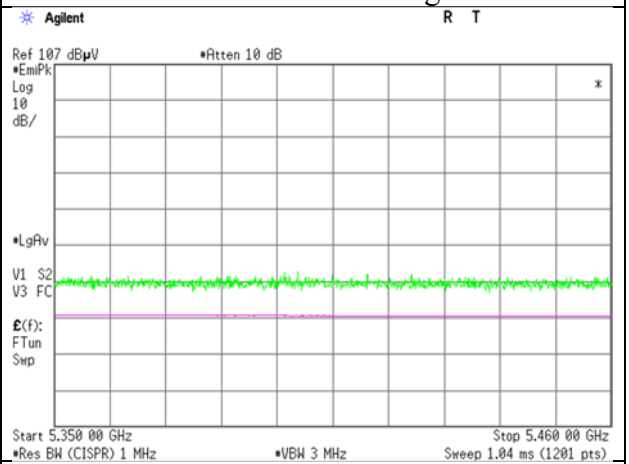
Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5350.000	PK	51.19	31.98	16.28	43.21	2.35	58.59	73.9	15.3	160	98	
Hori.	10640.000	PK	49.19	39.66	9.25	42.67	2.35	57.78	73.9	16.1	150	0	
Hori.	15960.000	PK	50.32	38.31	11.76	40.34	-9.54	50.51	73.9	23.3	135	18	
Hori.	5350.000	AV	37.88	31.98	16.28	43.21	2.35	45.28	53.9	8.6	160	98	VBW:10 Hz
Hori.	10640.000	AV	36.56	39.66	9.25	42.67	2.35	45.15	53.9	8.7	150	0	VBW:10 Hz
Hori.	15960.000	AV	37.75	38.31	11.76	40.34	-9.54	37.94	53.9	15.9	135	18	VBW:10 Hz
Vert.	5350.000	PK	51.14	31.98	16.28	43.21	2.35	58.54	73.9	15.3	391	104	
Vert.	10640.000	PK	49.08	39.66	9.25	42.67	2.35	57.67	73.9	16.2	150	0	
Vert.	15960.000	PK	49.46	38.31	11.76	40.34	-9.54	49.65	73.9	24.2	137	10	
Vert.	5350.000	AV	38.10	31.98	16.28	43.21	2.35	45.50	53.9	**8.4**	391	104	VBW:10 Hz
Vert.	10640.000	AV	36.54	39.66	9.25	42.67	2.35	45.13	53.9	8.7	150	0	VBW:10 Hz
Vert.	15960.000	AV	37.84	38.31	11.76	40.34	-9.54	38.03	53.9	15.8	137	10	VBW:10 Hz

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

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

Distance factor : 1 GHz - 13 GHz : 20log (3.93 m / 3.0 m) = 2.35 dB

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

Horizontal	Vertical
Restricted-band band-edge Plot	Restricted-band band-edge Plot
	
Trace Green: Peak Plot Trace Purple: Average Plot	Trace Green: Peak Plot Trace Purple: Average Plot

* 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.	13024969S-AE-R3
Test place	Shonan EMC Lab.
Semi Anechoic Chamber (No.)	3
Date	January 9, 2020
Temperature / Humidity	24 deg. C / 40 % RH
Engineer	Hiromasa Sato
	(1 GHz – 6.4 GHz)
Mode	Tx, 11a 5180 MHz with DH5 hopping

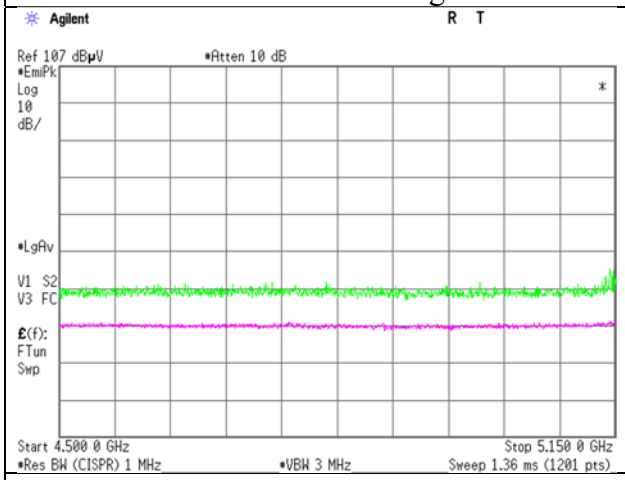
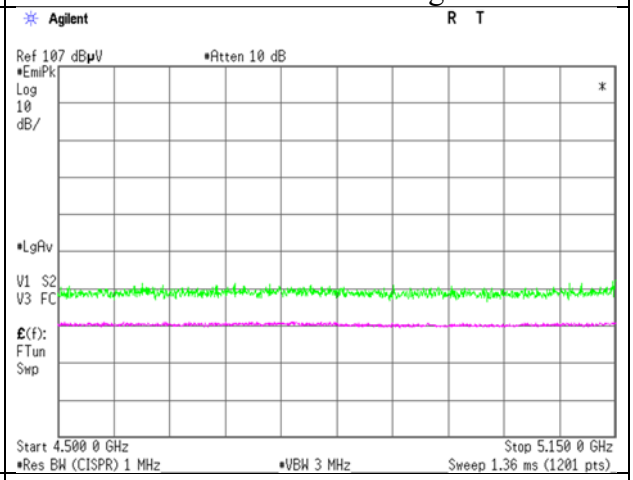
(above 1GHz Inside of the restricted band)

(* 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	54.83	32.26	16.17	43.04	2.35	62.57	73.9	11.3	124	117	
Hori.	5150.000	AV	38.69	32.26	16.17	43.04	2.35	46.43	53.9	**7.4**	124	117	VBW:3 kHz
Vert.	5150.000	PK	51.34	32.26	16.17	43.04	2.35	59.08	73.9	14.8	400	185	
Vert.	5150.000	AV	38.20	32.26	16.17	43.04	2.35	45.94	53.9	7.9	400	185	VBW:3 kHz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor : 1 GHz - 13 GHz : 20log (3.93 m / 3.0 m) = 2.35 dB

Horizontal	Vertical
Restricted-band band-edge Plot	Restricted-band band-edge Plot
	
Trace Green: Peak Plot Trace Purple: Average Plot	Trace Green: Peak Plot Trace Purple: Average Plot

* 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.	13024969S-AE-R3
Test place	Shonan EMC Lab.
Semi Anechoic Chamber (No.)	3
Date	January 9, 2020
Temperature / Humidity	24 deg. C / 40 % RH
Engineer	Hiromasa Sato
	(1 GHz – 6.4 GHz)
Mode	Tx, 11a 5320 MHz with DH5 hopping

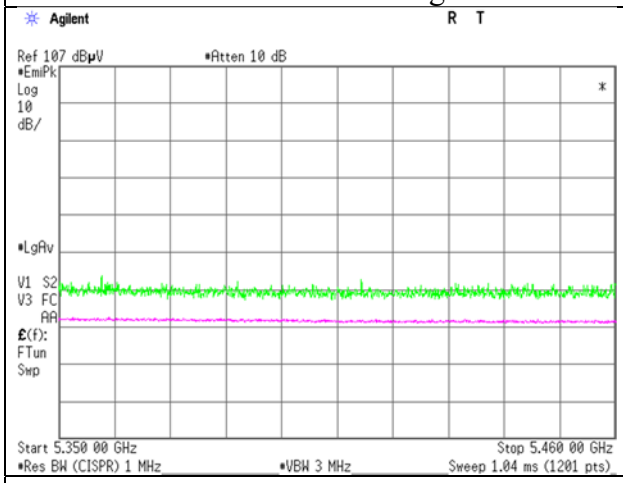
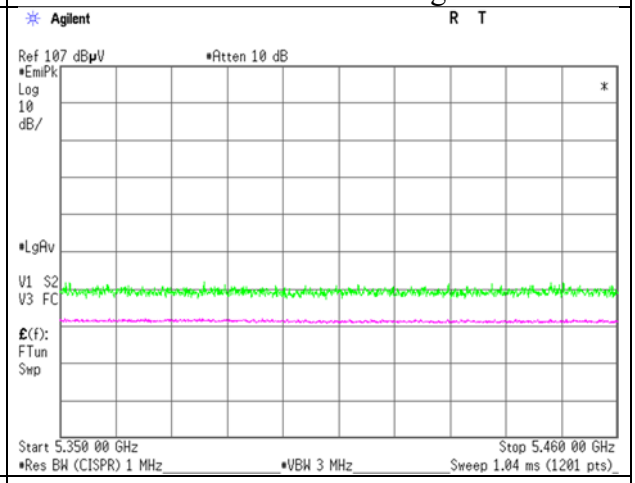
(above 1GHz Inside of the restricted band)

(* 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	52.25	31.98	16.28	43.21	2.35	59.65	73.9	14.2	114	119	
Hori.	5350.000	AV	39.09	31.98	16.28	43.21	2.35	46.49	53.9	**7.4**	114	119	VBW:3 kHz
Vert.	5350.000	PK	49.95	31.98	16.28	43.21	2.35	57.35	73.9	16.5	384	189	
Vert.	5350.000	AV	38.26	31.98	16.28	43.21	2.35	45.66	53.9	8.2	384	189	VBW:3 kHz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor : 1 GHz - 13 GHz : 20log (3.93 m / 3.0 m) = 2.35 dB

Horizontal	Vertical
Restricted-band band-edge Plot	Restricted-band band-edge Plot
	
Trace Green: Peak Plot Trace Purple: Average Plot	Trace Green: Peak Plot Trace Purple: Average Plot

* 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.	13024969S-AE-R3
Test place	Shonan EMC Lab.
Semi Anechoic Chamber (No.)	3
Date	January 9, 2020
Temperature / Humidity	24 deg. C / 40 % RH
Engineer	Hiromasa Sato
	(1 GHz – 6.4 GHz)
Mode	Tx, 11a 5180 MHz with BT LE 2 M-PHY 2402 MHz

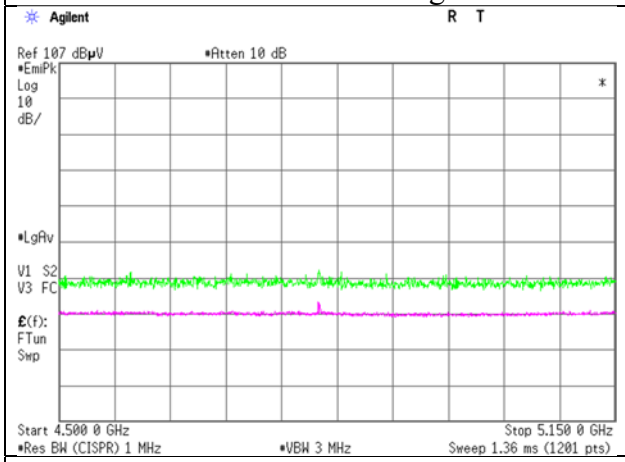
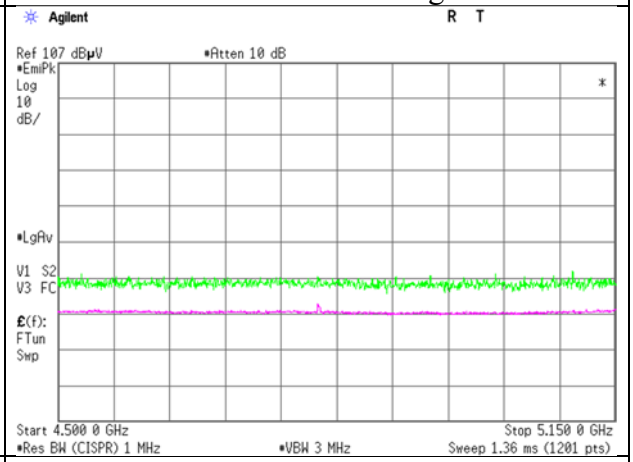
(above 1GHz Inside of the restricted band)

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	4804.000	PK	52.38	31.62	15.95	42.88	2.35	59.42	73.9	14.4	125	105	
Hori.	5150.000	PK	54.76	32.26	16.17	43.04	2.35	62.50	73.9	11.4	125	105	
Hori.	4804.000	AV	38.80	31.62	15.95	42.88	2.35	45.84	53.9	8.0	125	105	VBW:4.7 kHz *1)
Hori.	5150.000	AV	38.28	32.26	16.17	43.04	2.35	46.02	53.9	**7.8**	125	105	VBW:3 kHz
Vert.	4804.000	PK	49.21	31.62	15.95	42.88	2.35	56.25	73.9	17.6	400	187	
Vert.	5150.000	PK	52.93	32.26	16.17	43.04	2.35	60.67	73.9	13.2	400	187	
Vert.	4804.000	AV	37.63	31.62	15.95	42.88	2.35	44.67	53.9	9.2	400	187	VBW:4.7 kHz
Vert.	5150.000	AV	37.95	32.26	16.17	43.04	2.35	45.69	53.9	8.2	400	187	VBW:3 kHz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor : 1 GHz - 13 GHz : 20log (3.93 m / 3.0 m) = 2.35 dB
*1) This noise is a harmonic of BTLE.BT LE burst length is applied to VBW.
BT LE burst length is applied to VBW.

Horizontal	Vertical
Restricted-band band-edge Plot	Restricted-band band-edge Plot
	
Trace Green: Peak Plot Trace Purple: Average Plot	Trace Green: Peak Plot Trace Purple: Average Plot

* 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.	13024969S-AE-R3
Test place	Shonan EMC Lab.
Semi Anechoic Chamber (No.)	3
Date	January 9, 2020
Temperature / Humidity	24 deg. C / 40 % RH
Engineer	Hiromasa Sato
	(1 GHz – 6.4 GHz)
Mode	Tx, 11a 5320 MHz with BT LE 2 M-PHY 2402 MHz

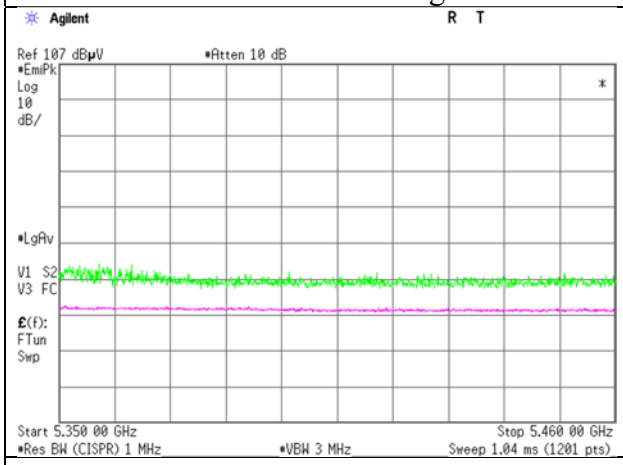
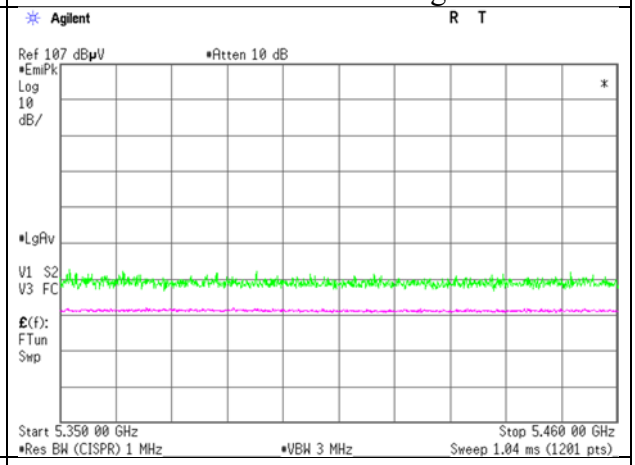
(above 1GHz Inside of the restricted band)

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5350.000	PK	52.89	31.98	16.28	43.21	2.35	60.29	73.9	13.6	122	111	
Hori.	5350.000	AV	38.80	31.98	16.28	43.21	2.35	46.20	53.9	**7.7**	122	111	VBW:3 kHz
Vert.	5350.000	PK	50.65	31.98	16.28	43.21	2.35	58.05	73.9	15.8	390	175	
Vert.	5350.000	AV	38.36	31.98	16.28	43.21	2.35	45.76	53.9	8.1	390	175	VBW:3 kHz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor : 1 GHz - 13 GHz : 20log (3.93 m / 3.0 m) = 2.35 dB

Horizontal	Vertical
Restricted-band band-edge Plot	Restricted-band band-edge Plot
	
Trace Green: Peak Plot Trace Purple: Average Plot	Trace Green: Peak Plot Trace Purple: Average Plot

* 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.	13024969S-AE-R3				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber (No.)	3	3	3	3	3
Date	November 29, 2019	December 8, 2019	December 6, 2019	December 3, 2019	November 28, 2019
Temperature / Humidity	21 deg. C / 31 % RH	23 deg. C / 32 % RH	23 deg. C / 26 % RH	22 deg. C / 43 % RH	22 deg. C / 48 % RH
Engineer	Yasumasa Owaki (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)	Takahiro Kawakami (26.5 GHz – 40 GHz)
Mode	Tx, 11ac-20 5180 MHz				

(above 1GHz Inside of the restricted band)

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5150.000	PK	51.39	32.26	16.17	43.04	2.35	59.13	73.9	14.7	144	96	
Hori.	15540.000	PK	53.33	39.01	11.51	40.79	-9.54	53.52	73.9	20.3	139	9	
Hori.	5150.000	AV	38.61	32.26	16.17	43.04	2.35	46.35	53.9	**7.5**	144	96	VBW:10 Hz
Hori.	15540.000	AV	41.00	39.01	11.51	40.79	-9.54	41.19	53.9	12.7	139	9	VBW:10 Hz
Vert.	5150.000	PK	50.09	32.26	16.17	43.04	2.35	57.83	73.9	16.0	400	127	
Vert.	15540.000	PK	52.61	39.01	11.51	40.79	-9.54	52.80	73.9	21.1	181	10	
Vert.	5150.000	AV	37.22	32.26	16.17	43.04	2.35	44.96	53.9	8.9	400	127	VBW:10 Hz
Vert.	15540.000	AV	40.67	39.01	11.51	40.79	-9.54	40.86	53.9	13.0	181	10	VBW:10 Hz

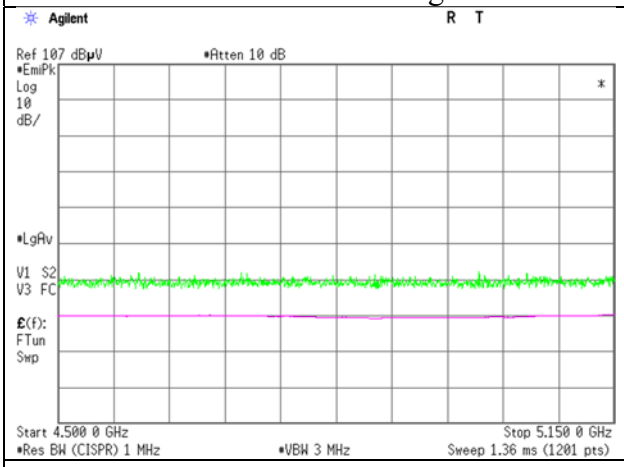
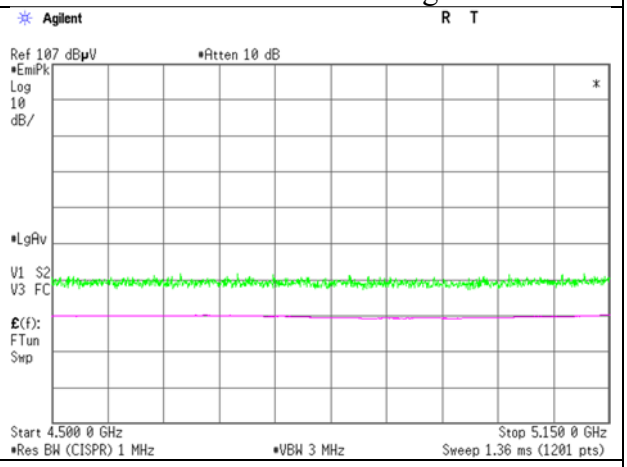
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).
Distance factor : 1 GHz - 13 GHz : 20log (3.93 m / 3.0 m) = 2.35 dB
13 GHz - 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	48.92	39.20	9.18	42.69	2.35	56.96	-38.26	-27.0	11.2	150	0	
Vert.	10360.000	PK	49.04	39.20	9.18	42.69	2.35	57.08	-38.14	-27.0	**11.1**	150	0	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Resrult(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 (3.93 m / 3.0 m) = 2.35 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Horizontal	Vertical
Restricted-band band-edge Plot	Restricted-band band-edge Plot
	
Trace Green: Peak Plot Trace Purple: Average Plot	Trace Green: Peak Plot Trace Purple: Average Plot

* 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.	13024969S-AE-R3				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber (No.)	3	3	3	3	3
Date	November 30, 2019	December 8, 2019	December 6, 2019	December 3, 2019	November 28, 2019
Temperature / Humidity	21 deg. C / 30 % RH	23 deg. C / 32 % RH	23 deg. C / 26 % RH	22 deg. C / 43 % RH	22 deg. C / 48 % RH
Engineer	Takahiro Kawakami (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)	Takahiro Kawakami (26.5 GHz – 40 GHz)
Mode	Tx, 11ac-20 5240 MHz				

(above 1GHz Inside of the restricted band)

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	15720.000	PK	52.80	38.49	11.62	40.60	-9.54	52.77	73.9	21.1	133	29	
Hori.	15720.000	AV	40.52	38.49	11.62	40.60	-9.54	40.49	53.9	**13.4**	133	29	VBW:10 Hz
Vert.	15720.000	PK	51.16	38.49	11.62	40.60	-9.54	51.13	73.9	22.7	181	12	
Vert.	15720.000	AV	38.89	38.49	11.62	40.60	-9.54	38.86	53.9	15.0	181	12	VBW:10 Hz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).
Distance factor : 1 GHz - 13 GHz : 20log (3.93 m / 3.0 m) = 2.35 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	49.06	39.56	9.18	42.66	2.35	57.49	-37.73	-27.0	10.7	150	0	
Vert.	10480.000	PK	50.60	39.56	9.18	42.66	2.35	59.03	-36.19	-27.0	**9.1**	150	0	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Resrult(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 (3.93 m / 3.0 m) = 2.35 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Radiated Spurious Emission

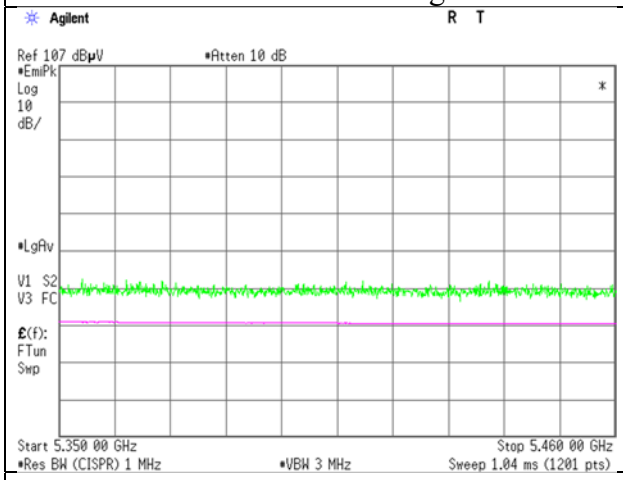
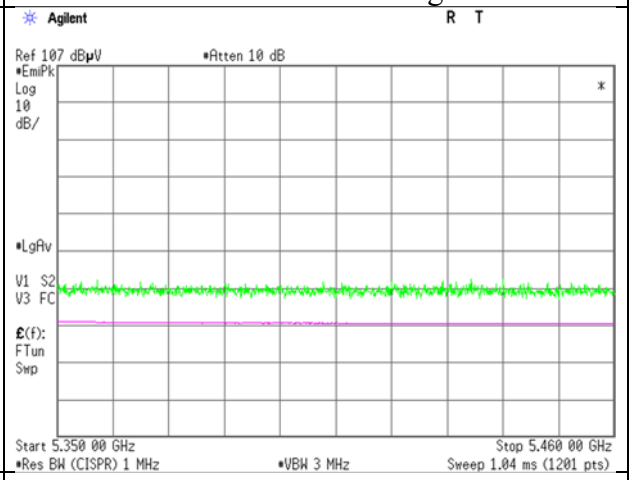
Report No.	13024969S-AE-R3				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber (No.)	3	3	3	3	3
Date	November 30, 2019	December 8, 2019	December 6, 2019	December 3, 2019	November 28, 2019
Temperature / Humidity	21 deg. C / 30 % RH	23 deg. C / 32 % RH	23 deg. C / 26 % RH	22 deg. C / 43 % RH	22 deg. C / 48 % RH
Engineer	Takahiro Kawakami (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)	Takahiro Kawakami (26.5 GHz – 40 GHz)
Mode	Tx, 11ac-20 5320 MHz				

(above 1GHz Inside of the restricted band)

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5350.000	PK	49.82	31.98	16.28	43.21	2.35	57.22	73.9	16.6	100	96	
Hori.	10640.000	PK	49.39	39.66	9.25	42.67	2.35	57.98	73.9	15.9	150	0	
Hori.	15960.000	PK	51.93	38.31	11.76	40.34	-9.54	52.12	73.9	21.7	137	11	
Hori.	5350.000	AV	37.59	31.98	16.28	43.21	2.35	44.99	53.9	8.9	100	96	VBW:10 Hz
Hori.	10640.000	AV	36.83	39.66	9.25	42.67	2.35	45.42	53.9	**8.4**	150	0	VBW:10 Hz
Hori.	15960.000	AV	39.40	38.31	11.76	40.34	-9.54	39.59	53.9	14.3	137	11	VBW:10 Hz
Vert.	5350.000	PK	50.48	31.98	16.28	43.21	2.35	57.88	73.9	16.0	400	127	
Vert.	10640.000	PK	48.98	39.66	9.25	42.67	2.35	57.57	73.9	16.3	150	0	
Vert.	15960.000	PK	50.69	38.31	11.76	40.34	-9.54	50.88	73.9	23.0	186	3	
Vert.	5350.000	AV	37.73	31.98	16.28	43.21	2.35	45.13	53.9	8.7	400	127	VBW:10 Hz
Vert.	10640.000	AV	36.82	39.66	9.25	42.67	2.35	45.41	53.9	**8.4**	150	0	VBW:10 Hz
Vert.	15960.000	AV	38.37	38.31	11.76	40.34	-9.54	38.56	53.9	15.3	186	3	VBW:10 Hz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).
Distance factor : 1 GHz - 13 GHz : 20log (3.93 m / 3.0 m) = 2.35 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Horizontal	Vertical
Restricted-band band-edge Plot	Restricted-band band-edge Plot
	
Trace Green: Peak Plot Trace Purple: Average Plot	Trace Green: Peak Plot Trace Purple: Average Plot

* 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.	13024969S-AE-R3
Test place	Shonan EMC Lab.
Semi Anechoic Chamber (No.)	3
Date	January 10, 2020
Temperature / Humidity	23 deg. C / 39 % RH
Engineer	Hiromasa Sato
	(1 GHz – 6.4 GHz)
Mode	Tx, 11ac-20 5180 MHz with DH5 hopping

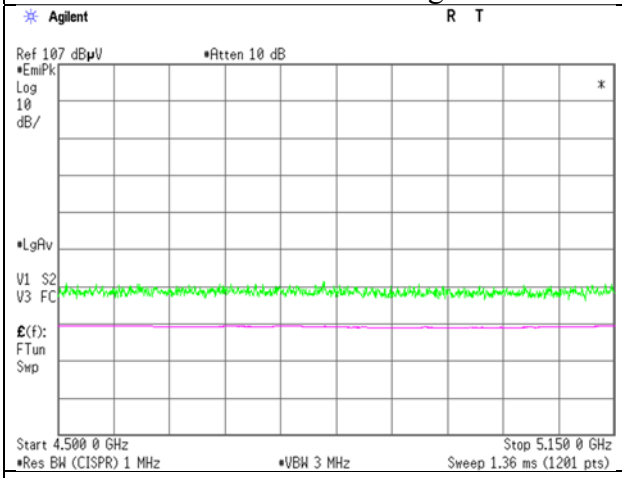
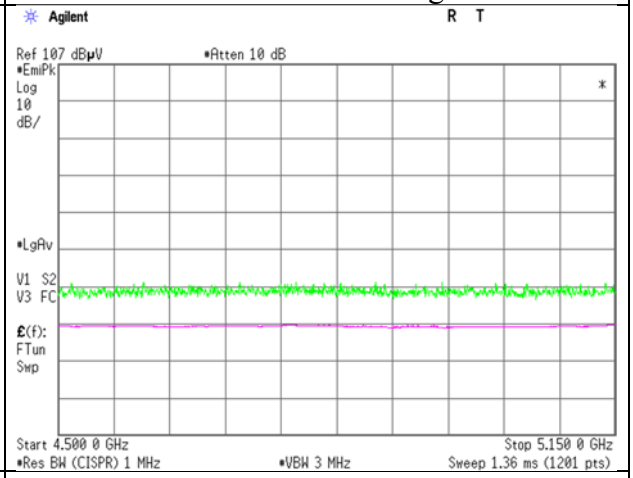
(above 1GHz Inside of the restricted band)

(* 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	52.27	32.26	16.13	43.04	2.35	59.97	73.9	13.9	101	96	
Hori.	5150.000	AV	36.71	32.26	16.13	43.04	2.35	44.41	53.9	**9.4**	101	96	VBW:10 Hz
Vert.	5150.000	PK	50.64	32.26	16.13	43.04	2.35	58.34	73.9	15.5	386	186	
Vert.	5150.000	AV	36.32	32.26	16.13	43.04	2.35	44.02	53.9	9.8	386	186	VBW:10 Hz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor : 1 GHz - 13 GHz : 20log (3.93 m / 3.0 m) = 2.35 dB

Horizontal	Vertical
Restricted-band band-edge Plot	Restricted-band band-edge Plot
	
Trace Green: Peak Plot Trace Purple: Average Plot	Trace Green: Peak Plot Trace Purple: Average Plot

* 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.	13024969S-AE-R3
Test place	Shonan EMC Lab.
Semi Anechoic Chamber (No.)	3
Date	January 10, 2020
Temperature / Humidity	23 deg. C / 39 % RH
Engineer	Hiromasa Sato
	(1 GHz – 6.4 GHz)
Mode	Tx, 11ac-20 5320 MHz with DH5 hopping

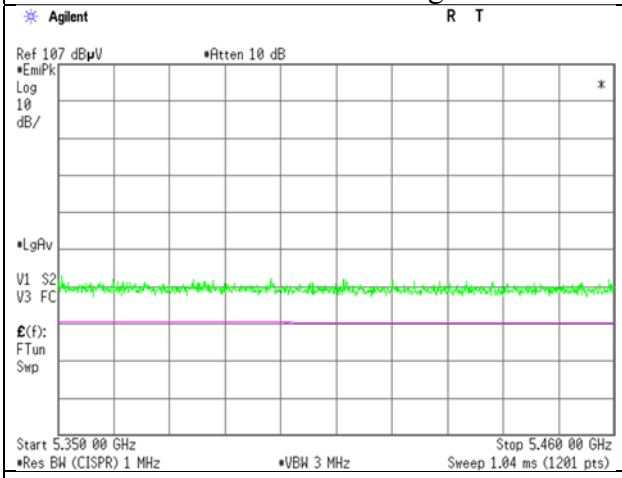
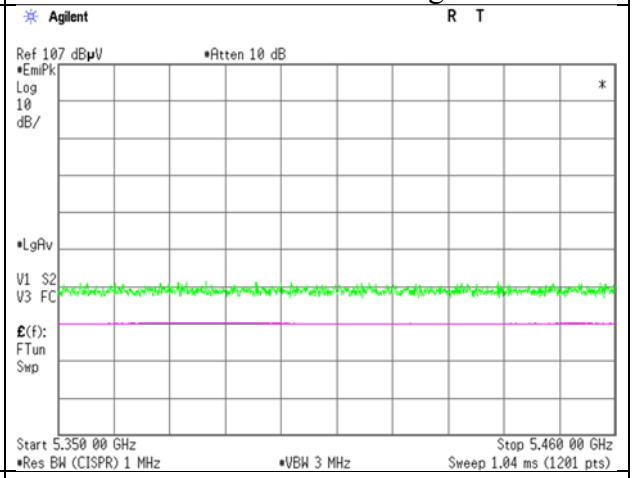
(above 1GHz Inside of the restricted band)

(* 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	51.26	31.98	16.26	43.21	2.35	58.64	73.9	15.2	109	116	
Hori.	5350.000	AV	37.09	31.98	16.26	43.21	2.35	44.47	53.9	**9.4**	109	116	VBW:10 Hz
Vert.	5350.000	PK	49.13	31.98	16.26	43.21	2.35	56.51	73.9	17.3	387	163	
Vert.	5350.000	AV	36.66	31.98	16.26	43.21	2.35	44.04	53.9	9.8	387	163	VBW:10 Hz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor : 1 GHz - 13 GHz : 20log (3.93 m / 3.0 m) = 2.35 dB

Horizontal	Vertical
Restricted-band band-edge Plot	Restricted-band band-edge Plot
	
Trace Green: Peak Plot Trace Purple: Average Plot	Trace Green: Peak Plot Trace Purple: Average Plot

* 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.	13024969S-AE-R3
Test place	Shonan EMC Lab.
Semi Anechoic Chamber (No.)	3
Date	January 10, 2020
Temperature / Humidity	21 deg. C / 28 % RH
Engineer	Takahiro Kawakami
	(1 GHz – 6.4 GHz)
Mode	Tx, 11ac-20 5180 MHz with BT LE 2 M-PHY 2402 MHz

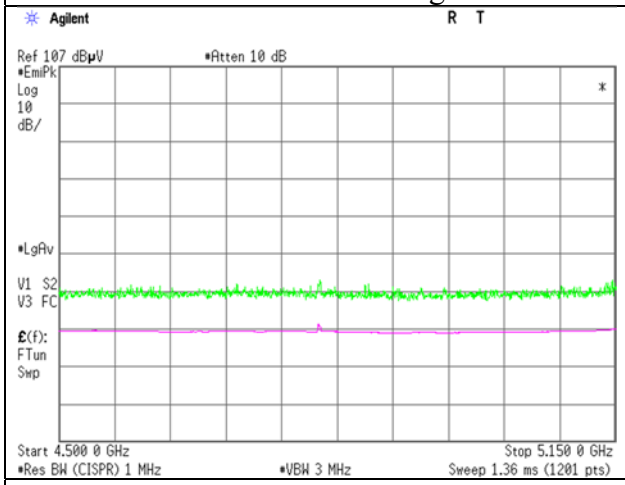
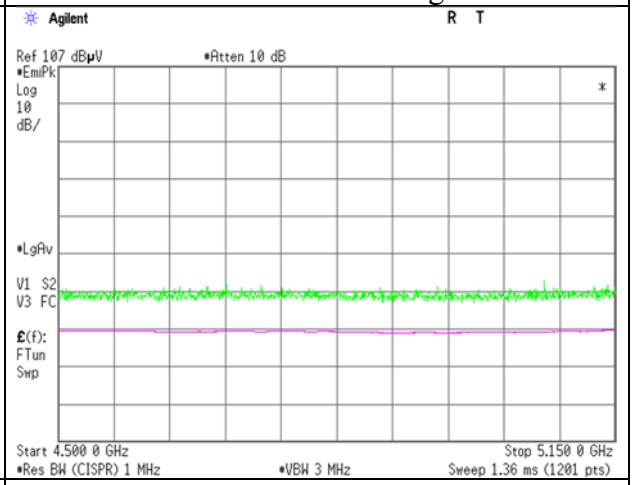
(above 1GHz Inside of the restricted band)

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	4804.000	PK	52.37	31.62	15.92	42.88	2.35	59.38	73.9	14.5	144	107	
Hori.	5150.000	PK	52.60	32.26	16.13	43.04	2.35	60.30	73.9	13.6	144	107	
Hori.	4804.000	AV	41.65	31.62	15.92	42.88	2.35	48.66	53.9	**5.2**	144	107	VBW:4.7 kHz *1)
Hori.	5150.000	AV	36.59	32.26	16.13	43.04	2.35	44.29	53.9	9.6	144	107	VBW:10Hz
Vert.	5150.000	PK	50.79	32.26	16.13	43.04	2.35	58.49	73.9	15.4	381	133	
Vert.	5150.000	AV	36.49	32.26	16.13	43.04	2.35	44.19	53.9	9.7	381	133	VBW:10Hz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor : 1 GHz - 13 GHz : 20log (3.93 m / 3.0 m) = 2.35 dB
*1) This noise is a harmonic of BTLE.BT LE burst length is applied to VBW.
BT LE burst length is applied to VBW.

Horizontal	Vertical
Restricted-band band-edge Plot	Restricted-band band-edge Plot
	
Trace Green: Peak Plot Trace Purple: Average Plot	Trace Green: Peak Plot Trace Purple: Average Plot

* 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.	13024969S-AE-R3
Test place	Shonan EMC Lab.
Semi Anechoic Chamber (No.)	3
Date	January 10, 2020
Temperature / Humidity	21 deg. C / 28 % RH
Engineer	Takahiro Kawakami
	(1 GHz – 6.4 GHz)
Mode	Tx, 11ac-20 5320 MHz with BT LE 2 M-PHY 2402 MHz

(above 1GHz Inside of the restricted band)

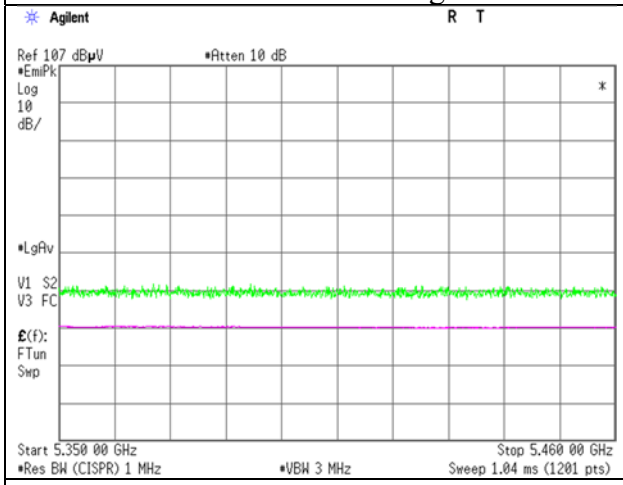
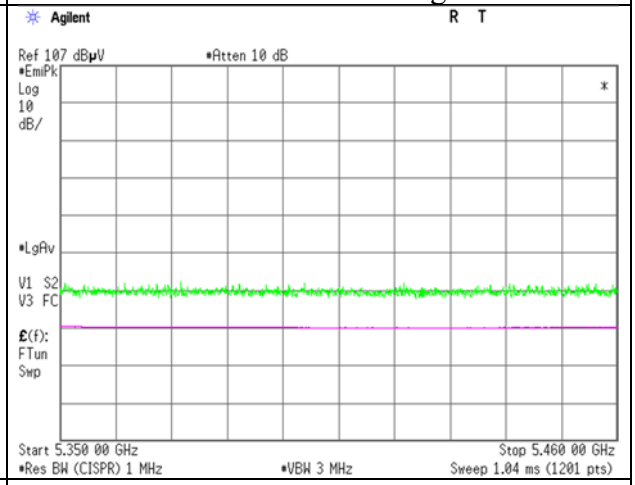
(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5350.000	PK	51.29	31.98	16.26	43.21	2.35	58.67	73.9	15.2	127	122	
Hori.	5350.000	AV	37.15	31.98	16.26	43.21	2.35	44.53	53.9	**9.3**	127	122	VBW:10Hz
Vert.	5350.000	PK	51.00	31.98	16.26	43.21	2.35	58.38	73.9	15.5	388	140	
Vert.	5350.000	AV	37.14	31.98	16.26	43.21	2.35	44.52	53.9	**9.3**	388	140	VBW:10Hz

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

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

Distance factor : 1 GHz - 13 GHz : 20log (3.93 m / 3.0 m) = 2.35 dB

Horizontal	Vertical
Restricted-band band-edge Plot	Restricted-band band-edge Plot
	
Trace Green: Peak Plot Trace Purple: Average Plot	Trace Green: Peak Plot Trace Purple: Average Plot

* 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.	13024969S-AE-R3			
Test place	Shonan EMC Lab.			
Semi Anechoic Chamber (No.)	3	3	3	3
Date	December 1, 2019	December 8, 2019	December 7, 2019	December 3, 2019
Temperature / Humidity	20 deg. C / 30 % RH	23 deg. C / 32 % RH	21 deg. C / 27 % RH	22 deg. C / 43 % RH
Engineer	Yasumasa Owaki	Takahiro Kawakami	Kazuya Noda	Takahiro Kawakami
	(1 GHz – 6.4 GHz)	(6.4 GHz – 13 GHz)	(13 GHz – 18 GHz)	(18 GHz – 40 GHz)
Mode	Tx, 11ac-40 5190 MHz			

(above 1GHz Inside of the restricted band)

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5150.000	PK	51.56	32.26	16.17	43.04	2.35	59.30	73.9	14.6	165	101	
Hori.	15570.000	PK	51.37	38.93	11.54	40.76	-9.54	51.54	73.9	22.3	135	10	
Hori.	5150.000	AV	38.92	32.26	16.17	43.04	2.35	46.66	53.9	**7.2**	165	101	VBW:10 Hz
Hori.	15570.000	AV	38.81	38.93	11.54	40.76	-9.54	38.98	53.9	14.9	135	10	VBW:10 Hz
Vert.	5150.000	PK	49.76	32.26	16.17	43.04	2.35	57.50	73.9	16.4	400	135	
Vert.	15570.000	PK	51.18	38.93	11.54	40.76	-9.54	51.35	73.9	22.5	184	5	
Vert.	5150.000	AV	37.46	32.26	16.17	43.04	2.35	45.20	53.9	8.7	400	135	VBW:10 Hz
Vert.	15570.000	AV	38.22	38.93	11.54	40.76	-9.54	38.39	53.9	15.5	184	5	VBW:10 Hz

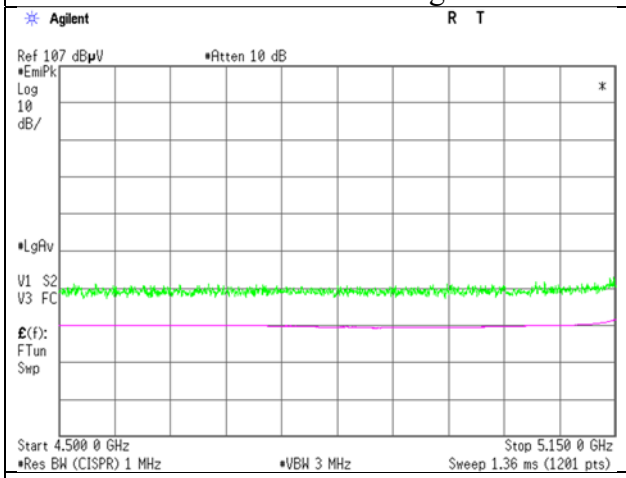
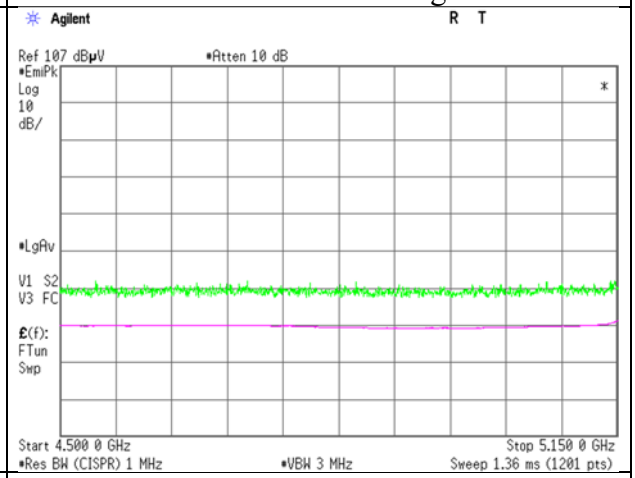
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).
Distance factor : 1 GHz - 13 GHz : 20log (3.93 m / 3.0 m) = 2.35 dB
13 GHz - 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	49.05	39.29	9.18	42.68	2.35	57.19	-38.03	-27.0	11.0	150	0	
Vert.	10380.000	PK	49.10	39.29	9.18	42.68	2.35	57.24	-37.98	-27.0	**10.9**	150	0	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Resrult(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 (3.93 m / 3.0 m) = 2.35 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Horizontal	Vertical
Restricted-band band-edge Plot	Restricted-band band-edge Plot
	
Trace Green: Peak Plot Trace Purple: Average Plot	Trace Green: Peak Plot Trace Purple: Average Plot

* 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.	13024969S-AE-R3			
Test place	Shonan EMC Lab.			
Semi Anechoic Chamber (No.)	3	3	3	3
Date	December 1, 2019	December 8, 2019	December 7, 2019	December 3, 2019
Temperature / Humidity	20 deg. C / 30 % RH	23 deg. C / 32 % RH	21 deg. C / 27 % RH	22 deg. C / 43 % RH
Engineer	Yasumasa Owaki (1 GHz – 6.4 GHz)	Takahiro Kawakami (6.4 GHz – 13 GHz)	Kazuya Noda (13 GHz – 18 GHz)	Takahiro Kawakami (18 GHz – 40 GHz)
Mode	Tx, 11ac-40 5230 MHz			

(above 1GHz Inside of the restricted band)

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	15690.000	PK	50.92	38.59	11.61	40.63	-9.54	50.95	73.9	22.9	135	10	
Hori.	15690.000	AV	38.16	38.59	11.61	40.63	-9.54	38.19	53.9	**15.7**	135	10	VBW:10 Hz
Vert.	15690.000	PK	50.58	38.59	11.61	40.63	-9.54	50.61	73.9	23.2	184	4	
Vert.	15690.000	AV	37.61	38.59	11.61	40.63	-9.54	37.64	53.9	16.2	184	4	VBW:10 Hz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).
Distance factor : 1 GHz - 13 GHz : 20log (3.93 m / 3.0 m) = 2.35 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	49.22	39.54	9.19	42.67	2.35	57.63	-37.59	-27.0	**10.5**	150	0	
Vert.	10460.000	PK	49.00	39.54	9.19	42.67	2.35	57.41	-37.81	-27.0	10.8	150	0	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Resrult(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 (3.93 m / 3.0 m) = 2.35 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Radiated Spurious Emission

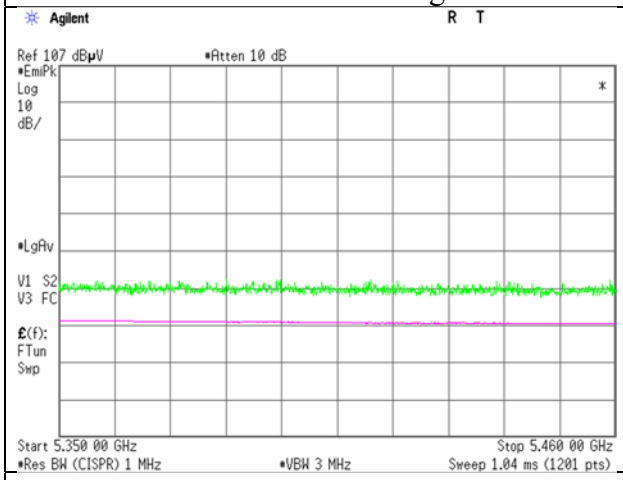
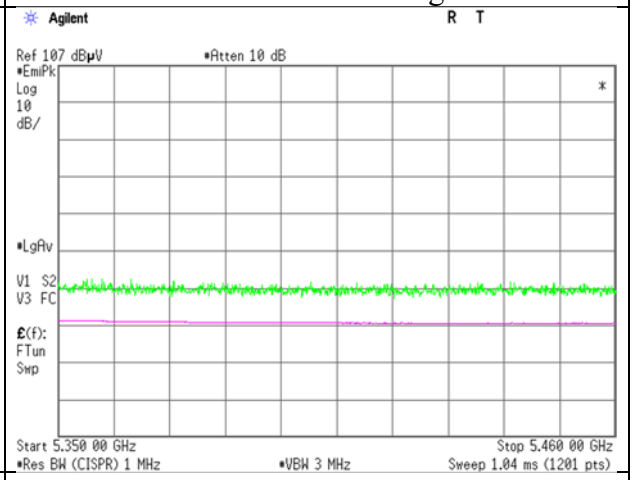
Report No.	13024969S-AE-R3			
Test place	Shonan EMC Lab.			
Semi Anechoic Chamber (No.)	3	3	3	3
Date	December 1, 2019	December 8, 2019	December 7, 2019	December 3, 2019
Temperature / Humidity	20 deg. C / 30 % RH	23 deg. C / 32 % RH	21 deg. C / 27 % RH	22 deg. C / 43 % RH
Engineer	Yasumasa Owaki	Takahiro Kawakami	Kazuya Noda	Takahiro Kawakami
	(1 GHz – 6.4 GHz)	(6.4 GHz – 13 GHz)	(13 GHz – 18 GHz)	(18 GHz – 40 GHz)
Mode	Tx, 11ac-40 5310 MHz			

(above 1GHz Inside of the restricted band)

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5350.000	PK	50.69	31.98	16.28	43.21	2.35	58.09	73.9	15.8	148	97	
Hori.	10620.000	PK	49.04	39.64	9.23	42.67	2.35	57.59	73.9	16.3	150	0	
Hori.	15930.000	PK	49.16	38.31	11.73	40.37	-9.54	49.29	73.9	24.6	137	10	
Hori.	5350.000	AV	37.90	31.98	16.28	43.21	2.35	45.30	53.9	8.6	148	97	VBW:10 Hz
Hori.	10620.000	AV	36.80	39.64	9.23	42.67	2.35	45.35	53.9	**8.5**	150	0	VBW:10 Hz
Hori.	15930.000	AV	37.23	38.31	11.73	40.37	-9.54	37.36	53.9	16.5	137	10	VBW:10 Hz
Vert.	5350.000	PK	51.01	31.98	16.28	43.21	2.35	58.41	73.9	15.4	400	132	
Vert.	10620.000	PK	48.31	39.64	9.23	42.67	2.35	56.86	73.9	17.0	150	0	
Vert.	15930.000	PK	50.18	38.31	11.73	40.37	-9.54	50.31	73.9	23.5	183	5	
Vert.	5350.000	AV	37.92	31.98	16.28	43.21	2.35	45.32	53.9	**8.5**	400	132	VBW:10 Hz
Vert.	10620.000	AV	36.79	39.64	9.23	42.67	2.35	45.34	53.9	**8.5**	150	0	VBW:10 Hz
Vert.	15930.000	AV	36.75	38.31	11.73	40.37	-9.54	36.88	53.9	17.0	183	5	VBW:10 Hz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).
Distance factor : 1 GHz - 13 GHz : 20log (3.93 m / 3.0 m) = 2.35 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Horizontal	Vertical
Restricted-band band-edge Plot	Restricted-band band-edge Plot
	
Trace Green: Peak Plot Trace Purple: Average Plot	Trace Green: Peak Plot Trace Purple: Average Plot

* 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.	13024969S-AE-R3			
Test place	Shonan EMC Lab.			
Semi Anechoic Chamber (No.)	3	3	3	3
Date	January 16, 2020	January 11, 2020	January 14, 2020	January 16, 2020
Temperature / Humidity	23 deg. C / 45 % RH	21 deg. C / 32 % RH	22 deg. C / 32 % RH	23 deg. C / 45 % RH
Engineer	Takahiro Kawakami	Takahiro Kawakami	Takahiro Kawakami	Takahiro Kawakami
	(30 MHz – 1000 MHz)	(1 GHz – 6.4 GHz)	(6.4 GHz – 18 GHz)	(18 GHz – 40 GHz)
Mode	Tx, 11ac-40 5190 MHz with DH5 hopping			

(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.	43.472	QP	22.31	13.42	6.73	32.19	0.00	10.27	40.0	29.7	100	5	
Hori.	121.294	QP	21.98	13.04	7.31	32.14	0.00	10.19	43.5	33.3	148	28	
Hori.	304.906	QP	22.07	13.58	8.81	32.01	0.00	12.45	46.0	33.5	138	268	
Hori.	399.799	QP	22.63	15.45	9.25	31.97	0.00	15.36	46.0	30.6	100	322	
Hori.	5150.000	PK	53.48	32.26	16.13	43.04	2.35	61.18	73.9	12.7	108	53	
Hori.	15570.000	PK	49.49	38.93	11.52	40.76	-9.54	49.64	73.9	24.2	172	358	
Hori.	5150.000	AV	39.85	32.26	16.13	43.04	2.35	47.55	53.9	6.3	108	53	VBW:4.7 kHz
Hori.	15570.000	AV	38.58	38.93	11.52	40.76	-9.54	38.73	53.9	15.1	172	358	VBW:4.7 kHz
Vert.	97.345	QP	27.03	9.58	7.44	32.15	0.00	11.90	43.5	31.6	100	131	
Vert.	187.422	QP	22.46	16.13	7.87	32.08	0.00	14.38	43.5	29.1	100	5	
Vert.	278.806	QP	22.38	13.11	8.63	32.02	0.00	12.10	46.0	33.9	100	176	
Vert.	518.213	QP	22.05	17.42	9.70	31.96	0.00	17.21	46.0	28.7	100	4	
Vert.	5150.000	PK	55.39	32.26	16.13	43.04	2.35	63.09	73.9	10.8	383	130	
Vert.	15570.000	PK	48.60	38.93	11.52	40.76	-9.54	48.75	73.9	25.1	140	4	
Vert.	5150.000	AV	41.15	32.26	16.13	43.04	2.35	48.85	53.9	**5.0**	383	130	VBW:4.7 kHz
Vert.	15570.000	AV	37.97	38.93	11.52	40.76	-9.54	38.12	53.9	15.7	140	4	VBW:4.7 kHz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor : 1 GHz - 13 GHz : 20log (3.93 m / 3.0 m) = 2.35 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

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

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

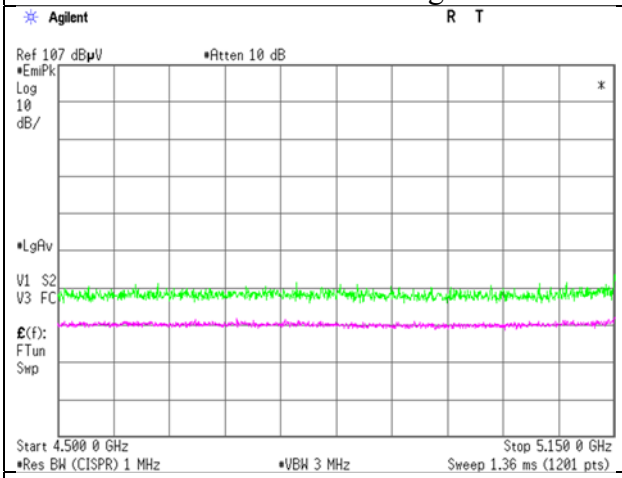
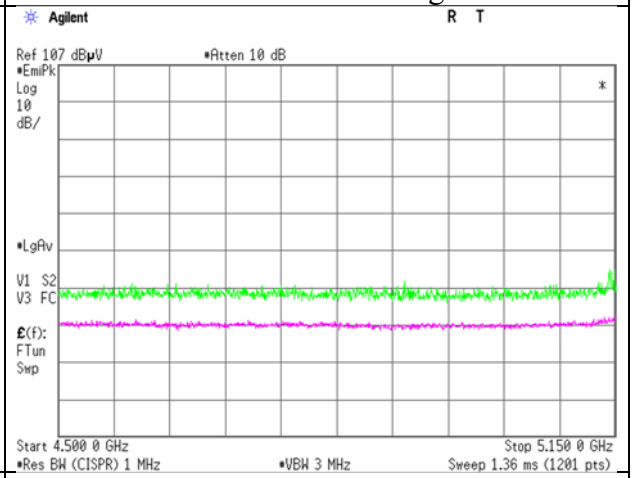
Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	10380.000	PK	47.19	39.29	9.20	42.68	2.35	55.35	-39.87	-27.0	**12.8**	150	0	
Vert.	10380.000	PK	47.16	39.29	9.20	42.68	2.35	55.32	-39.90	-27.0	12.9	150	0	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Resrult(EIRP[dBm])=10*LOG (({ 10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance:3[m]) ^ 2 } / 30) * 10^3)
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor : 1 GHz - 13 GHz : 20log (3.93 m / 3.0 m) = 2.35 dB

Radiated Spurious Emission

Report No.	13024969S-AE-R3
Test place	Shonan EMC Lab.
Semi Anechoic Chamber (No.)	3
Date	January 11, 2020
Temperature / Humidity	21 deg. C / 32 % RH
Engineer	Takahiro Kawakami
	(1 GHz – 6.4 GHz)
Mode	Tx, 11ac-40 5190 MHz with DH5 hopping

Horizontal	Vertical
Restricted-band band-edge Plot	Restricted-band band-edge Plot
	
Trace Green: Peak Plot Trace Purple: Average Plot	Trace Green: Peak Plot Trace Purple: Average Plot

* 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.	13024969S-AE-R3
Test place	Shonan EMC Lab.
Semi Anechoic Chamber (No.)	3
Date	January 11, 2020
Temperature / Humidity	21 deg. C / 32 % RH
Engineer	Takahiro Kawakami
	(1 GHz – 6.4 GHz)
Mode	Tx, 11ac-40 5310 MHz with DH5 hopping

(above 1GHz Inside of the restricted band)

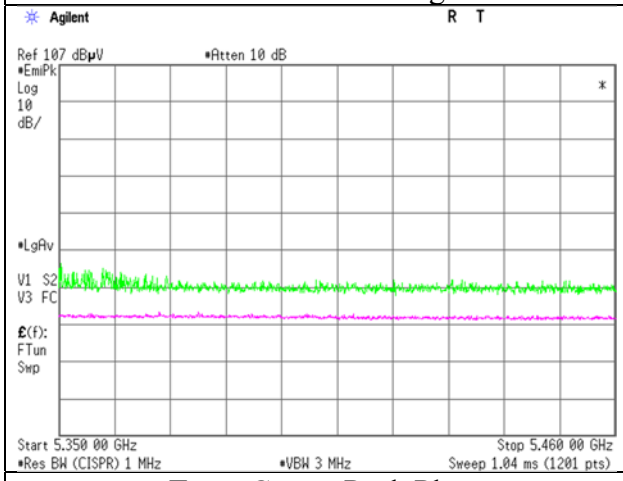
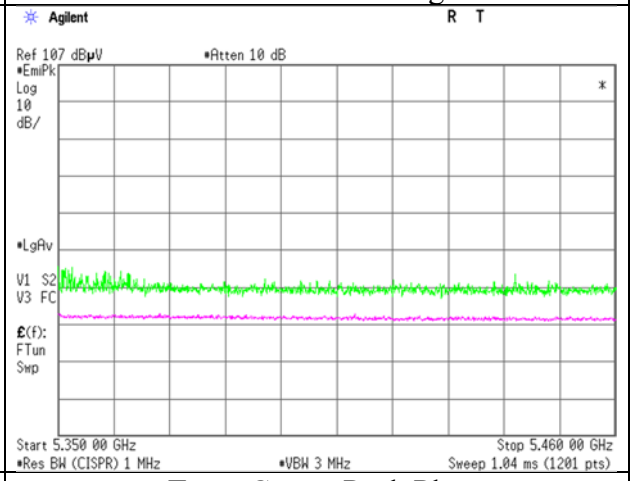
(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5350.000	PK	54.68	31.98	16.26	43.21	2.35	62.06	73.9	11.8	103	113	
Hori.	5350.000	AV	39.71	31.98	16.26	43.21	2.35	47.09	53.9	6.8	103	113	VBW:4.7 kHz
Vert.	5350.000	PK	54.97	31.98	16.26	43.21	2.35	62.35	73.9	11.5	400	131	
Vert.	5350.000	AV	39.86	31.98	16.26	43.21	2.35	47.24	53.9	**6.6**	400	131	VBW:4.7 kHz

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

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

Distance factor : 1 GHz - 13 GHz : 20log (3.93 m / 3.0 m) = 2.35 dB

Horizontal	Vertical
Restricted-band band-edge Plot	Restricted-band band-edge Plot
	
Trace Green: Peak Plot Trace Purple: Average Plot	Trace Green: Peak Plot Trace Purple: Average Plot

* 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.	13024969S-AE-R3			
Test place	Shonan EMC Lab.			
Semi Anechoic Chamber (No.)	3	3	3	3
Date	January 16, 2020	January 10, 2020	January 14, 2020	January 16, 2020
Temperature / Humidity	23 deg. C / 45 % RH	23 deg. C / 39 % RH	22 deg. C / 32 % RH	23 deg. C / 45 % RH
Engineer	Takahiro Kawakami	Hiromasa Sato	Takahiro Kawakami	Takahiro Kawakami
	(30 MHz – 1000 MHz)	(1 GHz – 6.4 GHz)	(6.4 GHz – 18 GHz)	(18 GHz – 40 GHz)
Mode	Tx, 11ac-40 5190 MHz with BT LE 2 M-PHY 2402 MHz			

(below 1GHz and above 1GHz Inside of the restricted band)

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	126.542	QP	22.41	13.48	7.38	32.13	0.00	11.14	43.5	32.3	150	2	
Hori.	173.251	QP	21.85	15.62	7.90	32.10	0.00	13.27	43.5	30.2	150	67	
Hori.	331.498	QP	22.00	14.21	8.96	31.97	0.00	13.20	46.0	32.8	100	277	
Hori.	684.795	QP	22.30	19.25	10.31	31.89	0.00	19.97	46.0	26.0	100	359	
Hori.	4804.000	PK	53.42	31.62	15.92	42.88	2.35	60.43	73.9	13.4	100	122	
Hori.	5150.000	PK	53.15	32.26	16.13	43.04	2.35	60.85	73.9	13.0	122	100	
Hori.	15570.000	PK	48.86	38.93	11.52	40.76	-9.54	49.01	73.9	24.8	169	341	
Hori.	4804.000	AV	43.71	31.62	15.92	42.88	2.35	50.72	53.9	**3.1**	100	122	VBW:4.7 kHz *1)
Hori.	5150.000	AV	39.60	32.26	16.13	43.04	2.35	47.30	53.9	6.6	122	100	VBW:4.7 kHz
Hori.	15570.000	AV	38.87	38.93	11.52	40.76	-9.54	39.02	53.9	14.8	169	341	VBW:4.7 kHz
Vert.	98.362	QP	27.12	9.77	7.42	32.15	0.00	12.16	43.5	31.3	100	133	
Vert.	154.333	QP	22.39	14.83	7.88	32.12	0.00	12.98	43.5	30.5	100	73	
Vert.	525.993	QP	22.02	17.44	9.73	31.97	0.00	17.22	46.0	28.7	100	169	
Vert.	659.203	QP	22.20	19.12	10.21	31.94	0.00	19.59	46.0	26.4	100	2	
Vert.	4804.000	PK	51.97	31.62	15.92	42.88	2.35	58.98	73.9	14.9	400	163	
Vert.	5150.000	PK	48.26	32.26	16.13	43.04	2.35	55.96	73.9	17.9	400	163	
Vert.	15570.000	PK	48.69	38.93	11.52	40.76	-9.54	48.84	73.9	25.0	140	43	
Vert.	4804.000	AV	40.47	31.62	15.92	42.88	2.35	47.48	53.9	6.4	400	163	VBW:4.7 kHz *1)
Vert.	5150.000	AV	38.37	32.26	16.13	43.04	2.35	46.07	53.9	7.8	400	163	VBW:4.7 kHz
Vert.	15570.000	AV	37.73	38.93	11.52	40.76	-9.54	37.88	53.9	16.0	140	43	VBW:4.7 kHz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor : 1 GHz - 13 GHz : 20log (3.93 m / 3.0 m) = 2.35 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB
*1) This noise is a harmonic of BTLE.BT LE burst length is applied to VBW.
BT LE burst length is applied to VBW.

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

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

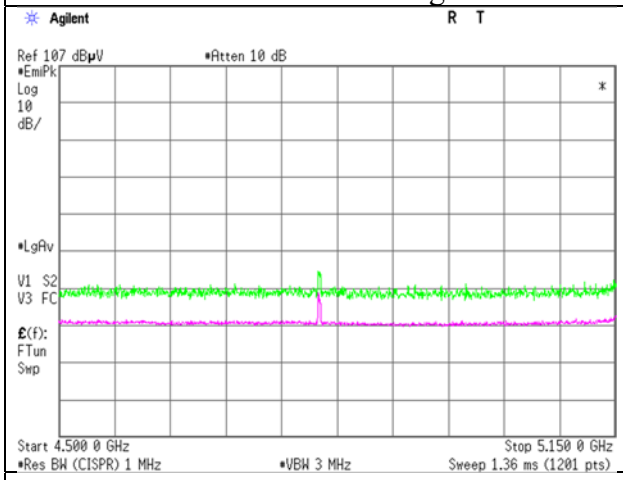
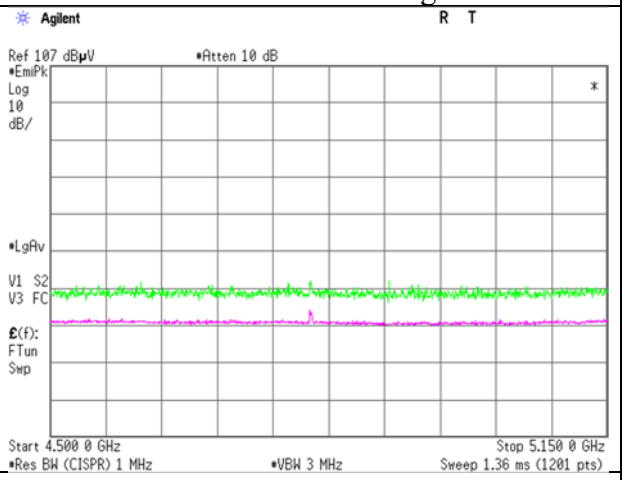
Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	10380.000	PK	47.24	39.29	9.20	42.68	2.35	55.40	-39.82	-27.0	**12.8**	150	0	
Vert.	10380.000	PK	46.99	39.29	9.20	42.68	2.35	55.15	-40.07	-27.0	13.0	150	0	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Resrult(EIRP[dBm])=10*LOG ({ 10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance:3[m]) ^ 2 } / 30) * 10^3)
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor : 1 GHz - 13 GHz : 20log (3.93 m / 3.0 m) = 2.35 dB

Radiated Spurious Emission

Report No.	13024969S-AE-R3
Test place	Shonan EMC Lab.
Semi Anechoic Chamber (No.)	3
Date	January 10, 2020
Temperature / Humidity	23 deg. C / 39 % RH
Engineer	Hiromasa Sato (1 GHz – 6.4 GHz)
Mode	Tx, 11ac-40 5190 MHz with BT LE 2 M-PHY 2402 MHz

Horizontal	Vertical
Restricted-band band-edge Plot	Restricted-band band-edge Plot
	
Trace Green: Peak Plot Trace Purple: Average Plot	Trace Green: Peak Plot Trace Purple: Average Plot

* 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.	13024969S-AE-R3
Test place	Shonan EMC Lab.
Semi Anechoic Chamber (No.)	3
Date	January 11, 2020
Temperature / Humidity	21 deg. C / 32 % RH
Engineer	Takahiro Kawakami
	(1 GHz – 6.4 GHz)
Mode	Tx, 11ac-40 5310 MHz with BT LE 2 M-PHY 2402 MHz

(above 1GHz Inside of the restricted band)

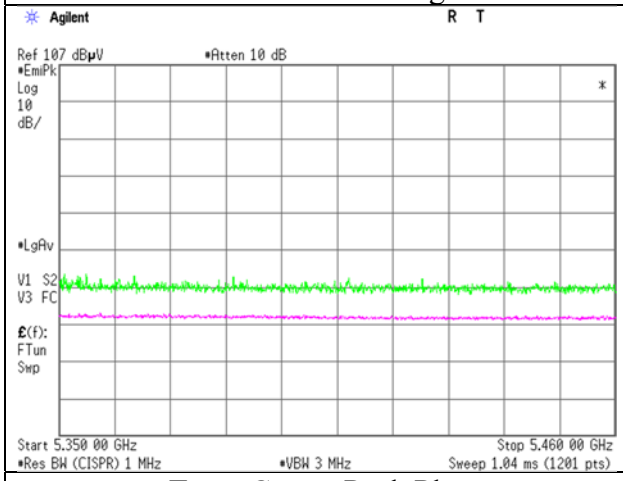
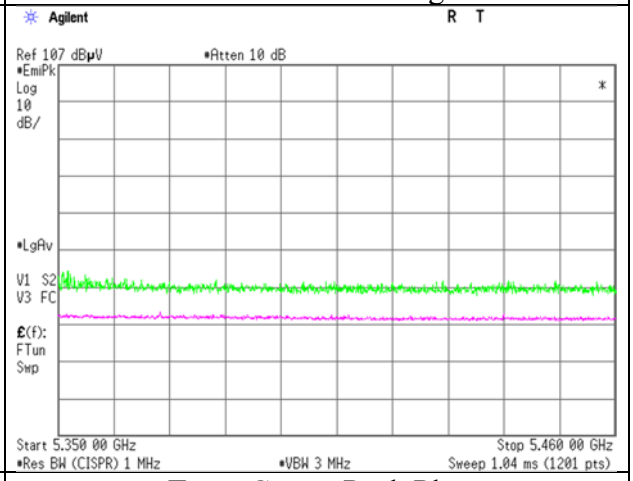
(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5350.000	PK	54.23	31.98	16.26	43.21	2.35	61.61	73.9	12.2	104	114	
Hori.	5350.000	AV	39.74	31.98	16.26	43.21	2.35	47.12	53.9	6.7	104	114	VBW:4.7 kHz
Vert.	5350.000	PK	53.63	31.98	16.26	43.21	2.35	61.01	73.9	12.8	400	134	
Vert.	5350.000	AV	39.94	31.98	16.26	43.21	2.35	47.32	53.9	**6.5**	400	134	VBW:4.7 kHz

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

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

Distance factor : 1 GHz - 13 GHz : 20log (3.93 m / 3.0 m) = 2.35 dB

Horizontal	Vertical
Restricted-band band-edge Plot	Restricted-band band-edge Plot
	
Trace Green: Peak Plot Trace Purple: Average Plot	Trace Green: Peak Plot Trace Purple: Average Plot

* 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.	13024969S-AE-R3			
Test place	Shonan EMC Lab.			
Semi Anechoic Chamber (No.)	3	3	3	3
Date	December 1, 2019	December 8, 2019	December 7, 2019	December 3, 2019
Temperature / Humidity	20 deg. C / 30 % RH	23 deg. C / 32 % RH	21 deg. C / 27 % RH	22 deg. C / 43 % RH
Engineer	Yasumasa Owaki (1 GHz – 6.4 GHz)	Takahiro Kawakami (6.4 GHz – 13 GHz)	Kazuya Noda (13 GHz – 18 GHz)	Takahiro Kawakami (18 GHz – 40 GHz)
Mode	Tx, 11ac-80 5210 MHz			

(above 1GHz Inside of the restricted band)

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5150.000	PK	51.57	32.26	16.17	43.04	2.35	59.31	73.9	14.5	146	103	
Hori.	15630.000	PK	49.96	38.73	11.56	40.69	-9.54	50.02	73.9	23.8	136	11	
Hori.	5150.000	AV	38.69	32.26	16.17	43.04	2.35	46.43	53.9	**7.4**	146	103	VBW:10 Hz
Hori.	15630.000	AV	36.83	38.73	11.56	40.69	-9.54	36.89	53.9	17.0	136	11	VBW:10 Hz
Vert.	5150.000	PK	51.06	32.26	16.17	43.04	2.35	58.80	73.9	15.1	400	133	
Vert.	15630.000	PK	48.64	38.73	11.56	40.69	-9.54	48.70	73.9	25.2	183	5	
Vert.	5150.000	AV	37.99	32.26	16.17	43.04	2.35	45.73	53.9	8.1	400	133	VBW:10 Hz
Vert.	15630.000	AV	36.53	38.73	11.56	40.69	-9.54	36.59	53.9	17.3	183	5	VBW:10 Hz

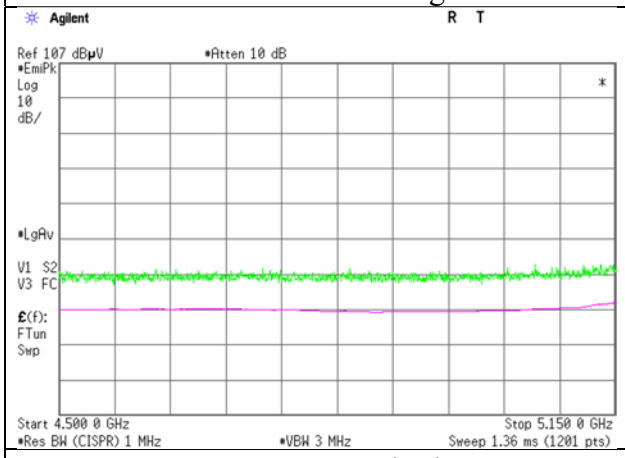
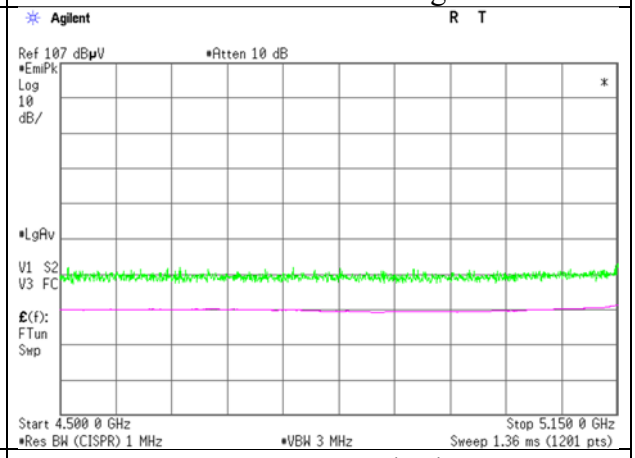
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).
Distance factor : 1 GHz - 13 GHz : 20log (3.93 m / 3.0 m) = 2.35 dB
13 GHz - 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	49.43	39.45	9.19	42.68	2.35	57.74	-37.48	-27.0	**10.4**	150	0	
Vert.	10420.000	PK	48.95	39.45	9.19	42.68	2.35	57.26	-37.96	-27.0	10.9	150	0	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Resrult(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 (3.93 m / 3.0 m) = 2.35 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Horizontal	Vertical
Restricted-band band-edge Plot	Restricted-band band-edge Plot
	
Trace Green: Peak Plot Trace Purple: Average Plot	Trace Green: Peak Plot Trace Purple: Average Plot

* 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.	13024969S-AE-R3			
Test place	Shonan EMC Lab.			
Semi Anechoic Chamber (No.)	3	3	3	3
Date	December 1, 2019	December 8, 2019	December 7, 2019	December 3, 2019
Temperature / Humidity	20 deg. C / 30 % RH	23 deg. C / 32 % RH	21 deg. C / 27 % RH	22 deg. C / 43 % RH
Engineer	Yasumasa Owaki (1 GHz – 6.4 GHz)	Takahiro Kawakami (6.4 GHz – 13 GHz)	Kazuya Noda (13 GHz – 18 GHz)	Takahiro Kawakami (18 GHz – 40 GHz)
Mode	Tx, 11ac-80 5290 MHz			

(above 1GHz Inside of the restricted band)

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5350.000	PK	52.14	31.98	16.28	43.21	2.35	59.54	73.9	14.3	153	101	
Hori.	15870.000	PK	48.38	38.31	11.71	40.44	-9.54	48.42	73.9	25.4	138	8	
Hori.	5350.000	AV	39.33	31.98	16.28	43.21	2.35	46.73	53.9	**7.1**	153	101	VBW:10 Hz
Hori.	15870.000	AV	35.68	38.31	11.71	40.44	-9.54	35.72	53.9	18.1	138	8	VBW:10 Hz
Vert.	5350.000	PK	51.66	31.98	16.28	43.21	2.35	59.06	73.9	14.8	400	133	
Vert.	15870.000	PK	48.00	38.31	11.71	40.44	-9.54	48.04	73.9	25.8	188	9	
Vert.	5350.000	AV	38.96	31.98	16.28	43.21	2.35	46.36	53.9	7.5	400	133	VBW:10 Hz
Vert.	15870.000	AV	35.38	38.31	11.71	40.44	-9.54	35.42	53.9	18.4	188	9	VBW:10 Hz

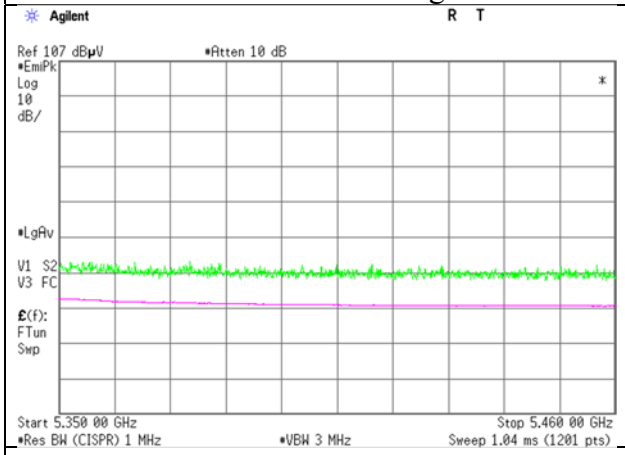
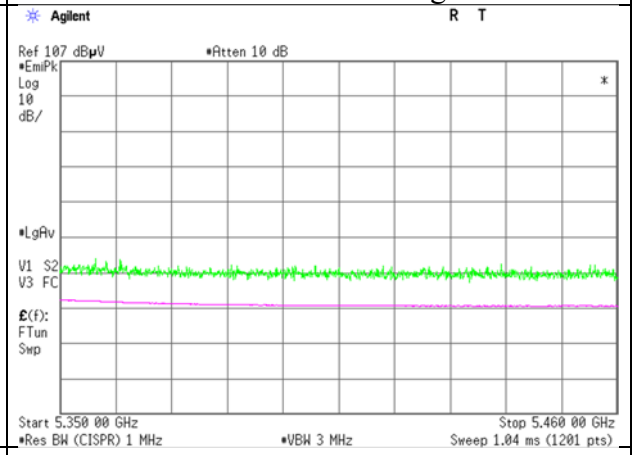
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).
Distance factor : 1 GHz - 13 GHz : 20log (3.93 m / 3.0 m) = 2.35 dB
13 GHz - 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	48.95	39.65	9.22	42.67	2.35	57.50	-37.72	-27.0	10.7	150	0	
Vert.	10580.000	PK	49.26	39.65	9.22	42.67	2.35	57.81	-37.41	-27.0	10.4	150	0	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Resrult(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 (3.93 m / 3.0 m) = 2.35 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Horizontal	Vertical
Restricted-band band-edge Plot	Restricted-band band-edge Plot
	
Trace Green: Peak Plot Trace Purple: Average Plot	Trace Green: Peak Plot Trace Purple: Average Plot

* 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.	13024969S-AE-R3
Test place	Shonan EMC Lab.
Semi Anechoic Chamber (No.)	3
Date	January 14, 2020
Temperature / Humidity	22 deg. C / 32 % RH
Engineer	Takahiro Kawakami
	(1 GHz – 6.4 GHz)
Mode	Tx, 11ac-80 5210 MHz with DH5 hopping

(above 1GHz Inside of the restricted band)

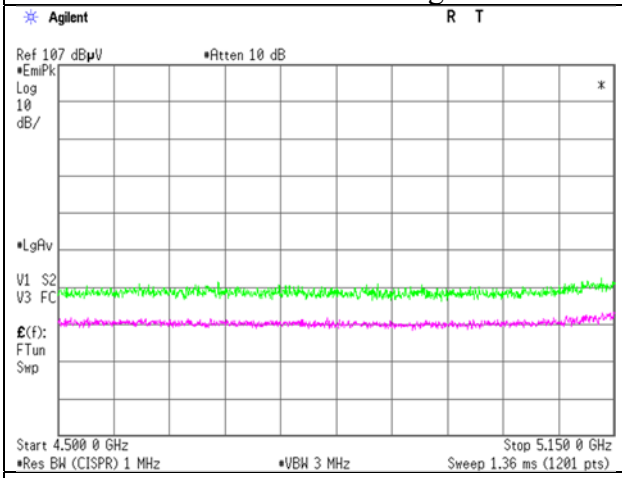
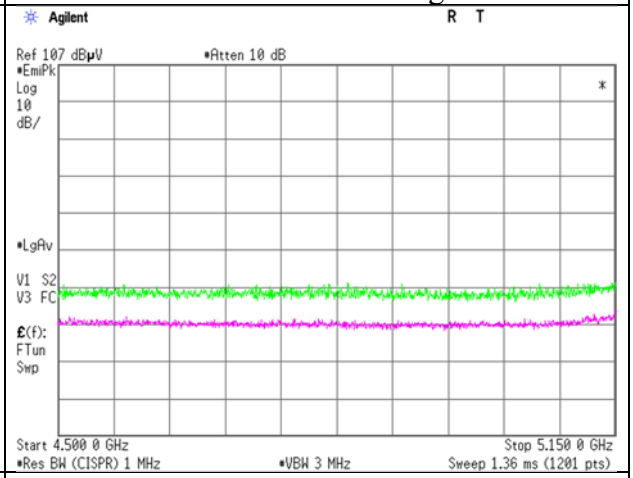
(* PK: Peak, AV: Average, QP: Quasi-Peak)

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	51.30	32.26	16.13	43.04	2.35	59.00	73.9	14.9	158	58	
Hori.	5150.000	AV	43.27	32.26	16.13	43.04	2.35	50.97	53.9	**2.9**	158	58	VBW:8.2 kHz
Vert.	5150.000	PK	51.15	32.26	16.13	43.04	2.35	58.85	73.9	15.0	400	142	
Vert.	5150.000	AV	42.45	32.26	16.13	43.04	2.35	50.15	53.9	3.7	400	142	VBW:8.2 kHz

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

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

Distance factor : 1 GHz - 13 GHz : 20log (3.93 m / 3.0 m) = 2.35 dB

Horizontal	Vertical
Restricted-band band-edge Plot	Restricted-band band-edge Plot
	
Trace Green: Peak Plot Trace Purple: Average Plot	Trace Green: Peak Plot Trace Purple: Average Plot

* 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.	13024969S-AE-R3
Test place	Shonan EMC Lab.
Semi Anechoic Chamber (No.)	3
Date	January 14, 2020
Temperature / Humidity	22 deg. C / 32 % RH
Engineer	Takahiro Kawakami
	(1 GHz – 6.4 GHz)
Mode	Tx, 11ac-80 5290 MHz with DH5 hopping

(above 1GHz Inside of the restricted band)

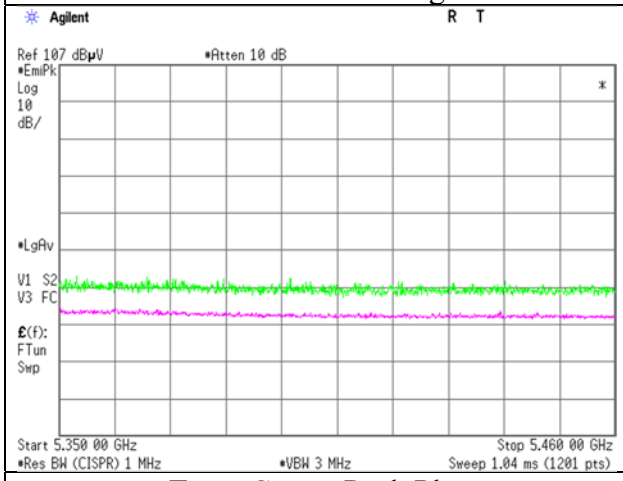
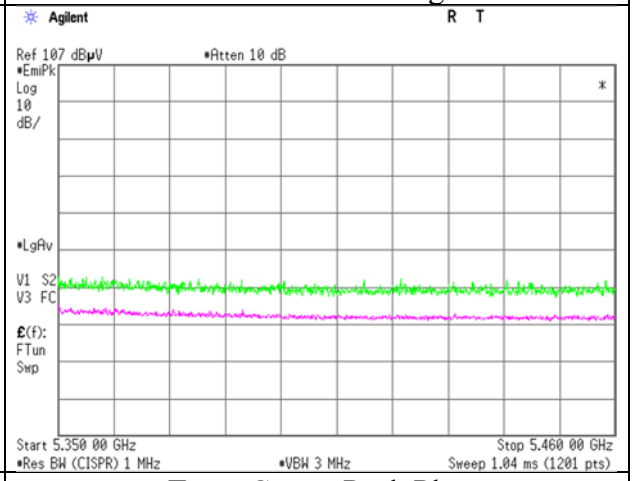
(* PK: Peak, AV: Average, QP: Quasi-Peak)

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	51.05	31.98	16.26	43.21	2.35	58.43	73.9	15.4	105	60	
Hori.	5350.000	AV	42.69	31.98	16.26	43.21	2.35	50.07	53.9	**3.8**	105	60	VBW:8.2 kHz
Vert.	5350.000	PK	51.82	31.98	16.26	43.21	2.35	59.20	73.9	14.7	400	134	
Vert.	5350.000	AV	42.48	31.98	16.26	43.21	2.35	49.86	53.9	4.0	400	134	VBW:8.2 kHz

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

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

Distance factor : 1 GHz - 13 GHz : 20log (3.93 m / 3.0 m) = 2.35 dB

Horizontal	Vertical
Restricted-band band-edge Plot	Restricted-band band-edge Plot
	
Trace Green: Peak Plot Trace Purple: Average Plot	Trace Green: Peak Plot Trace Purple: Average Plot

* 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.	13024969S-AE-R3
Test place	Shonan EMC Lab.
Semi Anechoic Chamber (No.)	3
Date	January 14, 2020
Temperature / Humidity	22 deg. C / 32 % RH
Engineer	Takahiro Kawakami
	(1 GHz – 6.4 GHz)
Mode	Tx, 11ac-80 5210 MHz with BT LE 2 M-PHY 2402 MHz

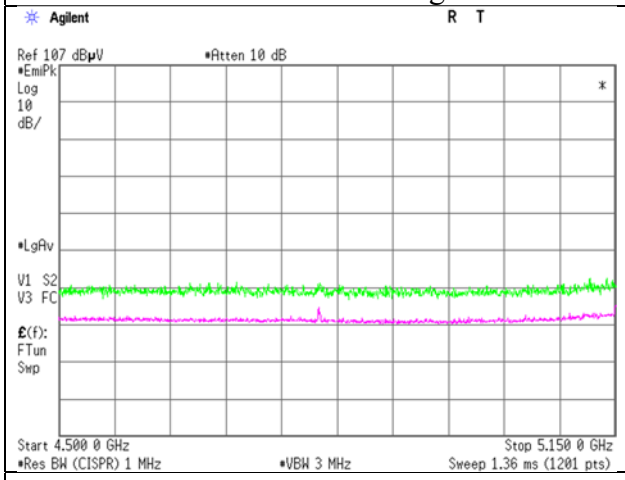
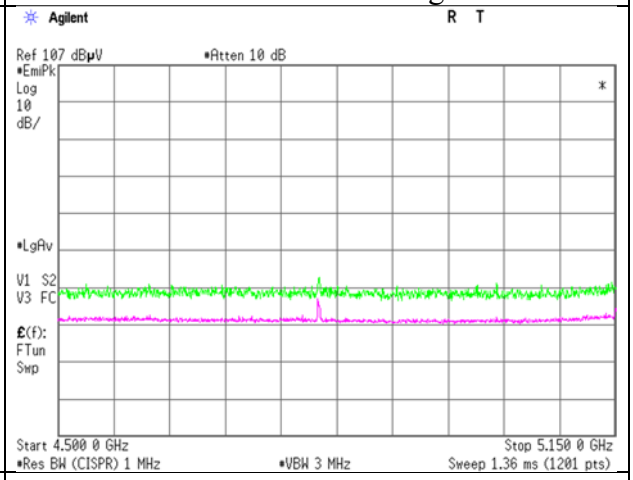
(above 1GHz Inside of the restricted band)

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	4804.000	PK	50.46	31.62	15.92	42.88	2.35	57.47	73.9	16.4	140	56	
Hori.	5150.000	PK	51.38	32.26	16.13	43.04	2.35	59.08	73.9	14.8	140	56	
Hori.	4804.000	AV	40.54	31.62	15.92	42.88	2.35	47.55	53.9	6.3	140	56	VBW:4.7 kHz *1)
Hori.	5150.000	AV	43.53	32.26	16.13	43.04	2.35	51.23	53.9	**2.6**	140	56	VBW:8.2 kHz
Vert.	4804.000	PK	51.70	31.62	15.92	42.88	2.35	58.71	73.9	15.1	400	139	
Vert.	5150.000	PK	50.28	32.26	16.13	43.04	2.35	57.98	73.9	15.9	400	139	
Vert.	4804.000	AV	41.61	31.62	15.92	42.88	2.35	48.62	53.9	5.2	400	139	VBW:4.7 kHz *1)
Vert.	5150.000	AV	41.92	32.26	16.13	43.04	2.35	49.62	53.9	4.2	400	139	VBW:8.2 kHz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor : 1 GHz - 13 GHz : 20log (3.93 m / 3.0 m) = 2.35 dB
*1) This noise is a harmonic of BTLE.BT LE burst length is applied to VBW.
BT LE burst length is applied to VBW.

Horizontal	Vertical
Restricted-band band-edge Plot	Restricted-band band-edge Plot
	
Trace Green: Peak Plot Trace Purple: Average Plot	Trace Green: Peak Plot Trace Purple: Average Plot

* 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.	13024969S-AE-R3
Test place	Shonan EMC Lab.
Semi Anechoic Chamber (No.)	3
Date	January 14, 2020
Temperature / Humidity	22 deg. C / 32 % RH
Engineer	Takahiro Kawakami
	(1 GHz – 6.4 GHz)
Mode	Tx, 11ac-80 5290 MHz with BT LE 2 M-PHY 2402 MHz

(above 1GHz Inside of the restricted band)

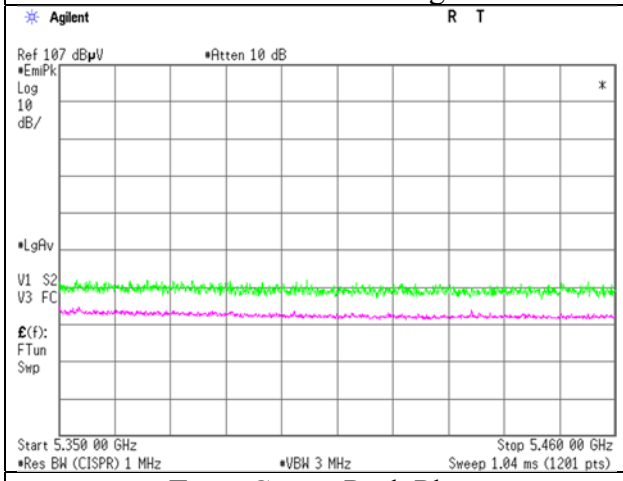
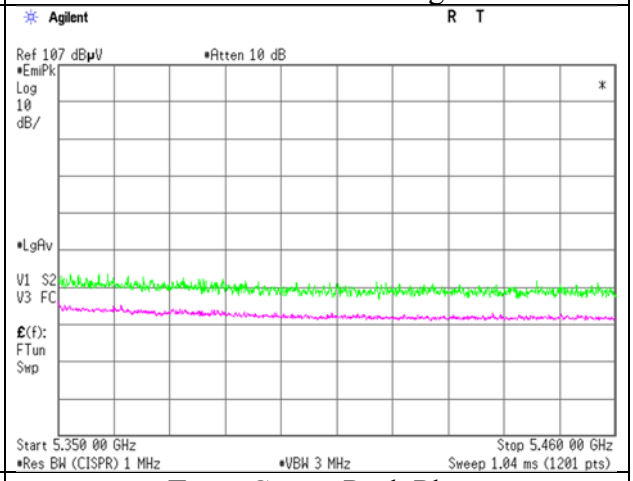
(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5350.000	PK	51.61	31.98	16.26	43.21	2.35	58.99	73.9	14.9	106	59	
Hori.	5350.000	AV	42.87	31.98	16.26	43.21	2.35	50.25	53.9	3.6	106	59	VBW:8.2 kHz
Vert.	5350.000	PK	52.34	31.98	16.26	43.21	2.35	59.72	73.9	14.1	400	129	
Vert.	5350.000	AV	44.24	31.98	16.26	43.21	2.35	51.62	53.9	**2.2**	400	129	VBW:8.2 kHz

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

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

Distance factor : 1 GHz - 13 GHz : 20log (3.93 m / 3.0 m) = 2.35 dB

Horizontal	Vertical
Restricted-band band-edge Plot	Restricted-band band-edge Plot
	
Trace Green: Peak Plot Trace Purple: Average Plot	Trace Green: Peak Plot Trace Purple: Average Plot

* 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.	13024969S-AE-R3				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber (No.)	3	3	3	3	3
Date	November 29, 2019	December 8, 2019	December 5, 2019	December 3, 2019	November 28, 2019
Temperature / Humidity	21 deg. C / 31 % RH	23 deg. C / 32 % RH	22 deg. C / 38 % RH	22 deg. C / 43 % RH	22 deg. C / 48 % RH
Engineer	Yasumasa Owaki (1 GHz – 6.4 GHz)	Takahiro Kawakami (6.4 GHz – 13 GHz)	Takahiro Kawakami (13 GHz – 18 GHz)	Takahiro Kawakami (18 GHz – 26.5 GHz)	Takahiro Kawakami (26.5 GHz – 40 GHz)
Mode	Tx, 11a 5500 MHz				

(above 1GHz Inside of the restricted band)

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5460.000	PK	49.75	32.32	16.35	43.30	2.35	57.47	73.9	16.4	167	110	
Hori.	11000.000	PK	49.86	40.38	9.40	42.70	2.35	59.29	73.9	14.6	150	0	
Hori.	5460.000	AV	37.37	32.32	16.35	43.30	2.35	45.09	53.9	8.8	167	110	VBW:10 Hz
Hori.	11000.000	AV	36.39	40.38	9.40	42.70	2.35	45.82	53.9	**8.0**	150	0	VBW:10 Hz
Vert.	5460.000	PK	50.64	32.32	16.35	43.30	2.35	58.36	73.9	15.5	400	140	
Vert.	11000.000	PK	49.20	40.38	9.40	42.70	2.35	58.63	73.9	15.2	150	0	
Vert.	5460.000	AV	37.25	32.32	16.35	43.30	2.35	44.97	53.9	8.9	400	140	VBW:10 Hz
Vert.	11000.000	AV	36.25	40.38	9.40	42.70	2.35	45.68	53.9	8.2	150	0	VBW:10 Hz

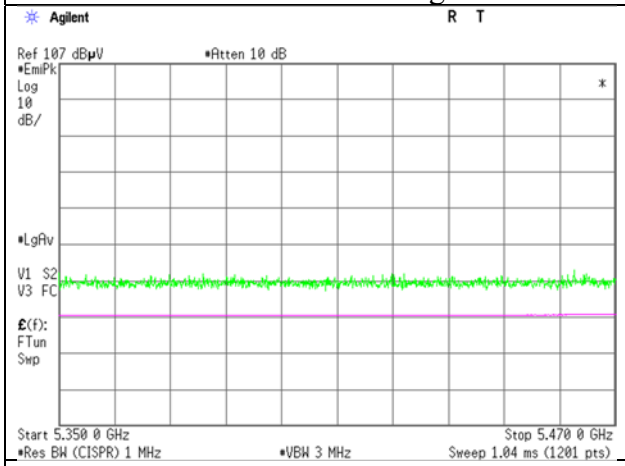
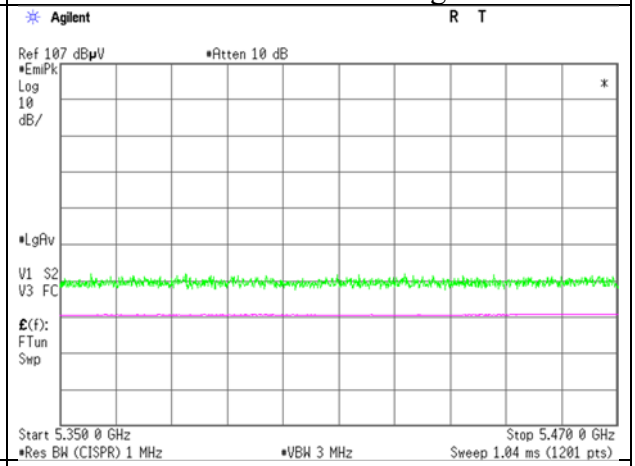
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).
Distance factor : 1 GHz - 13 GHz : 20log (3.93 m / 3.0 m) = 2.35 dB
13 GHz - 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	50.48	32.34	16.36	43.31	2.35	58.22	-37.00	-27.0	10.0	167	110	
Hori.	16500.000	PK	48.45	39.78	12.22	40.44	-9.54	50.47	-44.75	-27.0	17.7	133	14	
Vert.	5470.000	PK	50.66	32.34	16.36	43.31	2.35	58.40	-36.82	-27.0	**9.8**	400	140	
Vert.	16500.000	PK	48.31	39.78	12.22	40.44	-9.54	50.33	-44.89	-27.0	17.8	133	16	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Resrult(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 (3.93 m / 3.0 m) = 2.35 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Horizontal	Vertical
Restricted-band band-edge Plot	Restricted-band band-edge Plot
	
Trace Green: Peak Plot Trace Purple: Average Plot	Trace Green: Peak Plot Trace Purple: Average Plot

* 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.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN
Telephone : +81 596 24 8999
Facsimile : +81 596 24 8124

Radiated Spurious Emission

Report No.	13024969S-AE-R3				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber (No.)	3	3	3	3	3
Date	November 29, 2019	December 8, 2019	December 5, 2019	December 3, 2019	November 28, 2019
Temperature / Humidity	21 deg. C / 31 % RH	23 deg. C / 32 % RH	22 deg. C / 38 % RH	22 deg. C / 43 % RH	22 deg. C / 48 % RH
Engineer	Yasumasa Owaki (1 GHz – 6.4 GHz)	Takahiro Kawakami (6.4 GHz – 13 GHz)	Takahiro Kawakami (13 GHz – 18 GHz)	Takahiro Kawakami (18 GHz – 26.5 GHz)	Takahiro Kawakami (26.5 GHz – 40 GHz)
Mode	Tx, 11a 5580 MHz				

(above 1GHz Inside of the restricted band)

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	11160.000	PK	49.53	39.92	9.51	42.67	2.35	58.64	73.9	15.2	150	0	
Hori.	11160.000	AV	37.05	39.92	9.51	42.67	2.35	46.16	53.9	**7.7**	150	0	VBW:10 Hz
Vert.	11160.000	PK	49.36	39.92	9.51	42.67	2.35	58.47	73.9	15.4	150	0	
Vert.	11160.000	AV	37.04	39.92	9.51	42.67	2.35	46.15	53.9	**7.7**	150	0	VBW:10 Hz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).
Distance factor : 1 GHz - 13 GHz : 20log (3.93 m / 3.0 m) = 2.35 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	49.21	40.03	12.15	40.40	-9.54	51.45	-43.77	-27.0	**16.7**	136	16	
Vert.	16740.000	PK	48.96	40.03	12.15	40.40	-9.54	51.20	-44.02	-27.0	17.0	130	10	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Resrult(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 (3.93 m / 3.0 m) = 2.35 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Radiated Spurious Emission

Report No.	13024969S-AE-R3				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber (No.)	3	3	3	3	3
Date	November 29, 2019	December 8, 2019	December 5, 2019	December 3, 2019	November 28, 2019
Temperature / Humidity	21 deg. C / 31 % RH	23 deg. C / 32 % RH	22 deg. C / 38 % RH	22 deg. C / 43 % RH	22 deg. C / 48 % RH
Engineer	Yasumasa Owaki (1 GHz – 6.4 GHz)	Takahiro Kawakami (6.4 G – 13 GHz)	Takahiro Kawakami (13 GHz – 18 GHz)	Takahiro Kawakami (18 GHz – 26.5 GHz)	Takahiro Kawakami (26.5 GHz – 40 GHz)
Mode	Tx, 11a 5700 MHz				

(above 1GHz Inside of the restricted band)

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	11400.000	PK	48.41	39.95	9.67	42.62	2.35	57.76	73.9	16.1	150	0	
Hori.	11400.000	AV	36.25	39.95	9.67	42.62	2.35	45.60	53.9	8.3	150	0	VBW:10 Hz
Vert.	11400.000	PK	48.89	39.95	9.67	42.62	2.35	58.24	73.9	15.6	150	0	
Vert.	11400.000	AV	36.26	39.95	9.67	42.62	2.35	45.61	53.9	**8.2**	150	0	VBW:10 Hz

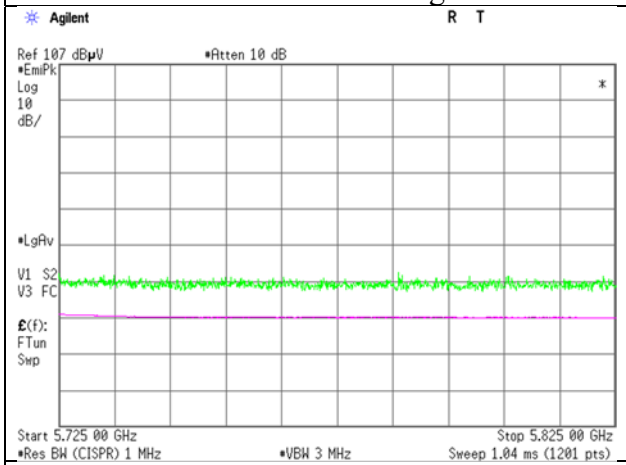
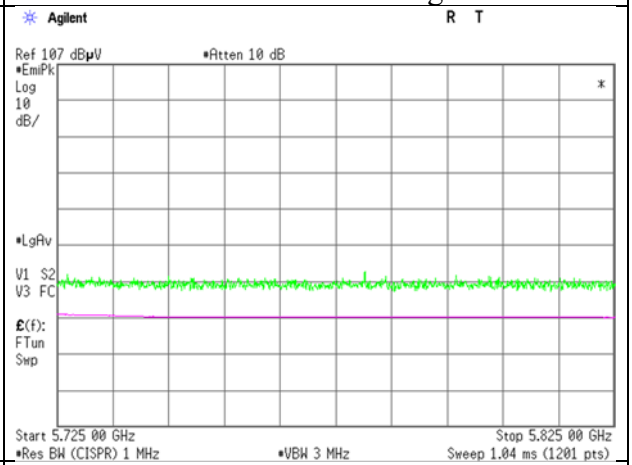
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).
Distance factor : 1 GHz - 13 GHz : 20log (3.93 m / 3.0 m) = 2.35 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

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

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5725.000	PK	50.22	32.68	16.57	43.33	2.35	58.49	-36.73	-27.0	**9.7**	103	72	
Hori.	17100.000	PK	49.39	40.84	12.12	40.32	-9.54	52.49	-42.73	-27.0	15.7	136	15	
Vert.	5725.000	PK	49.86	32.68	16.57	43.33	2.35	58.13	-37.09	-27.0	10.1	389	141	
Vert.	17100.000	PK	36.45	40.84	12.12	40.32	-9.54	39.55	-55.67	-27.0	28.6	132	11	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Resrult(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 (3.93 m / 3.0 m) = 2.35 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Horizontal	Vertical
Restricted-band band-edge Plot	Restricted-band band-edge Plot
	
Trace Green: Peak Plot Trace Purple: Average Plot	Trace Green: Peak Plot Trace Purple: Average Plot

* 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.	13024969S-AE-R3
Test place	Shonan EMC Lab.
Semi Anechoic Chamber (No.)	3
Date	January 9, 2020
Temperature / Humidity	24 deg. C / 40 % RH
Engineer	Hiromasa Sato
	(1 GHz – 6.4 GHz)
Mode	Tx, 11a 5500 MHz with DH5 hopping

(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	52.26	32.32	16.35	43.30	2.35	59.98	73.9	13.9	101	121	
Hori.	5460.000	AV	38.71	32.32	16.35	43.30	2.35	46.43	53.9	**7.4**	101	121	VBW:3 kHz
Vert.	5460.000	PK	49.86	32.32	16.35	43.30	2.35	57.58	73.9	16.3	382	195	
Vert.	5460.000	AV	38.34	32.32	16.35	43.30	2.35	46.06	53.9	7.8	382	195	VBW:3 kHz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor : 1 GHz - 13 GHz : 20log (3.93 m / 3.0 m) = 2.35 dB

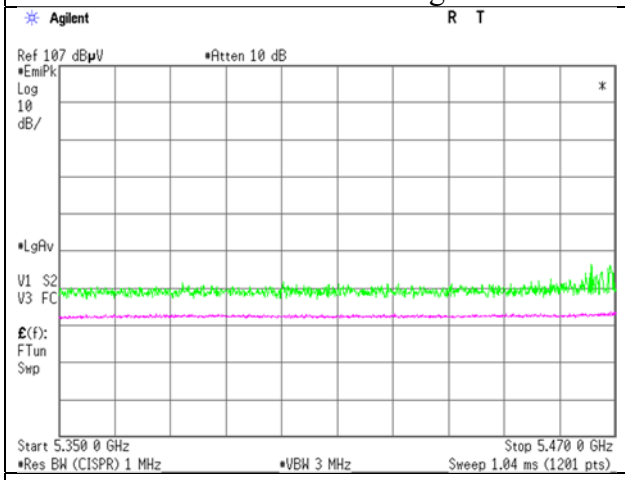
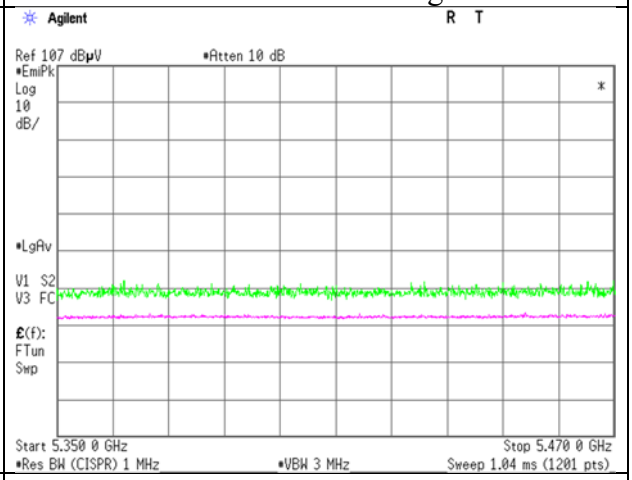
(Calculation) (above 1GHz Outside of the restricted band)

(* 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	54.49	32.34	16.36	43.31	2.35	62.23	-32.99	-27.0	**5.9**	101	121	
Vert.	5470.000	PK	51.26	32.34	16.36	43.31	2.35	59.00	-36.22	-27.0	9.2	382	195	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Resrult(EIRP[dBm])=10*LOG（{ 10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance:3[m]) ^ 2 } / 30) *10^3)
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor : 1 GHz - 13 GHz : 20log (3.93 m / 3.0 m) = 2.35 dB

Horizontal	Vertical
Restricted-band band-edge Plot	Restricted-band band-edge Plot
	
Trace Green: Peak Plot Trace Purple: Average Plot	Trace Green: Peak Plot Trace Purple: Average Plot

* 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.	13024969S-AE-R3
Test place	Shonan EMC Lab.
Semi Anechoic Chamber (No.)	3
Date	January 9, 2020
Temperature / Humidity	24 deg. C / 40 % RH
Engineer	Hiromasa Sato
	(1 GHz – 6.4 GHz)
Mode	Tx, 11a 5700 MHz with DH5 hopping

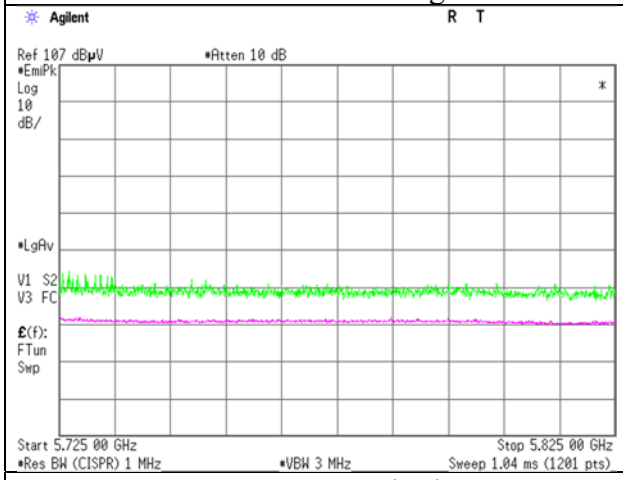
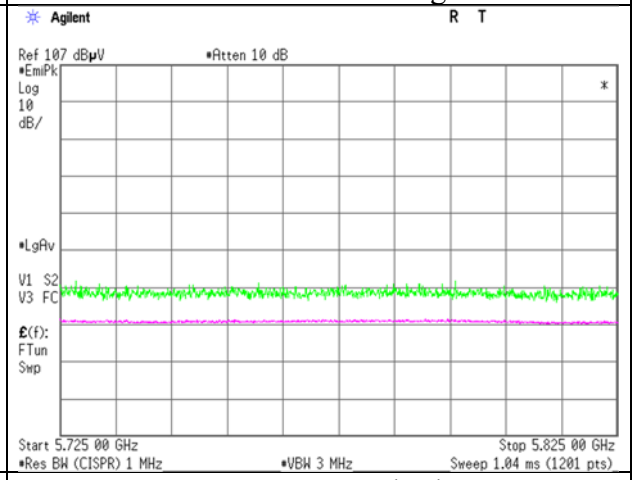
(Calculation) (above 1GHz Outside of the restricted band)

(* 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	53.14	32.68	16.57	43.33	2.35	61.41	-33.81	-27.0	**6.8**	101	123	
Vert.	5725.000	PK	50.16	32.68	16.57	43.33	2.35	58.43	-36.79	-27.0	9.7	398	204	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Resrult(EIRP[dBm])=10*LOG（({ 10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance:3[m]) ^ 2 } / 30) *10^3)
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor : 1 GHz - 13 GHz : 20log (3.93 m / 3.0 m) = 2.35 dB

Horizontal	Vertical
Restricted-band band-edge Plot	Restricted-band band-edge Plot
	
Trace Green: Peak Plot Trace Purple: Average Plot	Trace Green: Peak Plot Trace Purple: Average Plot

* 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.	13024969S-AE-R3
Test place	Shonan EMC Lab.
Semi Anechoic Chamber (No.)	3
Date	January 10, 2020
Temperature / Humidity	21 deg. C / 28 % RH
Engineer	Takahiro Kawakami
	(1 GHz – 6.4 GHz)
Mode	Tx, 11a 5500 MHz with BT LE 2 M-PHY 2402 MHz

(above 1GHz Inside of the restricted band)

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5460.000	PK	53.19	32.32	16.33	43.30	2.35	60.89	73.9	13.0	127	118	
Hori.	5460.000	AV	38.68	32.32	16.33	43.30	2.35	46.38	53.9	**7.5**	127	118	VBW:3 kHz
Vert.	5460.000	PK	50.72	32.32	16.33	43.30	2.35	58.42	73.9	15.4	310	134	
Vert.	5460.000	AV	38.16	32.32	16.33	43.30	2.35	45.86	53.9	8.0	310	134	VBW:3 kHz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor : 1 GHz - 13 GHz : 20log (3.93 m / 3.0 m) = 2.35 dB

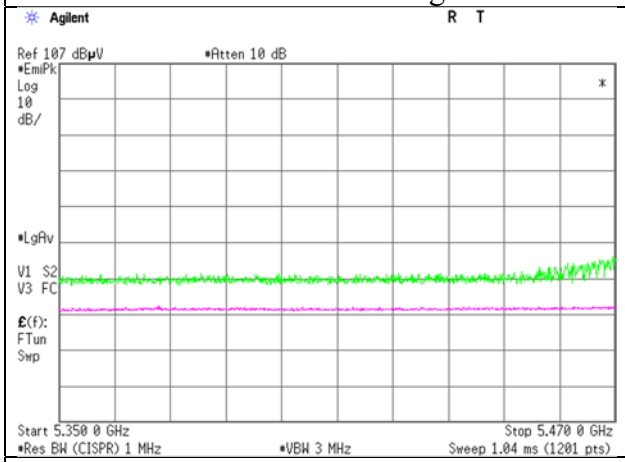
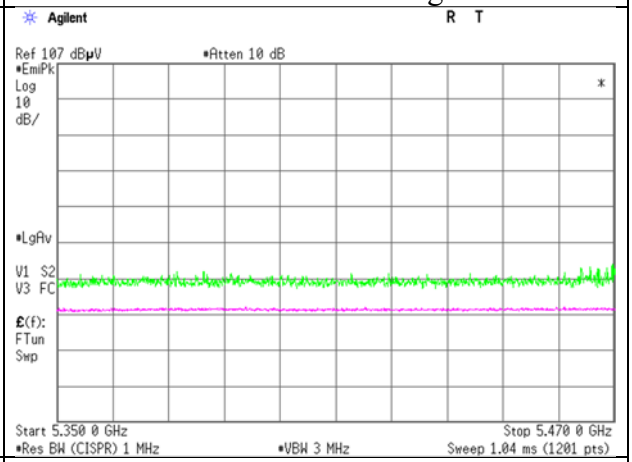
(Calculation) (above 1GHz Outside of the restricted band)

(* 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	54.91	32.34	16.34	43.31	2.35	62.63	-32.59	-27.0	**5.5**	127	118	
Vert.	5470.000	PK	52.81	32.34	16.34	43.31	2.35	60.53	-34.69	-27.0	7.6	310	134	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Resrult(EIRP[dBm])=10*LOG（{ 10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance:3[m]) ^ 2 } / 30) *10^3)
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor : 1 GHz - 13 GHz : 20log (3.93 m / 3.0 m) = 2.35 dB

Horizontal	Vertical
Restricted-band band-edge Plot	Restricted-band band-edge Plot
	
Trace Green: Peak Plot Trace Purple: Average Plot	Trace Green: Peak Plot Trace Purple: Average Plot

* 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.	13024969S-AE-R3
Test place	Shonan EMC Lab.
Semi Anechoic Chamber (No.)	3
Date	January 10, 2020
Temperature / Humidity	21 deg. C / 28 % RH
Engineer	Takahiro Kawakami
	(1 GHz – 6.4 GHz)
Mode	Tx, 11a 5700 MHz with BT LE 2 M-PHY 2402 MHz

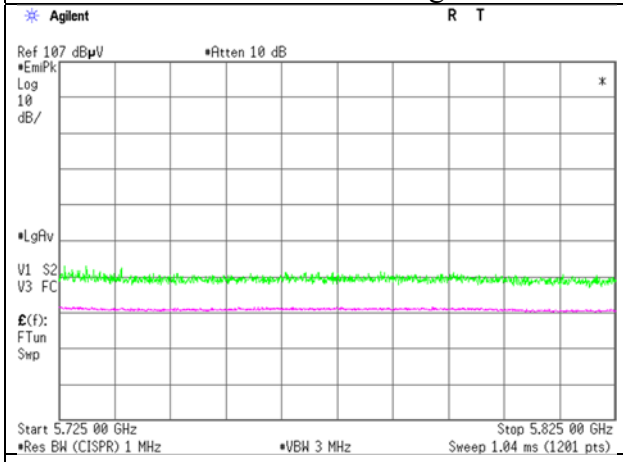
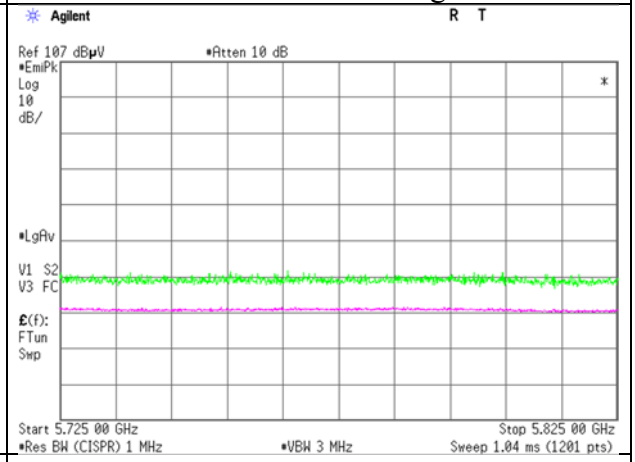
(Calculation) (above 1GHz Outside of the restricted band)

(* 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	52.55	32.68	16.49	43.33	2.35	60.74	-34.48	-27.0	**7.4**	100	82	
Vert.	5725.000	PK	51.19	32.68	16.49	43.33	2.35	59.38	-35.84	-27.0	8.8	258	134	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Resrult(EIRP[dBm])=10*LOG（({ 10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance:3[m]) ^ 2 } / 30) *10^3)
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor : 1 GHz - 13 GHz : 20log (3.93 m / 3.0 m) = 2.35 dB

Horizontal	Vertical
Restricted-band band-edge Plot	Restricted-band band-edge Plot
	
Trace Green: Peak Plot Trace Purple: Average Plot	Trace Green: Peak Plot Trace Purple: Average Plot

* 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.	13024969S-AE-R3				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber (No.)	3	3	3	3	3
Date	November 30, 2019	December 8, 2019	December 6, 2019	December 3, 2019	November 28, 2019
Temperature / Humidity	21 deg. C / 30 % RH	23 deg. C / 32 % RH	23 deg. C / 26 % RH	22 deg. C / 43 % RH	22 deg. C / 48 % RH
Engineer	Takahiro Kawakami (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)	Takahiro Kawakami (26.5 GHz – 40 GHz)
Mode	Tx, 11ac-20 5500 MHz				

(above 1GHz Inside of the restricted band)

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5460.000	PK	49.75	32.32	16.35	43.30	2.35	57.47	73.9	16.4	105	112	
Hori.	11000.000	PK	49.27	40.38	9.40	42.70	2.35	58.70	73.9	15.2	150	0	
Hori.	5460.000	AV	37.36	32.32	16.35	43.30	2.35	45.08	53.9	8.8	105	112	VBW:10 Hz
Hori.	11000.000	AV	36.58	40.38	9.40	42.70	2.35	46.01	53.9	**7.8**	150	0	VBW:10 Hz
Vert.	5460.000	PK	50.00	32.32	16.35	43.30	2.35	57.72	73.9	16.1	400	148	
Vert.	11000.000	PK	49.05	40.38	9.40	42.70	2.35	58.48	73.9	15.4	150	0	
Vert.	5460.000	AV	37.34	32.32	16.35	43.30	2.35	45.06	53.9	8.8	400	148	VBW:10 Hz
Vert.	11000.000	AV	36.54	40.38	9.40	42.70	2.35	45.97	53.9	7.9	150	0	VBW:10 Hz

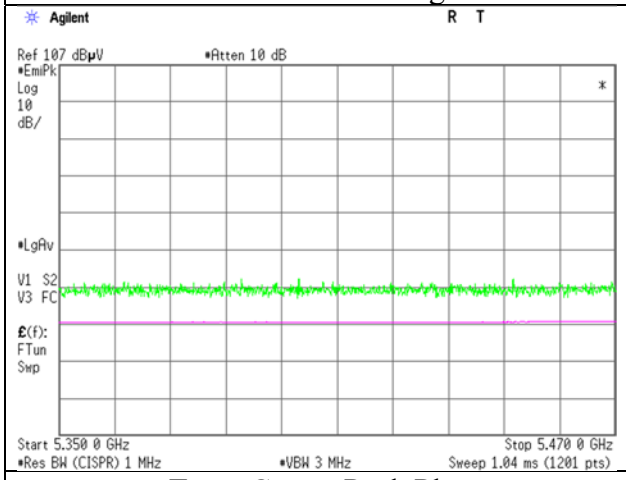
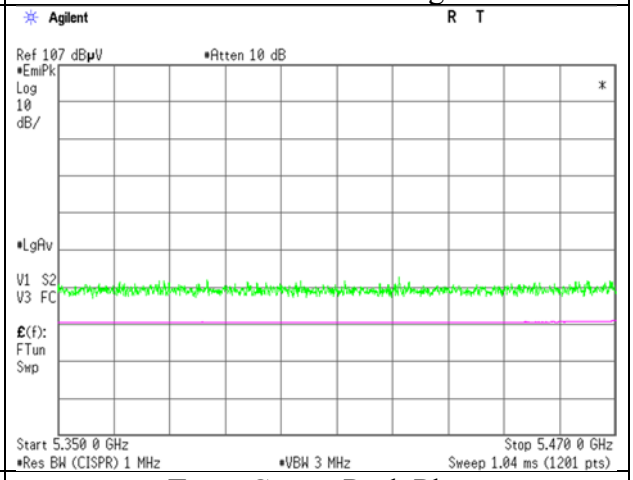
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).
Distance factor : 1 GHz - 13 GHz : 20log (3.93 m / 3.0 m) = 2.35 dB
13 GHz - 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	50.13	32.34	16.36	43.31	2.35	57.87	-37.35	-27.0	10.3	105	112	
Hori.	16500.000	PK	49.98	39.78	12.22	40.44	-9.54	52.00	-43.22	-27.0	16.2	180	7	
Vert.	5470.000	PK	50.62	32.34	16.36	43.31	2.35	58.36	-36.86	-27.0	**9.8**	400	148	
Vert.	16500.000	PK	49.26	39.78	12.22	40.44	-9.54	51.28	-43.94	-27.0	16.9	184	3	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Resrult(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 (3.93 m / 3.0 m) = 2.35 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Horizontal	Vertical
Restricted-band band-edge Plot	Restricted-band band-edge Plot
	
Trace Green: Peak Plot Trace Purple: Average Plot	Trace Green: Peak Plot Trace Purple: Average Plot

* 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.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN
Telephone : +81 596 24 8999
Facsimile : +81 596 24 8124

Radiated Spurious Emission

Report No.	13024969S-AE-R3				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber (No.)	3	3	3	3	3
Date	December 1, 2019	December 8, 2019	December 6, 2019	December 3, 2019	November 28, 2019
Temperature / Humidity	20 deg. C / 30 % RH	23 deg. C / 32 % RH	23 deg. C / 26 % RH	22 deg. C / 43 % RH	22 deg. C / 48 % RH
Engineer	Takahiro Kawakami (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)	Takahiro Kawakami (26.5 GHz – 40 GHz)
Mode	Tx, 11ac-20 5580 MHz				

(above 1GHz Inside of the restricted band)

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	11160.000	PK	48.68	39.92	9.51	42.67	2.35	57.79	73.9	16.1	150	0	
Hori.	11160.000	AV	37.00	39.92	9.51	42.67	2.35	46.11	53.9	**7.7**	150	0	VBW:10 Hz
Vert.	11160.000	PK	49.07	39.92	9.51	42.67	2.35	58.18	73.9	15.7	150	0	
Vert.	11160.000	AV	37.03	39.92	9.51	42.67	2.35	46.14	53.9	**7.7**	150	0	VBW:10 Hz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).
Distance factor : 1 GHz - 13 GHz : 20log (3.93 m / 3.0 m) = 2.35 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	50.42	40.03	12.15	40.40	-9.54	52.66	-42.56	-27.0	**15.5**	181	10	
Vert.	16740.000	PK	50.01	40.03	12.15	40.40	-9.54	52.25	-42.97	-27.0	15.9	183	2	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Resrult(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 (3.93 m / 3.0 m) = 2.35 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Radiated Spurious Emission

Report No.	13024969S-AE-R3				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber (No.)	3	3	3	3	3
Date	December 1, 2019	December 8, 2019	December 6, 2019	December 3, 2019	November 28, 2019
Temperature / Humidity	20 deg. C / 30 % RH	23 deg. C / 32 % RH	23 deg. C / 26 % RH	22 deg. C / 43 % RH	22 deg. C / 48 % RH
Engineer	Takahiro Kawakami (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)	Takahiro Kawakami (26.5 GHz – 40 GHz)
Mode	Tx, 11ac-20 5700 MHz				

(above 1GHz Inside of the restricted band)

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	11400.000	PK	48.09	39.95	9.67	42.62	2.35	57.44	73.9	16.4	150	0	
Hori.	11400.000	AV	36.23	39.95	9.67	42.62	2.35	45.58	53.9	8.3	150	0	VBW:10 Hz
Vert.	11400.000	PK	48.22	39.95	9.67	42.62	2.35	57.57	73.9	16.3	150	0	
Vert.	11400.000	AV	36.27	39.95	9.67	42.62	2.35	45.62	53.9	**8.2**	150	0	VBW:10 Hz

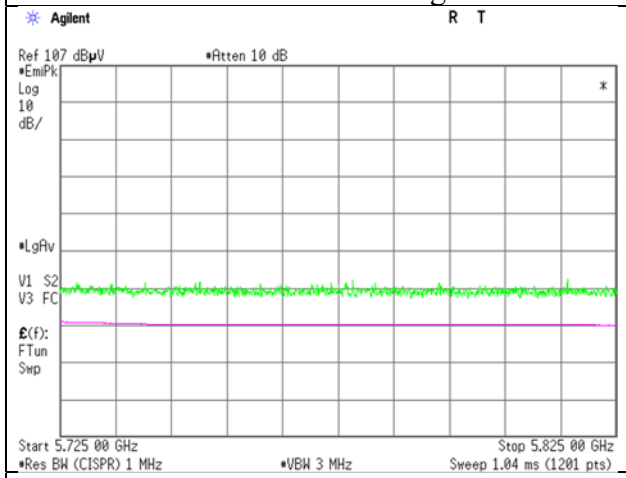
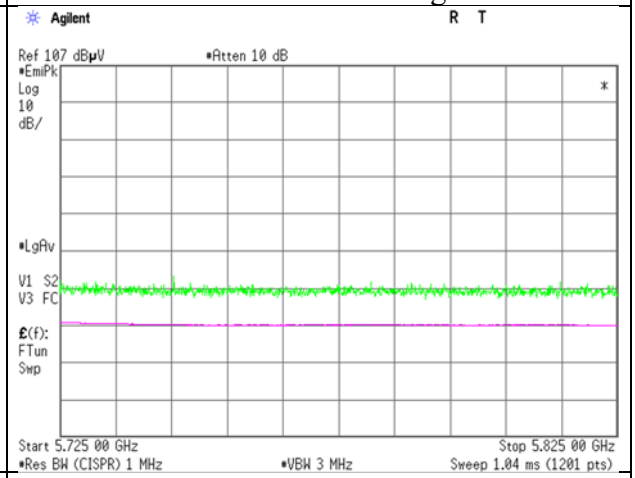
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).
Distance factor : 1 GHz - 13 GHz : 20log (3.93 m / 3.0 m) = 2.35 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

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

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5725.000	PK	51.10	32.68	16.57	43.33	2.35	59.37	-35.85	-27.0	**8.8**	117	114	
Hori.	17100.000	PK	50.21	40.84	12.12	40.32	-9.54	53.31	-41.91	-27.0	14.9	182	12	
Vert.	5725.000	PK	50.33	32.68	16.57	43.33	2.35	58.60	-36.62	-27.0	9.6	400	120	
Vert.	17100.000	PK	49.93	40.84	12.12	40.32	-9.54	53.03	-42.19	-27.0	15.1	180	3	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Resrult(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 (3.93 m / 3.0 m) = 2.35 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Horizontal	Vertical
Restricted-band band-edge Plot	Restricted-band band-edge Plot
	
Trace Green: Peak Plot Trace Purple: Average Plot	Trace Green: Peak Plot Trace Purple: Average Plot

* 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.	13024969S-AE-R3
Test place	Shonan EMC Lab.
Semi Anechoic Chamber (No.)	3
Date	January 10, 2020
Temperature / Humidity	23 deg. C / 39 % RH
Engineer	Hiromasa Sato
	(1 GHz – 6.4 GHz)
Mode	Tx, 11ac-20 5500 MHz with DH5 hopping

(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	51.24	32.32	16.33	43.30	2.35	58.94	73.9	14.9	108	118	
Hori.	5460.000	AV	36.92	32.32	16.33	43.30	2.35	44.62	53.9	**9.2**	108	118	VBW:10 Hz
Vert.	5460.000	PK	50.74	32.32	16.33	43.30	2.35	58.44	73.9	15.4	400	126	
Vert.	5460.000	AV	36.83	32.32	16.33	43.30	2.35	44.53	53.9	9.3	400	126	VBW:10 Hz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor : 1 GHz - 13 GHz : 20log (3.93 m / 3.0 m) = 2.35 dB

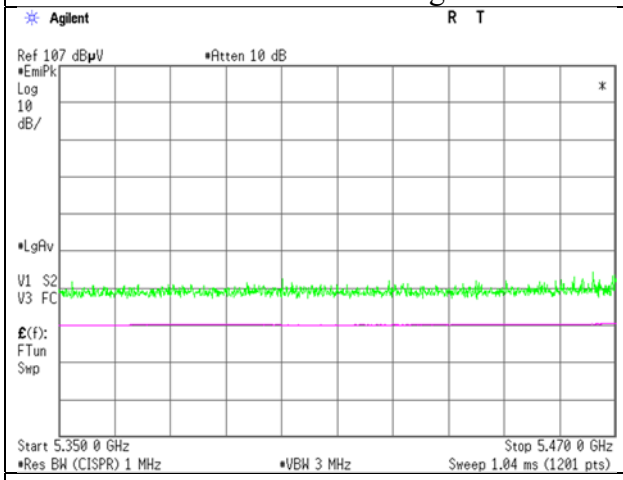
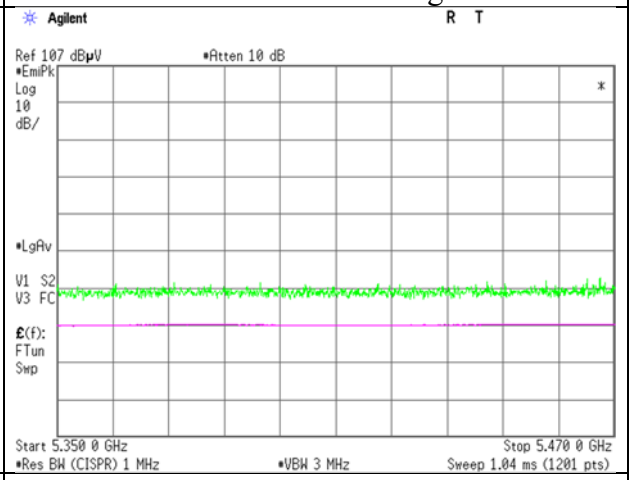
(Calculation) (above 1GHz Outside of the restricted band)

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5470.000	PK	48.67	32.34	16.34	43.31	2.35	56.39	-38.83	-27.0	11.8	108	118	
Vert.	5470.000	PK	52.28	32.34	16.34	43.31	2.35	60.00	-35.22	-27.0	**8.2**	400	126	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Resrult(EIRP[dBm])=10*LOG（{ 10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance:3[m]) ^ 2 } / 30) *10^3)
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor : 1 GHz - 13 GHz : 20log (3.93 m / 3.0 m) = 2.35 dB

Horizontal	Vertical
Restricted-band band-edge Plot	Restricted-band band-edge Plot
	
Trace Green: Peak Plot Trace Purple: Average Plot	Trace Green: Peak Plot Trace Purple: Average Plot

* 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.	13024969S-AE-R3
Test place	Shonan EMC Lab.
Semi Anechoic Chamber (No.)	3
Date	January 10, 2020
Temperature / Humidity	23 deg. C / 39 % RH
Engineer	Hiromasa Sato
	(1 GHz – 6.4 GHz)
Mode	Tx, 11ac-20 5700 MHz with DH5 hopping

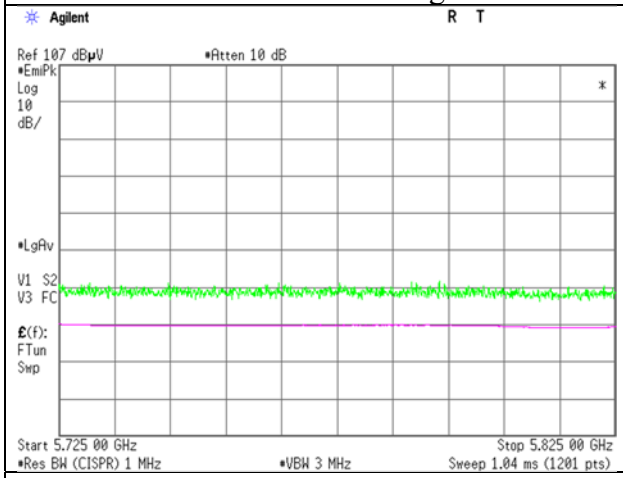
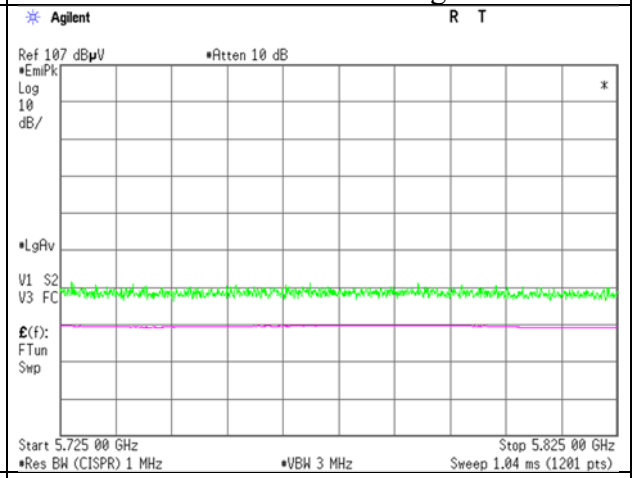
(Calculation) (above 1GHz Outside of the restricted band)

(* 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	49.45	32.68	16.49	43.33	2.35	57.64	-37.58	-27.0	**10.5**	144	119	
Vert.	5725.000	PK	49.11	32.68	16.49	43.33	2.35	57.30	-37.92	-27.0	10.9	400	138	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Resrult(EIRP[dBm])=10*LOG（({ 10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance:3[m]) ^ 2 } / 30) *10^3)
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor : 1 GHz - 13 GHz : 20log (3.93 m / 3.0 m) = 2.35 dB

Horizontal	Vertical
Restricted-band band-edge Plot	Restricted-band band-edge Plot
	
Trace Green: Peak Plot Trace Purple: Average Plot	Trace Green: Peak Plot Trace Purple: Average Plot

* 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.	13024969S-AE-R3
Test place	Shonan EMC Lab.
Semi Anechoic Chamber (No.)	3
Date	January 10, 2020
Temperature / Humidity	21 deg. C / 28 % RH
Engineer	Takahiro Kawakami
	(1 GHz – 6.4 GHz)
Mode	Tx, 11ac-20 5500 MHz with BT LE 2 M-PHY 2402 MHz

(above 1GHz Inside of the restricted band)

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5460.000	PK	51.38	32.32	16.33	43.30	2.35	59.08	73.9	14.8	146	121	
Hori.	5460.000	AV	36.89	32.32	16.33	43.30	2.35	44.59	53.9	**9.3**	146	121	VBW:10Hz
Vert.	5460.000	PK	50.63	32.32	16.33	43.30	2.35	58.33	73.9	15.5	366	139	
Vert.	5460.000	AV	36.84	32.32	16.33	43.30	2.35	44.54	53.9	**9.3**	366	139	VBW:10Hz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor : 1 GHz - 13 GHz : 20log (3.93 m / 3.0 m) = 2.35 dB

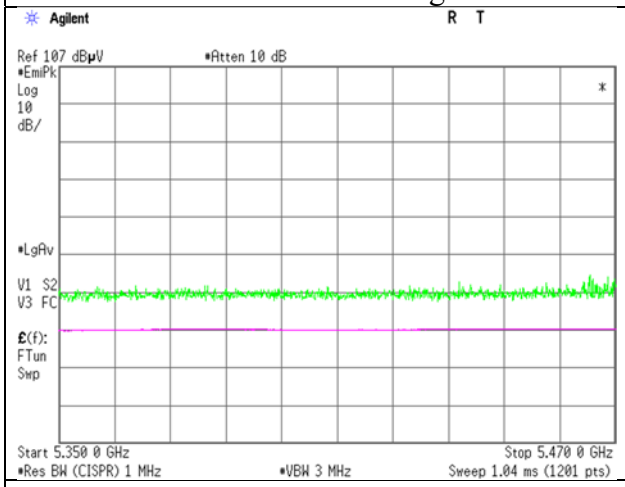
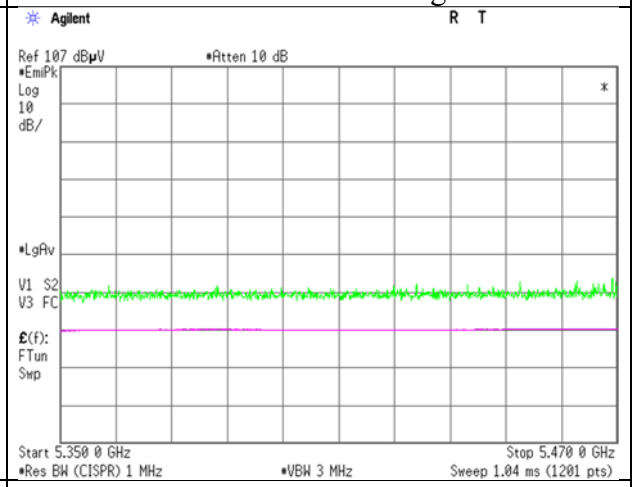
(Calculation) (above 1GHz Outside of the restricted band)

(* 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	52.86	32.34	16.34	43.31	2.35	60.58	-34.64	-27.0	**7.6**	146	121	
Vert.	5470.000	PK	51.81	32.34	16.34	43.31	2.35	59.53	-35.69	-27.0	8.6	366	139	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Resrult(EIRP[dBm])=10*LOG（{ 10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance:3[m]) ^ 2 } / 30) *10^3)
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor : 1 GHz - 13 GHz : 20log (3.93 m / 3.0 m) = 2.35 dB

Horizontal	Vertical
Restricted-band band-edge Plot	Restricted-band band-edge Plot
	
Trace Green: Peak Plot Trace Purple: Average Plot	Trace Green: Peak Plot Trace Purple: Average Plot

* 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.	13024969S-AE-R3
Test place	Shonan EMC Lab.
Semi Anechoic Chamber (No.)	3
Date	January 10, 2020
Temperature / Humidity	23 deg. C / 39 % RH
Engineer	Hiromasa Sato
	(1 GHz – 6.4 GHz)
Mode	Tx, 11ac-20 5700 MHz with BT LE 2 M-PHY 2402 MHz

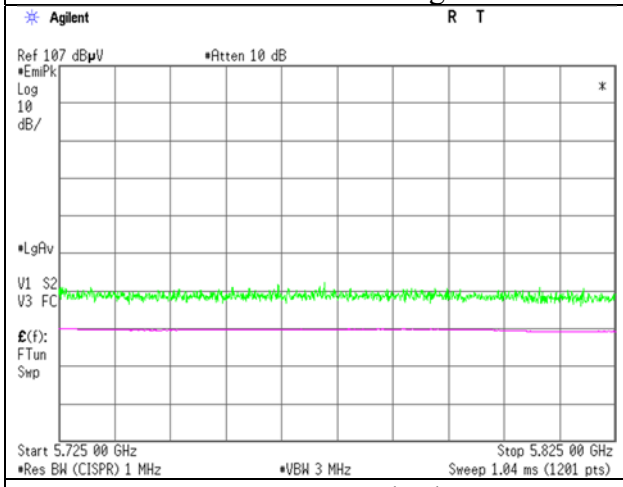
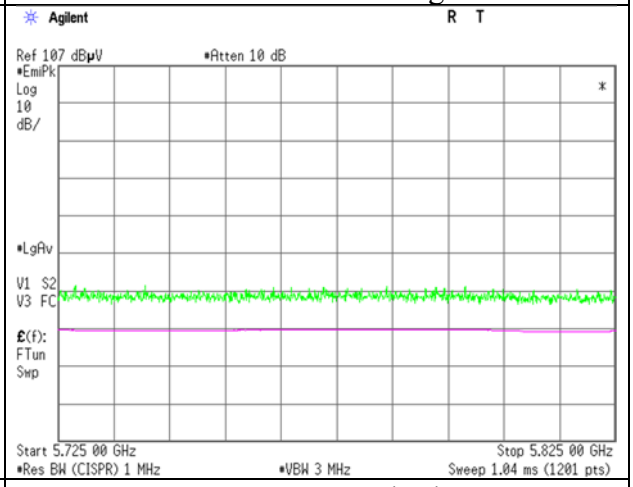
(Calculation) (above 1GHz Outside of the restricted band)

(* 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	50.18	32.68	16.49	43.33	2.35	58.37	-36.85	-27.0	**9.8**	112	120	
Vert.	5725.000	PK	49.82	32.68	16.49	43.33	2.35	58.01	-37.21	-27.0	10.2	397	161	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Resrult(EIRP[dBm])=10*LOG ({ 10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance:3[m]) ^ 2 } / 30) * 10^3)
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor : 1 GHz - 13 GHz : 20log (3.93 m / 3.0 m) = 2.35 dB

Horizontal	Vertical
Restricted-band band-edge Plot	Restricted-band band-edge Plot
	
Trace Green: Peak Plot Trace Purple: Average Plot	Trace Green: Peak Plot Trace Purple: Average Plot

* 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.	13024969S-AE-R3			
Test place	Shonan EMC Lab.			
Semi Anechoic Chamber (No.)	3	3	3	3
Date	December 1, 2019	December 8, 2019	December 7, 2019	December 3, 2019
Temperature / Humidity	20 deg. C / 30 % RH	23 deg. C / 32 % RH	21 deg. C / 27 % RH	22 deg. C / 43 % RH
Engineer	Yasumasa Owaki	Takahiro Kawakami	Kazuya Noda	Takahiro Kawakami
	(1 GHz – 6.4 GHz)	(6.4 GHz – 13 GHz)	(13 GHz – 18 GHz)	(18 GHz – 40 GHz)
Mode	Tx, 11ac-40 5510 MHz			

(above 1GHz Inside of the restricted band)

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5460.000	PK	50.75	32.32	16.35	43.30	2.35	58.47	73.9	15.4	142	113	
Hori.	11020.000	PK	48.28	40.34	9.41	42.70	2.35	57.68	73.9	16.2	150	0	
Hori.	5460.000	AV	37.58	32.32	16.35	43.30	2.35	45.30	53.9	8.6	142	113	VBW:10 Hz
Hori.	11020.000	AV	36.62	40.34	9.41	42.70	2.35	46.02	53.9	**7.8**	150	0	VBW:10 Hz
Vert.	5460.000	PK	50.23	32.32	16.35	43.30	2.35	57.95	73.9	15.9	400	144	
Vert.	11020.000	PK	48.91	40.34	9.41	42.70	2.35	58.31	73.9	15.5	150	0	
Vert.	5460.000	AV	37.39	32.32	16.35	43.30	2.35	45.11	53.9	8.7	400	144	VBW:10 Hz
Vert.	11020.000	AV	36.60	40.34	9.41	42.70	2.35	46.00	53.9	7.9	150	0	VBW:10 Hz

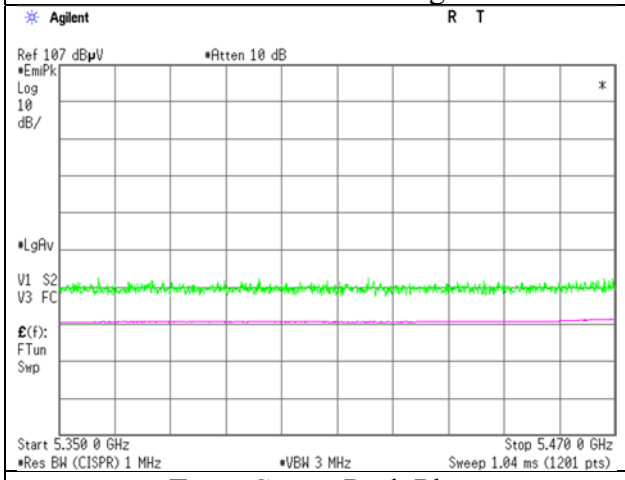
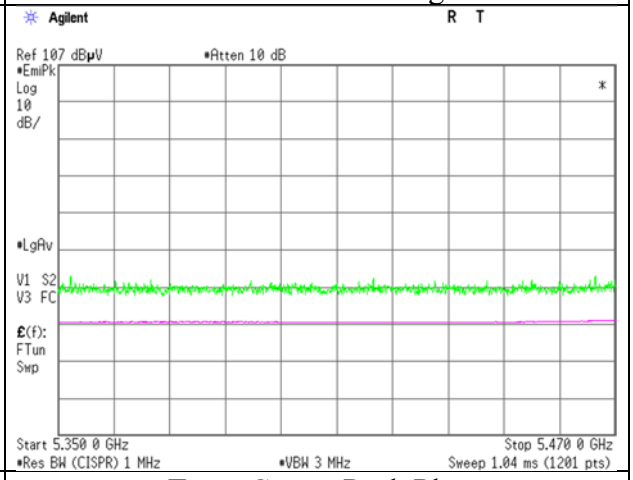
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).
Distance factor : 1 GHz - 13 GHz : 20log (3.93 m / 3.0 m) = 2.35 dB
13 GHz - 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	51.38	32.34	16.36	43.31	2.35	59.12	-36.10	-27.0	**9.1**	142	113	
Hori.	16530.000	PK	48.83	39.83	12.21	40.43	-9.54	50.90	-44.32	-27.0	17.3	183	10	
Vert.	5470.000	PK	50.31	32.34	16.36	43.31	2.35	58.05	-37.17	-27.0	10.1	400	144	
Vert.	16530.000	PK	48.28	39.83	12.21	40.43	-9.54	50.35	-44.87	-27.0	17.8	183	3	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Resrult(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 (3.93 m / 3.0 m) = 2.35 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Horizontal	Vertical
Restricted-band band-edge Plot	Restricted-band band-edge Plot
	
Trace Green: Peak Plot Trace Purple: Average Plot	Trace Green: Peak Plot Trace Purple: Average Plot

* 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.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN
Telephone : +81 596 24 8999
Facsimile : +81 596 24 8124

Radiated Spurious Emission

Report No.	13024969S-AE-R3			
Test place	Shonan EMC Lab.			
Semi Anechoic Chamber (No.)	3	3	3	3
Date	December 1, 2019	December 8, 2019	December 7, 2019	December 3, 2019
Temperature / Humidity	20 deg. C / 30 % RH	23 deg. C / 32 % RH	21 deg. C / 27 % RH	22 deg. C / 43 % RH
Engineer	Yasumasa Owaki (1 GHz – 6.4 GHz)	Takahiro Kawakami (6.4 GHz – 13 GHz)	Kazuya Noda (13 GHz – 18 GHz)	Takahiro Kawakami (18 GHz – 40 GHz)
Mode	Tx, 11ac-40 5550 MHz			

(above 1GHz Inside of the restricted band)

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	11100.000	PK	48.80	40.12	9.48	42.68	2.35	58.07	73.9	15.8	150	0	
Hori.	11100.000	AV	36.93	40.12	9.48	42.68	2.35	46.20	53.9	**7.7**	150	0	VBW:10 Hz
Vert.	11100.000	PK	48.73	40.12	9.48	42.68	2.35	58.00	73.9	15.9	150	0	
Vert.	11100.000	AV	36.93	40.12	9.48	42.68	2.35	46.20	53.9	**7.7**	150	0	VBW:10 Hz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).
Distance factor : 1 GHz - 13 GHz : 20log (3.93 m / 3.0 m) = 2.35 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	49.31	39.92	12.17	40.41	-9.54	51.45	-43.77	-27.0	**16.7**	183	11	
Vert.	16650.000	PK	48.47	39.92	12.17	40.41	-9.54	50.61	-44.61	-27.0	17.6	183	1	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Resrult(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 (3.93 m / 3.0 m) = 2.35 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Radiated Spurious Emission

Report No.	13024969S-AE-R3			
Test place	Shonan EMC Lab.			
Semi Anechoic Chamber (No.)	3	3	3	3
Date	December 1, 2019	December 8, 2019	December 7, 2019	December 3, 2019
Temperature / Humidity	20 deg. C / 30 % RH	23 deg. C / 32 % RH	21 deg. C / 27 % RH	22 deg. C / 43 % RH
Engineer	Yasumasa Owaki (1 GHz – 6.4 GHz)	Takahiro Kawakami (6.4 GHz – 13 GHz)	Kazuya Noda (13 GHz – 18 GHz)	Takahiro Kawakami (18 GHz – 40 GHz)
Mode	Tx, 11ac-40 5670 MHz			

(above 1GHz Inside of the restricted band)

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	11340.000	PK	48.42	39.83	9.64	42.63	2.35	57.61	73.9	16.2	150	0	
Hori.	11340.000	AV	36.22	39.83	9.64	42.63	2.35	45.41	53.9	**8.4**	150	0	VBW:10 Hz
Vert.	11340.000	PK	48.32	39.83	9.64	42.63	2.35	57.51	73.9	16.3	150	0	
Vert.	11340.000	AV	36.21	39.83	9.64	42.63	2.35	45.40	53.9	8.5	150	0	VBW:10 Hz

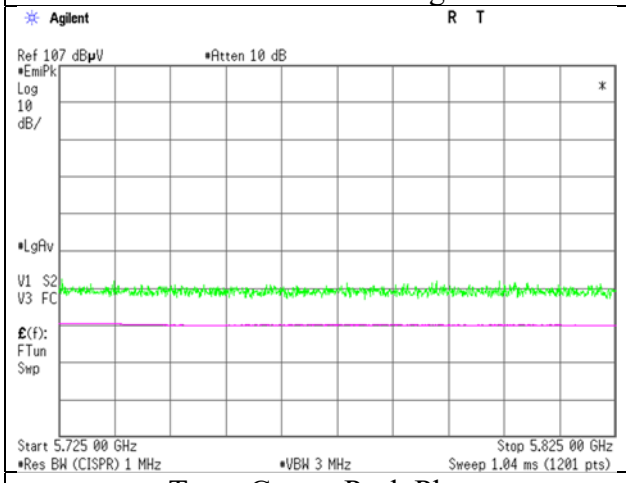
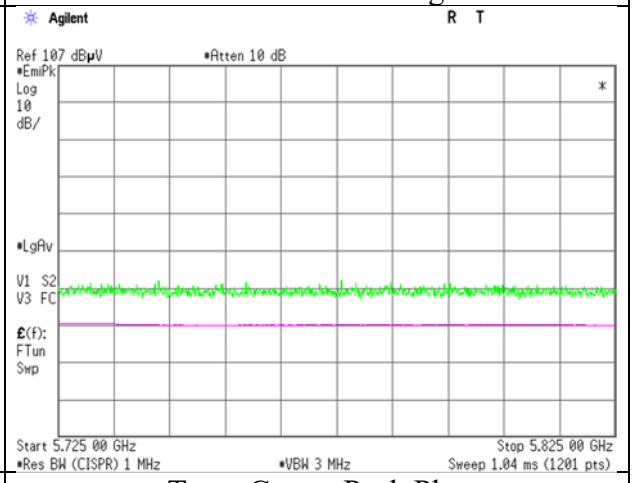
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).
Distance factor : 1 GHz - 13 GHz : 20log (3.93 m / 3.0 m) = 2.35 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

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

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5725.000	PK	49.65	32.68	16.57	43.33	2.35	57.92	-37.30	-27.0	10.3	148	80	
Hori.	17010.000	PK	49.00	40.52	12.08	40.35	-9.54	51.71	-43.51	-27.0	16.5	179	14	
Vert.	5725.000	PK	50.11	32.68	16.57	43.33	2.35	58.38	-36.84	-27.0	**9.8**	394	146	
Vert.	17010.000	PK	48.05	40.52	12.08	40.35	-9.54	50.76	-44.46	-27.0	17.4	185	5	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Resrult(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 (3.93 m / 3.0 m) = 2.35 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Horizontal	Vertical
Restricted-band band-edge Plot	Restricted-band band-edge Plot
	
Trace Green: Peak Plot Trace Purple: Average Plot	Trace Green: Peak Plot Trace Purple: Average Plot

* 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.	13024969S-AE-R3
Test place	Shonan EMC Lab.
Semi Anechoic Chamber (No.)	3
Date	January 11, 2020
Temperature / Humidity	21 deg. C / 32 % RH
Engineer	Takahiro Kawakami
	(1 GHz – 6.4 GHz)
Mode	Tx, 11ac-40 5510 MHz with DH5 hopping

(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	52.86	32.32	16.33	43.30	2.35	60.56	73.9	13.3	100	117	
Hori.	5460.000	AV	39.36	32.32	16.33	43.30	2.35	47.06	53.9	**6.8**	100	117	VBW:4.7 kHz
Vert.	5460.000	PK	51.08	32.32	16.33	43.30	2.35	58.78	73.9	15.1	400	159	
Vert.	5460.000	AV	39.28	32.32	16.33	43.30	2.35	46.98	53.9	6.9	400	159	VBW:4.7 kHz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor : 1 GHz - 13 GHz : 20log (3.93 m / 3.0 m) = 2.35 dB

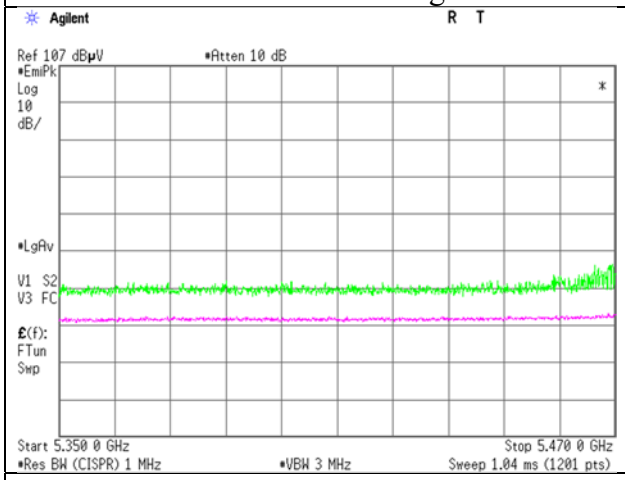
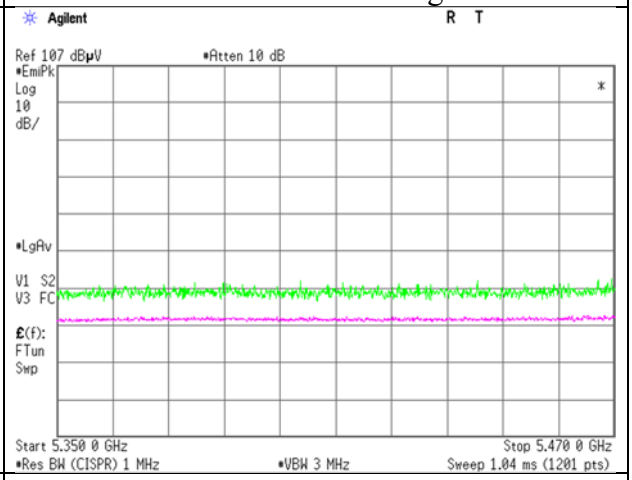
(Calculation) (above 1GHz Outside of the restricted band)

(* 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	55.55	32.34	16.34	43.31	2.35	63.27	-31.95	-27.0	**4.9**	100	117	
Vert.	5470.000	PK	53.72	32.34	16.34	43.31	2.35	61.44	-33.78	-27.0	6.7	400	159	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Resrult(EIRP[dBm])=10*LOG（({ 10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance:3[m]) ^ 2 } / 30) *10^3)
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor : 1 GHz - 13 GHz : 20log (3.93 m / 3.0 m) = 2.35 dB

Horizontal	Vertical
Restricted-band band-edge Plot	Restricted-band band-edge Plot
	
Trace Green: Peak Plot Trace Purple: Average Plot	Trace Green: Peak Plot Trace Purple: Average Plot

* 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.	13024969S-AE-R3
Test place	Shonan EMC Lab.
Semi Anechoic Chamber (No.)	3
Date	January 11, 2020
Temperature / Humidity	21 deg. C / 32 % RH
Engineer	Takahiro Kawakami
	(1 GHz – 6.4 GHz)
Mode	Tx, 11ac-40 5670 MHz with DH5 hopping

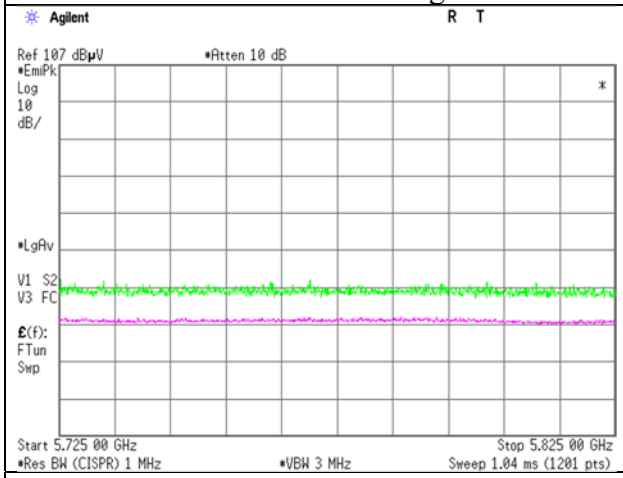
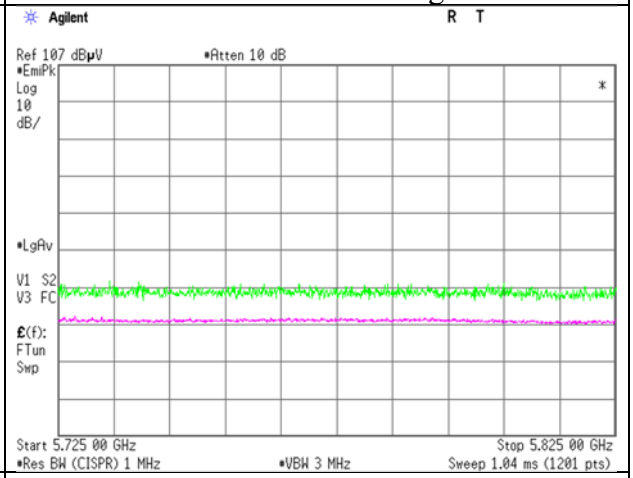
(Calculation) (above 1GHz Outside of the restricted band)

(* 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	50.21	32.68	16.49	43.33	2.35	58.40	-36.82	-27.0	**9.8**	112	119	
Vert.	5725.000	PK	48.77	32.68	16.49	43.33	2.35	56.96	-38.26	-27.0	11.2	400	131	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Resrult(EIRP[dBm])=10*LOG ({ 10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance:3[m]) ^ 2 } / 30) *10^3)
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor : 1 GHz - 13 GHz : 20log (3.93 m / 3.0 m) = 2.35 dB

Horizontal	Vertical
Restricted-band band-edge Plot	Restricted-band band-edge Plot
	
Trace Green: Peak Plot Trace Purple: Average Plot	Trace Green: Peak Plot Trace Purple: Average Plot

* 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.	13024969S-AE-R3
Test place	Shonan EMC Lab.
Semi Anechoic Chamber (No.)	3
Date	January 11, 2020
Temperature / Humidity	21 deg. C / 32 % RH
Engineer	Takahiro Kawakami
	(1 GHz – 6.4 GHz)
Mode	Tx, 11ac-40 5510 MHz with BT LE 2 M-PHY 2402 MHz

(above 1GHz Inside of the restricted band)

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5460.000	PK	52.67	32.32	16.33	43.30	2.35	60.37	73.9	13.5	100	116	
Hori.	5460.000	AV	39.35	32.32	16.33	43.30	2.35	47.05	53.9	6.8	100	116	VBW:4.7 kHz
Vert.	5460.000	PK	51.82	32.32	16.33	43.30	2.35	59.52	73.9	14.3	378	121	
Vert.	5460.000	AV	39.41	32.32	16.33	43.30	2.35	47.11	53.9	**6.7**	378	121	VBW:4.7 kHz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor : 1 GHz - 13 GHz : 20log (3.93 m / 3.0 m) = 2.35 dB

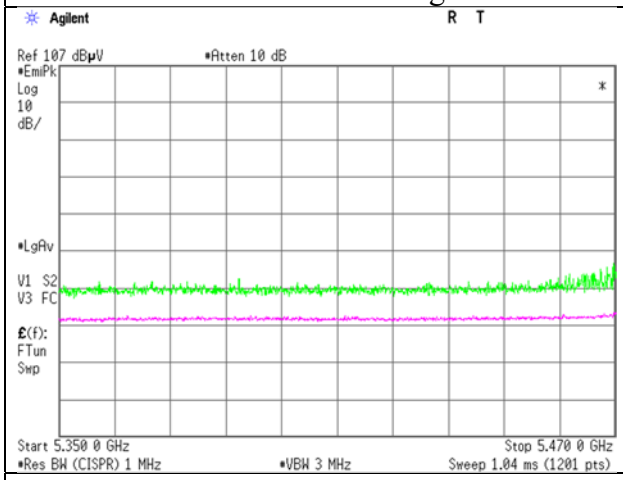
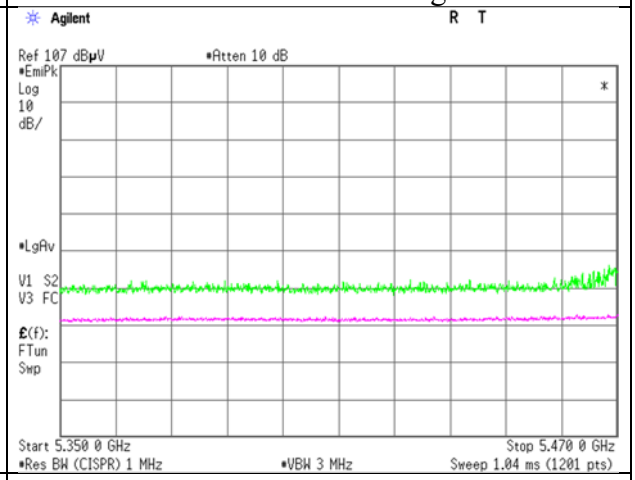
(Calculation) (above 1GHz Outside of the restricted band)

(* 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	55.56	32.34	16.34	43.31	2.35	63.28	-31.94	-27.0	**4.9**	100	116	
Vert.	5470.000	PK	54.54	32.34	16.34	43.31	2.35	62.26	-32.96	-27.0	5.9	378	121	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Resrult(EIRP[dBm])=10*LOG（{ 10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance:3[m]) ^ 2 } / 30) *10^3)
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor : 1 GHz - 13 GHz : 20log (3.93 m / 3.0 m) = 2.35 dB

Horizontal	Vertical
Restricted-band band-edge Plot	Restricted-band band-edge Plot
	
Trace Green: Peak Plot Trace Purple: Average Plot	Trace Green: Peak Plot Trace Purple: Average Plot

* 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.	13024969S-AE-R3
Test place	Shonan EMC Lab.
Semi Anechoic Chamber (No.)	3
Date	January 11, 2020
Temperature / Humidity	21 deg. C / 32 % RH
Engineer	Takahiro Kawakami
	(1 GHz – 6.4 GHz)
Mode	Tx, 11ac-40 5670 MHz with BT LE 2 M-PHY 2402 MHz

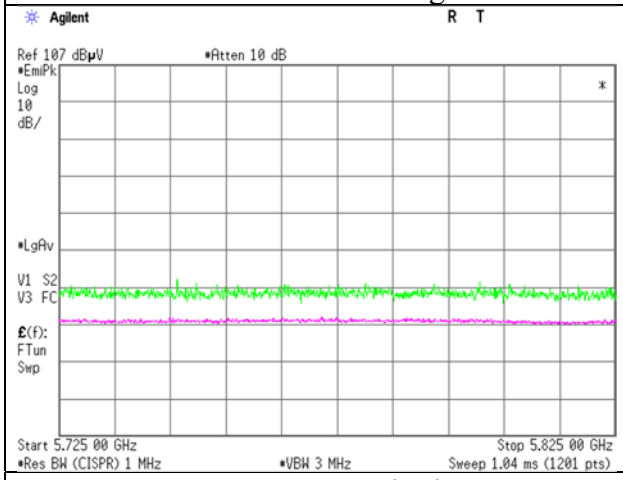
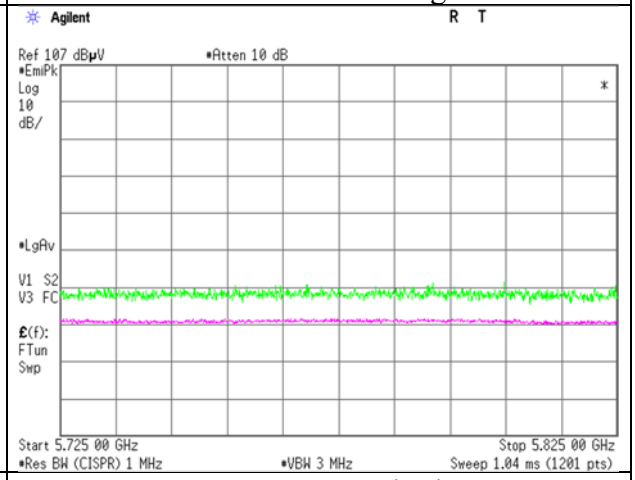
(Calculation) (above 1GHz Outside of the restricted band)

(* 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	49.37	32.68	16.49	43.33	2.35	57.56	-37.66	-27.0	**10.6**	110	119	
Vert.	5725.000	PK	49.16	32.68	16.49	43.33	2.35	57.35	-37.87	-27.0	10.8	382	149	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Resrult(EIRP[dBm])=10*LOG（({ 10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance:3[m]) ^ 2 } / 30) *10^3)
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor : 1 GHz - 13 GHz : 20log (3.93 m / 3.0 m) = 2.35 dB

Horizontal	Vertical
Restricted-band band-edge Plot	Restricted-band band-edge Plot
	
Trace Green: Peak Plot Trace Purple: Average Plot	Trace Green: Peak Plot Trace Purple: Average Plot

* 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.	13024969S-AE-R3			
Test place	Shonan EMC Lab.			
Semi Anechoic Chamber (No.)	3	3	3	3
Date	December 2, 2019	December 8, 2019	December 7, 2019	December 3, 2019
Temperature / Humidity	24 deg. C / 37 % RH	23 deg. C / 32 % RH	21 deg. C / 27 % RH	22 deg. C / 43 % RH
Engineer	Kazuya Noda	Takahiro Kawakami	Kazuya Noda	Takahiro Kawakami
	(1 GHz – 6.4 GHz)	(6.4 GHz – 13 GHz)	(13 GHz – 18 GHz)	(18 GHz – 40 GHz)
Mode	Tx, 11ac-80 5530 MHz			

(above 1GHz Inside of the restricted band)

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5460.000	PK	50.56	32.32	16.35	43.30	2.35	58.28	73.9	15.6	105	117	
Hori.	11060.000	PK	48.66	40.24	9.43	42.69	2.35	57.99	73.9	15.9	150	0	
Hori.	5460.000	AV	38.09	32.32	16.35	43.30	2.35	45.81	53.9	8.0	105	117	VBW:10 Hz
Hori.	11060.000	AV	36.90	40.24	9.43	42.69	2.35	46.23	53.9	**7.6**	150	0	VBW:10 Hz
Vert.	5460.000	PK	50.30	32.32	16.35	43.30	2.35	58.02	73.9	15.8	389	136	
Vert.	11060.000	PK	49.57	40.24	9.43	42.69	2.35	58.90	73.9	15.0	150	0	
Vert.	5460.000	AV	37.86	32.32	16.35	43.30	2.35	45.58	53.9	8.3	389	136	VBW:10 Hz
Vert.	11060.000	AV	36.91	40.24	9.43	42.69	2.35	46.24	53.9	**7.6**	150	0	VBW:10 Hz

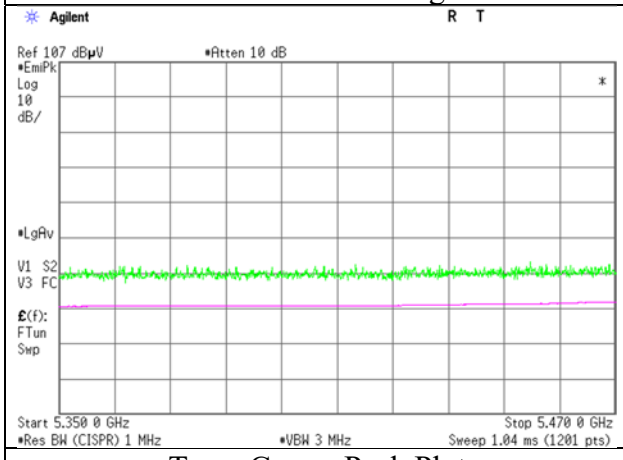
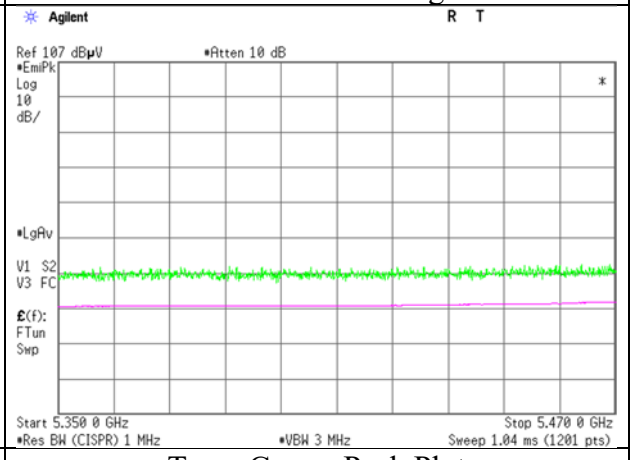
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).
Distance factor : 1 GHz - 13 GHz : 20log (3.93 m / 3.0 m) = 2.35 dB
13 GHz - 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	50.77	32.34	16.36	43.31	2.35	58.51	-36.71	-27.0	**9.7**	105	117	
Hori.	16590.000	PK	48.16	39.84	12.20	40.42	-9.54	50.24	-44.98	-27.0	17.9	181	11	
Vert.	5470.000	PK	50.71	32.34	16.36	43.31	2.35	58.45	-36.77	-27.0	**9.7**	389	136	
Vert.	16590.000	PK	47.80	39.84	12.20	40.42	-9.54	49.88	-45.34	-27.0	18.3	181	5	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Resrult(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 (3.93 m / 3.0 m) = 2.35 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Horizontal	Vertical
Restricted-band band-edge Plot	Restricted-band band-edge Plot
	
Trace Green: Peak Plot Trace Purple: Average Plot	Trace Green: Peak Plot Trace Purple: Average Plot

* 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.	13024969S-AE-R3			
Test place	Shonan EMC Lab.			
Semi Anechoic Chamber (No.)	3	3	3	3
Date	December 2, 2019	December 8, 2019	December 7, 2019	December 3, 2019
Temperature / Humidity	24 deg. C / 37 % RH	23 deg. C / 32 % RH	21 deg. C / 27 % RH	22 deg. C / 43 % 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 – 40 GHz)
Mode	Tx, 11ac-80 5610 MHz			

(above 1GHz Inside of the restricted band)

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	11220.000	PK	50.00	39.82	9.56	42.66	2.35	59.07	73.9	14.8	150	0	
Hori.	11220.000	AV	37.45	39.82	9.56	42.66	2.35	46.52	53.9	**7.3**	150	0	VBW:10 Hz
Vert.	11220.000	PK	49.25	39.82	9.56	42.66	2.35	58.32	73.9	15.5	150	0	
Vert.	11220.000	AV	37.44	39.82	9.56	42.66	2.35	46.51	53.9	**7.3**	150	0	VBW:10 Hz

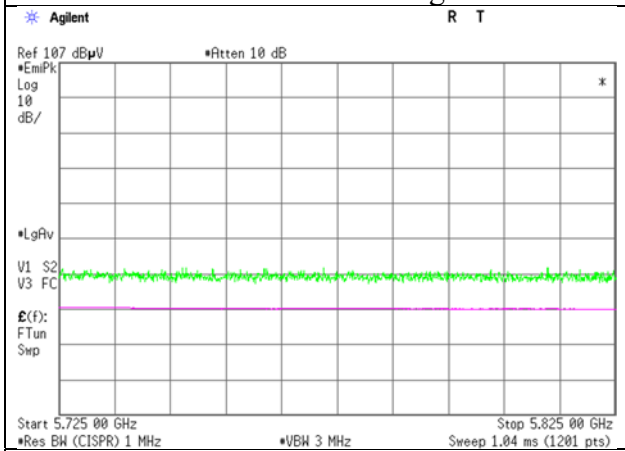
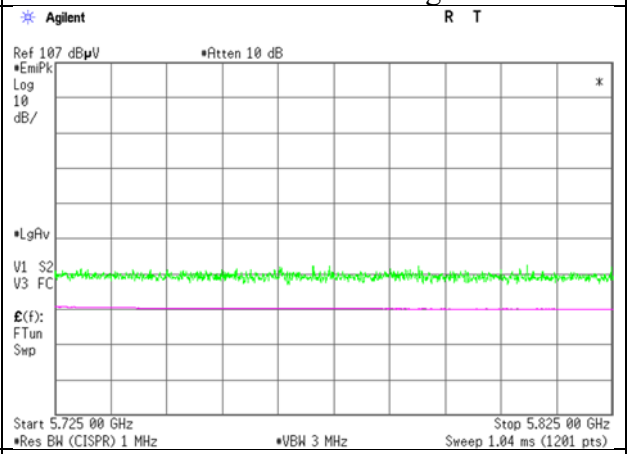
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).
Distance factor : 1 GHz - 13 GHz : 20log (3.93 m / 3.0 m) = 2.35 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

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

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5725.000	PK	49.98	32.68	16.57	43.33	2.35	58.25	-36.97	-27.0	**9.9**	138	119	
Hori.	16830.000	PK	48.20	40.13	12.12	40.38	-9.54	50.53	-44.69	-27.0	17.6	183	11	
Vert.	5725.000	PK	49.84	32.68	16.57	43.33	2.35	58.11	-37.11	-27.0	10.1	377	125	
Vert.	16830.000	PK	47.98	40.13	12.12	40.38	-9.54	50.31	-44.91	-27.0	17.9	180	4	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Resrult(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 (3.93 m / 3.0 m) = 2.35 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Horizontal	Vertical
Restricted-band band-edge Plot	Restricted-band band-edge Plot
	
Trace Green: Peak Plot Trace Purple: Average Plot	Trace Green: Peak Plot Trace Purple: Average Plot

* 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.	13024969S-AE-R3
Test place	Shonan EMC Lab.
Semi Anechoic Chamber (No.)	3
Date	January 14, 2020
Temperature / Humidity	22 deg. C / 32 % RH
Engineer	Takahiro Kawakami
	(1 GHz – 6.4 GHz)
Mode	Tx, 11ac-80 5530 MHz with DH5 hopping

(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	50.45	32.32	16.33	43.30	2.35	58.15	73.9	15.7	147	104	
Hori.	5460.000	AV	40.67	32.32	16.33	43.30	2.35	48.37	53.9	**5.5**	147	104	VBW:8.2 kHz
Vert.	5460.000	PK	50.05	32.32	16.33	43.30	2.35	57.75	73.9	16.1	400	145	
Vert.	5460.000	AV	40.28	32.32	16.33	43.30	2.35	47.98	53.9	5.9	400	145	VBW:8.2 kHz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor : 1 GHz - 13 GHz : 20log (3.93 m / 3.0 m) = 2.35 dB

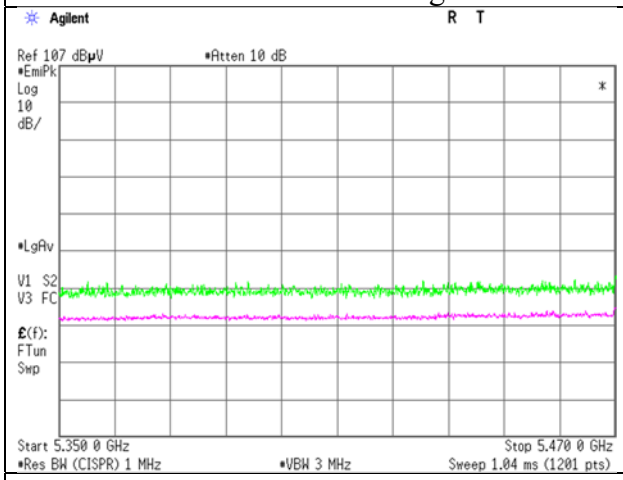
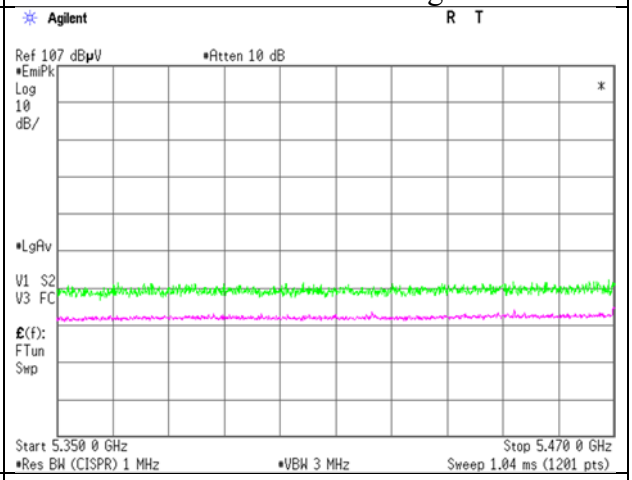
(Calculation) (above 1GHz Outside of the restricted band)

(* 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	51.32	32.34	16.34	43.31	2.35	59.04	-36.18	-27.0	9.1	147	104	
Vert.	5470.000	PK	51.57	32.34	16.34	43.31	2.35	59.29	-35.93	-27.0	**8.9**	400	145	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Resrult(EIRP[dBm])=10*LOG（{ 10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance:3[m]) ^ 2 } / 30) * 10^3)
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor : 1 GHz - 13 GHz : 20log (3.93 m / 3.0 m) = 2.35 dB

Horizontal	Vertical
Restricted-band band-edge Plot	Restricted-band band-edge Plot
	
Trace Green: Peak Plot Trace Purple: Average Plot	Trace Green: Peak Plot Trace Purple: Average Plot

* 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.	13024969S-AE-R3
Test place	Shonan EMC Lab.
Semi Anechoic Chamber (No.)	3
Date	January 14, 2020
Temperature / Humidity	22 deg. C / 32 % RH
Engineer	Takahiro Kawakami
	(1 GHz – 6.4 GHz)
Mode	Tx, 11ac-80 5610 MHz with DH5 hopping

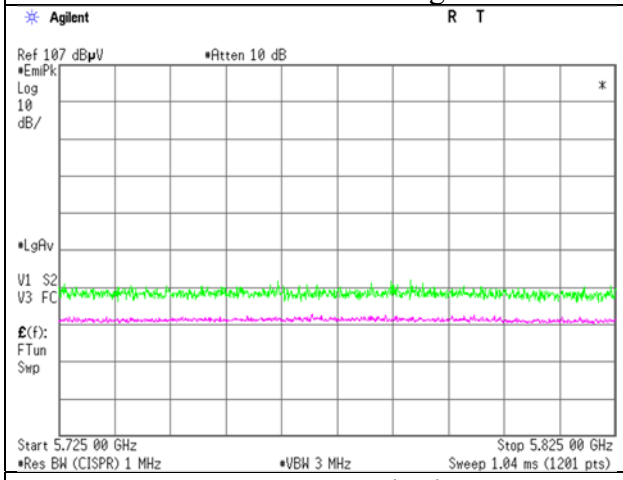
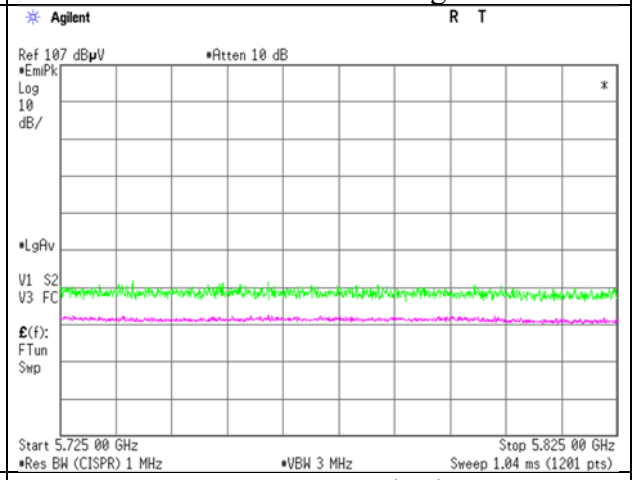
(Calculation) (above 1GHz Outside of the restricted band)

(* 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	49.41	32.68	16.49	43.33	2.35	57.60	-37.62	-27.0	**10.6**	151	104	
Vert.	5725.000	PK	48.70	32.68	16.49	43.33	2.35	56.89	-38.33	-27.0	11.3	400	129	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Resrult(EIRP[dBm])=10*LOG（({ 10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance:3[m]) ^ 2 } / 30) *10^3)
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor : 1 GHz - 13 GHz : 20log (3.93 m / 3.0 m) = 2.35 dB

Horizontal	Vertical
Restricted-band band-edge Plot	Restricted-band band-edge Plot
	
Trace Green: Peak Plot Trace Purple: Average Plot	Trace Green: Peak Plot Trace Purple: Average Plot

* 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.	13024969S-AE-R3
Test place	Shonan EMC Lab.
Semi Anechoic Chamber (No.)	3
Date	January 14, 2020
Temperature / Humidity	22 deg. C / 32 % RH
Engineer	Takahiro Kawakami
	(1 GHz – 6.4 GHz)
Mode	Tx, 11ac-80 5530 MHz with BT LE 2 M-PHY 2402 MHz

(above 1GHz Inside of the restricted band)

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5460.000	PK	50.30	32.32	16.33	43.30	2.35	58.00	73.9	15.9	150	104	
Hori.	5460.000	AV	39.13	32.32	16.33	43.30	2.35	46.83	53.9	7.0	150	104	VBW:8.2 kHz
Vert.	5460.000	PK	49.16	32.32	16.33	43.30	2.35	56.86	73.9	17.0	400	146	
Vert.	5460.000	AV	40.37	32.32	16.33	43.30	2.35	48.07	53.9	**5.8**	400	146	VBW:8.2 kHz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor : 1 GHz - 13 GHz : 20log (3.93 m / 3.0 m) = 2.35 dB

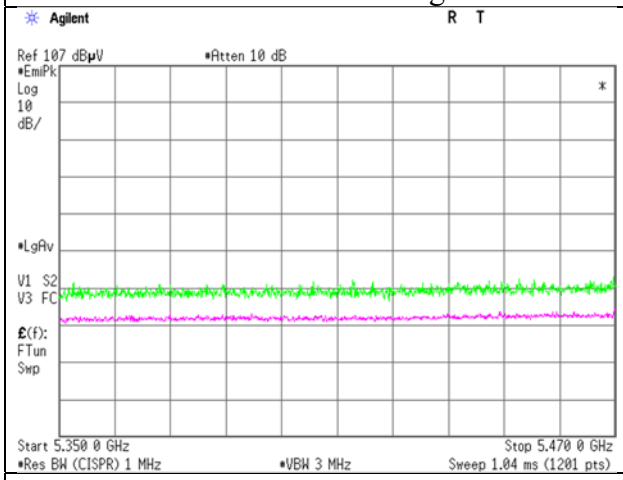
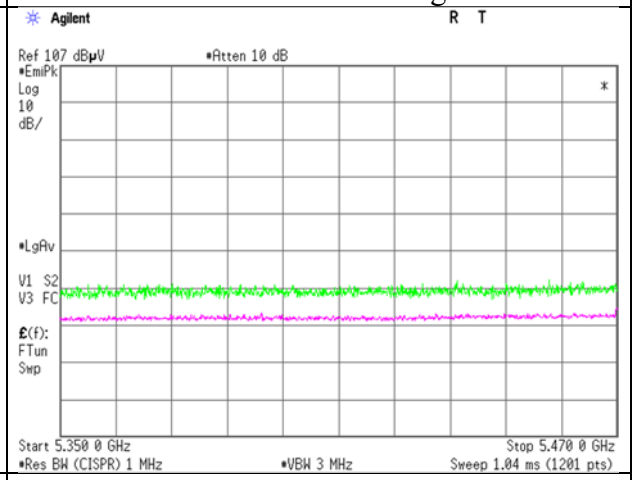
(Calculation) (above 1GHz Outside of the restricted band)

(* 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	51.41	32.34	16.34	43.31	2.35	59.13	-36.09	-27.0	**9.0**	150	104	
Vert.	5470.000	PK	51.10	32.34	16.34	43.31	2.35	58.82	-36.40	-27.0	9.4	400	146	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Resrult(EIRP[dBm])=10*LOG（{ 10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance:3[m]) ^ 2 } / 30) * 10^3)
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor : 1 GHz - 13 GHz : 20log (3.93 m / 3.0 m) = 2.35 dB

Horizontal	Vertical
Restricted-band band-edge Plot	Restricted-band band-edge Plot
	
Trace Green: Peak Plot Trace Purple: Average Plot	Trace Green: Peak Plot Trace Purple: Average Plot

* 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.	13024969S-AE-R3
Test place	Shonan EMC Lab.
Semi Anechoic Chamber (No.)	3
Date	January 14, 2020
Temperature / Humidity	22 deg. C / 32 % RH
Engineer	Takahiro Kawakami
	(1 GHz – 6.4 GHz)
Mode	Tx, 11ac-80 5610 MHz with BT LE 2 M-PHY 2402 MHz

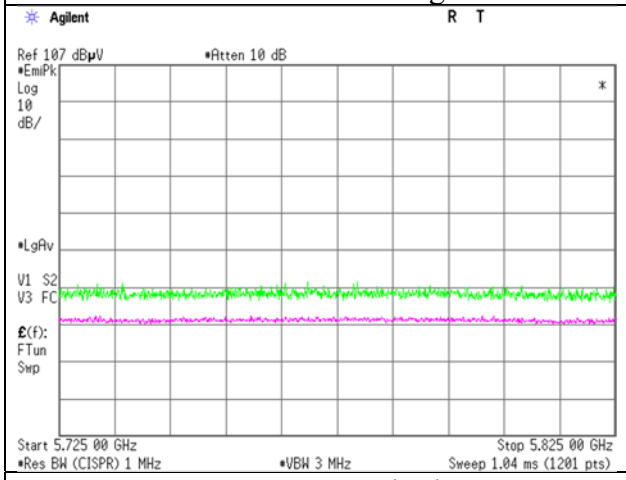
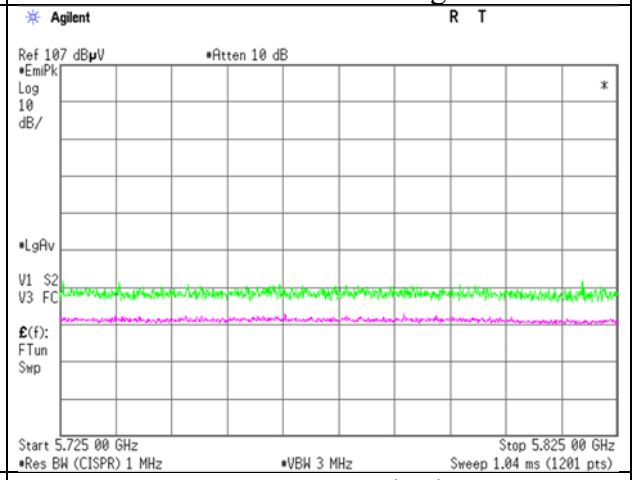
(Calculation) (above 1GHz Outside of the restricted band)

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5725.000	PK	48.45	32.68	16.49	43.33	2.35	56.64	-38.58	-27.0	**11.5**	150	64	
Vert.	5725.000	PK	48.15	32.68	16.49	43.33	2.35	56.34	-38.88	-27.0	11.8	400	130	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Resrult(EIRP[dBm])=10*LOG（({ 10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance:3[m]) ^ 2 } / 30) *10^3)
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor : 1 GHz - 13 GHz : 20log (3.93 m / 3.0 m) = 2.35 dB

Horizontal	Vertical
Restricted-band band-edge Plot	Restricted-band band-edge Plot
	
Trace Green: Peak Plot Trace Purple: Average Plot	Trace Green: Peak Plot Trace Purple: Average Plot

* 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.	13024969S-AE-R3				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber (No.)	3	3	3	3	3
Date	November 27, 2019	December 8, 2019	December 5, 2019	December 3, 2019	November 28, 2019
Temperature / Humidity	23 deg. C / 43 % RH	23 deg. C / 32 % RH	22 deg. C / 38 % RH	22 deg. C / 43 % RH	22 deg. C / 48 % RH
Engineer	Hiromasa Sato (1 GHz – 6.4 GHz)	Takahiro Kawakami (6.4 GHz – 13 GHz)	Takahiro Kawakami (13 GHz – 18 GHz)	Takahiro Kawakami (18 GHz – 26.5 GHz)	Takahiro Kawakami (26.5 GHz – 40 GHz)
Mode	Tx, 11a 5745 MHz				

(above 1GHz Inside of the restricted band)

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	11490.000	PK	47.89	40.08	9.75	42.60	2.35	57.47	73.9	16.4	150	0	
Hori.	11490.000	AV	35.61	40.08	9.75	42.60	2.35	45.19	53.9	8.7	150	0	VBW:10 Hz
Vert.	11490.000	PK	48.12	40.08	9.75	42.60	2.35	57.70	73.9	16.2	150	0	
Vert.	11490.000	AV	35.64	40.08	9.75	42.60	2.35	45.22	53.9	**8.6**	150	0	VBW:10 Hz

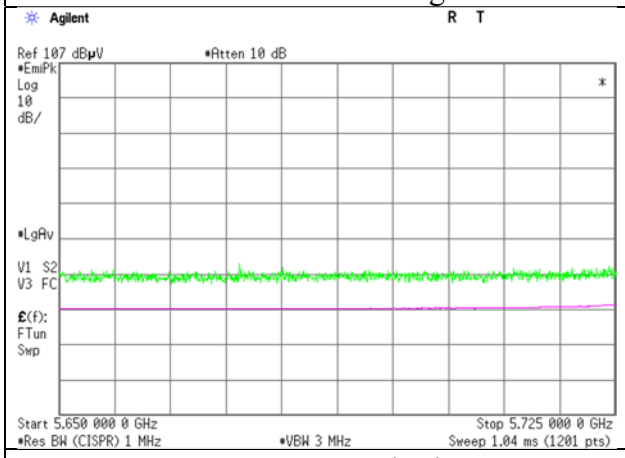
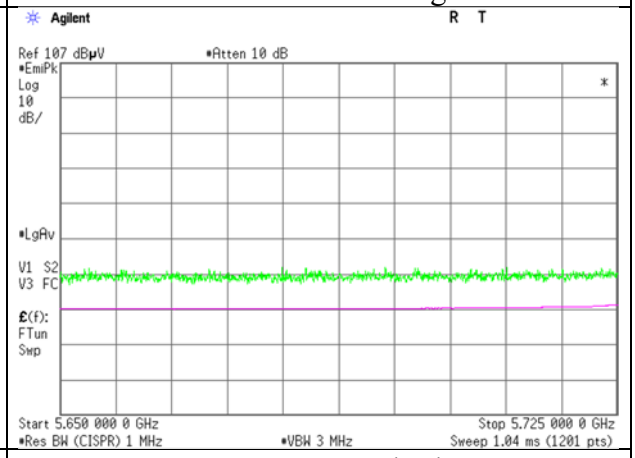
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).
Distance factor : 1 GHz - 13 GHz : 20log (3.93 m / 3.0 m) = 2.35 dB
13 GHz - 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	49.49	32.46	16.50	43.33	2.35	57.47	-37.75	-27.0	**10.7**	123	96	
Hori.	5700.000	PK	50.46	32.61	16.55	43.33	2.35	58.64	-36.58	10.0	46.5	123	96	
Hori.	5720.000	PK	50.11	32.66	16.56	43.33	2.35	58.35	-36.87	15.6	52.4	123	96	
Hori.	5725.000	PK	50.80	32.68	16.57	43.33	2.35	59.07	-36.15	27.0	63.1	123	96	
Hori.	17235.000	PK	48.85	41.54	12.20	40.29	-9.54	52.76	-42.46	-27.0	15.4	136	10	
Vert.	5650.000	PK	49.35	32.46	16.50	43.33	2.35	57.33	-37.89	-27.0	10.8	388	131	
Vert.	5700.000	PK	49.58	32.61	16.55	43.33	2.35	57.76	-37.46	10.0	47.4	388	131	
Vert.	5720.000	PK	49.82	32.66	16.56	43.33	2.35	58.06	-37.16	15.6	52.7	388	131	
Vert.	5725.000	PK	50.59	32.68	16.57	43.33	2.35	58.86	-36.36	27.0	63.3	388	131	
Vert.	17235.000	PK	48.05	41.54	12.20	40.29	-9.54	51.96	-43.26	-27.0	16.2	130	11	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Resrult(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 (3.93 m / 3.0 m) = 2.35 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Horizontal	Vertical
Restricted-band band-edge Plot	Restricted-band band-edge Plot
	
Trace Green: Peak Plot Trace Purple: Average Plot	Trace Green: Peak Plot Trace Purple: Average Plot

* 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.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN
Telephone : +81 596 24 8999
Facsimile : +81 596 24 8124

Radiated Spurious Emission

Report No.	13024969S-AE-R3				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber (No.)	3	3	3	3	3
Date	November 27, 2019	December 8, 2019	December 5, 2019	December 3, 2019	November 28, 2019
Temperature / Humidity	23 deg. C / 43 % RH	23 deg. C / 32 % RH	22 deg. C / 38 % RH	22 deg. C / 43 % RH	22 deg. C / 48 % RH
Engineer	Hiromasa Sato	Takahiro Kawakami	Takahiro Kawakami	Takahiro Kawakami	Takahiro Kawakami
	(1 GHz – 6.4 GHz)	(6.4 GHz – 13 GHz)	(13 GHz – 18 GHz)	(18 GHz – 26.5 GHz)	(26.5 GHz – 40 GHz)
Mode	Tx, 11a 5785 MHz				

(above 1GHz Inside of the restricted band)

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	11570.000	PK	47.22	39.96	9.79	42.56	2.35	56.76	73.9	17.1	150	0	
Hori.	11570.000	AV	35.23	39.96	9.79	42.56	2.35	44.77	53.9	**9.1**	150	0	VBW:10 Hz
Vert.	11570.000	PK	47.41	39.96	9.79	42.56	2.35	56.95	73.9	16.9	150	0	
Vert.	11570.000	AV	35.26	39.96	9.79	42.56	2.35	44.80	53.9	**9.1**	150	0	VBW:10 Hz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).
Distance factor : 1 GHz - 13 GHz : 20log (3.93 m / 3.0 m) = 2.35 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	49.39	42.34	12.26	40.26	-9.54	54.19	-41.03	-27.0	**14.0**	136	18	
Vert.	17355.000	PK	48.73	42.34	12.26	40.26	-9.54	53.53	-41.69	-27.0	14.6	136	17	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Resrult(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 (3.93 m / 3.0 m) = 2.35 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Radiated Spurious Emission

Report No.	13024969S-AE-R3				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber (No.)	3	3	3	3	3
Date	November 27, 2019	December 8, 2019	December 5, 2019	December 3, 2019	November 28, 2019
Temperature / Humidity	23 deg. C / 43 % RH	23 deg. C / 32 % RH	22 deg. C / 38 % RH	22 deg. C / 43 % RH	22 deg. C / 48 % RH
Engineer	Hiromasa Sato	Takahiro Kawakami	Takahiro Kawakami	Takahiro Kawakami	Takahiro Kawakami
	(1 GHz – 6.4 GHz)	(6.4 G – 13 GHz)	(13 GHz – 18 GHz)	(18 GHz – 26.5 GHz)	(26.5 GHz – 40 GHz)
Mode	Tx, 11a 5825 MHz				

(above 1GHz Inside of the restricted band)

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	11650.000	PK	46.32	39.69	9.83	42.51	2.35	55.68	73.9	18.2	150	0	
Hori.	11650.000	AV	34.69	39.69	9.83	42.51	2.35	44.05	53.9	**9.8**	150	0	VBW:10 Hz
Vert.	11650.000	PK	47.65	39.69	9.83	42.51	2.35	57.01	73.9	16.8	150	0	
Vert.	11650.000	AV	34.70	39.69	9.83	42.51	2.35	44.06	53.9	**9.8**	150	0	VBW:10 Hz

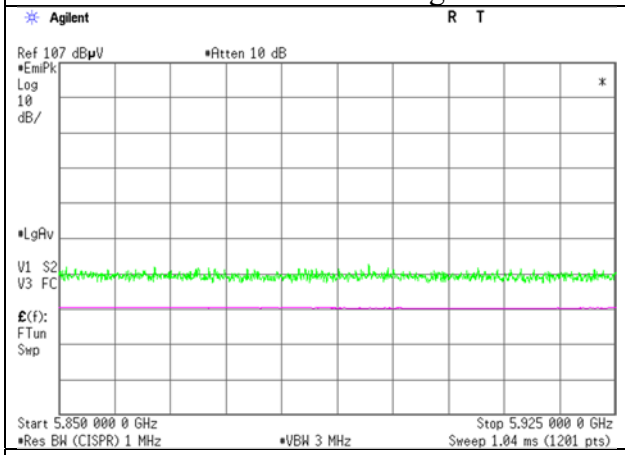
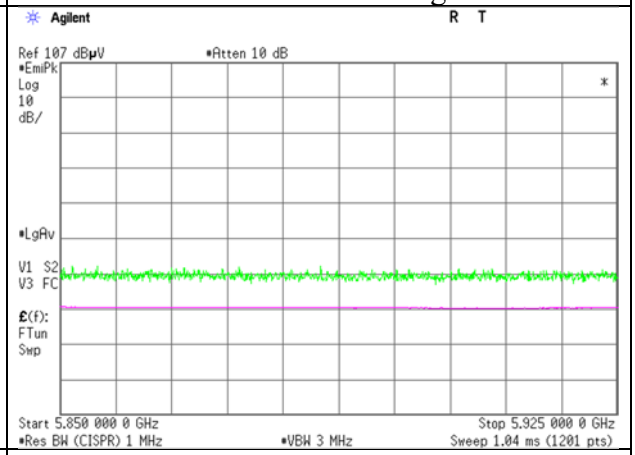
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).
Distance factor : 1 GHz - 13 GHz : 20log (3.93 m / 3.0 m) = 2.35 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

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

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5850.000	PK	49.51	33.02	16.70	43.34	2.35	58.24	-36.98	27.0	63.9	106	98	
Hori.	5855.000	PK	49.38	33.03	16.70	43.34	2.35	58.12	-37.10	15.6	52.7	106	98	
Hori.	5875.000	PK	48.52	33.08	16.72	43.34	2.35	57.33	-37.89	10.0	47.8	106	98	
Hori.	5925.000	PK	48.33	33.18	16.76	43.34	2.35	57.28	-37.94	-27.0	10.9	106	98	
Hori.	17475.000	PK	48.91	43.01	12.33	40.23	-9.54	54.48	-40.74	-27.0	13.7	131	20	
Vert.	5850.000	PK	49.75	33.02	16.70	43.34	2.35	58.48	-36.74	27.0	63.7	100	132	
Vert.	5855.000	PK	49.37	33.03	16.70	43.34	2.35	58.11	-37.11	15.6	52.7	100	132	
Vert.	5875.000	PK	49.47	33.08	16.72	43.34	2.35	58.28	-36.94	10.0	46.9	100	132	
Vert.	5925.000	PK	49.04	33.18	16.76	43.34	2.35	57.99	-37.23	-27.0	**10.2**	100	132	
Vert.	17475.000	PK	48.09	43.01	12.33	40.23	-9.54	53.66	-41.56	-27.0	14.5	178	9	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Resrult(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 (3.93 m / 3.0 m) = 2.35 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Horizontal	Vertical
Restricted-band band-edge Plot	Restricted-band band-edge Plot
	
Trace Green: Peak Plot Trace Purple: Average Plot	Trace Green: Peak Plot Trace Purple: Average Plot

* 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.	13024969S-AE-R3
Test place	Shonan EMC Lab.
Semi Anechoic Chamber (No.)	3
Date	January 9, 2020
Temperature / Humidity	24 deg. C / 40 % RH
Engineer	Hiromasa Sato
	(1 GHz – 6.4 GHz)
Mode	Tx, 11a 5745 MHz with DH5 hopping

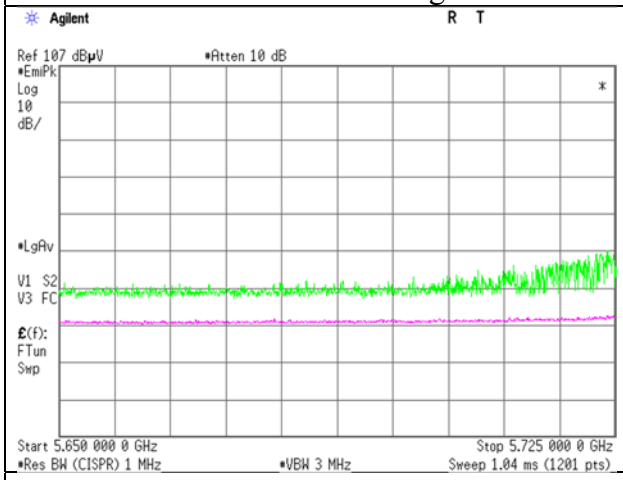
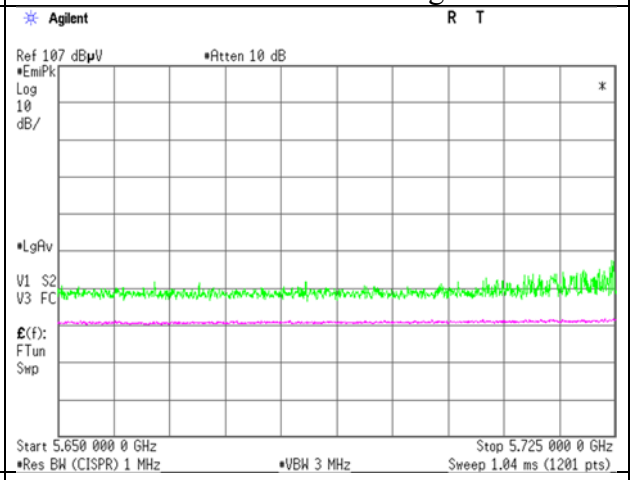
(Calculation) (above 1GHz Outside of the restricted band)

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5650.000	PK	48.38	32.46	16.50	43.33	2.35	56.36	-38.86	-27.0	**11.8**	108	120	
Hori.	5700.000	PK	50.82	32.61	16.55	43.33	2.35	59.00	-36.22	10.0	46.2	108	120	
Hori.	5720.000	PK	55.65	32.66	16.56	43.33	2.35	63.89	-31.33	15.6	46.9	108	120	
Hori.	5725.000	PK	57.89	32.68	16.57	43.33	2.35	66.16	-29.06	27.0	56.0	108	120	
Vert.	5650.000	PK	48.04	32.46	16.50	43.33	2.35	56.02	-39.20	-27.0	12.2	391	202	
Vert.	5700.000	PK	48.86	32.61	16.55	43.33	2.35	57.04	-38.18	10.0	48.1	391	202	
Vert.	5720.000	PK	53.28	32.66	16.56	43.33	2.35	61.52	-33.70	15.6	49.3	391	202	
Vert.	5725.000	PK	55.05	32.68	16.57	43.33	2.35	63.32	-31.90	27.0	58.9	391	202	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Resrult(EIRP[dBm])=10*LOG（({ 10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance:3[m]) ^ 2 } / 30) *10^3)
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor : 1 GHz - 13 GHz : 20log (3.93 m / 3.0 m) = 2.35 dB

Horizontal	Vertical
Restricted-band band-edge Plot	Restricted-band band-edge Plot
	
Trace Green: Peak Plot Trace Purple: Average Plot	Trace Green: Peak Plot Trace Purple: Average Plot

* 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.	13024969S-AE-R3
Test place	Shonan EMC Lab.
Semi Anechoic Chamber (No.)	3
Date	January 9, 2020
Temperature / Humidity	24 deg. C / 40 % RH
Engineer	Hiromasa Sato
	(1 GHz – 6.4 GHz)
Mode	Tx, 11a 5825 MHz with DH5 hopping

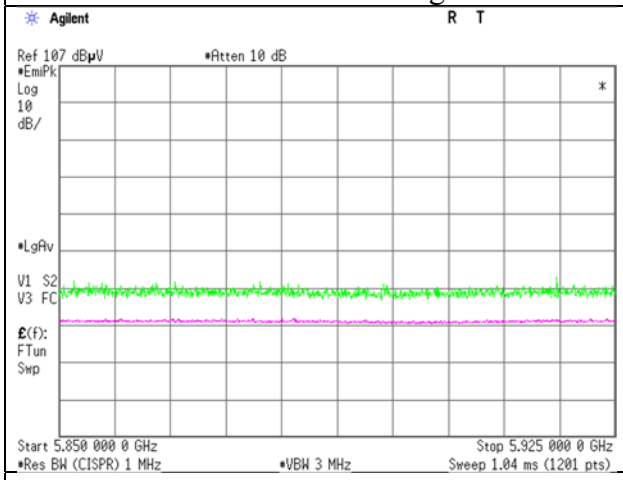
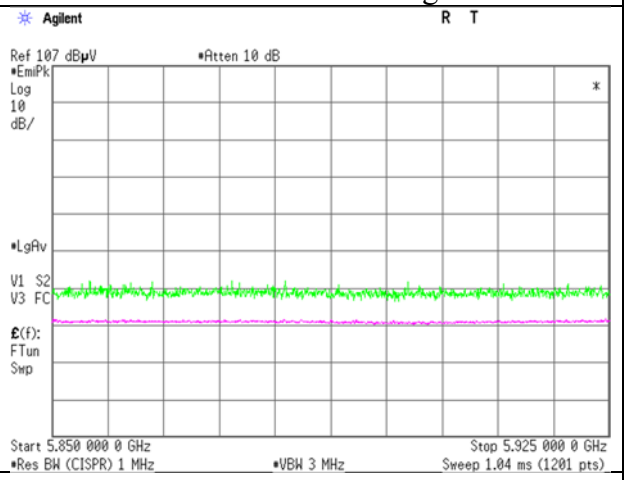
(Calculation) (above 1GHz Outside of the restricted band)

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5850.000	PK	48.65	33.02	16.70	43.34	2.35	57.38	-37.84	27.0	64.8	103	124	
Hori.	5855.000	PK	48.63	33.03	16.70	43.34	2.35	57.37	-37.85	15.6	53.4	103	124	
Hori.	5875.000	PK	48.35	33.08	16.72	43.34	2.35	57.16	-38.06	10.0	48.0	103	124	
Hori.	5925.000	PK	48.10	33.18	16.76	43.34	2.35	57.05	-38.17	-27.0	11.1	103	124	
Vert.	5850.000	PK	49.06	33.02	16.70	43.34	2.35	57.79	-37.43	27.0	64.4	400	204	
Vert.	5855.000	PK	48.57	33.03	16.70	43.34	2.35	57.31	-37.91	15.6	53.5	400	204	
Vert.	5875.000	PK	48.50	33.08	16.72	43.34	2.35	57.31	-37.91	10.0	47.9	400	204	
Vert.	5925.000	PK	48.43	33.18	16.76	43.34	2.35	57.38	-37.84	-27.0	**10.8**	400	204	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Resrult(EIRP[dBm])=10*LOG （({ 10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance:3[m]) ^ 2 } / 30) *10^3)
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor : 1 GHz - 13 GHz : 20log (3.93 m / 3.0 m) = 2.35 dB

Horizontal	Vertical
Restricted-band band-edge Plot	Restricted-band band-edge Plot
	
Trace Green: Peak Plot Trace Purple: Average Plot	Trace Green: Peak Plot Trace Purple: Average Plot

* 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.	13024969S-AE-R3
Test place	Shonan EMC Lab.
Semi Anechoic Chamber (No.)	3
Date	January 10, 2020
Temperature / Humidity	21 deg. C / 28 % RH
Engineer	Takahiro Kawakami
	(1 GHz – 6.4 GHz)
Mode	Tx, 11a 5745 MHz with BT LE 2 M-PHY 2402 MHz

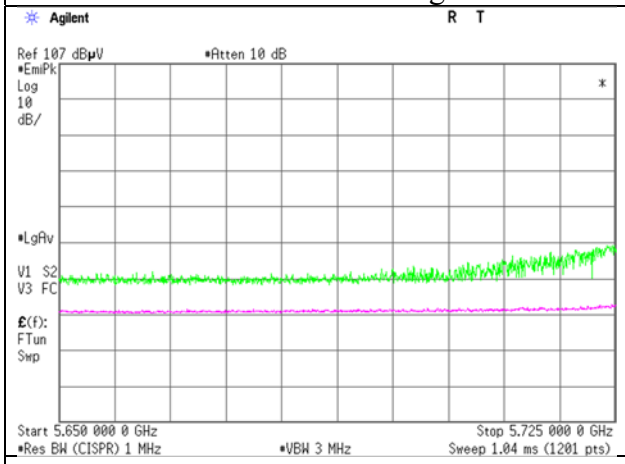
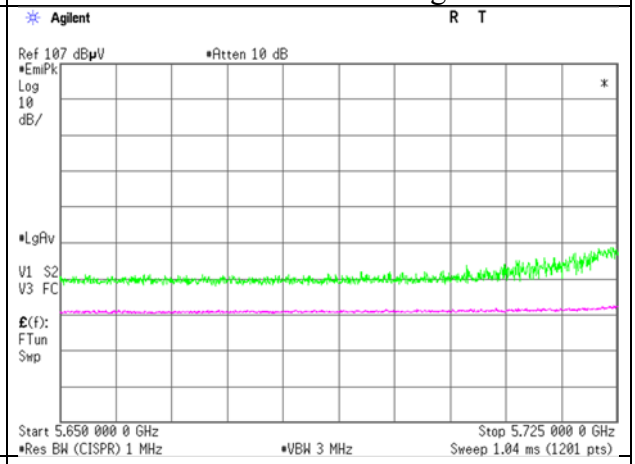
(Calculation) (above 1GHz Outside of the restricted band)

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5650.000	PK	48.74	32.46	16.44	43.33	2.35	56.66	-38.56	-27.0	**11.5**	173	79	
Hori.	5700.000	PK	51.64	32.61	16.48	43.33	2.35	59.75	-35.47	10.0	45.4	173	79	
Hori.	5720.000	PK	56.02	32.66	16.49	43.33	2.35	64.19	-31.03	15.6	46.6	173	79	
Hori.	5725.000	PK	57.57	32.68	16.49	43.33	2.35	65.76	-29.46	27.0	56.4	173	79	
Vert.	5650.000	PK	48.75	32.46	16.44	43.33	2.35	56.67	-38.55	-27.0	**11.5**	373	134	
Vert.	5700.000	PK	50.25	32.61	16.48	43.33	2.35	58.36	-36.86	10.0	46.8	373	134	
Vert.	5720.000	PK	55.19	32.66	16.49	43.33	2.35	63.36	-31.86	15.6	47.4	373	134	
Vert.	5725.000	PK	57.07	32.68	16.49	43.33	2.35	65.26	-29.96	27.0	56.9	373	134	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Resrult(EIRP[dBm])=10*LOG（({ 10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance:3[m]) ^ 2 } / 30) *10^3)
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor : 1 GHz - 13 GHz : 20log (3.93 m / 3.0 m) = 2.35 dB

Horizontal	Vertical
Restricted-band band-edge Plot	Restricted-band band-edge Plot
	
Trace Green: Peak Plot Trace Purple: Average Plot	Trace Green: Peak Plot Trace Purple: Average Plot

* 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.	13024969S-AE-R3
Test place	Shonan EMC Lab.
Semi Anechoic Chamber (No.)	3
Date	January 10, 2020
Temperature / Humidity	21 deg. C / 28 % RH
Engineer	Takahiro Kawakami
	(1 GHz – 6.4 GHz)
Mode	Tx, 11a 5825 MHz with BT LE 2 M-PHY 2402 MHz

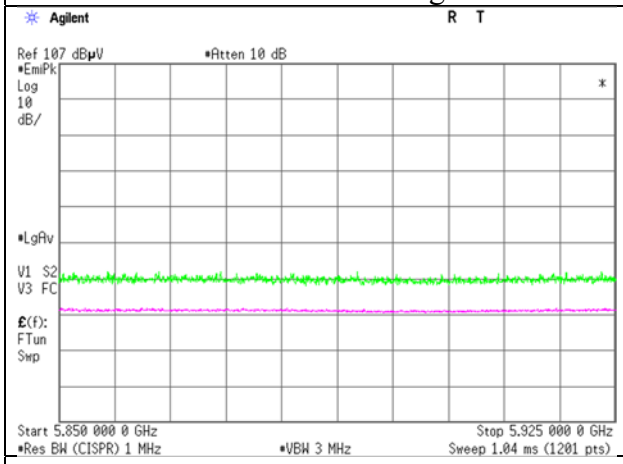
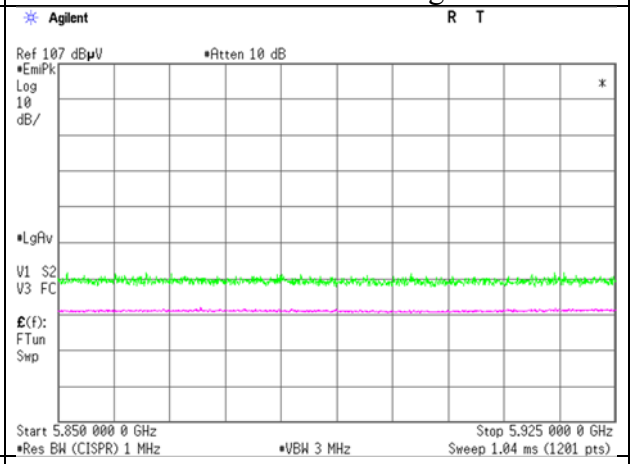
(Calculation) (above 1GHz Outside of the restricted band)

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5850.000	PK	50.63	33.02	16.59	43.34	2.35	59.25	-35.97	27.0	62.9	152	116	
Hori.	5855.000	PK	49.50	33.03	16.59	43.34	2.35	58.13	-37.09	15.6	52.6	152	116	
Hori.	5875.000	PK	49.68	33.08	16.60	43.34	2.35	58.37	-36.85	10.0	46.8	152	116	
Hori.	5925.000	PK	49.39	33.18	16.63	43.34	2.35	58.21	-37.01	-27.0	10.0	152	116	
Vert.	5850.000	PK	49.70	33.02	16.59	43.34	2.35	58.32	-36.90	27.0	63.9	103	267	
Vert.	5855.000	PK	48.78	33.03	16.59	43.34	2.35	57.41	-37.81	15.6	53.4	103	267	
Vert.	5875.000	PK	49.32	33.08	16.60	43.34	2.35	58.01	-37.21	10.0	47.2	103	267	
Vert.	5925.000	PK	49.42	33.18	16.63	43.34	2.35	58.24	-36.98	-27.0	**9.9**	103	267	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Resrult(EIRP[dBm])=10*LOG（({ 10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance:3[m]) ^ 2 } / 30) *10^3)
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor : 1 GHz - 13 GHz : 20log (3.93 m / 3.0 m) = 2.35 dB

Horizontal	Vertical
Restricted-band band-edge Plot	Restricted-band band-edge Plot
	
Trace Green: Peak Plot Trace Purple: Average Plot	Trace Green: Peak Plot Trace Purple: Average Plot

* 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.	13024969S-AE-R3				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber (No.)	3	3	3	3	3
Date	November 30, 2019	December 8, 2019	December 6, 2019	December 3, 2019	November 28, 2019
Temperature / Humidity	21 deg. C / 30 % RH	23 deg. C / 32 % RH	23 deg. C / 26 % RH	22 deg. C / 43 % RH	22 deg. C / 48 % RH
Engineer	Takahiro Kawakami (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)	Takahiro Kawakami (26.5 GHz – 40 GHz)
Mode	Tx, 11ac-20 5745 MHz				

(above 1GHz Inside of the restricted band)

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	11490.000	PK	48.18	40.08	9.75	42.60	2.35	57.76	73.9	16.1	150	0	
Hori.	11490.000	AV	35.68	40.08	9.75	42.60	2.35	45.26	53.9	**8.6**	150	0	VBW:10 Hz
Vert.	11490.000	PK	48.11	40.08	9.75	42.60	2.35	57.69	73.9	16.2	150	0	
Vert.	11490.000	AV	35.65	40.08	9.75	42.60	2.35	45.23	53.9	**8.6**	150	0	VBW:10 Hz

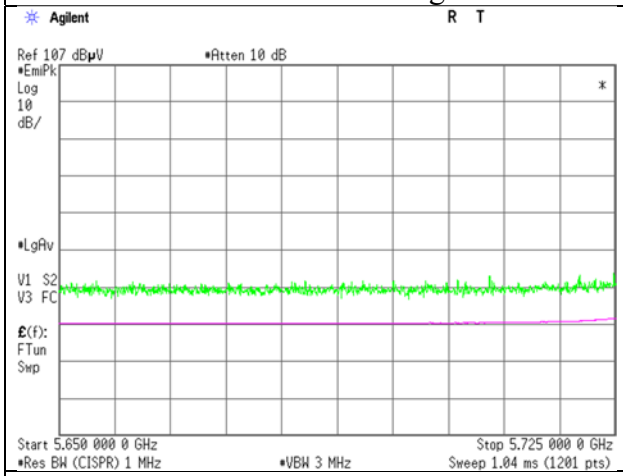
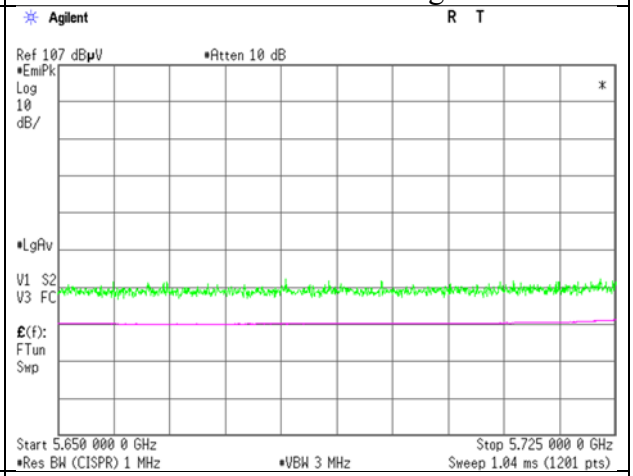
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).
Distance factor : 1 GHz - 13 GHz : 20log (3.93 m / 3.0 m) = 2.35 dB
13 GHz - 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	49.26	32.46	16.50	43.33	2.35	57.24	-37.98	-27.0	**10.9**	151	116	
Hori.	5700.000	PK	49.89	32.61	16.55	43.33	2.35	58.07	-37.15	10.0	47.1	151	116	
Hori.	5720.000	PK	49.61	32.66	16.56	43.33	2.35	57.85	-37.37	15.6	52.9	151	116	
Hori.	5725.000	PK	52.03	32.68	16.57	43.33	2.35	60.30	-34.92	27.0	61.9	151	116	
Hori.	17235.000	PK	49.94	41.54	12.20	40.29	-9.54	53.85	-41.37	-27.0	14.3	181	11	
Vert.	5650.000	PK	49.00	32.46	16.50	43.33	2.35	56.98	-38.24	-27.0	11.2	383	148	
Vert.	5700.000	PK	49.29	32.61	16.55	43.33	2.35	57.47	-37.75	10.0	47.7	383	148	
Vert.	5720.000	PK	49.09	32.66	16.56	43.33	2.35	57.33	-37.89	15.6	53.4	383	148	
Vert.	5725.000	PK	49.98	32.68	16.57	43.33	2.35	58.25	-36.97	27.0	63.9	383	148	
Vert.	17235.000	PK	49.90	41.54	12.20	40.29	-9.54	53.81	-41.41	-27.0	14.4	184	3	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Resrult(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 (3.93 m / 3.0 m) = 2.35 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Horizontal	Vertical
Restricted-band band-edge Plot	Restricted-band band-edge Plot
	
Trace Green: Peak Plot Trace Purple: Average Plot	Trace Green: Peak Plot Trace Purple: Average Plot

* 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.	13024969S-AE-R3				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber (No.)	3	3	3	3	3
Date	November 30, 2019	December 8, 2019	December 6, 2019	December 3, 2019	November 28, 2019
Temperature / Humidity	21 deg. C / 30 % RH	23 deg. C / 32 % RH	23 deg. C / 26 % RH	22 deg. C / 43 % RH	22 deg. C / 48 % RH
Engineer	Takahiro Kawakami (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)	Takahiro Kawakami (26.5 GHz – 40 GHz)
Mode	Tx, 11ac-20 5785 MHz				

(above 1GHz Inside of the restricted band)

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	11570.000	PK	47.33	39.96	9.79	42.56	2.35	56.87	73.9	17.0	150	0	
Hori.	11570.000	AV	35.30	39.96	9.79	42.56	2.35	44.84	53.9	**9.0**	150	0	VBW:10 Hz
Vert.	11570.000	PK	47.45	39.96	9.79	42.56	2.35	56.99	73.9	16.9	150	0	
Vert.	11570.000	AV	35.29	39.96	9.79	42.56	2.35	44.83	53.9	**9.0**	150	0	VBW:10 Hz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).
Distance factor : 1 GHz - 13 GHz : 20log (3.93 m / 3.0 m) = 2.35 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	51.27	42.34	12.26	40.26	-9.54	56.07	-39.15	-27.0	**12.1**	180	11	
Vert.	17355.000	PK	49.74	42.34	12.26	40.26	-9.54	54.54	-40.68	-27.0	13.6	183	5	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Resrult(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 (3.93 m / 3.0 m) = 2.35 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Radiated Spurious Emission

Report No.	13024969S-AE-R3				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber (No.)	3	3	3	3	3
Date	November 30, 2019	December 8, 2019	December 6, 2019	December 3, 2019	November 28, 2019
Temperature / Humidity	21 deg. C / 30 % RH	23 deg. C / 32 % RH	23 deg. C / 26 % RH	22 deg. C / 43 % RH	22 deg. C / 48 % RH
Engineer	Takahiro Kawakami (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)	Takahiro Kawakami (26.5 GHz – 40 GHz)
Mode	Tx, 11ac-20 5825 MHz				

(above 1GHz Inside of the restricted band)

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	11650.000	PK	46.99	39.69	9.83	42.51	2.35	56.35	73.9	17.5	150	0	
Hori.	11650.000	AV	34.71	39.69	9.83	42.51	2.35	44.07	53.9	**9.8**	150	0	VBW:10 Hz
Vert.	11650.000	PK	46.58	39.69	9.83	42.51	2.35	55.94	73.9	17.9	150	0	
Vert.	11650.000	AV	34.68	39.69	9.83	42.51	2.35	44.04	53.9	**9.8**	150	0	VBW:10 Hz

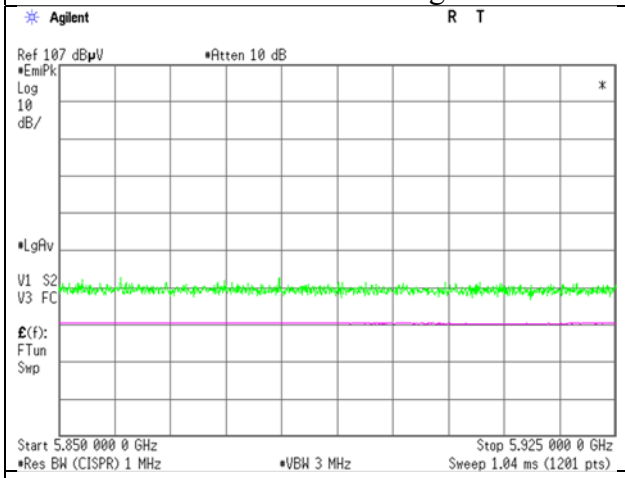
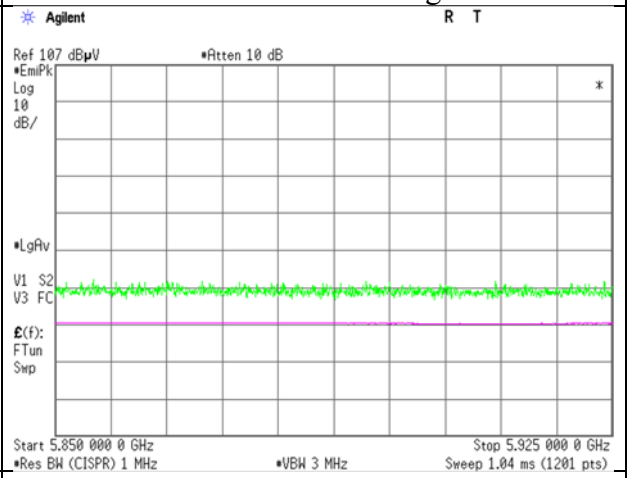
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).
Distance factor : 1 GHz - 13 GHz : 20log (3.93 m / 3.0 m) = 2.35 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

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

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5850.000	PK	49.06	33.02	16.70	43.34	2.35	57.79	-37.43	27.0	64.4	150	117	
Hori.	5855.000	PK	49.25	33.03	16.70	43.34	2.35	57.99	-37.23	15.6	52.8	150	117	
Hori.	5875.000	PK	49.53	33.08	16.72	43.34	2.35	58.34	-36.88	10.0	46.8	150	117	
Hori.	5925.000	PK	48.63	33.18	16.76	43.34	2.35	57.58	-37.64	-27.0	10.6	150	117	
Hori.	17475.000	PK	50.14	43.01	12.33	40.23	-9.54	55.71	-39.51	-27.0	12.5	180	9	
Vert.	5850.000	PK	49.63	33.02	16.70	43.34	2.35	58.36	-36.86	27.0	63.8	400	139	
Vert.	5855.000	PK	50.31	33.03	16.70	43.34	2.35	59.05	-36.17	15.6	51.7	400	139	
Vert.	5875.000	PK	49.18	33.08	16.72	43.34	2.35	57.99	-37.23	10.0	47.2	400	139	
Vert.	5925.000	PK	49.62	33.18	16.76	43.34	2.35	58.57	-36.65	-27.0	**9.6**	400	139	
Vert.	17475.000	PK	49.14	43.01	12.33	40.23	-9.54	54.71	-40.51	-27.0	13.5	178	6	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Resrult(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 (3.93 m / 3.0 m) = 2.35 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Horizontal	Vertical
Restricted-band band-edge Plot	Restricted-band band-edge Plot
	
Trace Green: Peak Plot Trace Purple: Average Plot	Trace Green: Peak Plot Trace Purple: Average Plot

* 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.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN
Telephone : +81 596 24 8999
Facsimile : +81 596 24 8124

Radiated Spurious Emission

Report No.	13024969S-AE-R3
Test place	Shonan EMC Lab.
Semi Anechoic Chamber (No.)	3
Date	January 10, 2020
Temperature / Humidity	23 deg. C / 39 % RH
Engineer	Hiromasa Sato
	(1 GHz – 6.4 GHz)
Mode	Tx, 11ac-20 5745 MHz with DH5 hopping

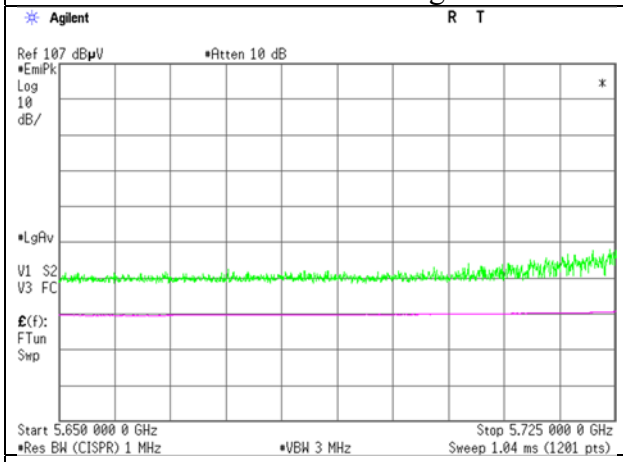
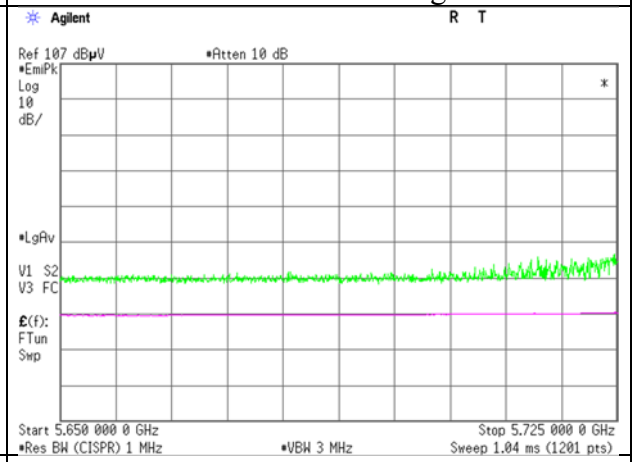
(Calculation) (above 1GHz Outside of the restricted band)

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5650.000	PK	47.73	32.46	16.44	43.33	2.35	55.65	-39.57	-27.0	12.5	115	107	
Hori.	5700.000	PK	48.18	32.61	16.48	43.33	2.35	56.29	-38.93	10.0	48.9	115	107	
Hori.	5720.000	PK	52.38	32.66	16.49	43.33	2.35	60.55	-34.67	15.6	50.2	115	107	
Hori.	5725.000	PK	54.28	32.68	16.49	43.33	2.35	62.47	-32.75	27.0	59.7	115	107	
Vert.	5650.000	PK	47.94	32.46	16.44	43.33	2.35	55.86	-39.36	-27.0	**12.3**	390	121	
Vert.	5700.000	PK	49.38	32.61	16.48	43.33	2.35	57.49	-37.73	10.0	47.7	390	121	
Vert.	5720.000	PK	54.44	32.66	16.49	43.33	2.35	62.61	-32.61	15.6	48.2	390	121	
Vert.	5725.000	PK	55.98	32.68	16.49	43.33	2.35	64.17	-31.05	27.0	58.0	390	121	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Resrult(EIRP[dBm])=10*LOG（({ 10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance:3[m]) ^ 2 } / 30) *10^3)
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor : 1 GHz - 13 GHz : 20log (3.93 m / 3.0 m) = 2.35 dB

Horizontal	Vertical
Restricted-band band-edge Plot	Restricted-band band-edge Plot
	
Trace Green: Peak Plot Trace Purple: Average Plot	Trace Green: Peak Plot Trace Purple: Average Plot

* 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.	13024969S-AE-R3
Test place	Shonan EMC Lab.
Semi Anechoic Chamber (No.)	3
Date	January 10, 2020
Temperature / Humidity	23 deg. C / 39 % RH
Engineer	Hiromasa Sato
	(1 GHz – 6.4 GHz)
Mode	Tx, 11ac-20 5825 MHz with DH5 hopping

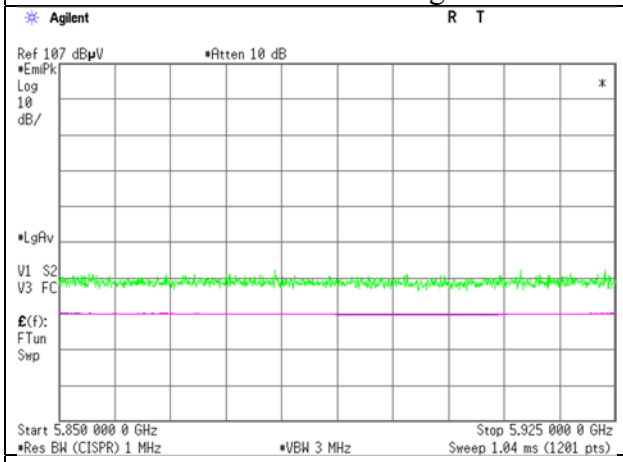
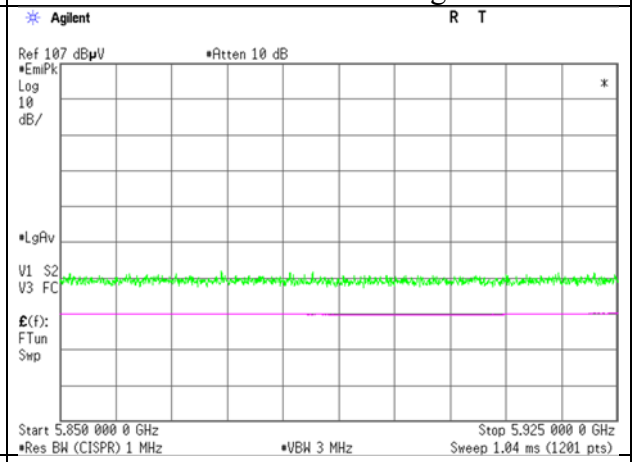
(Calculation) (above 1GHz Outside of the restricted band)

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5850.000	PK	50.23	33.02	16.59	43.34	2.35	58.85	-36.37	27.0	63.3	102	120	
Hori.	5855.000	PK	49.20	33.03	16.59	43.34	2.35	57.83	-37.39	15.6	52.9	102	120	
Hori.	5875.000	PK	49.15	33.08	16.60	43.34	2.35	57.84	-37.38	10.0	47.3	102	120	
Hori.	5925.000	PK	48.06	33.18	16.63	43.34	2.35	56.88	-38.34	-27.0	**11.3**	102	120	
Vert.	5850.000	PK	48.87	33.02	16.59	43.34	2.35	57.49	-37.73	27.0	64.7	400	149	
Vert.	5855.000	PK	48.42	33.03	16.59	43.34	2.35	57.05	-38.17	15.6	53.7	400	149	
Vert.	5875.000	PK	48.02	33.08	16.60	43.34	2.35	56.71	-38.51	10.0	48.5	400	149	
Vert.	5925.000	PK	47.86	33.18	16.63	43.34	2.35	56.68	-38.54	-27.0	11.5	400	149	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Resrult(EIRP[dBm])=10*LOG（({ 10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance:3[m]) ^ 2 } / 30) *10^3)
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor : 1 GHz - 13 GHz : 20log (3.93 m / 3.0 m) = 2.35 dB

Horizontal	Vertical
Restricted-band band-edge Plot	Restricted-band band-edge Plot
	
Trace Green: Peak Plot Trace Purple: Average Plot	Trace Green: Peak Plot Trace Purple: Average Plot

* 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.	13024969S-AE-R3
Test place	Shonan EMC Lab.
Semi Anechoic Chamber (No.)	3
Date	January 10, 2020
Temperature / Humidity	23 deg. C / 39 % RH
Engineer	Hiromasa Sato
	(1 GHz – 6.4 GHz)
Mode	Tx, 11ac-20 5745 MHz with BT LE 2 M-PHY 2402 MHz

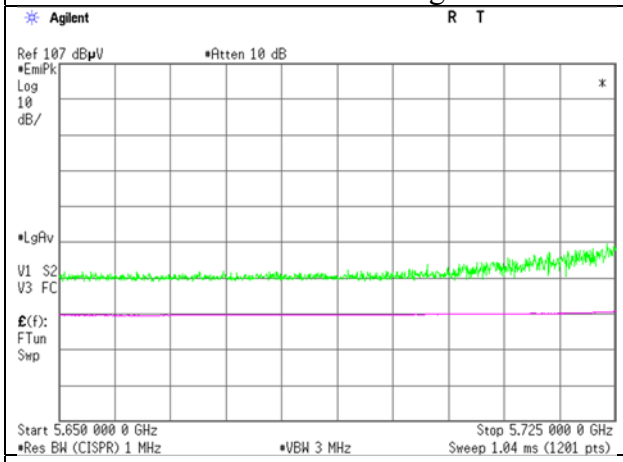
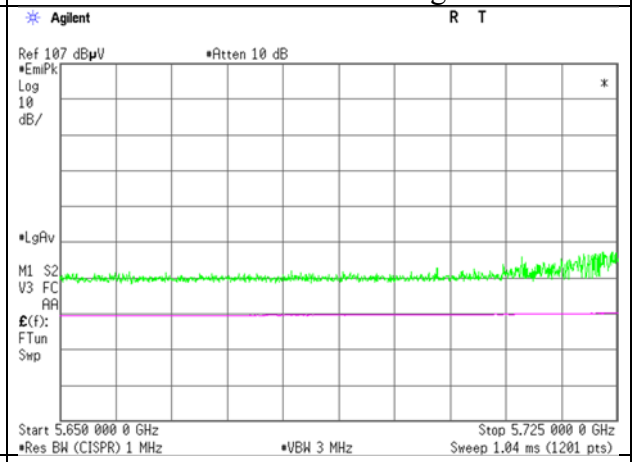
(Calculation) (above 1GHz Outside of the restricted band)

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5650.000	PK	48.55	32.46	16.44	43.33	2.35	56.47	-38.75	-27.0	**11.7**	119	72	
Hori.	5700.000	PK	49.61	32.61	16.48	43.33	2.35	57.72	-37.50	10.0	47.5	119	72	
Hori.	5720.000	PK	55.18	32.66	16.49	43.33	2.35	63.35	-31.87	15.6	47.4	119	72	
Hori.	5725.000	PK	57.06	32.68	16.49	43.33	2.35	65.25	-29.97	27.0	56.9	119	72	
Vert.	5650.000	PK	48.35	32.46	16.44	43.33	2.35	56.27	-38.95	-27.0	11.9	391	161	
Vert.	5700.000	PK	49.30	32.61	16.48	43.33	2.35	57.41	-37.81	10.0	47.8	391	161	
Vert.	5720.000	PK	53.62	32.66	16.49	43.33	2.35	61.79	-33.43	15.6	49.0	391	161	
Vert.	5725.000	PK	55.84	32.68	16.49	43.33	2.35	64.03	-31.19	27.0	58.1	391	161	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Resrult(EIRP[dBm])=10*LOG（({ 10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance:3[m]) ^ 2 } / 30) *10^3)
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor : 1 GHz - 13 GHz : 20log (3.93 m / 3.0 m) = 2.35 dB

Horizontal	Vertical
Restricted-band band-edge Plot	Restricted-band band-edge Plot
	
Trace Green: Peak Plot Trace Purple: Average Plot	Trace Green: Peak Plot Trace Purple: Average Plot

* 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.	13024969S-AE-R3
Test place	Shonan EMC Lab.
Semi Anechoic Chamber (No.)	3
Date	January 10, 2020
Temperature / Humidity	23 deg. C / 39 % RH
Engineer	Hiromasa Sato
	(1 GHz – 6.4 GHz)
Mode	Tx, 11ac-20 5825 MHz with BT LE 2 M-PHY 2402 MHz

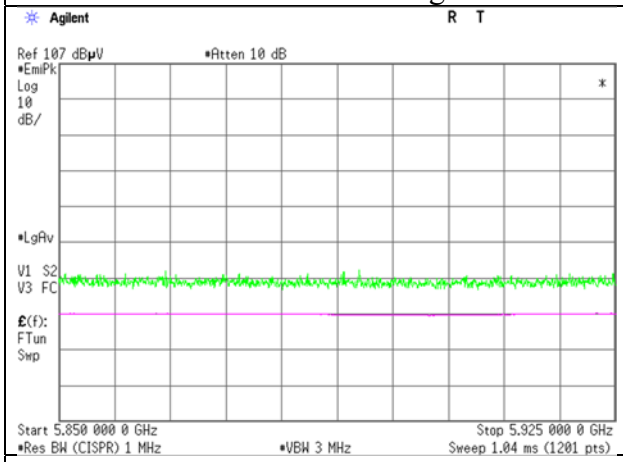
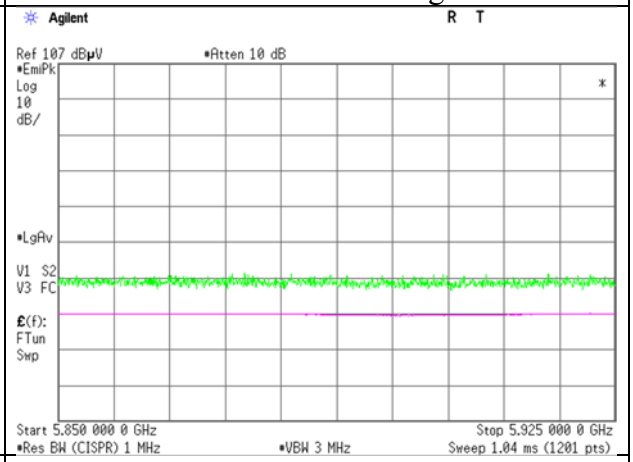
(Calculation) (above 1GHz Outside of the restricted band)

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5850.000	PK	49.74	33.02	16.59	43.34	2.35	58.36	-36.86	27.0	63.8	105	121	
Hori.	5855.000	PK	49.63	33.03	16.59	43.34	2.35	58.26	-36.96	15.6	52.5	105	121	
Hori.	5875.000	PK	49.01	33.08	16.60	43.34	2.35	57.70	-37.52	10.0	47.5	105	121	
Hori.	5925.000	PK	48.23	33.18	16.63	43.34	2.35	57.05	-38.17	-27.0	11.1	105	121	
Vert.	5850.000	PK	49.71	33.02	16.59	43.34	2.35	58.33	-36.89	27.0	63.8	380	152	
Vert.	5855.000	PK	49.03	33.03	16.59	43.34	2.35	57.66	-37.56	15.6	53.1	380	152	
Vert.	5875.000	PK	48.77	33.08	16.60	43.34	2.35	57.46	-37.76	10.0	47.7	380	152	
Vert.	5925.000	PK	48.64	33.18	16.63	43.34	2.35	57.46	-37.76	-27.0	**10.7**	380	152	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Resrult(EIRP[dBm])=10*LOG（({ 10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance:3[m]) ^ 2 } / 30) *10^3)
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor : 1 GHz - 13 GHz : 20log (3.93 m / 3.0 m) = 2.35 dB

Horizontal	Vertical
Restricted-band band-edge Plot	Restricted-band band-edge Plot
	
Trace Green: Peak Plot Trace Purple: Average Plot	Trace Green: Peak Plot Trace Purple: Average Plot

* 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.	13024969S-AE-R3			
Test place	Shonan EMC Lab.			
Semi Anechoic Chamber (No.)	3	3	3	3
Date	November 30, 2019	December 8, 2019	December 7, 2019	December 3, 2019
Temperature / Humidity	21 deg. C / 30 % RH	23 deg. C / 32 % RH	21 deg. C / 27 % RH	22 deg. C / 43 % RH
Engineer	Takahiro Kawakami (1 GHz – 6.4 GHz)	Takahiro Kawakami (6.4 GHz – 13 GHz)	Kazuya Noda (13 GHz – 18 GHz)	Takahiro Kawakami (18 GHz – 40 GHz)
Mode	Tx, 11ac-40 5755 MHz			

(above 1GHz Inside of the restricted band)

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	11510.000	PK	47.55	40.07	9.75	42.59	2.35	57.13	73.9	16.7	150	0	
Hori.	11510.000	AV	35.63	40.07	9.75	42.59	2.35	45.21	53.9	**8.6**	150	0	VBW:10 Hz
Vert.	11510.000	PK	48.04	40.07	9.75	42.59	2.35	57.62	73.9	16.2	150	0	
Vert.	11510.000	AV	35.63	40.07	9.75	42.59	2.35	45.21	53.9	**8.6**	150	0	VBW:10 Hz

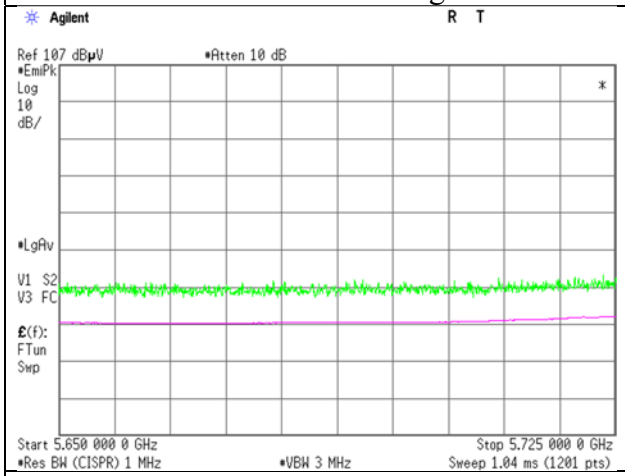
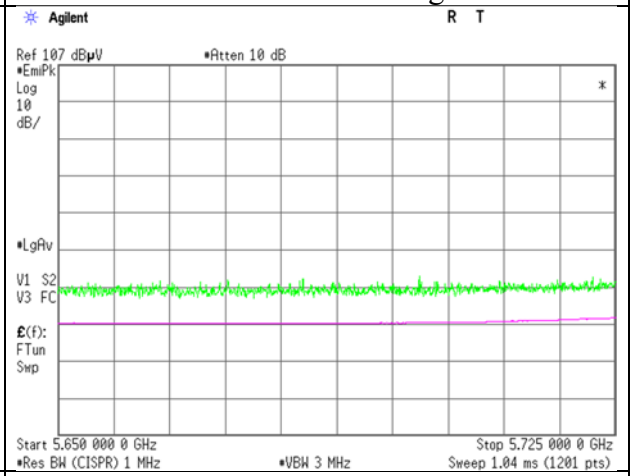
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).
Distance factor : 1 GHz - 13 GHz : 20log (3.93 m / 3.0 m) = 2.35 dB
13 GHz - 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	49.27	32.46	16.50	43.33	2.35	57.25	-37.97	-27.0	10.9	117	115	
Hori.	5700.000	PK	49.75	32.61	16.55	43.33	2.35	57.93	-37.29	10.0	47.2	117	115	
Hori.	5720.000	PK	51.74	32.66	16.56	43.33	2.35	59.98	-35.24	15.6	50.8	117	115	
Hori.	5725.000	PK	51.68	32.68	16.57	43.33	2.35	59.95	-35.27	27.0	62.2	117	115	
Hori.	17265.000	PK	49.46	41.68	12.22	40.28	-9.54	53.54	-41.68	-27.0	14.6	182	5	
Vert.	5650.000	PK	49.36	32.46	16.50	43.33	2.35	57.34	-37.88	-27.0	**10.8**	399	125	
Vert.	5700.000	PK	49.99	32.61	16.55	43.33	2.35	58.17	-37.05	10.0	47.0	399	125	
Vert.	5720.000	PK	50.73	32.66	16.56	43.33	2.35	58.97	-36.25	15.6	51.8	399	125	
Vert.	5725.000	PK	51.32	32.68	16.57	43.33	2.35	59.59	-35.63	27.0	62.6	399	125	
Vert.	17265.000	PK	48.16	41.68	12.22	40.28	-9.54	52.24	-42.98	-27.0	15.9	182	4	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Resrult(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 (3.93 m / 3.0 m) = 2.35 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Horizontal	Vertical
Restricted-band band-edge Plot	Restricted-band band-edge Plot
	
Trace Green: Peak Plot Trace Purple: Average Plot	Trace Green: Peak Plot Trace Purple: Average Plot

* 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.	13024969S-AE-R3			
Test place	Shonan EMC Lab.			
Semi Anechoic Chamber (No.)	3	3	3	3
Date	November 30, 2019	December 8, 2019	December 7, 2019	December 3, 2019
Temperature / Humidity	21 deg. C / 30 % RH	23 deg. C / 32 % RH	21 deg. C / 27 % RH	22 deg. C / 43 % RH
Engineer	Takahiro Kawakami (1 GHz – 6.4 GHz)	Takahiro Kawakami (6.4 GHz – 13 GHz)	Kazuya Noda (13 GHz – 18 GHz)	Takahiro Kawakami (18 GHz – 40 GHz)
Mode	Tx, 11ac-40 5795 MHz			

(above 1GHz Inside of the restricted band)

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	11590.000	PK	48.39	39.90	9.80	42.55	2.35	57.89	73.9	16.0	150	0	
Hori.	11590.000	AV	35.30	39.90	9.80	42.55	2.35	44.80	53.9	**9.1**	150	0	VBW:10 Hz
Vert.	11590.000	PK	47.82	39.90	9.80	42.55	2.35	57.32	73.9	16.5	150	0	
Vert.	11590.000	AV	35.28	39.90	9.80	42.55	2.35	44.78	53.9	**9.1**	150	0	VBW:10 Hz

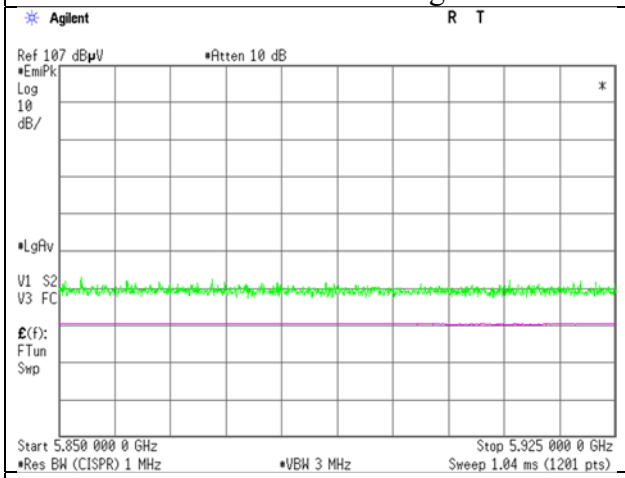
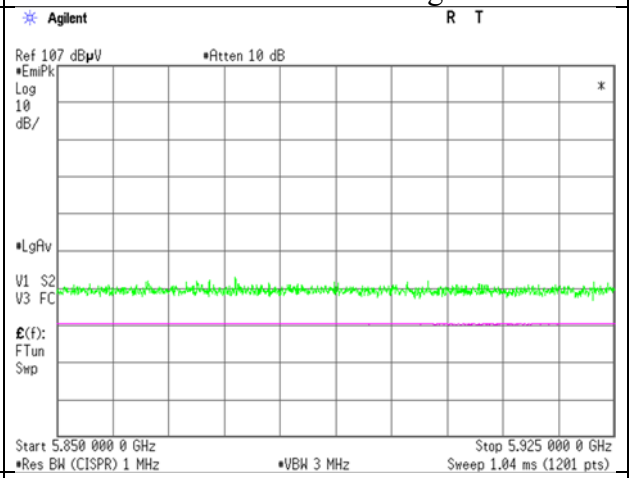
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).
Distance factor : 1 GHz - 13 GHz : 20log (3.93 m / 3.0 m) = 2.35 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

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

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5850.000	PK	49.61	33.02	16.70	43.34	2.35	58.34	-36.88	27.0	63.8	105	115	
Hori.	5855.000	PK	50.33	33.03	16.70	43.34	2.35	59.07	-36.15	15.6	51.7	105	115	
Hori.	5875.000	PK	50.88	33.08	16.72	43.34	2.35	59.69	-35.53	10.0	45.5	105	115	
Hori.	5925.000	PK	50.02	33.18	16.76	43.34	2.35	58.97	-36.25	-27.0	**9.2**	105	115	
Hori.	17385.000	PK	48.94	42.51	12.28	40.25	-9.54	53.94	-41.28	-27.0	14.2	180	12	
Vert.	5850.000	PK	49.11	33.02	16.70	43.34	2.35	57.84	-37.38	27.0	64.3	394	125	
Vert.	5855.000	PK	49.19	33.03	16.70	43.34	2.35	57.93	-37.29	15.6	52.8	394	125	
Vert.	5875.000	PK	48.79	33.08	16.72	43.34	2.35	57.60	-37.62	10.0	47.6	394	125	
Vert.	5925.000	PK	49.33	33.18	16.76	43.34	2.35	58.28	-36.94	-27.0	9.9	394	125	
Vert.	17385.000	PK	48.45	42.51	12.28	40.25	-9.54	53.45	-41.77	-27.0	14.7	184	6	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Resrult(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 (3.93 m / 3.0 m) = 2.35 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Horizontal	Vertical
Restricted-band band-edge Plot	Restricted-band band-edge Plot
	
Trace Green: Peak Plot Trace Purple: Average Plot	Trace Green: Peak Plot Trace Purple: Average Plot

* 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.	13024969S-AE-R3
Test place	Shonan EMC Lab.
Semi Anechoic Chamber (No.)	3
Date	January 11, 2020
Temperature / Humidity	21 deg. C / 32 % RH
Engineer	Takahiro Kawakami
	(1 GHz – 6.4 GHz)
Mode	Tx, 11ac-40 5755 MHz with DH5 hopping

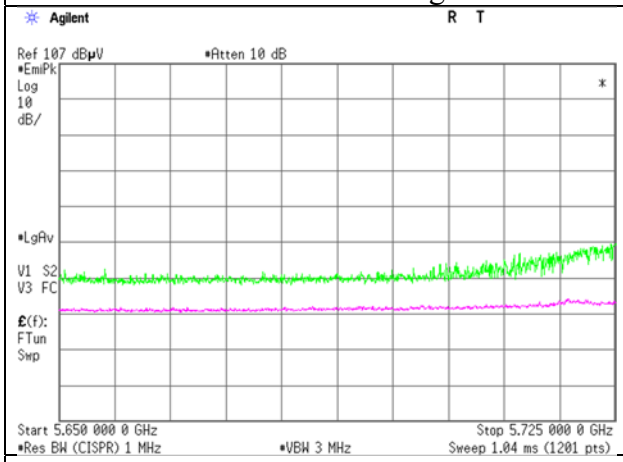
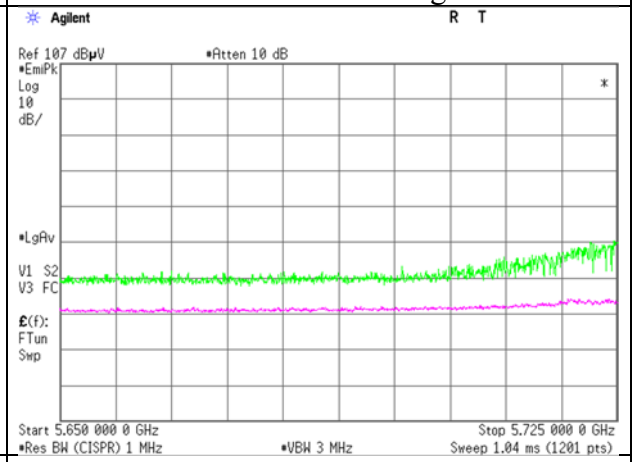
(Calculation) (above 1GHz Outside of the restricted band)

(* 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	49.18	32.46	16.44	43.33	2.35	57.10	-38.12	-27.0	**11.1**	101	119	
Hori.	5700.000	PK	51.61	32.61	16.48	43.33	2.35	59.72	-35.50	10.0	45.5	101	119	
Hori.	5720.000	PK	55.81	32.66	16.49	43.33	2.35	63.98	-31.24	15.6	46.8	101	119	
Hori.	5725.000	PK	58.42	32.68	16.49	43.33	2.35	66.61	-28.61	27.0	55.6	101	119	
Vert.	5650.000	PK	48.75	32.46	16.44	43.33	2.35	56.67	-38.55	-27.0	11.5	362	127	
Vert.	5700.000	PK	50.63	32.61	16.48	43.33	2.35	58.74	-36.48	10.0	46.4	362	127	
Vert.	5720.000	PK	56.21	32.66	16.49	43.33	2.35	64.38	-30.84	15.6	46.4	362	127	
Vert.	5725.000	PK	58.89	32.68	16.49	43.33	2.35	67.08	-28.14	27.0	55.1	362	127	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Resrult(EIRP[dBm])=10*LOG（({ 10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance:3[m]) ^ 2 } / 30) *10^3)
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor : 1 GHz - 13 GHz : 20log (3.93 m / 3.0 m) = 2.35 dB

Horizontal	Vertical
Restricted-band band-edge Plot	Restricted-band band-edge Plot
	
Trace Green: Peak Plot Trace Purple: Average Plot	Trace Green: Peak Plot Trace Purple: Average Plot

* 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.	13024969S-AE-R3
Test place	Shonan EMC Lab.
Semi Anechoic Chamber (No.)	3
Date	January 11, 2020
Temperature / Humidity	21 deg. C / 32 % RH
Engineer	Takahiro Kawakami
	(1 GHz – 6.4 GHz)
Mode	Tx, 11ac-40 5795 MHz with DH5 hopping

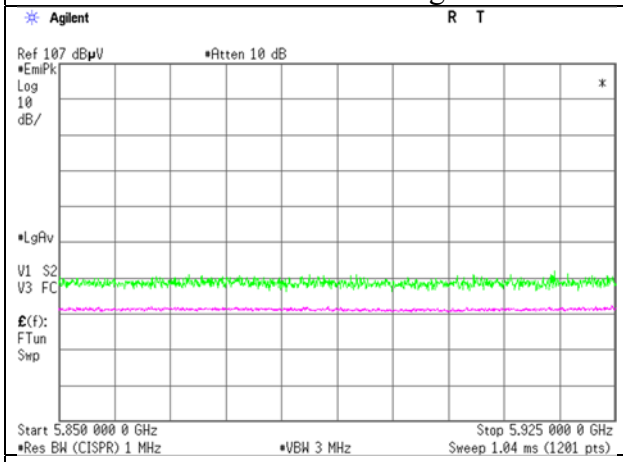
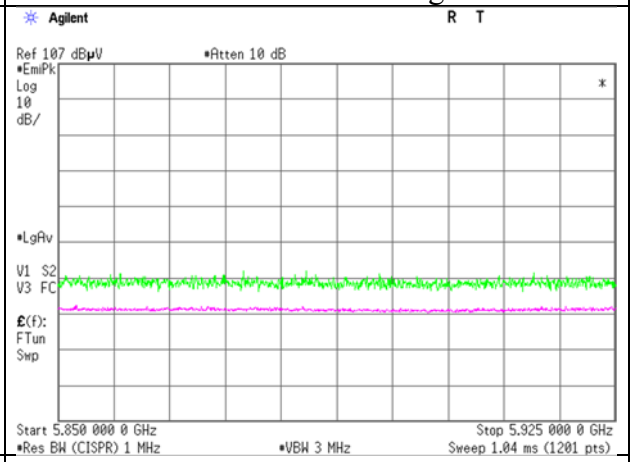
(Calculation) (above 1GHz Outside of the restricted band)

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5850.000	PK	49.38	33.02	16.59	43.34	2.35	58.00	-37.22	27.0	64.2	100	119	
Hori.	5855.000	PK	48.98	33.03	16.59	43.34	2.35	57.61	-37.61	15.6	53.2	100	119	
Hori.	5875.000	PK	48.66	33.08	16.60	43.34	2.35	57.35	-37.87	10.0	47.8	100	119	
Hori.	5925.000	PK	49.12	33.18	16.63	43.34	2.35	57.94	-37.28	-27.0	**10.2**	100	119	
Vert.	5850.000	PK	49.53	33.02	16.59	43.34	2.35	58.15	-37.07	27.0	64.0	358	128	
Vert.	5855.000	PK	49.36	33.03	16.59	43.34	2.35	57.99	-37.23	15.6	52.8	358	128	
Vert.	5875.000	PK	48.94	33.08	16.60	43.34	2.35	57.63	-37.59	10.0	47.5	358	128	
Vert.	5925.000	PK	49.03	33.18	16.63	43.34	2.35	57.85	-37.37	-27.0	10.3	358	128	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Resrult(EIRP[dBm])=10*LOG（({ 10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance:3[m]) ^ 2 } / 30) *10^3)
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor : 1 GHz - 13 GHz : 20log (3.93 m / 3.0 m) = 2.35 dB

Horizontal	Vertical
Restricted-band band-edge Plot	Restricted-band band-edge Plot
	
Trace Green: Peak Plot Trace Purple: Average Plot	Trace Green: Peak Plot Trace Purple: Average Plot

* 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.	13024969S-AE-R3
Test place	Shonan EMC Lab.
Semi Anechoic Chamber (No.)	3
Date	January 11, 2020
Temperature / Humidity	21 deg. C / 32 % RH
Engineer	Takahiro Kawakami
	(1 GHz – 6.4 GHz)
Mode	Tx, 11ac-40 5755 MHz with BT LE 2 M-PHY 2402 MHz

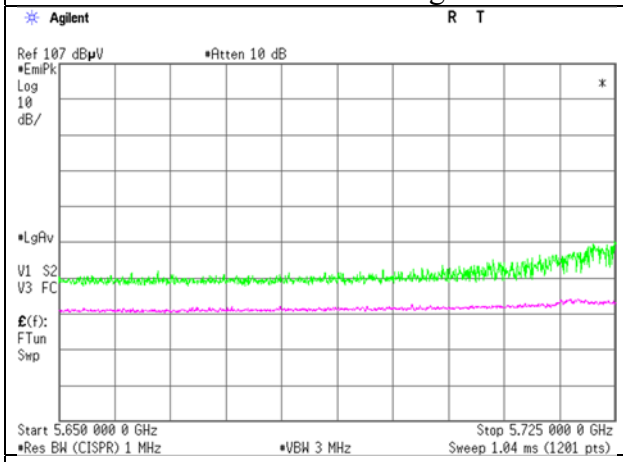
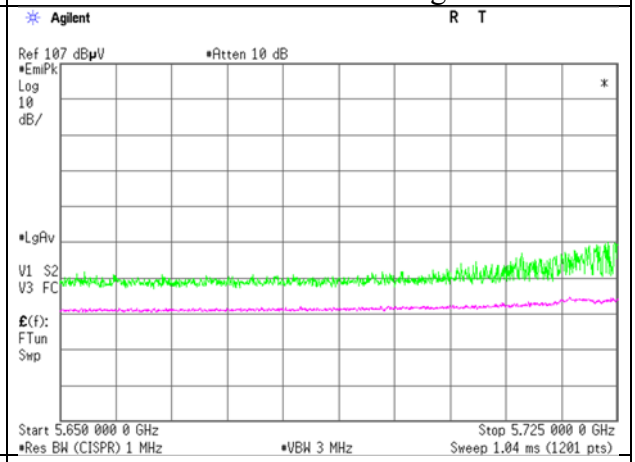
(Calculation) (above 1GHz Outside of the restricted band)

(* 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	49.00	32.46	16.44	43.33	2.35	56.92	-38.30	-27.0	**11.3**	100	118	
Hori.	5700.000	PK	50.71	32.61	16.48	43.33	2.35	58.82	-36.40	10.0	46.4	100	118	
Hori.	5720.000	PK	55.68	32.66	16.49	43.33	2.35	63.85	-31.37	15.6	46.9	100	118	
Hori.	5725.000	PK	58.17	32.68	16.49	43.33	2.35	66.36	-28.86	27.0	55.8	100	118	
Vert.	5650.000	PK	48.66	32.46	16.44	43.33	2.35	56.58	-38.64	-27.0	11.6	362	126	
Vert.	5700.000	PK	51.05	32.61	16.48	43.33	2.35	59.16	-36.06	10.0	46.0	362	126	
Vert.	5720.000	PK	57.05	32.66	16.49	43.33	2.35	65.22	-30.00	15.6	45.6	362	126	
Vert.	5725.000	PK	58.67	32.68	16.49	43.33	2.35	66.86	-28.36	27.0	55.3	362	126	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Resrult(EIRP[dBm])=10*LOG（({ 10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance:3[m]) ^ 2 } / 30) *10^3)
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor : 1 GHz - 13 GHz : 20log (3.93 m / 3.0 m) = 2.35 dB

Horizontal	Vertical
Restricted-band band-edge Plot	Restricted-band band-edge Plot
	
Trace Green: Peak Plot Trace Purple: Average Plot	Trace Green: Peak Plot Trace Purple: Average Plot

* 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.	13024969S-AE-R3
Test place	Shonan EMC Lab.
Semi Anechoic Chamber (No.)	3
Date	January 11, 2020
Temperature / Humidity	21 deg. C / 32 % RH
Engineer	Takahiro Kawakami
	(1 GHz – 6.4 GHz)
Mode	Tx, 11ac-40 5795 MHz with BT LE 2 M-PHY 2402 MHz

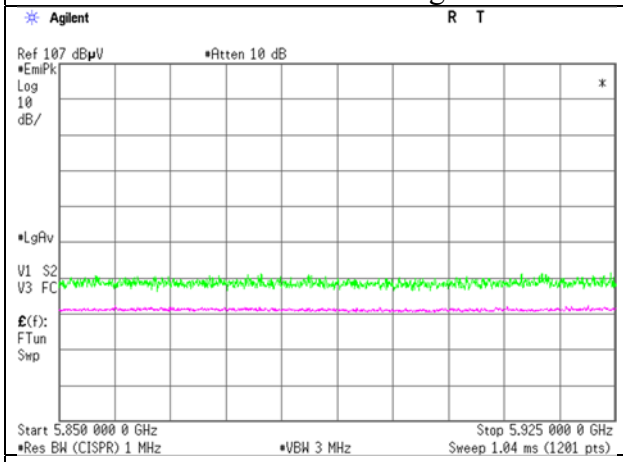
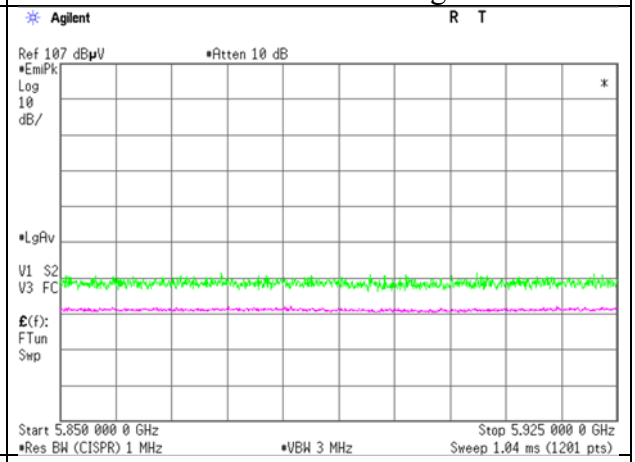
(Calculation) (above 1GHz Outside of the restricted band)

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5850.000	PK	49.72	33.02	16.59	43.34	2.35	58.34	-36.88	27.0	63.8	100	119	
Hori.	5855.000	PK	49.23	33.03	16.59	43.34	2.35	57.86	-37.36	15.6	52.9	100	119	
Hori.	5875.000	PK	49.58	33.08	16.60	43.34	2.35	58.27	-36.95	10.0	46.9	100	119	
Hori.	5925.000	PK	49.39	33.18	16.63	43.34	2.35	58.21	-37.01	-27.0	10.0	100	119	
Vert.	5850.000	PK	49.56	33.02	16.59	43.34	2.35	58.18	-37.04	27.0	64.0	367	149	
Vert.	5855.000	PK	49.22	33.03	16.59	43.34	2.35	57.85	-37.37	15.6	52.9	367	149	
Vert.	5875.000	PK	48.99	33.08	16.60	43.34	2.35	57.68	-37.54	10.0	47.5	367	149	
Vert.	5925.000	PK	50.13	33.18	16.63	43.34	2.35	58.95	-36.27	-27.0	**9.2**	367	149	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Resrult(EIRP[dBm])=10*LOG（({ 10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance:3[m]) ^ 2 } / 30) *10^3)
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor : 1 GHz - 13 GHz : 20log (3.93 m / 3.0 m) = 2.35 dB

Horizontal	Vertical
Restricted-band band-edge Plot	Restricted-band band-edge Plot
	
Trace Green: Peak Plot Trace Purple: Average Plot	Trace Green: Peak Plot Trace Purple: Average Plot

* 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.	13024969S-AE-R3			
Test place	Shonan EMC Lab.			
Semi Anechoic Chamber (No.)	3	3	3	3
Date	November 30, 2019	December 8, 2019	December 7, 2019	December 3, 2019
Temperature / Humidity	21 deg. C / 30 % RH	23 deg. C / 32 % RH	21 deg. C / 27 % RH	22 deg. C / 43 % RH
Engineer	Takahiro Kawakami (1 GHz – 6.4 GHz)	Takahiro Kawakami (6.4 GHz – 13 GHz)	Kazuya Noda (13 GHz – 18 GHz)	Takahiro Kawakami (18 GHz – 40 GHz)
Mode	Tx, 11ac-80 5775 MHz			

(above 1GHz Inside of the restricted band)

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	11550.000	PK	47.97	40.01	9.78	42.57	2.35	57.54	73.9	16.3	150	0	
Hori.	11550.000	AV	35.33	40.01	9.78	42.57	2.35	44.90	53.9	9.0	150	0	VBW:10 Hz
Vert.	11550.000	PK	47.95	40.01	9.78	42.57	2.35	57.52	73.9	16.3	150	0	
Vert.	11550.000	AV	35.35	40.01	9.78	42.57	2.35	44.92	53.9	**8.9**	150	0	VBW:10 Hz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).
Distance factor : 1 GHz - 13 GHz : 20log (3.93 m / 3.0 m) = 2.35 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

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

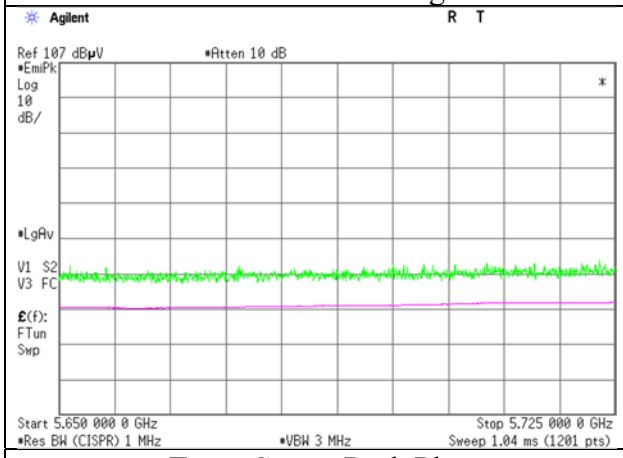
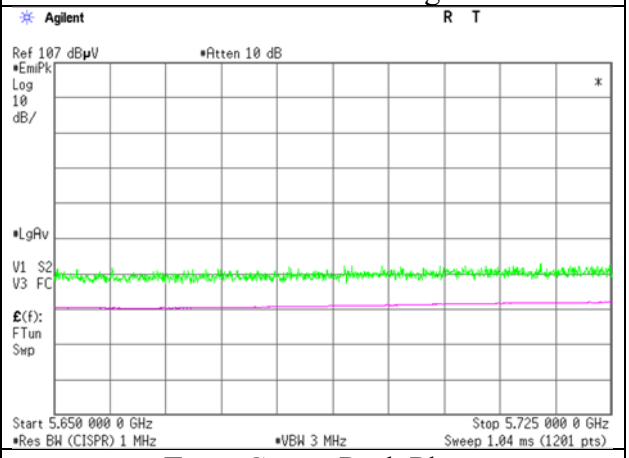
(* PK: Peak, AV: Average, QP: Quasi-Peak)

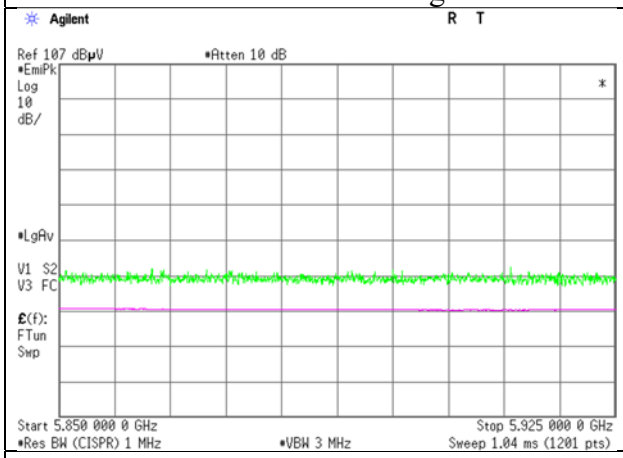
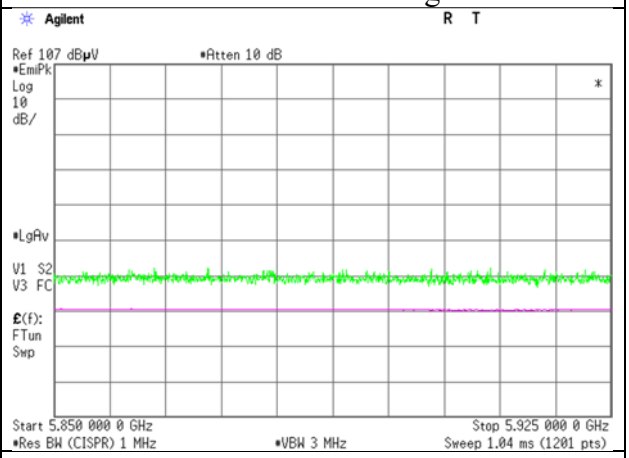
Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5650.000	PK	49.88	32.46	16.50	43.33	2.35	57.86	-37.36	-27.0	10.3	100	72	
Hori.	5700.000	PK	50.98	32.61	16.55	43.33	2.35	59.16	-36.06	10.0	46.0	100	72	
Hori.	5720.000	PK	51.14	32.66	16.56	43.33	2.35	59.38	-35.84	15.6	51.4	100	72	
Hori.	5725.000	PK	51.44	32.68	16.57	43.33	2.35	59.71	-35.51	27.0	62.5	100	72	
Hori.	5850.000	PK	50.08	33.02	16.70	43.34	2.35	58.81	-36.41	27.0	63.4	100	72	
Hori.	5855.000	PK	50.43	33.03	16.70	43.34	2.35	59.17	-36.05	15.6	51.6	100	72	
Hori.	5875.000	PK	49.86	33.08	16.72	43.34	2.35	58.67	-36.55	10.0	46.5	100	72	
Hori.	5925.000	PK	48.87	33.18	16.76	43.34	2.35	57.82	-37.40	-27.0	**10.4**	100	72	
Hori.	17325.000	PK	48.71	42.20	12.25	40.27	-9.54	53.35	-41.87	-27.0	14.8	181	9	
Vert.	5650.000	PK	49.85	32.46	16.50	43.33	2.35	57.83	-37.39	-27.0	10.3	367	144	
Vert.	5700.000	PK	51.30	32.61	16.55	43.33	2.35	59.48	-35.74	10.0	45.7	367	144	
Vert.	5720.000	PK	51.30	32.66	16.56	43.33	2.35	59.54	-35.68	15.6	51.2	367	144	
Vert.	5725.000	PK	51.24	32.68	16.57	43.33	2.35	59.51	-35.71	27.0	62.7	367	144	
Vert.	5850.000	PK	50.01	33.02	16.70	43.34	2.35	58.74	-36.48	27.0	63.4	367	144	
Vert.	5855.000	PK	50.01	33.03	16.70	43.34	2.35	58.75	-36.47	15.6	52.0	367	144	
Vert.	5875.000	PK	49.32	33.08	16.72	43.34	2.35	58.13	-37.09	10.0	47.0	367	144	
Vert.	5925.000	PK	50.62	33.18	16.76	43.34	2.35	59.57	-35.65	-27.0	**8.6**	367	144	
Vert.	17325.000	PK	47.29	42.20	12.25	40.27	-9.54	51.93	-43.29	-27.0	16.2	182	8	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Resrult(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 (3.93 m / 3.0 m) = 2.35 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Radiated Spurious Emission

Report No.	13024969S-AE-R3
Test place	Shonan EMC Lab.
Semi Anechoic Chamber (No.)	3
Date	November 30, 2019
Temperature / Humidity	21 deg. C / 30 % RH
Engineer	Takahiro Kawakami (1 GHz – 6.4 GHz)
Mode	Tx, 11ac-80 5775 MHz

Horizontal	Vertical
Restricted-band band-edge Plot	Restricted-band band-edge Plot
	
Trace Green: Peak Plot Trace Purple: Average Plot	Trace Green: Peak Plot Trace Purple: Average Plot

Horizontal	Vertical
Restricted-band band-edge Plot	Restricted-band band-edge Plot
	
Trace Green: Peak Plot Trace Purple: Average Plot	Trace Green: Peak Plot Trace Purple: Average Plot

* 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.	13024969S-AE-R3
Test place	Shonan EMC Lab.
Semi Anechoic Chamber (No.)	3
Date	January 14, 2020
Temperature / Humidity	22 deg. C / 32 % RH
Engineer	Takahiro Kawakami
	(1 GHz – 6.4 GHz)
Mode	Tx, 11ac-80 5775 MHz with DH5 hopping

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

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

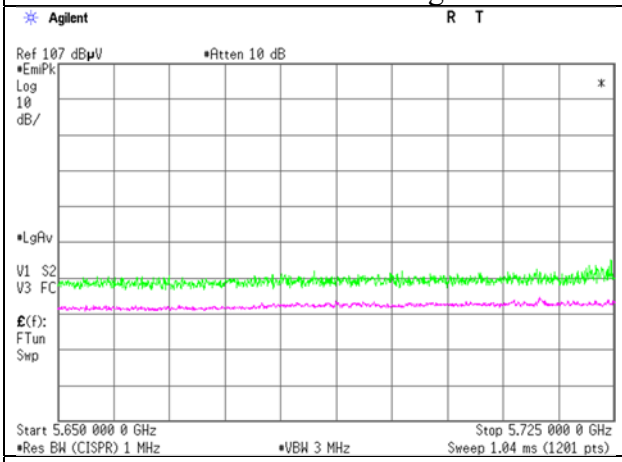
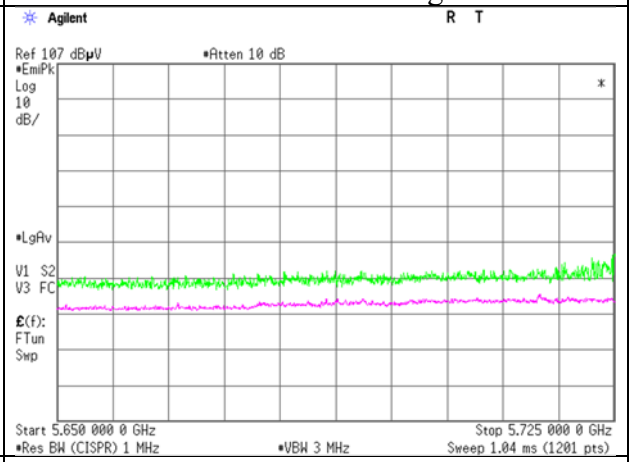
Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5650.000	PK	48.46	32.46	16.44	43.33	2.35	56.38	-38.84	-27.0	11.8	152	109	
Hori.	5700.000	PK	49.28	32.61	16.48	43.33	2.35	57.39	-37.83	10.0	47.8	152	109	
Hori.	5720.000	PK	51.73	32.66	16.49	43.33	2.35	59.90	-35.32	15.6	50.9	152	109	
Hori.	5725.000	PK	53.66	32.68	16.49	43.33	2.35	61.85	-33.37	27.0	60.3	152	109	
Hori.	5850.000	PK	48.96	33.02	16.59	43.34	2.35	57.58	-37.64	27.0	64.6	152	109	
Hori.	5855.000	PK	48.39	33.03	16.59	43.34	2.35	57.02	-38.20	15.6	53.8	152	109	
Hori.	5875.000	PK	48.59	33.08	16.60	43.34	2.35	57.28	-37.94	10.0	47.9	152	109	
Hori.	5925.000	PK	48.96	33.18	16.63	43.34	2.35	57.78	-37.44	-27.0	10.4	152	109	
Vert.	5650.000	PK	48.96	32.46	16.44	43.33	2.35	56.88	-38.34	-27.0	11.3	391	133	
Vert.	5700.000	PK	51.48	32.61	16.48	43.33	2.35	59.59	-35.63	10.0	45.6	391	133	
Vert.	5720.000	PK	53.02	32.66	16.49	43.33	2.35	61.19	-34.03	15.6	49.6	391	133	
Vert.	5725.000	PK	56.09	32.68	16.49	43.33	2.35	64.28	-30.94	27.0	57.9	391	133	
Vert.	5850.000	PK	49.25	33.02	16.59	43.34	2.35	57.87	-37.35	27.0	64.3	391	133	
Vert.	5855.000	PK	49.49	33.03	16.59	43.34	2.35	58.12	-37.10	15.6	52.7	391	133	
Vert.	5875.000	PK	49.14	33.08	16.60	43.34	2.35	57.83	-37.39	10.0	47.3	391	133	
Vert.	5925.000	PK	49.90	33.18	16.63	43.34	2.35	58.72	-36.50	-27.0	**9.5**	391	133	

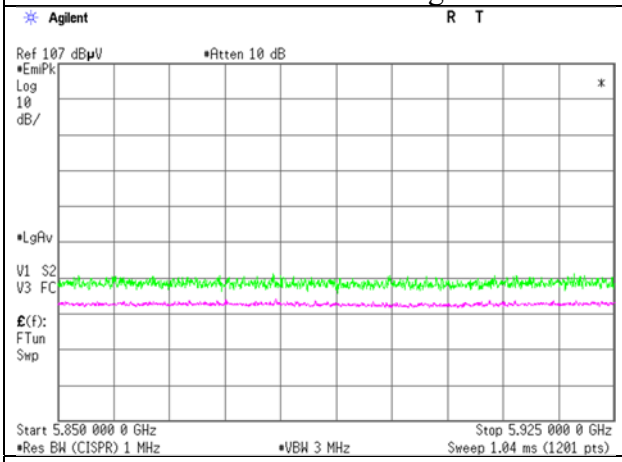
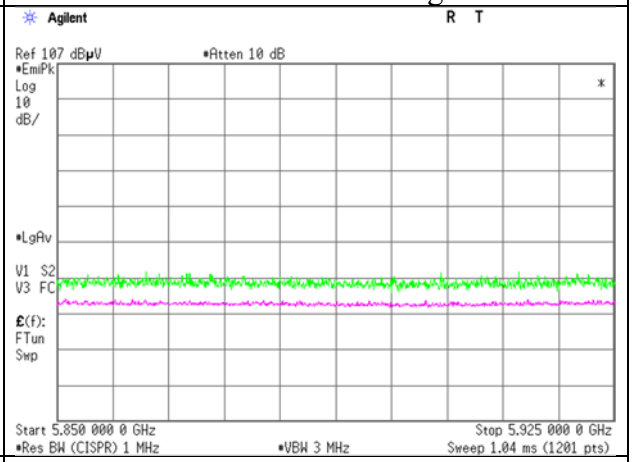
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Resrult(EIRP[dBm])=10*LOG（({ 10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance:3[m]) ^ 2 } / 30) *10^3)
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor : 1 GHz - 13 GHz : 20log (3.93 m / 3.0 m) = 2.35 dB

Radiated Spurious Emission

Report No.	13024969S-AE-R3
Test place	Shonan EMC Lab.
Semi Anechoic Chamber (No.)	3
Date	January 14, 2020
Temperature / Humidity	22 deg. C / 32 % RH
Engineer	Takahiro Kawakami
	(1 GHz – 6.4 GHz)
Mode	Tx, 11ac-80 5775 MHz with DH5 hopping

Horizontal	Vertical
Restricted-band band-edge Plot	Restricted-band band-edge Plot
	
Trace Green: Peak Plot Trace Purple: Average Plot	Trace Green: Peak Plot Trace Purple: Average Plot

Horizontal	Vertical
Restricted-band band-edge Plot	Restricted-band band-edge Plot
	
Trace Green: Peak Plot Trace Purple: Average Plot	Trace Green: Peak Plot Trace Purple: Average Plot

* 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.	13024969S-AE-R3
Test place	Shonan EMC Lab.
Semi Anechoic Chamber (No.)	3
Date	January 14, 2020
Temperature / Humidity	22 deg. C / 32 % RH
Engineer	Takahiro Kawakami
	(1 GHz – 6.4 GHz)
Mode	Tx, 11ac-80 5775 MHz with BT LE 2 M-PHY 2402 MHz

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

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

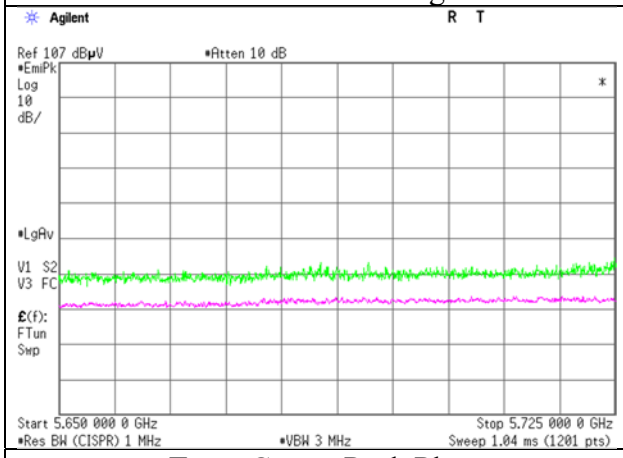
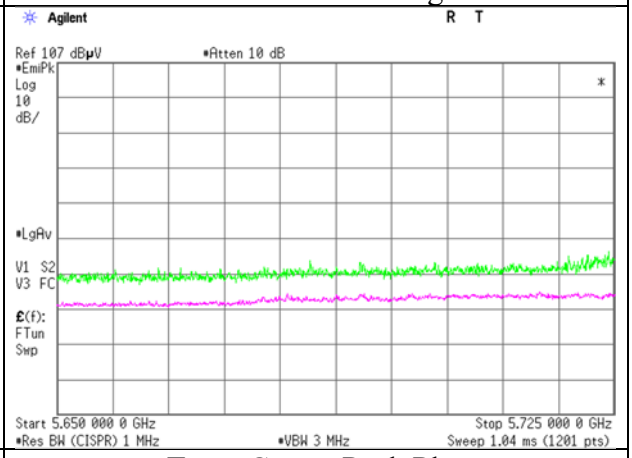
Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5650.000	PK	49.07	32.46	16.44	43.33	2.35	56.99	-38.23	-27.0	11.2	154	110	
Hori.	5700.000	PK	50.83	32.61	16.48	43.33	2.35	58.94	-36.28	10.0	46.2	154	110	
Hori.	5720.000	PK	52.29	32.66	16.49	43.33	2.35	60.46	-34.76	15.6	50.3	154	110	
Hori.	5725.000	PK	53.49	32.68	16.49	43.33	2.35	61.68	-33.54	27.0	60.5	154	110	
Hori.	5850.000	PK	49.93	33.02	16.59	43.34	2.35	58.55	-36.67	27.0	63.6	154	110	
Hori.	5855.000	PK	49.57	33.03	16.59	43.34	2.35	58.20	-37.02	15.6	52.6	154	110	
Hori.	5875.000	PK	49.66	33.08	16.60	43.34	2.35	58.35	-36.87	10.0	46.8	154	110	
Hori.	5925.000	PK	49.15	33.18	16.63	43.34	2.35	57.97	-37.25	-27.0	**10.2**	154	110	
Vert.	5650.000	PK	47.59	32.46	16.44	43.33	2.35	55.51	-39.71	-27.0	12.7	391	132	
Vert.	5700.000	PK	50.40	32.61	16.48	43.33	2.35	58.51	-36.71	10.0	46.7	391	132	
Vert.	5720.000	PK	52.13	32.66	16.49	43.33	2.35	60.30	-34.92	15.6	50.5	391	132	
Vert.	5725.000	PK	53.90	32.68	16.49	43.33	2.35	62.09	-33.13	27.0	60.1	391	132	
Vert.	5850.000	PK	49.23	33.02	16.59	43.34	2.35	57.85	-37.37	27.0	64.3	391	132	
Vert.	5855.000	PK	48.30	33.03	16.59	43.34	2.35	56.93	-38.29	15.6	53.8	391	132	
Vert.	5875.000	PK	48.83	33.08	16.60	43.34	2.35	57.52	-37.70	10.0	47.7	391	132	
Vert.	5925.000	PK	48.50	33.18	16.63	43.34	2.35	57.32	-37.90	-27.0	10.9	391	132	

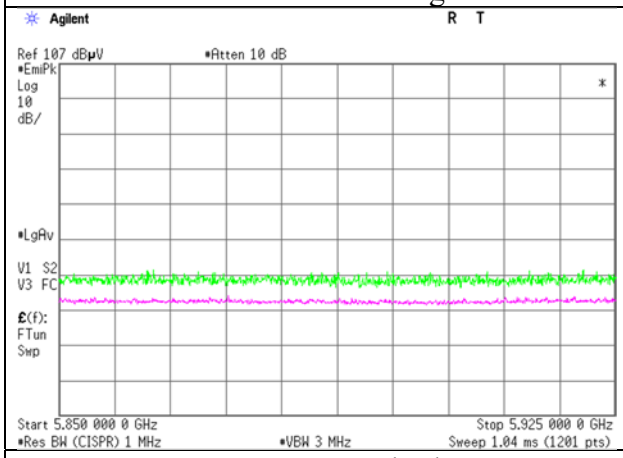
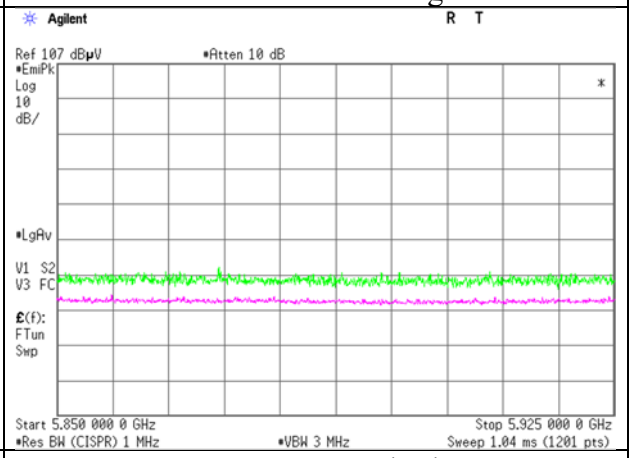
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Resrult(EIRP[dBm])=10*LOG （({ 10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance:3[m]) ^ 2 } / 30) *10^3)
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor : 1 GHz - 13 GHz : 20log (3.93 m / 3.0 m) = 2.35 dB

Radiated Spurious Emission

Report No.	13024969S-AE-R3
Test place	Shonan EMC Lab.
Semi Anechoic Chamber (No.)	3
Date	January 14, 2020
Temperature / Humidity	22 deg. C / 32 % RH
Engineer	Takahiro Kawakami
	(1 GHz – 6.4 GHz)
Mode	Tx, 11ac-80 5775 MHz with BT LE 2 M-PHY 2402 MHz

Horizontal	Vertical
Restricted-band band-edge Plot	Restricted-band band-edge Plot
	
Trace Green: Peak Plot Trace Purple: Average Plot	Trace Green: Peak Plot Trace Purple: Average Plot

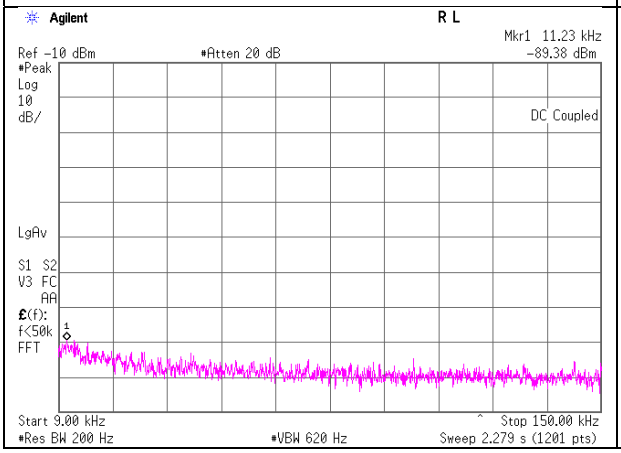
Horizontal	Vertical
Restricted-band band-edge Plot	Restricted-band band-edge Plot
	
Trace Green: Peak Plot Trace Purple: Average Plot	Trace Green: Peak Plot Trace Purple: Average Plot

* 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.

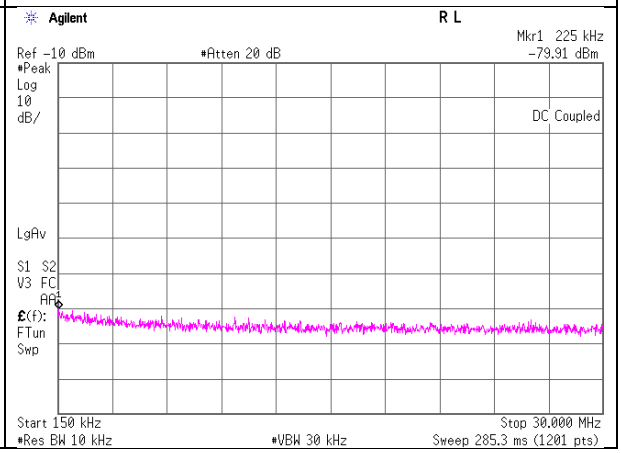
Conducted Spurious Emission

Report No.	13024969S-AE-R3
Test place	Shonan EMC Lab. No.5 Shielded Room
Date	December 6, 2019
Temperature / Humidity	22 deg. C / 45 % RH
Engineer	Kazuya Noda
Mode	Tx 11a 5180 MHz

9 kHz - 150 kHz



150 kHz - 30 MHz



Frequency [kHz]	Reading [dBm]	Cable Loss [dB]	Attenuator [dB]	Antenna Gain [dBi]	N (Number of Output)	EIRP [dBm]	Distance [m]	Ground bounce [dB]	E (field strength) [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
11.23	-89.4	0.01	9.8	4.9	1	-74.6	300	6.0	-13.4	46.5	59.9	
225.00	-79.9	0.01	9.8	4.9	1	-65.2	300	6.0	-3.9	20.5	24.4	

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

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

N: Number of output

APPENDIX 2: Test instruments

Test equipment

Test Item	Local ID	LIMS ID	Description	Manufacturer	Model	Serial	Last Calibration Date	Cal Int
AT	KSA-08	145089	Spectrum Analyzer	AGILENT	E4446A	MY46180525	2019/11/05	12
AT	SAT10-16	160494	Attenuator	Weinschel Corp.	54A-10	83406	2019/12/12	12
AT	SCC-G32	145183	Coaxial Cable	Junkosha	MWX241-02000KMSKMS	OCT-09-13-005	-	-
AT	SOS-09	146318	Humidity Indicator	A&D	AD-5681	4061484	-	-
AT	SOS-13	146321	Humidity Indicator	CUSTOM	CTH-202	Q.C.17	2019/12/19	12
AT	SPM-07	146247	Power Meter	AGILENT	8990B	MY5100272	2019/07/16	12
AT	SPM-13	169910	Power Meter	Keysight Technologies Inc	8990B	MY51000448	2019/03/06	12
AT	SPSS-04	146310	Power sensor	AGILENT	N1923A	MY5326009	2019/07/16	12
AT	SPSS-06	169911	Power sensor	Keysight Technologies Inc	N1923A	MY57270004	2019/03/06	12
AT	SRENT-09	150461	Spectrum Analyzer	AGILENT (KEYSIGHT)	E4440A	MY46186392	2019/01/03	12
AT	SRENT-15	160899	Spectrum Analyzer	AGILENT (KEYSIGHT)	E4440A	MY46185516	2019/01/21	12
AT	STS-05	146212	Digital Hitester	HIOKI	3805-50	80997828	2019/10/01	12
AT	KTS-07	145111	Digital Tester	SANWA	PC500	7019232	2019/10/01	12
AT	SCC-G37	151614	Coaxial Cable	Junkosha	MWX241-01000KMSKMS/B	1612Q035	2019/12/12	12
CE	KTS-06	145110	Digital Tester	SANWA	PC500	7019240	2019/04/02	12
CE	SAT3-10	144960	Attenuator	JFW	50HF-003N	-	2019/08/06	12
CE	SCC-C6/C7/C8/C10/SRSE-03	145034	Coaxial Cable&RF Selector	Suhner/Fujikura/Suhner/Suhner/TOYO	141PE/12DSFA/141PE/141PE/NS4906	-/0901-271(RF Selector)	2019/04/19	12
CE	SLS-05	145542	LISN	Rohde & Schwarz	ENV216	100516	2019/02/19	12
CE	SOS-22	191839	Humidity Indicator	CUSTOM	CTH-201	-	2019/12/12	12
CE, RE	COTS-SEMI-5	170932	EMI Software	TSJ	TEPTO-DV3(RE,CE,ME,PE)	-	-	-
CE, RE	KJM-02	146432	Measure	TAJIMA	GL19-55	-	-	-
CE, RE	STR-08	150463	Test Receiver	Rohde & Schwarz	ESW44	101581	2019/11/22	12
RE	SSA-03	145801	Spectrum Analyzer	AGILENT	E4448A	MY48250152	2019/08/08	12
RE	SAEC-03(NSA)	145565	Semi-Anechoic Chamber	TDK	SAEC-03(NSA)	3	2019/04/08	12
RE	SAEC-03(SVSWR)	145566	Semi-Anechoic Chamber	TDK	SAEC-03(SVSWR)	3	2019/05/03	12
RE	SAF-03	145126	Pre Amplifier	SONOMA	310N	290213	2019/02/05	12
RE	SAF-06	145005	Pre Amplifier	Toyo Corporation	TPA0118-36	1440491	2019/02/08	12
RE	SAF-08	145007	Pre Amplifier	Toyo Corporation	HAP18-26W	19	2019/03/05	12
RE	SAF-10	145129	Pre Amplifier	Toyo Corporation	HAP26-40W	10	2019/03/22	12
RE	SAT10-05	145136	Attenuator(above1GHz)	AGILENT	8493C-010	74864	2019/11/06	12
RE	SAT6-13	167094	Attenuator	JFW	50HF-006N	-	2019/02/05	12
RE	SBA-03	145023	Biconical Antenna	Schwarzbeck	BBA9106	91032666	2019/05/07	12
RE	SCC-C1/C2/C3/C4/C5/C10/SRSE-03	145171	Coaxial Cable&RF Selector	Fujikura/Fujikura/Suhner/Suhner/Suhner/TOYO	8D2W/12DSFA/141PE/141PE/141PE/141PE/NS4906	-/0901-271(RF Selector)	2019/04/19	12
RE	SCC-G15	145176	Coaxial Cable	Suhner	SUCOFLEX 102	32703/2	2019/03/27	12
RE	SCC-G40	166491	Coaxial Cable	Junkosha	MWX221-01000NFSNMS/B	1612S005	2020/01/08	12

Test Item	Local ID	LIMS ID	Description	Manufacturer	Model	Serial	Last Calibration Date	Cal Int
RE	SCC-G43	156380	Coaxial Cable	HUBER+SUNER	SUCOFLEX_104_E	SN MY 13406/4E	2019/07/03	12
RE	SCC-G57	179540	Coaxial Cable	Huber+Suhner	SUCOFLEX 102	802815/2	2019/05/16	12
RE	SCC-G58	183047	Coaxial Cable	HUBER+SUNER	SUCOFLEX 104	800287/4A	2019/07/23	12
RE	SFL-03	145377	Highpass Filter	MICRO-TRONICS	HPM50112	28	2019/11/06	12
RE	SFL-18	145305	Highpass Filter	MICRO-TRONICS	HPM50111	119	2019/04/16	12
RE	SHA-03	145501	Horn Antenna	Schwarzbeck	BBHA9120D	9120D-739	2019/06/26	12
RE	SHA-04	145512	Horn Antenna	ETS LINDGREN	3160-09	00094868	2019/06/26	12
RE	SHA-06	145514	Horn Antenna	ETS LINDGREN	3160-10	00092383	2019/06/26	12
RE	SLA-07	145529	Logperiodic Antenna	Schwarzbeck	VUSLP9111B	196	2019/05/07	12
RE	SOS-05	146293	Humidity Indicator	A&D	AD-5681	4062518	2019/10/08	12
RE	SOS-23	191840	Humidity Indicator	CUSTOM	CTH-201	-	2019/12/12	12
RE	SSA-02	145800	Spectrum Analyzer	AGILENT	E4448A	MY48250106	2019/04/04	12
RE	STS-03	146210	Digital Hitester	HIOKI	3805-50	80997823	2019/10/01	12

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

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

All equipment is calibrated with valid calibrations. Each measurement data is traceable to the national or international standards.

Test item:

CE: Conducted Emission
RE: Radiated Emission
AT: Antenna Terminal Conducted test