

Radiated Spurious Emission

Report No. 13566128S-A-R1
Test place Shonan EMC Lab.
Semi Anechoic Chamber 3 3
Date November 20, 2020 November 21, 2020
Temperature / Humidity 24 deg.C, 52 %RH 23 deg.C, 52 %RH
Engineer Makoto Hosaka Takahiro Kawakami
(30 MHz -1 GHz) (1 GHz -26.5 GHz)
Mode Tx, Hopping Off, DH5 2402 MHz

(* PK: Peak, AV: 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.	137.606	QP	44.20	14.30	7.53	32.09	0.00	33.94	43.5	9.5	227	61	-
Hori.	139.338	QP	43.70	14.33	7.57	32.09	0.00	33.51	43.5	9.9	229	56	-
Hori.	825.021	QP	33.40	20.96	10.58	31.49	0.00	33.45	46.0	12.5	110	147	-
Hori.	960.024	QP	33.10	22.15	11.02	30.54	0.00	35.73	53.9	18.1	100	191	-
Hori.	2390.000	PK	47.92	28.41	14.22	41.66	2.17	51.06	73.9	22.8	221	154	-
Hori.	4804.000	PK	51.32	31.60	6.82	42.92	2.17	48.99	73.9	24.9	145	213	-
Hori.	7206.000	PK	49.09	37.60	8.40	43.39	2.17	53.87	73.9	20.0	150	0	-
Hori.	9608.000	PK	49.66	38.92	9.55	43.14	2.17	57.16	73.9	16.7	150	0	-
Hori.	2390.000	AV	35.33	28.41	14.22	41.66	2.17	38.47	53.9	15.4	221	154	VBW:360 Hz
Hori.	4804.000	AV	41.17	31.60	6.82	42.92	2.17	38.84	53.9	15.0	145	213	VBW:360 Hz
Hori.	7206.000	AV	36.90	37.60	8.40	43.39	2.17	41.68	53.9	12.2	150	0	VBW:360 Hz
Hori.	9608.000	AV	37.21	38.92	9.55	43.14	2.17	44.71	53.9	9.1	150	0	VBW:360 Hz
Vert.	32.211	QP	38.20	17.69	6.50	32.18	0.00	30.21	40.0	9.7	100	28	-
Vert.	32.656	QP	37.90	17.49	6.50	32.18	0.00	29.71	40.0	10.2	100	8	-
Vert.	56.752	QP	37.90	9.00	6.66	32.16	0.00	21.40	40.0	18.6	100	45	-
Vert.	137.606	QP	46.90	14.30	7.53	32.09	0.00	36.64	43.5	6.8	100	102	-
Vert.	139.308	QP	45.90	14.33	7.57	32.09	0.00	35.71	43.5	7.7	100	108	-
Vert.	2390.000	PK	47.48	28.41	14.22	41.66	2.17	50.62	73.9	23.2	169	132	-
Vert.	4804.000	PK	51.97	31.60	6.82	42.92	2.17	49.64	73.9	24.2	153	158	-
Vert.	7206.000	PK	50.01	37.60	8.40	43.39	2.17	54.79	73.9	19.1	150	0	-
Vert.	9608.000	PK	50.02	38.92	9.55	43.14	2.17	57.52	73.9	16.3	150	0	-
Vert.	2390.000	AV	35.41	28.41	14.22	41.66	2.17	38.55	53.9	15.3	169	132	VBW:360 Hz
Vert.	4804.000	AV	44.06	31.60	6.82	42.92	2.17	41.73	53.9	12.1	153	158	VBW:360 Hz
Vert.	7206.000	AV	37.07	37.60	8.40	43.39	2.17	41.85	53.9	12.0	150	0	VBW:360 Hz
Vert.	9608.000	AV	37.19	38.92	9.55	43.14	2.17	44.69	53.9	9.2	150	0	VBW:360 Hz

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

Distance factor : 1 GHz - 10 GHz : $20\log(3.85\text{ m} / 3.0\text{ m}) = 2.17\text{ dB}$

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

20 dBc Data Sheet (RBW 100 kHz, VBW 300 kHz)

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]	Remark
Hori.	2402.000	PK	79.73	28.38	14.23	41.67	2.17	82.84	-	-	Carrier
Hori.	2400.000	PK	39.39	28.38	14.22	41.67	2.17	42.49	62.8	20.3	-
Vert.	2402.000	PK	79.50	28.38	14.23	41.67	2.17	82.61	-	-	Carrier
Vert.	2400.000	PK	38.86	28.38	14.22	41.67	2.17	41.96	62.6	20.6	-

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

Distance factor : 1 GHz - 10 GHz : $20\log(3.85\text{ m} / 3.0\text{ m}) = 2.17\text{ dB}$

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

***These results have sufficient margin without taking account Duty cycle correction factor.**

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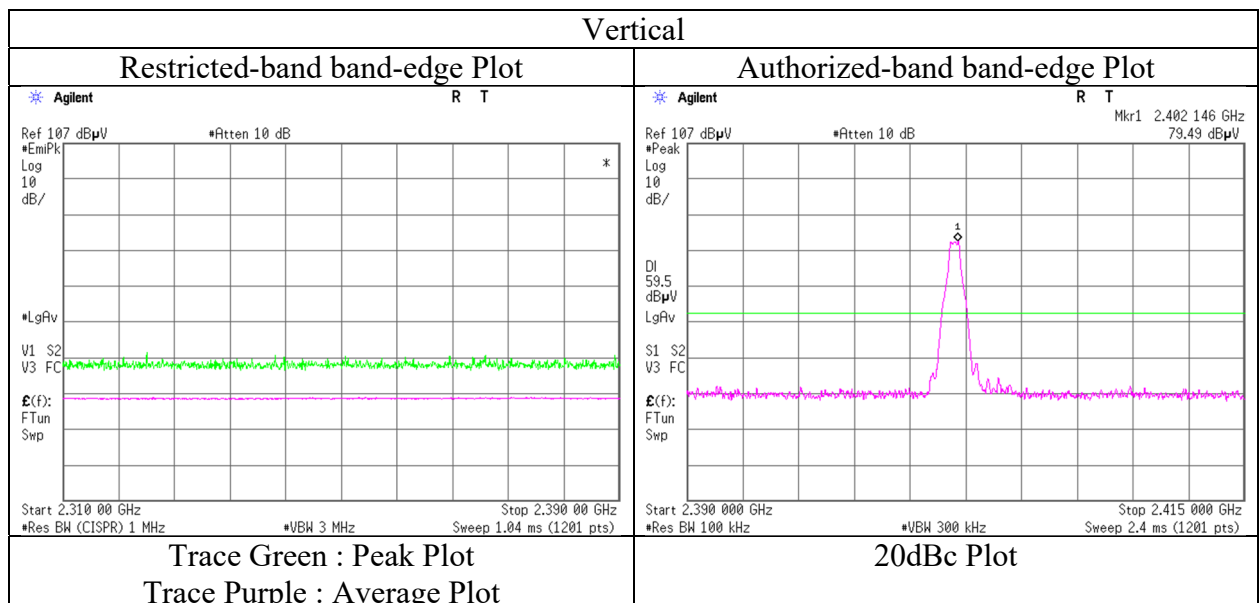
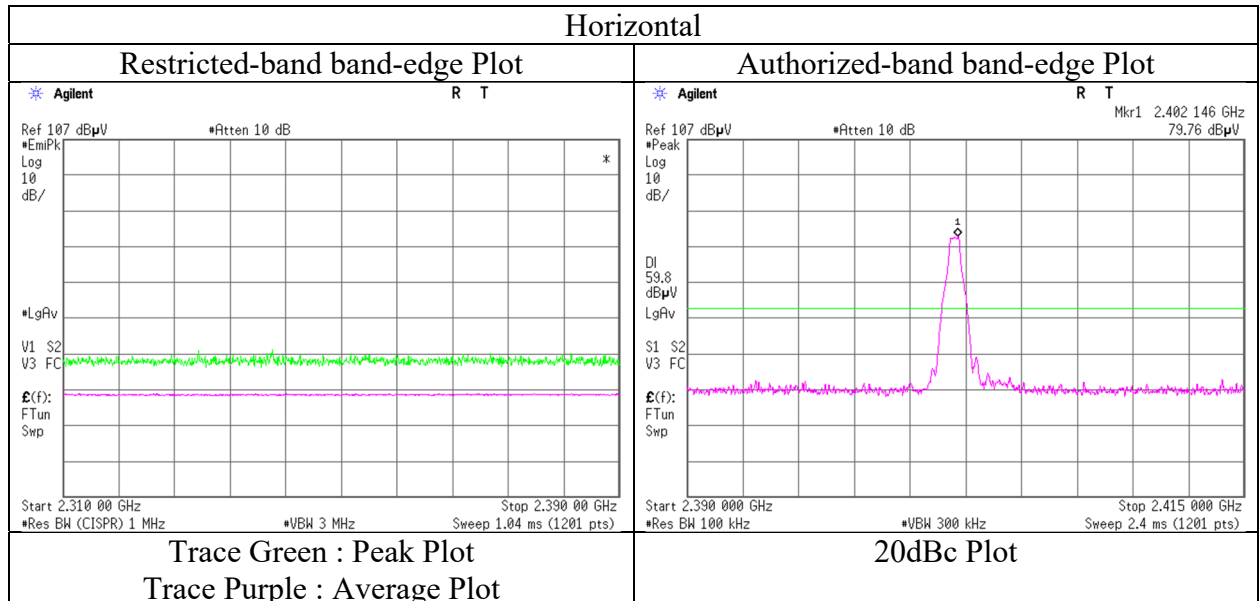
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Facsimile : +81 463 50 6401

Radiated Spurious Emission (Reference Plot for band-edge)

Report No.	13566128S-A-R1
Test place	Shonan EMC Lab.
Semi Anechoic Chamber	3
Date	November 21, 2020
Temperature / Humidity	23 deg.C, 52 %RH
Engineer	Takahiro Kawakami (1 GHz -26.5 GHz)
Mode	Tx, Hopping Off, DH5 2402 MHz



* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.

Final result of restricted band edge was shown in tabular data.

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Radiated Spurious Emission

Report No. 13566128S-A-R1
Test place Shonan EMC Lab.
Semi Anechoic Chamber 3 3
Date November 21, 2020 November 21, 2020
Temperature / Humidity 22 deg.C, 54 %RH 23 deg.C, 52 %RH
Engineer Kazuya Noda Takahiro Kawakami
(30 MHz -1 GHz) (1 GHz -26.5 GHz)
Mode Tx, Hopping Off, DH5 2441 MHz

(* PK: Peak, AV: 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.	141.011	QP	45.41	14.38	7.60	32.09	0.00	35.30	43.5	8.2	227	76	-
Hori.	142.729	QP	45.01	14.51	7.64	32.09	0.00	35.07	43.5	8.4	230	225	-
Hori.	825.018	QP	33.31	20.96	10.58	31.49	0.00	33.36	46.0	12.6	109	143	-
Hori.	960.023	QP	32.28	22.15	11.02	30.54	0.00	34.91	53.9	18.9	100	190	-
Hori.	4882.000	PK	50.71	31.63	6.87	42.93	2.17	48.45	73.9	25.4	149	126	-
Hori.	7323.000	PK	48.08	37.71	8.47	43.49	2.17	52.94	73.9	20.9	150	0	-
Hori.	9764.000	PK	48.26	39.19	9.65	42.96	2.17	56.31	73.9	17.5	150	0	-
Hori.	4882.000	AV	40.05	31.63	6.87	42.93	2.17	37.79	53.9	16.1	149	126	VBW:360 Hz
Hori.	7323.000	AV	36.81	37.71	8.47	43.49	2.17	41.67	53.9	12.2	150	0	VBW:360 Hz
Hori.	9764.000	AV	37.00	39.19	9.65	42.96	2.17	45.05	53.9	8.8	150	0	VBW:360 Hz
Vert.	39.553	QP	35.64	15.06	6.63	32.17	0.00	25.16	40.0	14.8	100	154	-
Vert.	56.442	QP	35.85	9.08	6.67	32.16	0.00	19.44	40.0	20.5	100	4	-
Vert.	139.296	QP	47.12	14.33	7.57	32.09	0.00	36.93	43.5	6.5	100	101	-
Vert.	141.026	QP	45.47	14.38	7.60	32.09	0.00	35.36	43.5	8.1	100	98	-
Vert.	142.745	QP	44.63	14.51	7.64	32.09	0.00	34.69	43.5	8.8	100	92	-
Vert.	495.006	QP	35.47	17.68	9.39	31.92	0.00	30.62	46.0	15.3	125	349	-
Vert.	4882.000	PK	51.36	31.63	6.87	42.93	2.17	49.10	73.9	24.8	155	154	-
Vert.	7323.000	PK	49.06	37.71	8.47	43.49	2.17	53.92	73.9	19.9	150	0	-
Vert.	9764.000	PK	49.82	39.19	9.65	42.96	2.17	57.87	73.9	16.0	150	0	-
Vert.	4882.000	AV	43.14	31.63	6.87	42.93	2.17	40.88	53.9	13.0	155	154	VBW:360 Hz
Vert.	7323.000	AV	36.70	37.71	8.47	43.49	2.17	41.56	53.9	12.3	150	0	VBW:360 Hz
Vert.	9764.000	AV	37.05	39.19	9.65	42.96	2.17	45.10	53.9	8.8	150	0	VBW:360 Hz

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

Distance factor : 1 GHz - 10 GHz : $20\log(3.85\text{ m} / 3.0\text{ m}) = 2.17\text{ dB}$

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

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Test place Shonan EMC Lab.
Semi Anechoic Chamber 3 3
Date November 21, 2020 November 21, 2020
Temperature / Humidity 22 deg.C, 54 %RH 23 deg.C, 52 %RH
Engineer Kazuya Noda Takahiro Kawakami
(30 MHz -1 GHz) (1 GHz -26.5 GHz)
Mode Tx, Hopping Off, DH5 2480 MHz

(* PK: Peak, AV: 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.	140.987	QP	44.28	14.38	7.60	32.09	0.00	34.17	43.5	9.3	231	68	-
Hori.	142.691	QP	42.86	14.51	7.64	32.09	0.00	32.92	43.5	10.5	234	64	-
Hori.	825.021	QP	32.94	20.96	10.58	31.49	0.00	32.99	46.0	13.0	111	143	-
Hori.	960.019	QP	32.87	22.15	11.02	30.54	0.00	35.50	53.9	18.4	100	187	-
Hori.	2483.500	PK	47.37	28.28	14.31	41.69	2.17	50.44	73.9	23.4	214	199	-
Hori.	4960.000	PK	51.55	31.79	6.94	42.94	2.17	49.51	73.9	24.3	146	140	-
Hori.	7440.000	PK	48.00	37.88	8.54	43.60	2.17	52.99	73.9	20.9	150	0	-
Hori.	9920.000	PK	49.06	39.05	9.73	42.78	2.17	57.23	73.9	16.6	150	0	-
Hori.	2483.500	AV	35.58	28.28	14.31	41.69	2.17	38.65	53.9	15.2	214	199	VBW:360 Hz
Hori.	4960.000	AV	40.43	31.79	6.94	42.94	2.17	38.39	53.9	15.5	146	140	VBW:360 Hz
Hori.	7440.000	AV	36.19	37.88	8.54	43.60	2.17	41.18	53.9	12.7	150	0	VBW:360 Hz
Hori.	9920.000	AV	36.39	39.05	9.73	42.78	2.17	44.56	53.9	9.3	150	0	VBW:360 Hz
Vert.	39.538	QP	28.98	15.07	6.63	32.17	0.00	18.51	40.0	21.4	100	146	-
Vert.	56.448	QP	36.29	9.08	6.67	32.16	0.00	19.88	40.0	20.1	100	145	-
Vert.	139.253	QP	47.51	14.33	7.57	32.09	0.00	37.32	43.5	6.1	100	102	-
Vert.	140.973	QP	45.69	14.38	7.60	32.09	0.00	35.58	43.5	7.9	100	111	-
Vert.	142.692	QP	43.91	14.51	7.64	32.09	0.00	33.97	43.5	9.5	100	110	-
Vert.	743.991	QP	30.58	20.12	10.32	31.75	0.00	29.27	46.0	16.7	100	78	-
Vert.	2483.500	PK	47.60	28.28	14.31	41.69	2.17	50.67	73.9	23.2	184	228	-
Vert.	4960.000	PK	50.98	31.79	6.94	42.94	2.17	48.94	73.9	24.9	143	149	-
Vert.	7440.000	PK	48.37	37.88	8.54	43.60	2.17	53.36	73.9	20.5	150	0	-
Vert.	9920.000	PK	48.38	39.05	9.73	42.78	2.17	56.55	73.9	17.3	150	0	-
Vert.	2483.500	AV	35.54	28.28	14.31	41.69	2.17	38.61	53.9	15.2	184	228	VBW:360 Hz
Vert.	4960.000	AV	41.50	31.79	6.94	42.94	2.17	39.46	53.9	14.4	143	149	VBW:360 Hz
Vert.	7440.000	AV	36.10	37.88	8.54	43.60	2.17	41.09	53.9	12.8	150	0	VBW:360 Hz
Vert.	9920.000	AV	36.46	39.05	9.73	42.78	2.17	44.63	53.9	9.2	150	0	VBW:360 Hz

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

Distance factor : 1 GHz - 10 GHz : $20\log(3.85\text{ m} / 3.0\text{ m}) = 2.17\text{ dB}$

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

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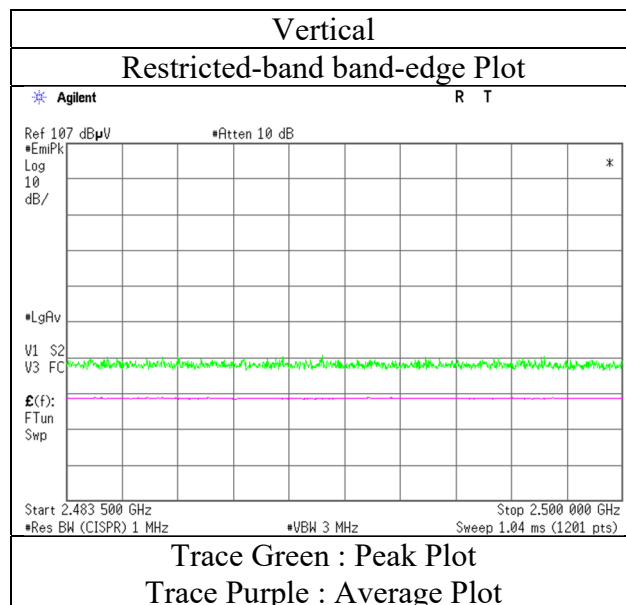
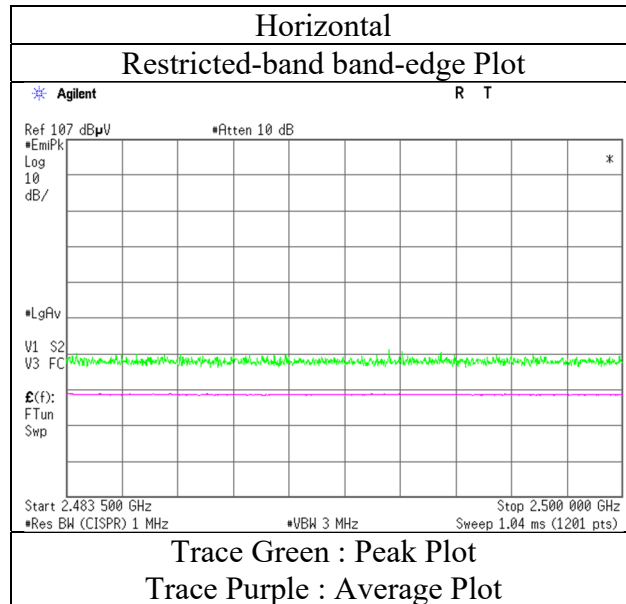
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Semi Anechoic Chamber	3
Date	November 21, 2020
Temperature / Humidity	23 deg.C, 52 %RH
Engineer	Takahiro Kawakami (1 GHz -26.5 GHz)
Mode	Tx, Hopping Off, DH5 2480 MHz



* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.

Final result of restricted band edge was shown in tabular data.

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Engineer Takahiro Kawakami
(30 MHz -26.5 GHz)
Mode Tx, Hopping Off, 3DH5 2402 MHz

(* PK: Peak, AV: 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.	139.268	QP	45.10	14.33	7.57	32.09	0.00	34.91	43.5	8.5	234	67	-
Hori.	140.993	QP	44.21	14.38	7.60	32.09	0.00	34.10	43.5	9.4	228	67	-
Hori.	825.020	QP	33.40	20.96	10.58	31.49	0.00	33.45	46.0	12.5	114	126	-
Hori.	960.024	QP	32.45	22.15	11.02	30.54	0.00	35.08	53.9	18.8	100	188	-
Hori.	2390.000	PK	48.02	28.41	14.22	41.66	2.17	51.16	73.9	22.7	248	156	-
Hori.	4804.000	PK	49.06	31.60	6.82	42.92	2.17	46.73	73.9	27.1	311	182	-
Hori.	7206.000	PK	49.12	37.60	8.40	43.39	2.17	53.90	73.9	20.0	150	0	-
Hori.	9608.000	PK	50.22	38.92	9.55	43.14	2.17	57.72	73.9	16.1	150	0	-
Hori.	2390.000	AV	35.49	28.41	14.22	41.66	2.17	38.63	53.9	15.2	248	156	VBW:360 Hz
Hori.	4804.000	AV	36.98	31.60	6.82	42.92	2.17	34.65	53.9	19.2	311	182	VBW:360 Hz
Hori.	7206.000	AV	37.08	37.60	8.40	43.39	2.17	41.86	53.9	12.0	150	0	VBW:360 Hz
Hori.	9608.000	AV	37.26	38.92	9.55	43.14	2.17	44.76	53.9	9.1	150	0	VBW:360 Hz
Vert.	32.666	QP	34.65	17.48	6.50	32.18	0.00	26.45	40.0	13.5	100	30	-
Vert.	56.733	QP	38.00	9.00	6.66	32.16	0.00	21.50	40.0	18.5	100	261	-
Vert.	139.262	QP	47.60	14.33	7.57	32.09	0.00	37.41	43.5	6.0	100	107	-
Vert.	140.988	QP	45.64	14.38	7.60	32.09	0.00	35.53	43.5	7.9	100	99	-
Vert.	142.691	QP	43.63	14.51	7.64	32.09	0.00	33.69	43.5	9.8	100	105	-
Vert.	495.017	QP	33.00	17.68	9.39	31.92	0.00	28.15	46.0	17.8	128	342	-
Vert.	2390.000	PK	47.21	28.41	14.22	41.66	2.17	50.35	73.9	23.5	157	134	-
Vert.	4804.000	PK	51.51	31.60	6.82	42.92	2.17	49.18	73.9	24.7	151	156	-
Vert.	7206.000	PK	48.76	37.60	8.40	43.39	2.17	53.54	73.9	20.3	150	0	-
Vert.	9608.000	PK	50.29	38.92	9.55	43.14	2.17	57.79	73.9	16.1	150	0	-
Vert.	2390.000	AV	35.41	28.41	14.22	41.66	2.17	38.55	53.9	15.3	157	134	VBW:360 Hz
Vert.	4804.000	AV	40.05	31.60	6.82	42.92	2.17	37.72	53.9	16.1	151	156	VBW:360 Hz
Vert.	7206.000	AV	37.07	37.60	8.40	43.39	2.17	41.85	53.9	12.0	150	0	VBW:360 Hz
Vert.	9608.000	AV	37.22	38.92	9.55	43.14	2.17	44.72	53.9	9.1	150	0	VBW:360 Hz

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

Distance factor : 1 GHz - 10 GHz : 20log(3.85 m / 3.0 m) = 2.17 dB

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

20 dBc Data Sheet (RBW 100 kHz, VBW 300 kHz)

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]	Remark
Hori.	2402.000	PK	79.90	28.38	14.23	41.67	2.17	83.01	-	-	Carrier
Hori.	2400.000	PK	38.90	28.38	14.22	41.67	2.17	42.00	63.0	21.0	-
Vert.	2402.000	PK	79.04	28.38	14.23	41.67	2.17	82.15	-	-	Carrier
Vert.	2400.000	PK	38.46	28.38	14.22	41.67	2.17	41.56	62.1	20.5	-

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

Distance factor : 1 GHz - 10 GHz : 20log(3.85 m / 3.0 m) = 2.17 dB

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Shonan EMC Lab.

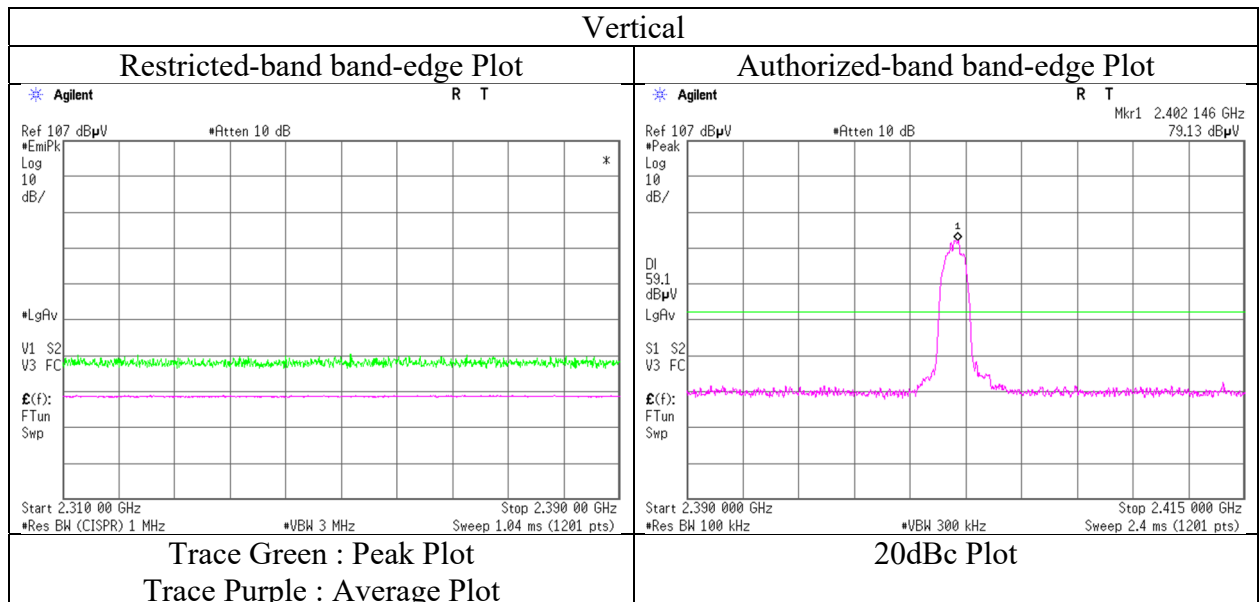
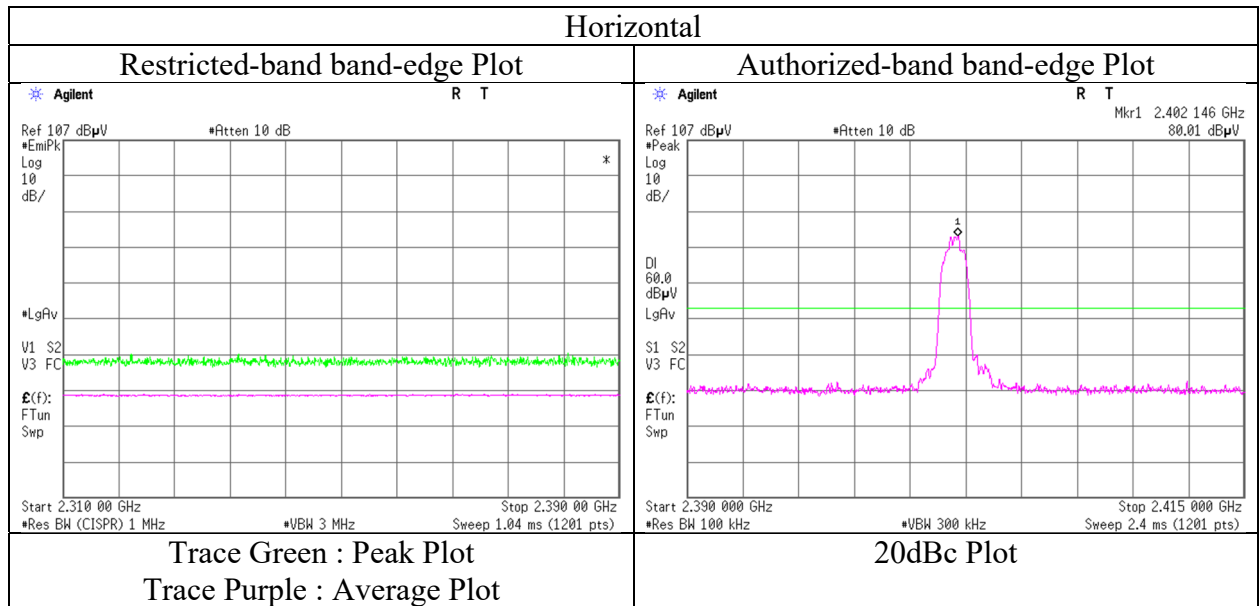
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

Radiated Spurious Emission (Reference Plot for band-edge)

Report No.	13566128S-A-R1
Test place	Shonan EMC Lab.
Semi Anechoic Chamber	3
Date	November 21, 2020
Temperature / Humidity	23 deg.C, 52 %RH
Engineer	Takahiro Kawakami (30 MHz -26.5 GHz)
Mode	Tx, Hopping Off, 3DH5 2402 MHz



* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.

Final result of restricted band edge was shown in tabular data.

Radiated Spurious Emission

Report No. 13566128S-A-R1
Test place Shonan EMC Lab.
Semi Anechoic Chamber 3
Date November 21, 2020
Temperature / Humidity 23 deg.C, 52 %RH
Engineer Takahiro Kawakami
(30 MHz -26.5 GHz)
Mode Tx, Hopping Off, 3DH5 2441 MHz

(* PK: Peak, AV: 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.	139.269	QP	45.03	14.33	7.57	32.09	0.00	34.84	43.5	8.6	232	61	-
Hori.	140.967	QP	43.00	14.38	7.60	32.09	0.00	32.89	43.5	10.6	227	70	-
Hori.	825.019	QP	32.80	20.96	10.58	31.49	0.00	32.85	46.0	13.1	111	145	-
Hori.	960.021	QP	32.28	22.15	11.02	30.54	0.00	34.91	53.9	18.9	100	189	-
Hori.	4882.000	PK	49.28	31.63	6.87	42.93	2.17	47.02	73.9	26.8	400	263	-
Hori.	7323.000	PK	49.60	37.71	8.47	43.49	2.17	54.46	73.9	19.4	150	0	-
Hori.	9764.000	PK	48.64	39.19	9.65	42.96	2.17	56.69	73.9	17.2	150	0	-
Hori.	4882.000	AV	36.60	31.63	6.87	42.93	2.17	34.34	53.9	19.5	400	263	VBW:360 Hz
Hori.	7323.000	AV	36.75	37.71	8.47	43.49	2.17	41.61	53.9	12.2	150	0	VBW:360 Hz
Hori.	9764.000	AV	37.01	39.19	9.65	42.96	2.17	45.06	53.9	8.8	150	0	VBW:360 Hz
Vert.	32.660	QP	37.15	17.49	6.50	32.18	0.00	28.96	40.0	11.0	100	33	-
Vert.	56.731	QP	36.50	9.00	6.66	32.16	0.00	20.00	40.0	20.0	100	260	-
Vert.	139.254	QP	47.52	14.33	7.57	32.09	0.00	37.33	43.5	6.1	100	105	-
Vert.	140.974	QP	45.78	14.38	7.60	32.09	0.00	35.67	43.5	7.8	100	107	-
Vert.	142.680	QP	43.40	14.51	7.64	32.09	0.00	33.46	43.5	10.0	100	109	-
Vert.	495.014	QP	32.88	17.68	9.39	31.92	0.00	28.03	46.0	17.9	130	330	-
Vert.	4882.000	PK	49.95	31.63	6.87	42.93	2.17	47.69	73.9	26.2	196	155	-
Vert.	7323.000	PK	49.35	37.71	8.47	43.49	2.17	54.21	73.9	19.6	150	0	-
Vert.	9764.000	PK	48.57	39.19	9.65	42.96	2.17	56.62	73.9	17.2	150	0	-
Vert.	4882.000	AV	38.47	31.63	6.87	42.93	2.17	36.21	53.9	17.6	196	155	VBW:360 Hz
Vert.	7323.000	AV	36.64	37.71	8.47	43.49	2.17	41.50	53.9	12.4	150	0	VBW:360 Hz
Vert.	9764.000	AV	36.87	39.19	9.65	42.96	2.17	44.92	53.9	8.9	150	0	VBW:360 Hz

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

Distance factor : 1 GHz - 10 GHz : $20\log(3.85\text{ m} / 3.0\text{ m}) = 2.17\text{ dB}$

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

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

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Radiated Spurious Emission

Report No. 13566128S-A-R1
Test place Shonan EMC Lab.
Semi Anechoic Chamber 3
Date November 21, 2020
Temperature / Humidity 23 deg.C, 52 %RH
Engineer Takahiro Kawakami
(30 MHz -26.5 GHz)
Mode Tx, Hopping Off, 3DH5 2480 MHz

(* PK: Peak, AV: 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.	139.255	QP	45.02	14.33	7.57	32.09	0.00	34.83	43.5	8.6	234	64	-
Hori.	140.976	QP	42.52	14.38	7.60	32.09	0.00	32.41	43.5	11.0	238	61	-
Hori.	825.019	QP	33.48	20.96	10.58	31.49	0.00	33.53	46.0	12.4	110	129	-
Hori.	960.018	QP	32.21	22.15	11.02	30.54	0.00	34.84	53.9	19.0	100	189	-
Hori.	2483.500	PK	47.87	28.28	14.31	41.69	2.17	50.94	73.9	22.9	218	198	-
Hori.	4960.000	PK	49.74	31.79	6.94	42.94	2.17	47.70	73.9	26.2	151	143	-
Hori.	7440.000	PK	48.14	37.88	8.54	43.60	2.17	53.13	73.9	20.7	150	0	-
Hori.	9920.000	PK	48.47	39.05	9.73	42.78	2.17	56.64	73.9	17.2	150	0	-
Hori.	2483.500	AV	35.47	28.28	14.31	41.69	2.17	38.54	53.9	15.3	218	198	VBW:360 Hz
Hori.	4960.000	AV	37.53	31.79	6.94	42.94	2.17	35.49	53.9	18.4	151	143	VBW:360 Hz
Hori.	7440.000	AV	36.26	37.88	8.54	43.60	2.17	41.25	53.9	12.6	150	0	VBW:360 Hz
Hori.	9920.000	AV	36.24	39.05	9.73	42.78	2.17	44.41	53.9	9.4	150	0	VBW:360 Hz
Vert.	32.662	QP	37.12	17.49	6.50	32.18	0.00	28.93	40.0	11.0	100	30	-
Vert.	56.732	QP	36.40	9.00	6.66	32.16	0.00	19.90	40.0	20.1	100	269	-
Vert.	139.237	QP	48.30	14.33	7.57	32.09	0.00	38.11	43.5	5.3	100	103	-
Vert.	140.961	QP	45.39	14.38	7.60	32.09	0.00	35.28	43.5	8.2	100	110	-
Vert.	142.675	QP	43.41	14.51	7.64	32.09	0.00	33.47	43.5	10.0	100	107	-
Vert.	495.009	QP	34.08	17.68	9.39	31.92	0.00	29.23	46.0	16.7	136	340	-
Vert.	2483.500	PK	47.58	28.28	14.31	41.69	2.17	50.65	73.9	23.2	100	236	-
Vert.	4960.000	PK	50.39	31.79	6.94	42.94	2.17	48.35	73.9	25.5	148	152	-
Vert.	7440.000	PK	48.74	37.88	8.54	43.60	2.17	53.73	73.9	20.1	150	0	-
Vert.	9920.000	PK	49.42	39.05	9.73	42.78	2.17	57.59	73.9	16.3	150	0	-
Vert.	2483.500	AV	35.46	28.28	14.31	41.69	2.17	38.53	53.9	15.3	100	236	VBW:360 Hz
Vert.	4960.000	AV	38.20	31.79	6.94	42.94	2.17	36.16	53.9	17.7	148	152	VBW:360 Hz
Vert.	7440.000	AV	36.15	37.88	8.54	43.60	2.17	41.14	53.9	12.7	150	0	VBW:360 Hz
Vert.	9920.000	AV	36.31	39.05	9.73	42.78	2.17	44.48	53.9	9.4	150	0	VBW:360 Hz

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

Distance factor : 1 GHz - 10 GHz : $20\log(3.85\text{ m} / 3.0\text{ m}) = 2.17\text{ dB}$

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

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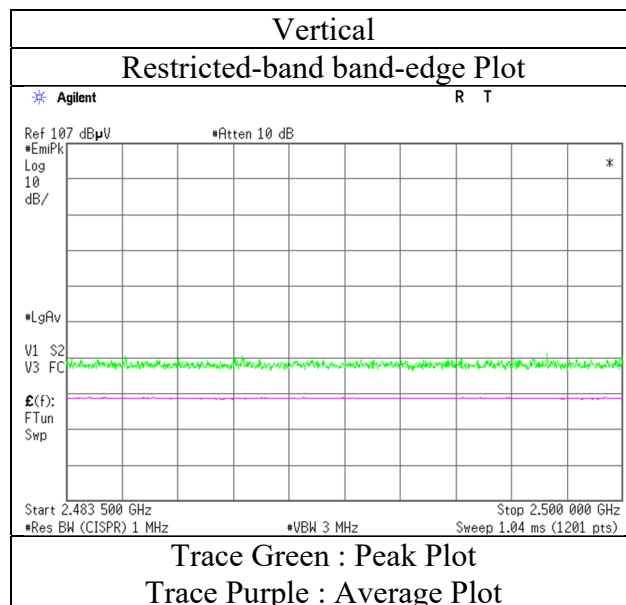
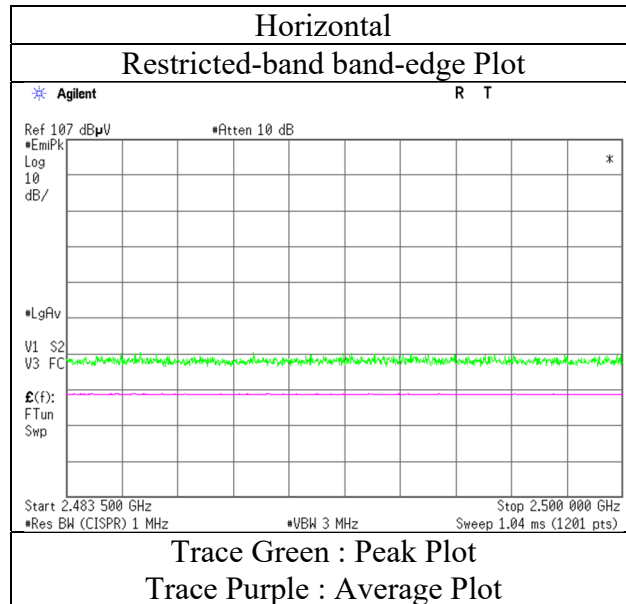
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

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Facsimile : +81 463 50 6401

Radiated Spurious Emission **(Reference Plot for band-edge)**

Report No. 13566128S-A-R1
Test place Shonan EMC Lab.
Semi Anechoic Chamber 3
Date November 21, 2020
Temperature / Humidity 23 deg.C, 52 %RH
Engineer Takahiro Kawakami
(30 MHz -26.5 GHz)
Mode Tx, Hopping Off, 3DH5 2480 MHz



* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.

Final result of restricted band edge was shown in tabular data.

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Shonan EMC Lab.

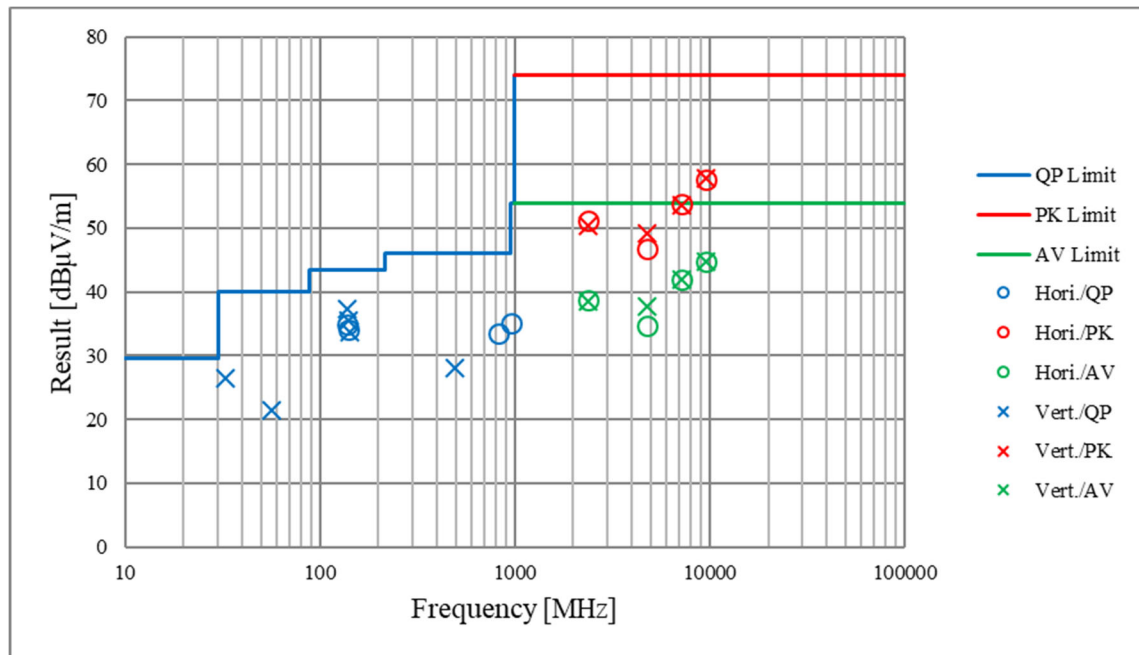
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

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Radiated Spurious Emission (Plot data, Worst case)

Report No. 13566128S-A-R1
Test place Shonan EMC Lab.
Semi Anechoic Chamber 3
Date November 21, 2020
Temperature / Humidity 23 deg.C, 52 %RH
Engineer Takahiro Kawakami
(30 MHz -26.5 GHz)
Mode Tx, Hopping Off, 3DH5 2402 MHz

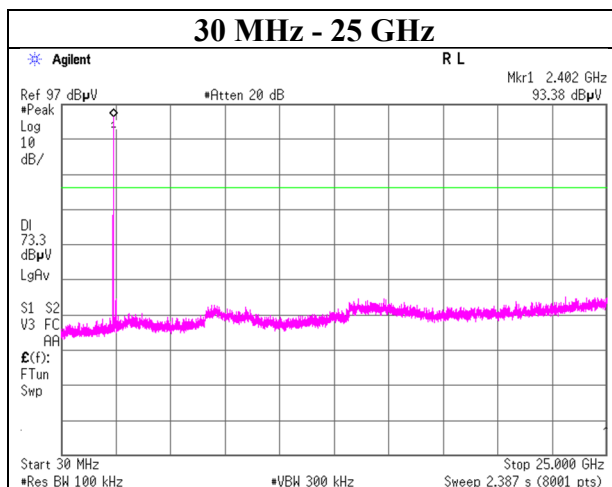
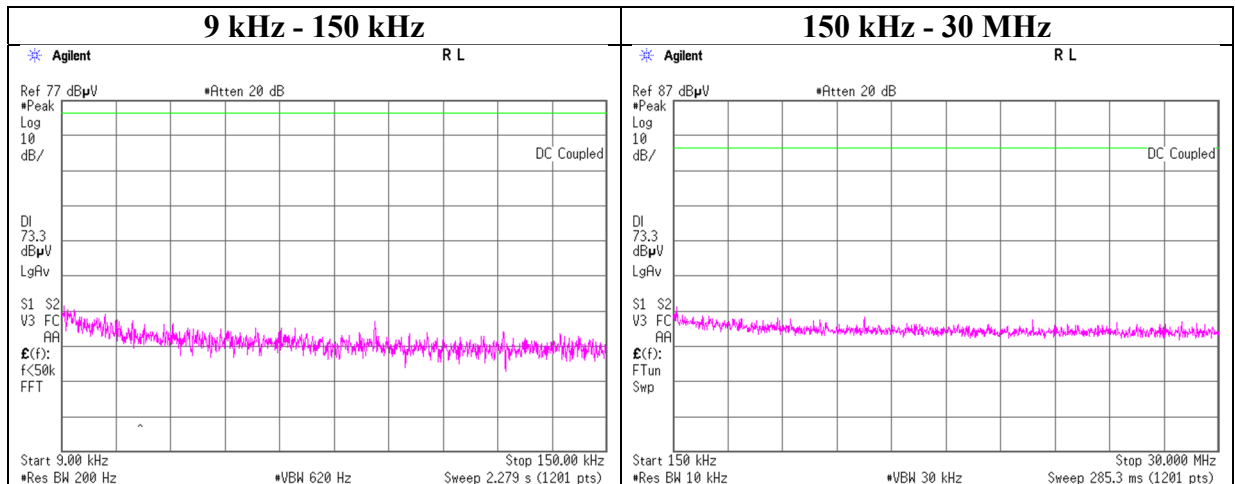


*These plots data contains sufficient number to show the trend of characteristic features for EUT.

Conducted Spurious Emission

Report No. 13566128S-A-R1
Test place Shonan EMC Lab. No.3 Shielded Room
Date November 18, 2020
Temperature / Humidity 25 deg. C / 44 % RH
Engineer Makoto Hosaka
Mode Tx, Hopping Off, DH5

2402 MHz



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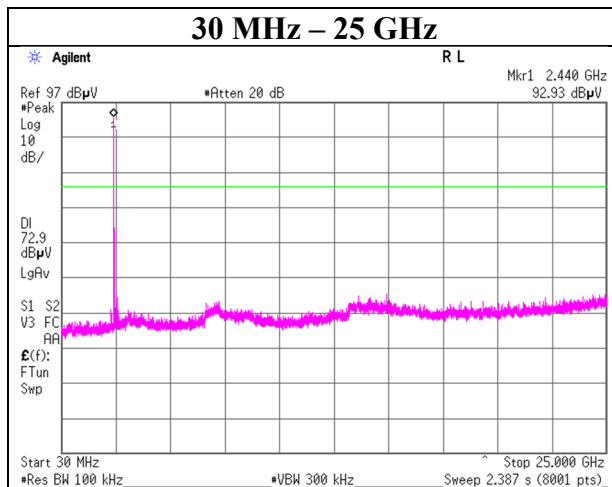
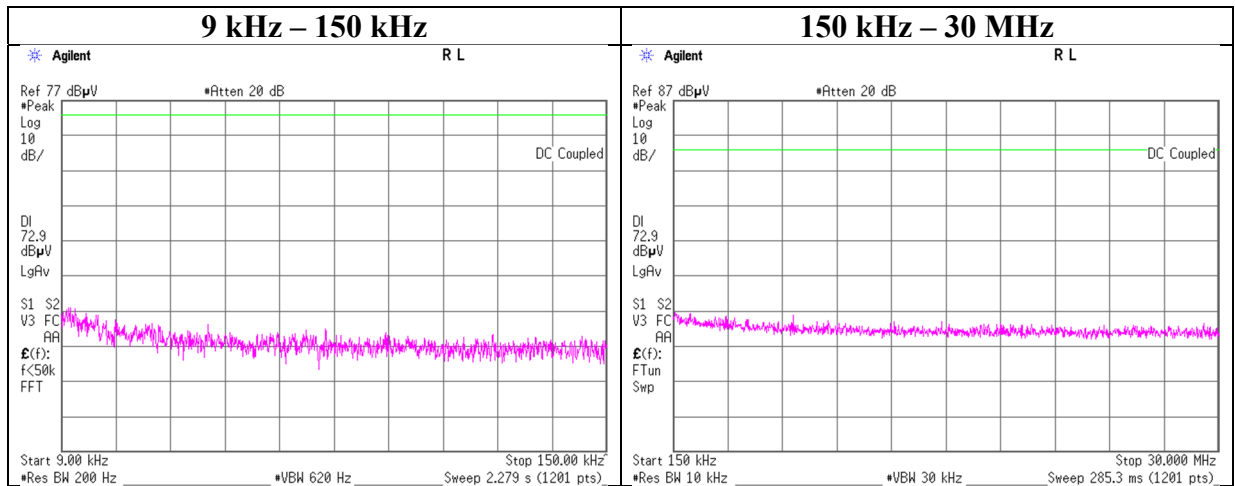
Telephone : +81 463 50 6400

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Conducted Spurious Emission

Report No. 13566128S-A-R1
Test place Shonan EMC Lab. No.3 Shielded Room
Date November 18, 2020
Temperature / Humidity 25 deg. C / 44 % RH
Engineer Makoto Hosaka
Mode Tx, Hopping Off, DH5

2441 MHz



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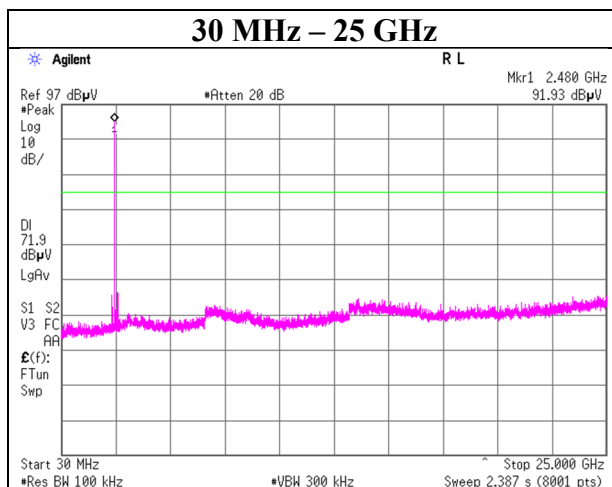
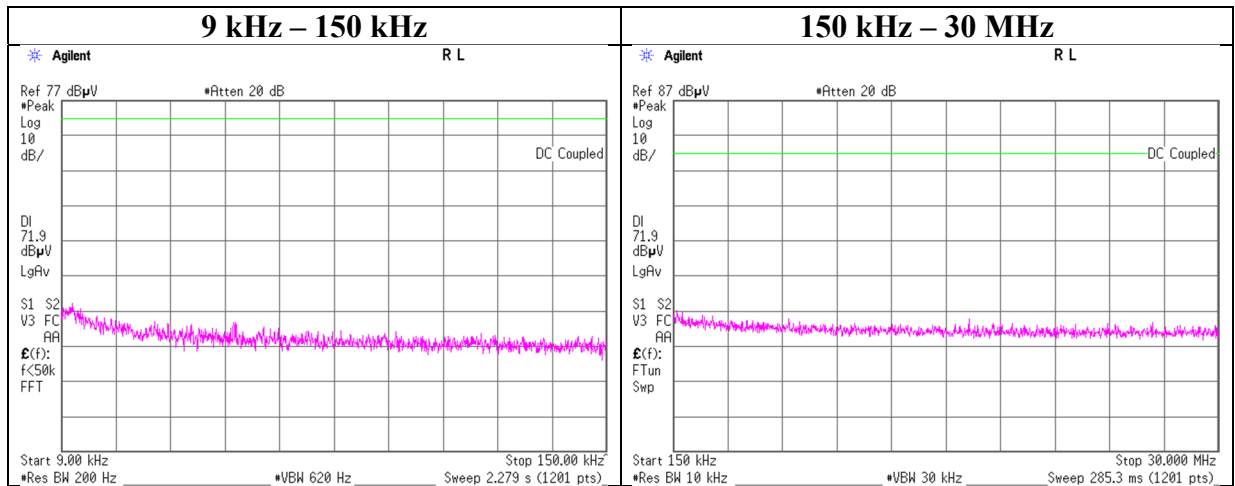
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Conducted Spurious Emission

Report No. 13566128S-A-R1
Test place Shonan EMC Lab. No.3 Shielded Room
Date November 18, 2020
Temperature / Humidity 25 deg. C / 44 % RH
Engineer Makoto Hosaka
Mode Tx, Hopping Off, DH5

2480 MHz



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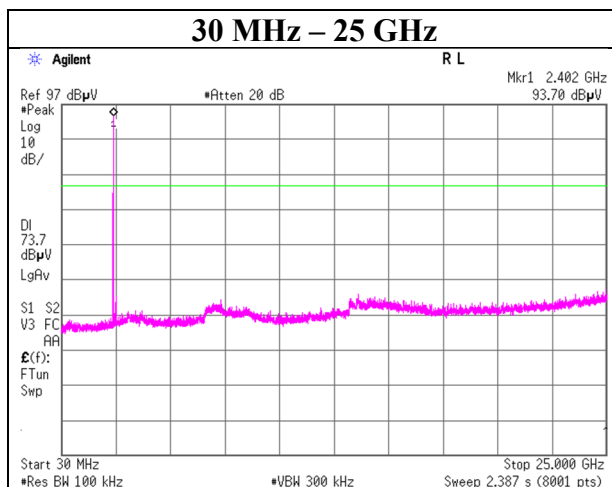
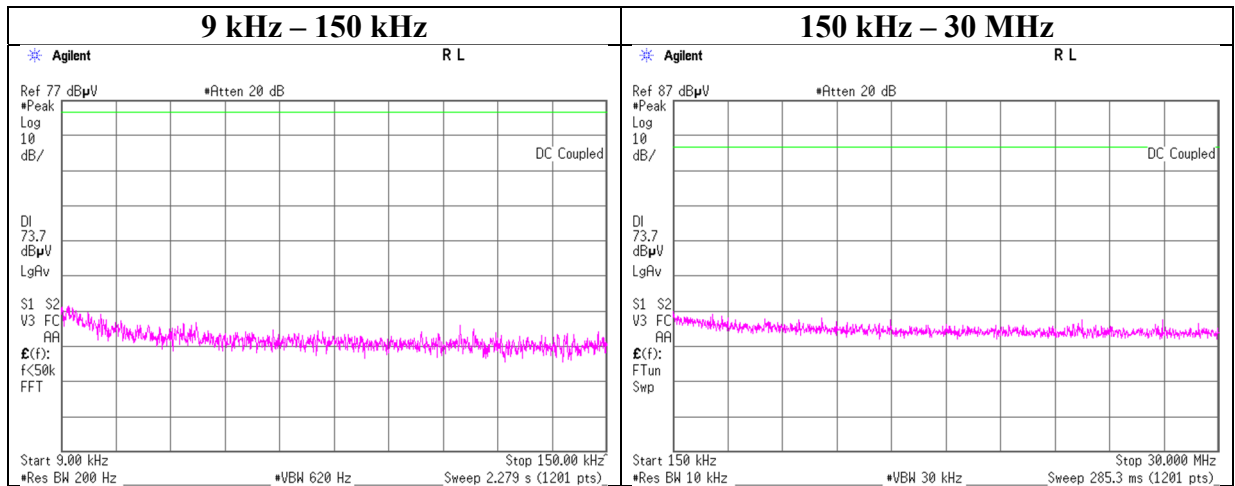
Telephone : +81 463 50 6400

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Conducted Spurious Emission

Report No. 13566128S-A-R1
Test place Shonan EMC Lab. No.3 Shielded Room
Date November 18, 2020
Temperature / Humidity 25 deg. C / 44 % RH
Engineer Makoto Hosaka
Mode Tx, Hopping Off, 3DH5

2402 MHz



UL Japan, Inc.

Shonan EMC Lab.

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

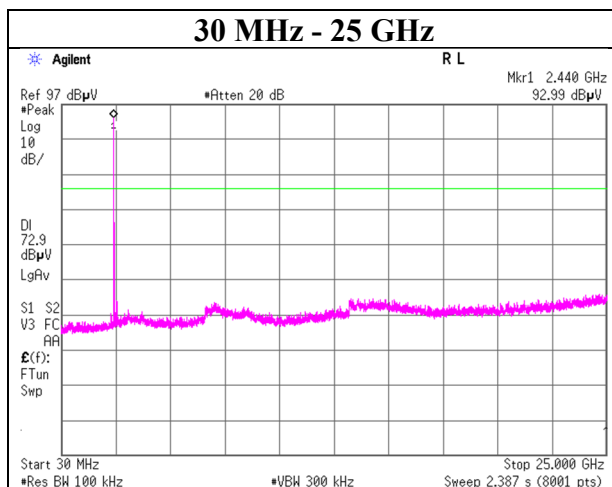
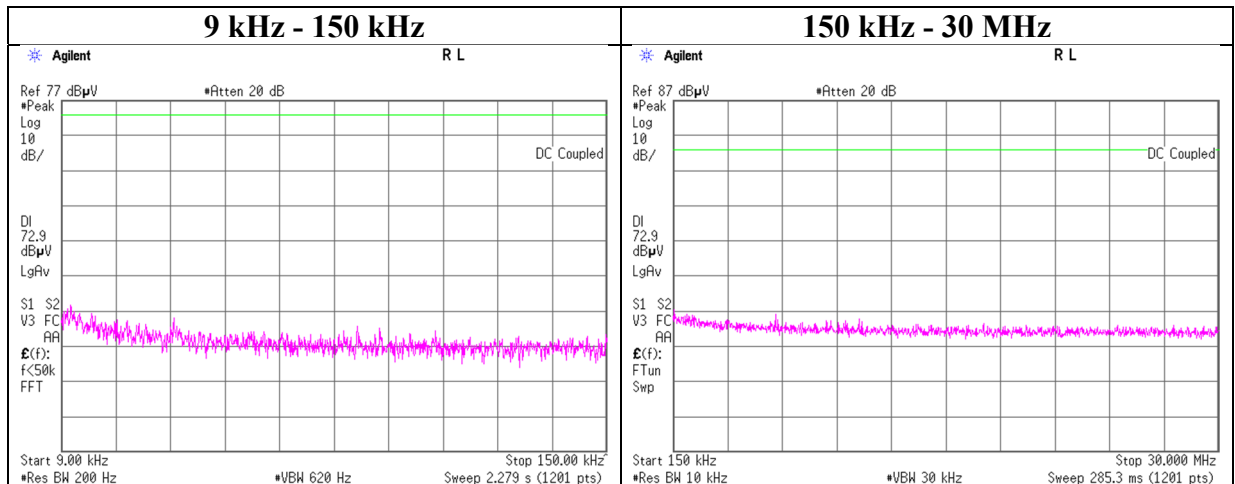
Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

Conducted Spurious Emission

Report No. 13566128S-A-R1
Test place Shonan EMC Lab. No.3 Shielded Room
Date November 18, 2020
Temperature / Humidity 25 deg. C / 44 % RH
Engineer Makoto Hosaka
Mode Tx, Hopping Off, 3DH5

2441 MHz



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Shonan EMC Lab.

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

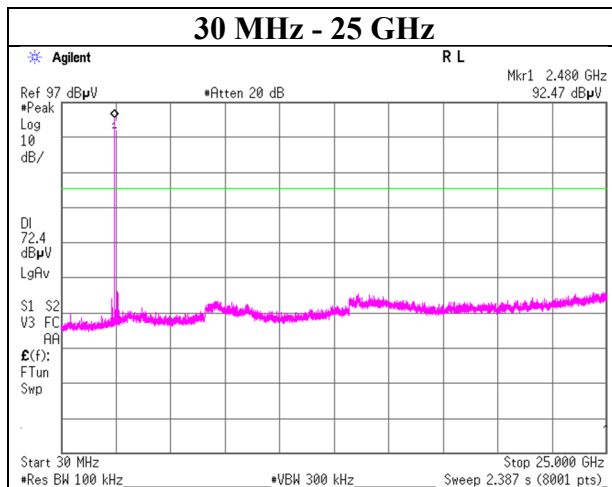
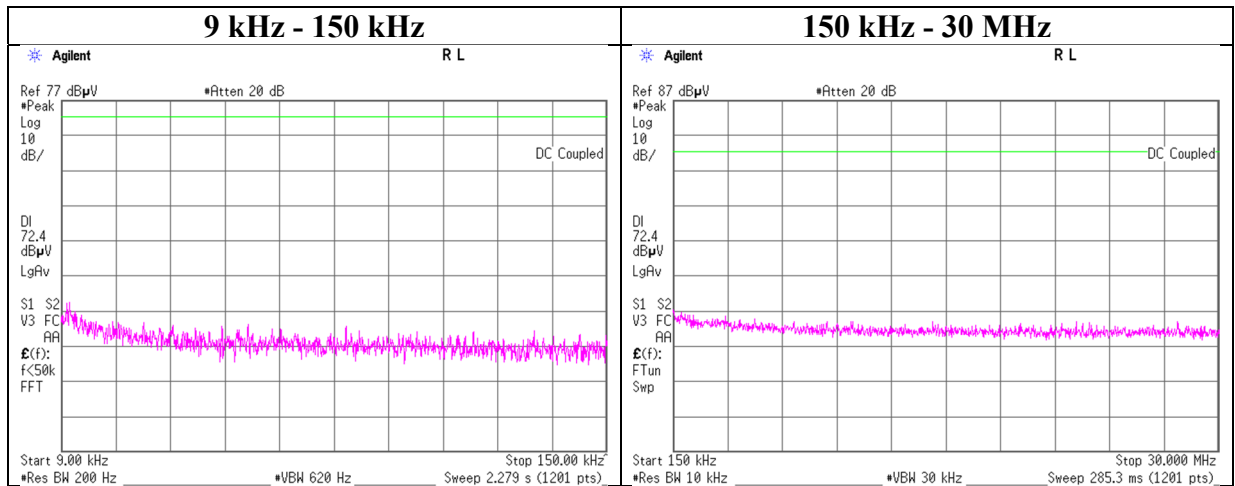
Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

Conducted Spurious Emission

Report No. 13566128S-A-R1
Test place Shonan EMC Lab. No.3 Shielded Room
Date November 18, 2020
Temperature / Humidity 25 deg. C / 44 % RH
Engineer Makoto Hosaka
Mode Tx, Hopping Off, 3DH5

2480 MHz



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Shonan EMC Lab.

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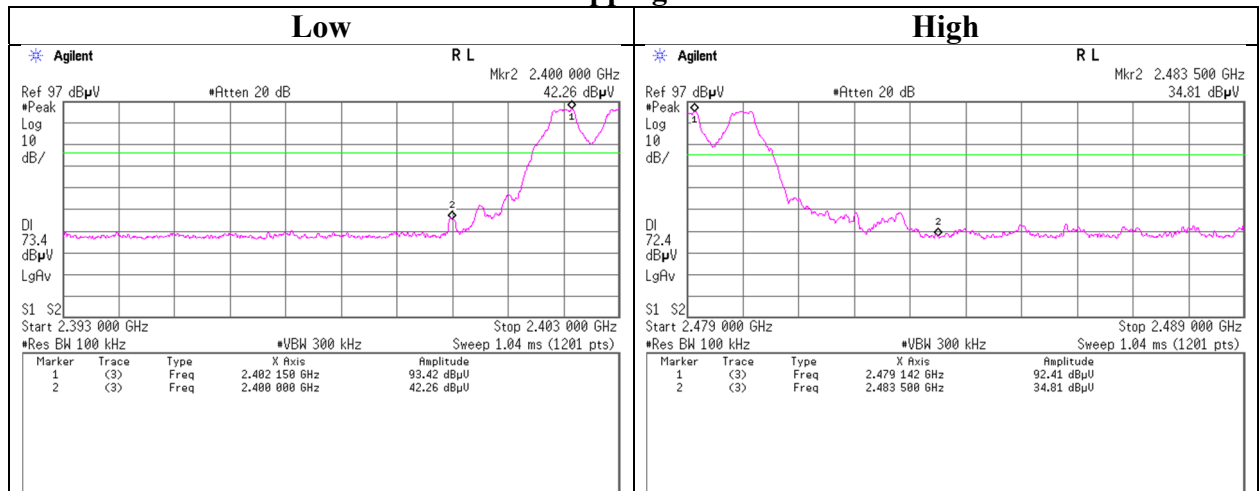
Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

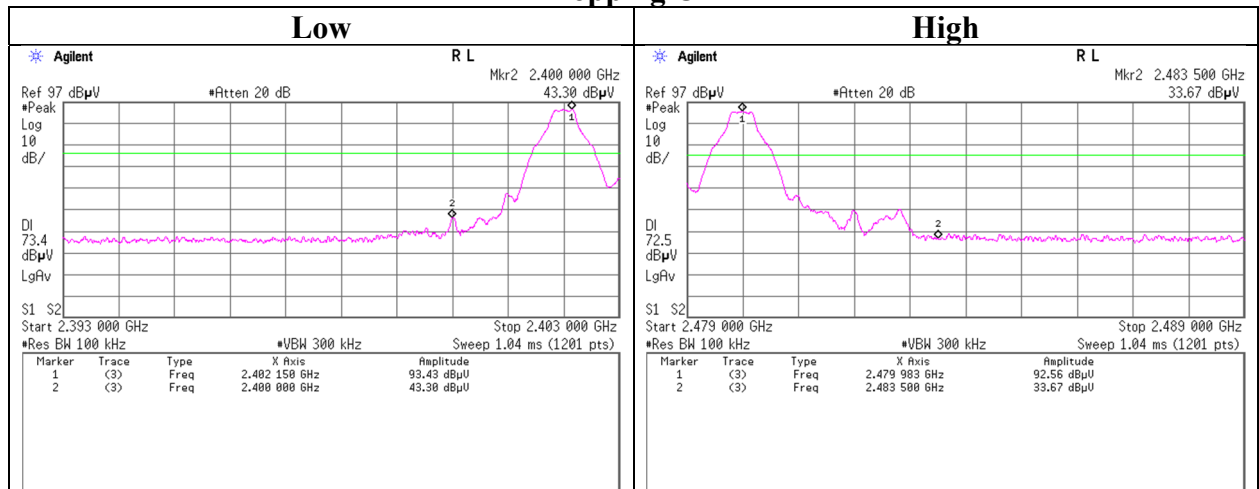
Conducted Emission Band Edge compliance

Report No. 13566128S-A-R1
Test place Shonan EMC Lab. No.3 Shielded Room
Date November 18, 2020
Temperature / Humidity 25 deg. C / 44 % RH
Engineer Makoto Hosaka
Mode Tx DH5

Hopping On



Hopping Off



UL Japan, Inc.

Shonan EMC Lab.

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

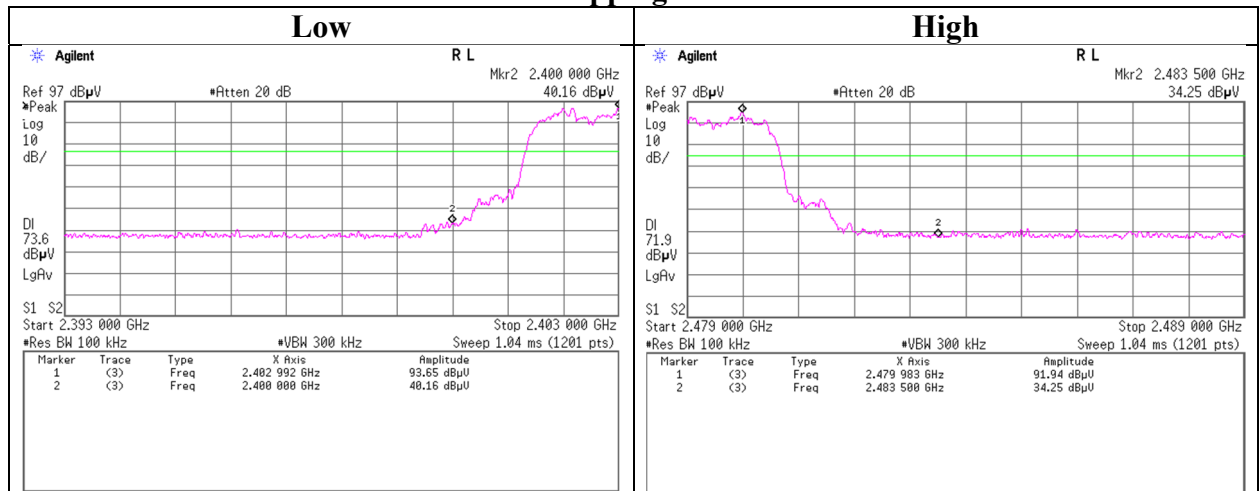
Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

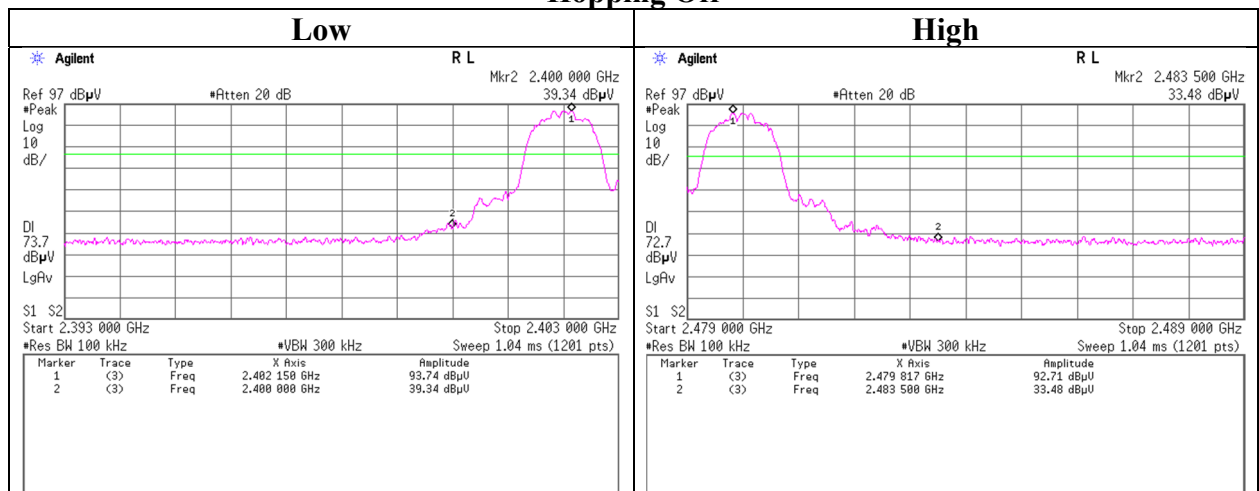
Conducted Emission Band Edge compliance

Report No.	13566128S-A-R1
Test place	Shonan EMC Lab. No.3 Shielded Room
Date	November 18, 2020
Temperature / Humidity	25 deg. C / 44 % RH
Engineer	Makoto Hosaka
Mode	Tx 3DH5

Hopping On



Hopping Off



UL Japan, Inc.

Shonan EMC Lab.

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APPENDIX 2: Test instruments

Test equipment (1/2)

Test Item	Local ID	LIMS ID	Description	Manufacturer	Model	Serial	Last Calibration Date	Cal Int
AT	SAT10-15	160493	Attenuator	Weinschel Corp.	54A-10	83406	2019/12/12	12
AT	SCC-G65	196942	Coaxial Cable	HUBER+SUNER	SUCOFLEX 102	803416/2	2020/03/10	12
AT	SOS-24	191841	Humidity Indicator	CUSTOM. Inc	CTH-201	-	2020/10/01	12
AT	SPM-13	169910	Power Meter	Keysight Technologies Inc	8990B	MY51000448	2020/01/28	12
AT	SPSS-07	169912	Power sensor	Keysight Technologies Inc	N1923A	MY57290005	2020/01/28	12
AT	SRENT-15	160899	Spectrum Analyzer	Keysight Technologies Inc	E4440A	MY46185516	2020/01/15	12
AT,RE	STS-03	146210	Digital Hitester	Hioki	3805-50	80997823	2020/10/19	12
RE	COTS-SEMI-5	170932	EMI Software	TSJ (Techno Science Japan)	TEPTO-DV3(RE,CE,ME,PE)	-	-	-
RE	KJM-02	146432	Measure	TAJIMA	GL19-55	-	-	-
RE	SAEC-03(NSA)	145565	Semi-Anechoic Chamber	TDK	SAEC-03(NSA)	3	2020/04/12	12
RE	SAEC-03(SVSWR)	145566	Semi-Anechoic Chamber	TDK	SAEC-03(SVSWR)	3	2020/05/11	12
RE	SAF-03	145126	Pre Amplifier	SONOMA	310N	290213	2020/02/19	12
RE	SAF-06	145005	Pre Amplifier	Toyo Corporation	TPA0118-36	1440491	2020/02/20	12
RE	SAF-09	145008	Pre Amplifier	Toyo Corporation	HAP18-26W	18	2020/09/02	12
RE	SAT10-05	145136	Attenuator	Keysight Technologies Inc	8493C-010	74864	2020/10/05	12
RE	SAT6-13	167094	Attenuator	JFW	50HF-006N	-	2020/02/21	12
RE	SBA-03	145023	Biconical Antenna	Schwarzbeck Mess - Elektronik	BBA9106	91032666	2020/05/17	12
RE	SCC-C1/C2/C3/C4/C5/C10/SRSE-03	145171	Coaxial Cable&RF Selector	Fujikura/Fujikura/Suhner/Suhner/Suhner/Suhner/TOYO	8D2W/12DSFA/141PE/141PE/141PE/141PE/NS4906	-/0901-271(RF Selector)	2020/04/12	12
RE	SCC-G19	145178	Coaxial Cable	Suhner	SUCOFLEX 102A	1188/2A	2020/03/04	12
RE	SCC-G40	166491	Coaxial Cable	Junkosha	MWX221-01000NFSNMS/B	1612S005	2020/01/08	12
RE	SCC-G43	156380	Coaxial Cable	HUBER+SUNER	SUCOFLEX_104_E	SN MY 13406/4E	2020/06/04	12
RE	SCC-G58	183047	Coaxial Cable	HUBER+SUNER	SUCOFLEX 104	800287/4A	2020/06/04	12
RE	SCC-G70	200010	Coaxial Cable	HUBER+SUNER	SUCOFLEX 104	575618/4	2020/07/07	12

Test equipment (2/2)

Test Item	Local ID	LIMS ID	Description	Manufacturer	Model	Serial	Last Calibration Date	Cal Int
RE	SFL-02	145301	Highpass Filter	MICRO-TRONICS	HPM50111	51	2020/10/05	12
RE	SHA-03	145501	Horn Antenna	Schwarzbeck Mess - Elektronik	BBHA9120D	9120D-739	2020/06/15	12
RE	SHA-05	145513	Horn Antenna	ETS LINDGREN	3160-09	00094867	2020/06/15	12
RE	SHA-10	194685	Horn Antenna	Schwarzbeck Mess - Elektronik	BBHA 9120 C	711	2020/02/17	12
RE	SLA-07	145529	Logperiodic Antenna	Schwarzbeck Mess - Elektronik	VUSLP9111B	196	2020/05/17	12
RE	SOS-23	191840	Humidity Indicator	CUSTOM. Inc	CTH-201	-	2020/09/28	12
RE	SSA-03	145801	Spectrum Analyzer	Keysight Technologies Inc	E4448A	MY48250152	2020/08/12	12
RE	STR-06	146208	Test Receiver	Rohde & Schwarz	ESCI	101259	2020/04/01	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: RE: Radiated Emission test
AT: Antenna Terminal Conducted test