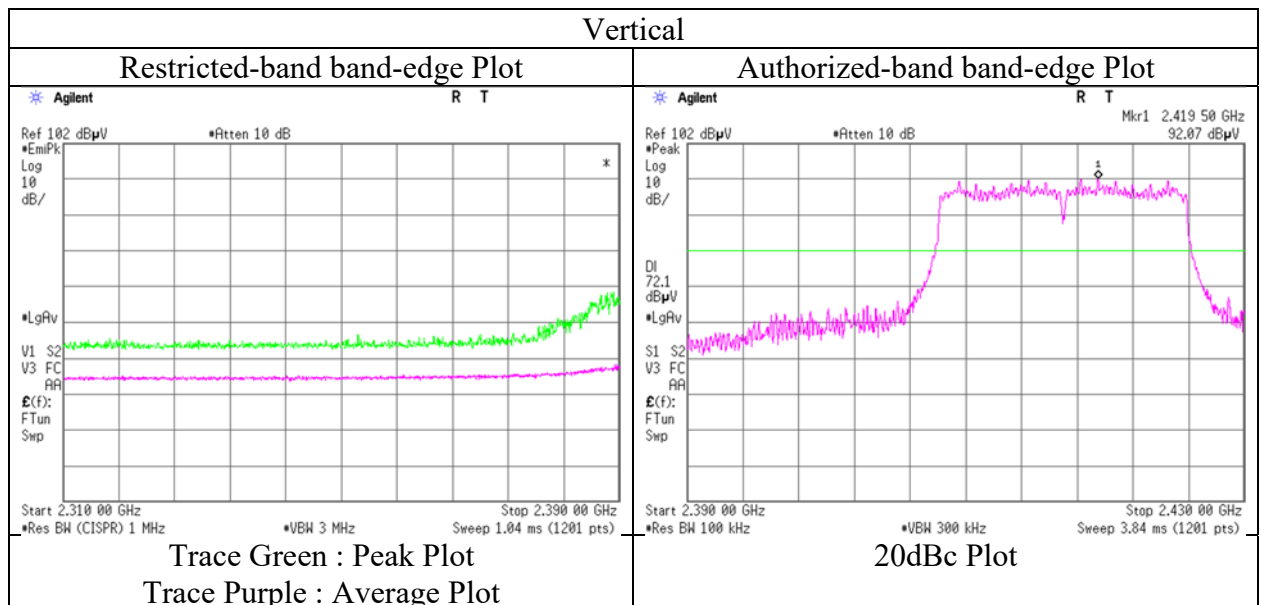
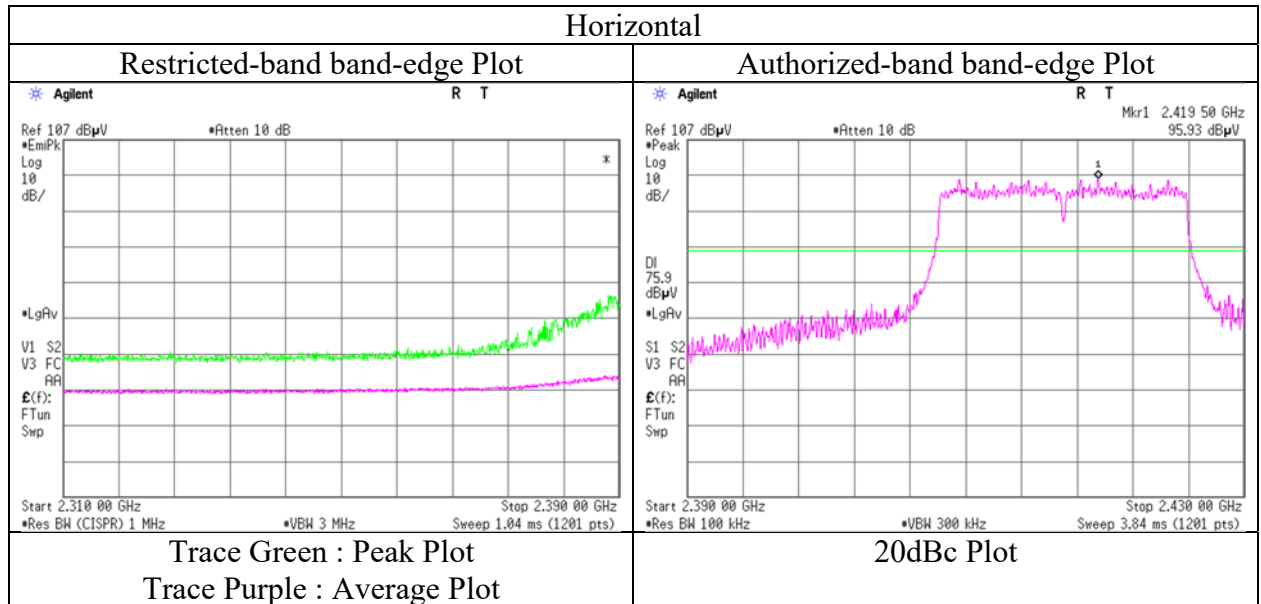


**Radiated Spurious Emission
(Reference Plot for band-edge)**

Report No. 13385909S-B-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber 3
Date July 6, 2020
Temperature / Humidity 22 deg.C / 69 %RH
Engineer Kazuya Noda
Mode Tx 11n-20 2417 MHz
EUT Lo type(9.8 inch Display)



* 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.	13385909S-B-R2			
Test place	Shonan EMC Lab.			
Semi Anechoic Chamber	3	3	3	3
Date	July 6, 2020	July 7, 2020	July 23, 2020	July 23, 2020
Temperature / Humidity	22 deg.C / 69 %RH	23 deg.C / 66 %RH	24 deg.C / 61 %RH	22 deg.C / 63 %RH
Engineer	Kazuya Noda	Kazuya Noda	Hiromasa Sato	Toshinori Yamada
	(1 GHz - 2.8 GHz)	(2.8 GHz - 13 GHz)	(13 GHz - 18 GHz)	(18 GHz - 26.5 GHz)
Mode	Tx 11n-20 2437 MHz			
EUT	Lo type(9.8 inch Display)			

(* PK: Peak, AV: 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.	4874.000	PK	48.02	31.63	6.87	42.93	2.13	45.72	73.90	28.1	118	209	
Hori.	7311.000	PK	47.93	37.69	8.43	43.48	2.13	52.70	73.90	21.2	100	0	
Hori.	7311.000	AV	38.32	37.69	8.43	43.48	2.13	43.09	53.90	10.8	100	0	Floor noise
Vert.	4874.000	PK	47.82	31.63	6.87	42.93	2.13	45.52	73.90	28.3	221	266	
Vert.	7311.000	PK	47.89	37.69	8.43	43.48	2.13	52.66	73.90	21.2	100	0	
Vert.	7311.000	AV	38.35	37.69	8.43	43.48	2.13	43.12	53.90	10.7	100	0	Floor noise

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

Distance factor : 1 GHz - 13 GHz : 20log(3.83 m / 3.0 m) = 2.13 dB

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

Average measurement value with duty factor

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	4874.000	AV	38.39	31.63	6.87	42.93	4.06	2.13	40.15	53.9	13.7	-
Vert.	4874.000	AV	38.50	31.63	6.87	42.93	4.06	2.13	40.26	53.9	13.6	-

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

Distance factor : 1 GHz - 13 GHz : 20log(3.83 m / 3.0 m) = 2.13 dB

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

Duty factor refer to "Duty factor Calculation chart" sheet.

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Shonan EMC Lab.

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Radiated Spurious Emission

Report No.	13385909S-B-R2			
Test place	Shonan EMC Lab.			
Semi Anechoic Chamber	3	3	3	3
Date	July 6, 2020	July 7, 2020	July 23, 2020	July 23, 2020
Temperature / Humidity	22 deg.C / 69 %RH	23 deg.C / 66 %RH	24 deg.C / 61 %RH	22 deg.C / 63 %RH
Engineer	Kazuya Noda	Kazuya Noda	Hiromasa Sato	Toshinori Yamada
	(1 GHz - 2.8 GHz)	(2.8 GHz - 13 GHz)	(13 GHz - 18 GHz)	(18 GHz - 26.5 GHz)
Mode	Tx 11n-20 2457 MHz			
EUT	Lo type(9.8 inch Display)			

(* PK: Peak, AV: 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.	2483.500	PK	60.96	28.28	14.32	41.69	2.13	64.00	73.9	9.9	195	262	-
Vert.	2483.500	PK	52.20	28.28	14.32	41.69	2.13	55.24	73.9	18.6	204	261	-

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.83 \text{ m} / 3.0 \text{ m}) = 2.13 \text{ dB}$

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

Average measurement value with duty factor

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2483.500	AV	40.36	28.28	14.32	41.69	4.06	2.13	47.46	53.9	6.4	*1)
Vert.	2483.500	AV	38.35	28.28	14.32	41.69	4.06	2.13	45.45	53.9	8.4	*1)

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.83 \text{ m} / 3.0 \text{ m}) = 2.13 \text{ dB}$

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

Duty factor refer to "Duty factor Calculation chart" sheet.

*1) Not out of band emission (Leakage Power)

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.	2457.000	PK	95.65	28.30	14.29	41.69	2.13	98.68	-	-	Carrier
Vert.	2457.000	PK	88.37	28.30	14.29	41.69	2.13	91.40	-	-	Carrier

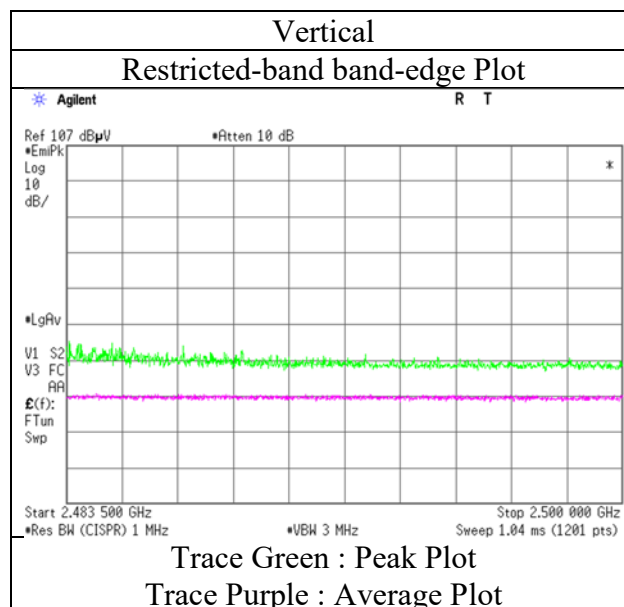
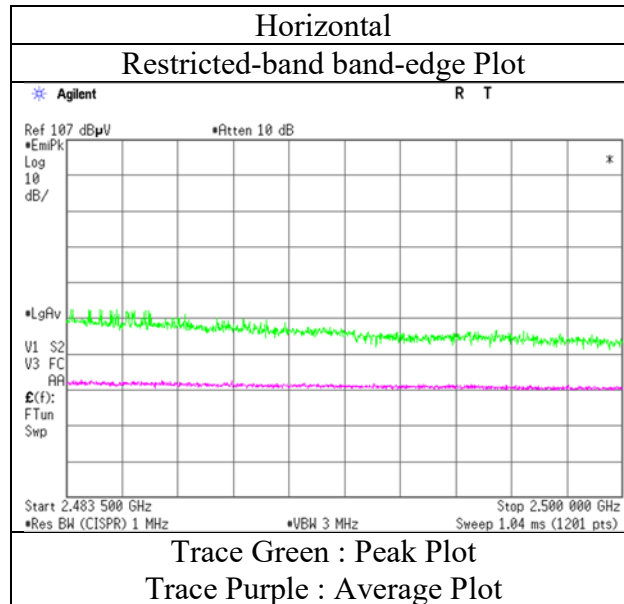
Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

Distance factor : 1 GHz - 13 GHz : $20\log(3.83 \text{ m} / 3.0 \text{ m}) = 2.13 \text{ dB}$

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

Radiated Spurious Emission
(Reference Plot for band-edge)

Report No. 13385909S-B-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber 3
Date July 6, 2020
Temperature / Humidity 22 deg.C / 69 %RH
Engineer Kazuya Noda
Mode Tx 11n-20 2457 MHz
EUT Lo type(9.8 inch Display)



* 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.	13385909S-B-R2			
Test place	Shonan EMC Lab.			
Semi Anechoic Chamber	3	3	3	3
Date	July 6, 2020	July 7, 2020	July 23, 2020	July 23, 2020
Temperature / Humidity	22 deg.C / 69 %RH	23 deg.C / 66 %RH	24 deg.C / 61 %RH	22 deg.C / 63 %RH
Engineer	Kazuya Noda	Kazuya Noda	Hiromasa Sato	Toshinori Yamada
	(1 GHz - 2.8 GHz)	(2.8 GHz - 13 GHz)	(13 GHz - 18 GHz)	(18 GHz - 26.5 GHz)
Mode	Tx 11g 2462 MHz			
EUT	Lo type(9.8 inch Display)			

(* PK: Peak, AV: 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.	2483.500	PK	61.19	28.28	14.32	41.69	2.13	64.23	73.90	9.6	197	260	
Hori.	4924.000	PK	48.56	31.68	6.91	42.94	2.13	46.34	73.90	27.5	124	203	
Hori.	7386.000	PK	48.19	37.81	8.48	43.55	2.13	53.06	73.90	20.8	100	0	
Hori.	7386.000	AV	38.48	37.81	8.48	43.55	2.13	43.35	53.90	10.5	100	0	Floor noise
Vert.	2483.500	PK	51.59	28.28	14.32	41.69	2.13	54.63	73.90	19.2	204	263	
Vert.	4924.000	PK	48.24	31.68	6.91	42.94	2.13	46.02	73.90	27.8	233	259	
Vert.	7386.000	PK	48.16	37.81	8.48	43.55	2.13	53.03	73.90	20.8	100	0	
Vert.	7386.000	AV	38.31	37.81	8.48	43.55	2.13	43.18	53.90	10.7	100	0	Floor noise

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.83\text{ m} / 3.0\text{ m}) = 2.13\text{ dB}$
13 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.54\text{ dB}$

Average measurement value with duty factor

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2483.500	AV	40.12	28.28	14.32	41.69	4.06	2.13	47.22	53.9	6.6	*1)
Hori.	4924.000	AV	38.61	31.68	6.91	42.94	4.06	2.13	40.45	53.9	13.4	
Vert.	2483.500	AV	38.54	28.28	14.32	41.69	4.06	2.13	45.64	53.9	8.2	*1)
Vert.	4924.000	AV	38.32	31.68	6.91	42.94	4.06	2.13	40.16	53.9	13.7	

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

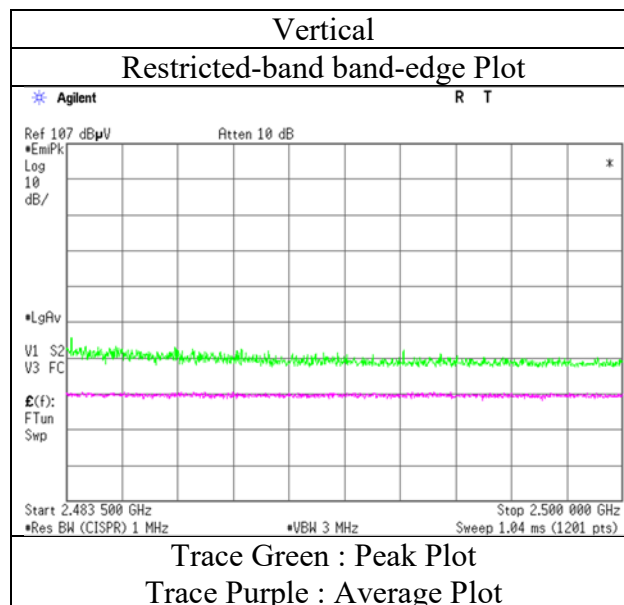
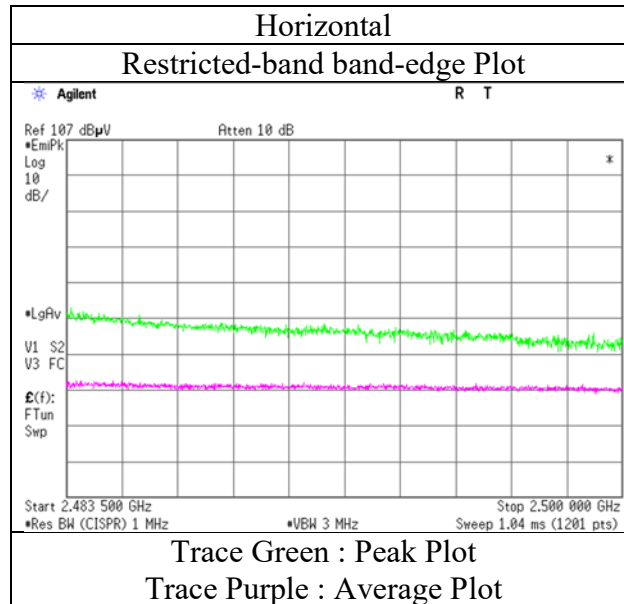
Distance factor : 1 GHz - 13 GHz : $20\log(3.83\text{ m} / 3.0\text{ m}) = 2.13\text{ dB}$
13 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.54\text{ dB}$

Duty factor refer to "Duty factor Calculation chart" sheet.

*1) Not out of band emission (Leakage Power)

Radiated Spurious Emission
(Reference Plot for band-edge)

Report No. 13385909S-B-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber 3
Date July 6, 2020
Temperature / Humidity 22 deg.C / 69 %RH
Engineer Kazuya Noda
Mode Tx 11n-20 2462 MHz
EUT Lo type(9.8 inch Display)

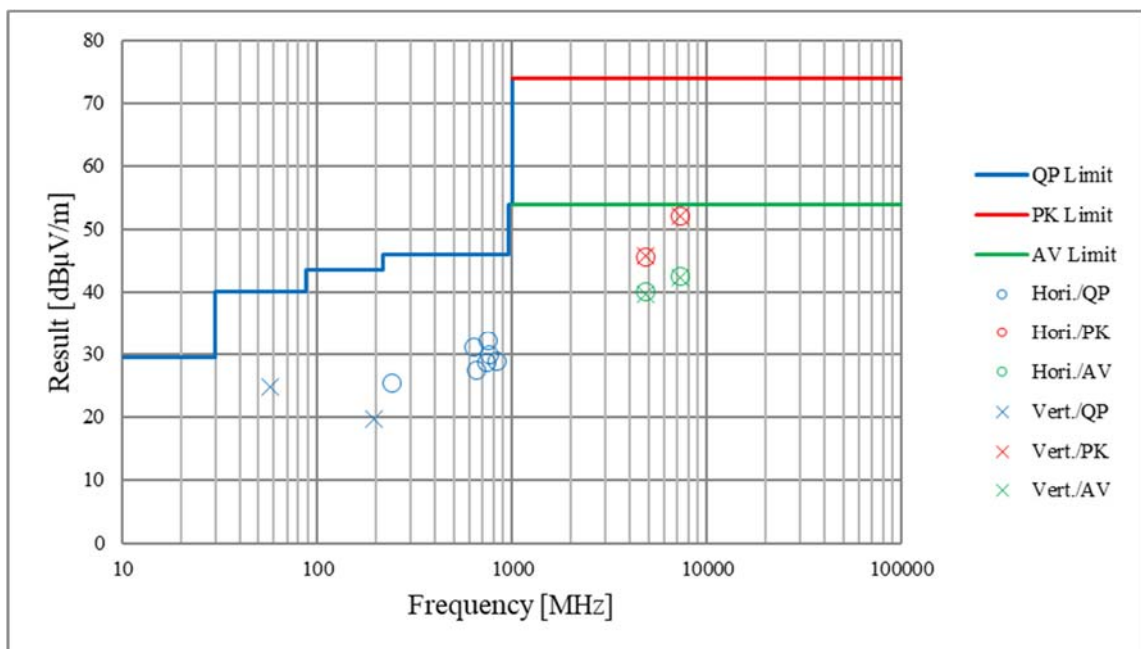


* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.

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

Radiated Spurious Emission (Plot data, Worst case)

Report No.	13385909S-B-R2		
Test place	Shonan EMC Lab.		
Semi Anechoic Chamber	3	3	3
Date	July 31, 2020	July 6, 2020	July 7, 2020
Temperature / Humidity	23 deg.C / 62 %RH	22 deg.C / 69 %RH	23 deg.C / 66 %RH
Engineer	Toshinori Yamada (30 MHz - 1 GHz)	Kazuya Noda (1 GHz - 2.8 GHz)	Kazuya Noda (2.8 GHz - 13 GHz)
Semi Anechoic Chamber	3	3	
Date	July 23, 2020	July 23, 2020	
Temperature / Humidity	24 deg.C / 61 %RH	22 deg.C / 63 %RH	
Engineer	Hirosasa Sato (13 GHz - 18 GHz)	Toshinori Yamada (18 GHz - 26.5 GHz)	
Mode	Tx 11g 2437 MHz		
EUT	Lo type(9.8 inch Display)		



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

Radiated Spurious Emission

Report No. 13385909S-B-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber 3
Date July 22, 2020
Temperature / Humidity 23 deg.C / 57 %RH
Engineer Yusuke Tanikawara
(1 GHz - 2.8 GHz)
Mode Tx 11b 2412 MHz with 11ac-20 MIMO 5745 MHz
EUT Lo type(9.8 inch Display)

(* PK: Peak, AV: 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.	2390.000	PK	49.70	28.41	14.23	41.66	2.13	52.81	73.9	21.0	168	259	-
Hori.	2390.000	AV	40.58	28.41	14.23	41.66	2.13	43.69	53.9	10.2	168	259	
Vert.	2390.000	PK	48.16	28.41	14.23	41.66	2.13	51.27	73.9	22.6	199	260	
Vert.	2390.000	AV	39.25	28.41	14.23	41.66	2.13	42.36	53.9	11.5	199	260	

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.83\text{ m} / 3.0\text{ m}) = 2.13\text{ dB}$

13 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.	2412.000	PK	97.00	28.37	14.24	41.67	2.13	100.07	-	-	Carrier
Hori.	2398.000	PK	52.85	28.39	14.23	41.67	2.13	55.93	80.07	24.1	
Hori.	2400.000	PK	42.51	28.38	14.23	41.67	2.13	45.58	80.07	34.4	
Vert.	2412.000	PK	92.30	28.37	14.24	41.67	2.13	95.37	-	-	Carrier
Vert.	2398.500	PK	50.13	28.38	14.23	41.67	2.13	53.20	75.37	22.1	
Vert.	2400.000	PK	40.62	28.38	14.23	41.67	2.13	43.69	75.37	31.6	

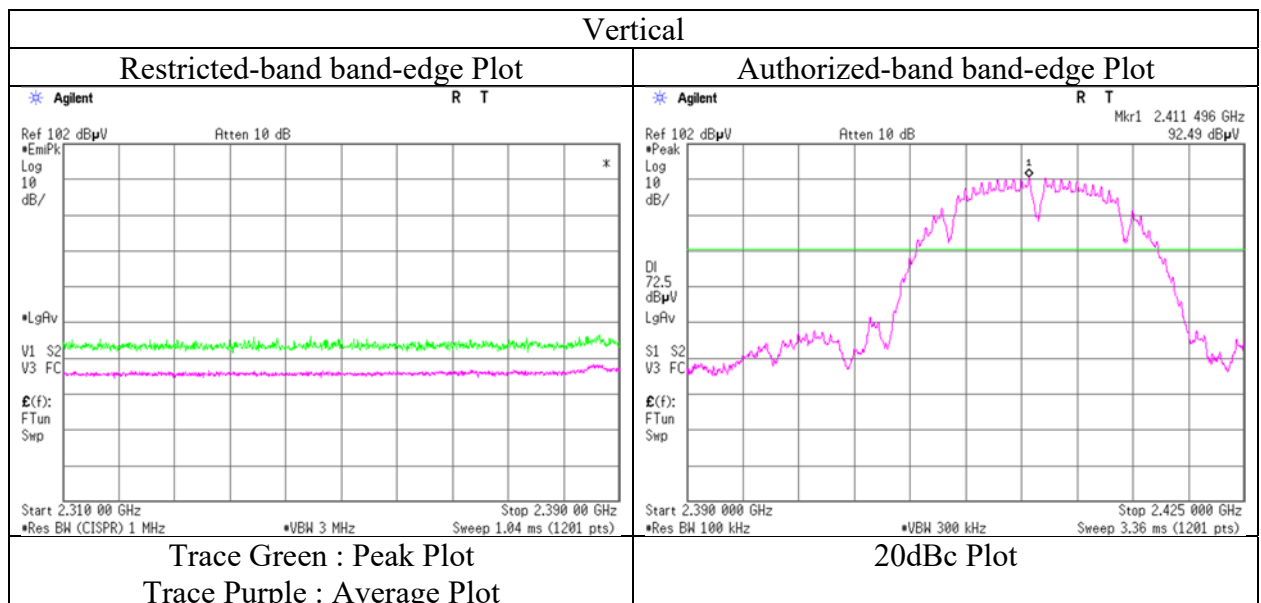
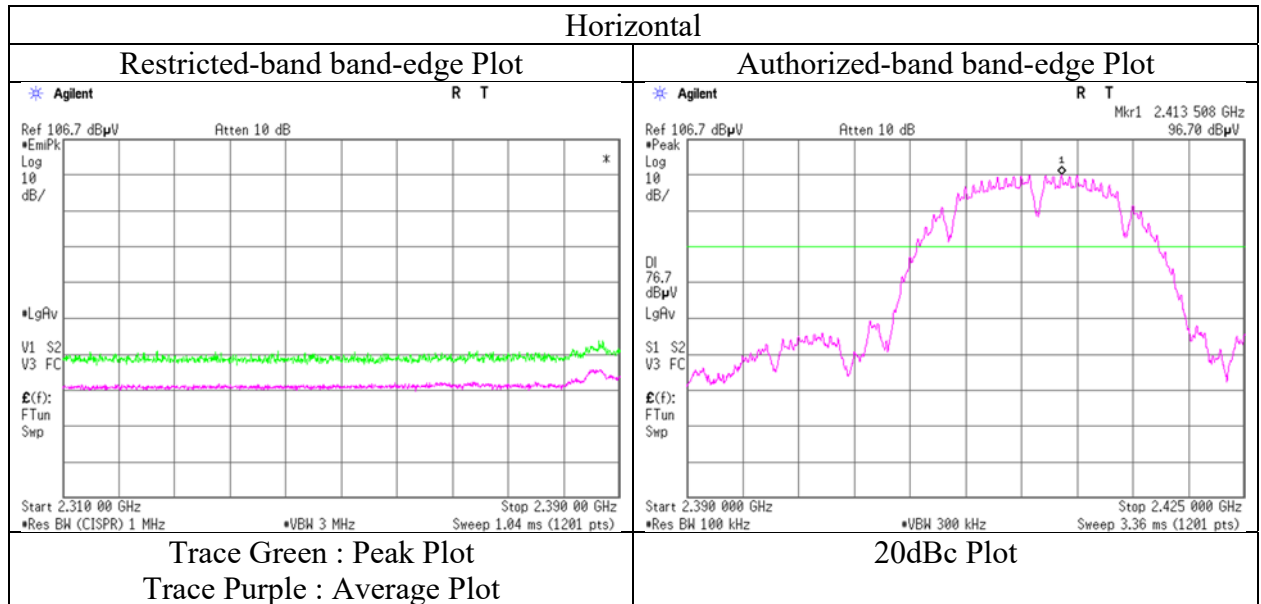
Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

Distance factor : 1 GHz - 13 GHz : $20\log(3.83\text{ m} / 3.0\text{ m}) = 2.13\text{ dB}$

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

Radiated Spurious Emission
(Reference Plot for band-edge)

Report No. 13385909S-B-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber 3
Date July 22, 2020
Temperature / Humidity 23 deg.C / 57 %RH
Engineer Yusuke Tanikawara
Mode Tx 11b 2412 MHz with 11ac-20 MIMO 5745 MHz
EUT Lo type(9.8 inch Display)



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

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

UL Japan, Inc.

Shonan EMC Lab.

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Radiated Spurious Emission

Report No. 13385909S-B-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber 3
Date July 22, 2020
Temperature / Humidity 23 deg.C / 57 %RH
Engineer Yusuke Tanikawara
(1 GHz - 2.8 GHz)
Mode Tx 11b 2462 MHz with 11ac-20 MIMO 5745 MHz
EUT Lo type(9.8 inch Display)

(* PK: Peak, AV: 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.	2483.500	PK	48.72	28.28	14.32	41.69	2.13	51.76	73.9	22.1	156	255	-
Hori.	2488.886	PK	48.23	28.27	14.32	41.70	2.13	51.25	73.9	22.6	156	255	
Hori.	2483.500	AV	40.28	28.28	14.32	41.69	2.13	43.32	53.9	10.5	156	255	
Hori.	2488.886	AV	37.93	28.27	14.32	41.70	2.13	40.95	53.9	12.9	156	255	
Vert.	2483.500	PK	47.57	28.28	14.32	41.69	2.13	50.61	73.9	23.2	168	204	
Vert.	2488.700	PK	46.77	28.27	14.32	41.70	2.13	49.79	73.9	24.1	168	204	
Vert.	2483.500	AV	38.35	28.28	14.32	41.69	2.13	41.39	53.9	12.5	168	204	
Vert.	2488.700	AV	36.56	28.27	14.32	41.70	2.13	39.58	53.9	14.3	168	204	

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.83\text{ m} / 3.0\text{ m}) = 2.13\text{ dB}$

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

UL Japan, Inc.

Shonan EMC Lab.

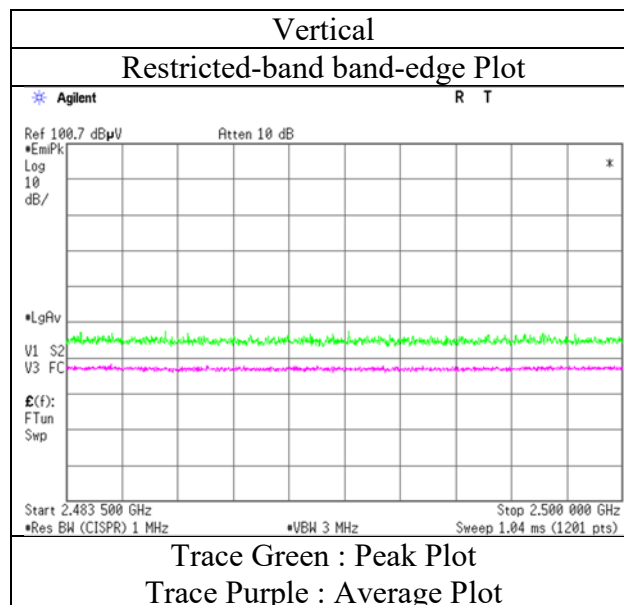
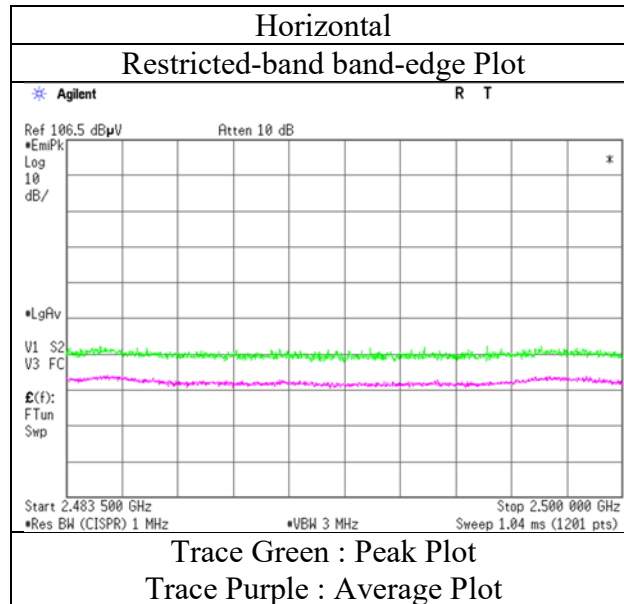
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

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Facsimile : +81 463 50 6401

Radiated Spurious Emission
(Reference Plot for band-edge)

Report No. 13385909S-B-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber 3
Date July 22, 2020
Temperature / Humidity 23 deg.C / 57 %RH
Engineer Yusuke Tanikawara
Mode Tx 11b 2462 MHz with 11ac-20 MIMO 5745 MHz
EUT Lo type(9.8 inch Display)



* 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. 13385909S-B-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber 3
Date July 22, 2020
Temperature / Humidity 23 deg.C / 57 %RH
Engineer Yusuke Tanikawara
(1 GHz - 2.8 GHz)
Mode Tx 11g 2412 MHz with 11ac-20 MIMO 5745 MHz
EUT Lo type(9.8 inch Display)

(* PK: Peak, AV: 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.	2390.000	PK	60.20	28.41	14.23	41.66	2.13	63.31	73.9	10.5	205	265	-
Vert.	2390.000	PK	58.76	28.41	14.23	41.66	2.13	61.87	73.9	12.0	146	258	-

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor
Distance factor : 1 GHz - 13 GHz : $20\log(3.83 \text{ m} / 3.0 \text{ m}) = 2.13 \text{ dB}$
13 GHz - 40 GHz : $20\log(1.0 \text{ m} / 3.0 \text{ m}) = -9.54 \text{ dB}$

Average measurement value with duty factor

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2390.000	AV	43.56	28.41	14.23	41.66	3.83	2.13	50.50	53.9	3.4	*1)
Vert.	2390.000	AV	40.37	28.41	14.23	41.66	3.83	2.13	47.31	53.9	6.5	*1)

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Duty factor + Distance factor
Distance factor : 1 GHz - 13 GHz : $20\log(3.83 \text{ m} / 3.0 \text{ m}) = 2.13 \text{ dB}$
13 GHz - 40 GHz : $20\log(1.0 \text{ m} / 3.0 \text{ m}) = -9.54 \text{ dB}$

Duty factor refer to "Duty factor Calculation chart" sheet.

*1) Not out of band emission (Leakage Power)

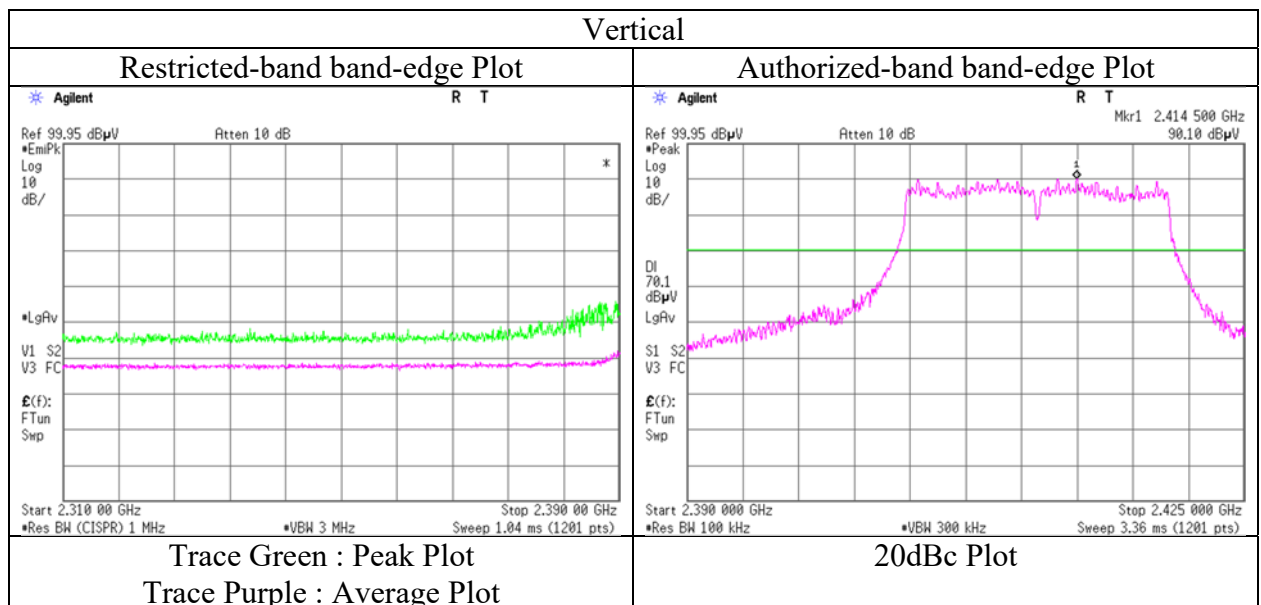
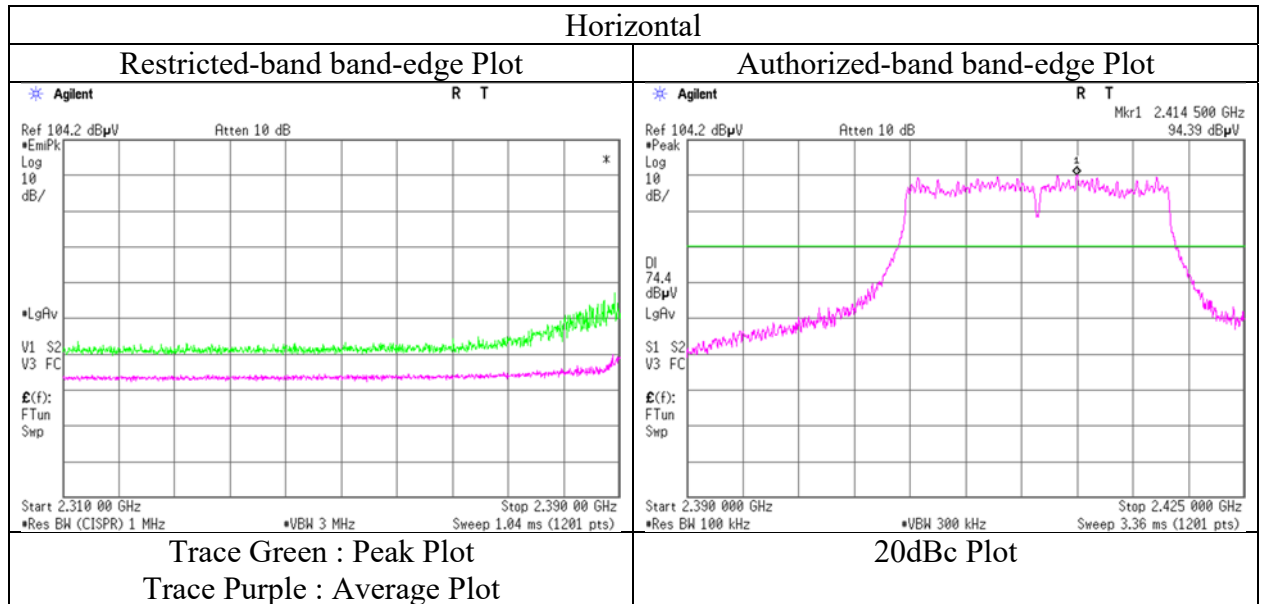
20 dBc Data Sheet (RBW 100 kHz, VBW 300 kHz)

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.	2412.000	PK	94.15	28.37	14.24	41.67	2.13	97.22	-	-	Carrier
Hori.	2400.000	PK	57.26	28.38	14.23	41.67	2.13	60.33	77.22	16.9	
Vert.	2412.000	PK	90.21	28.37	14.24	41.67	2.13	93.28	-	-	Carrier
Vert.	2400.000	PK	54.15	28.38	14.23	41.67	2.13	57.22	73.28	16.1	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor
Distance factor : 1 GHz - 13 GHz : $20\log(3.83 \text{ m} / 3.0 \text{ m}) = 2.13 \text{ dB}$
13 GHz - 40 GHz : $20\log(1.0 \text{ m} / 3.0 \text{ m}) = -9.54 \text{ dB}$

Radiated Spurious Emission
(Reference Plot for band-edge)

Report No. 13385909S-B-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber 3
Date July 22, 2020
Temperature / Humidity 23 deg.C / 57 %RH
Engineer Yusuke Tanikawara
Mode Tx 11g 2412 MHz with 11ac-20 MIMO 5745 MHz
EUT Lo type(9.8 inch Display)



* 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. 13385909S-B-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber 3
Date July 22, 2020
Temperature / Humidity 23 deg.C / 57 %RH
Engineer Yusuke Tanikawara
(1 GHz - 2.8 GHz)
Mode Tx 11g 2417 MHz with 11ac-20 MIMO 5745 MHz
EUT Lo type(9.8 inch Display)

(* PK: Peak, AV: 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.	2390.000	PK	64.47	28.41	14.23	41.66	2.13	67.58	73.9	6.3	211	260	-
Vert.	2390.000	PK	61.45	28.41	14.23	41.66	2.13	64.56	73.9	9.3	175	254	-

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor
Distance factor : 1 GHz - 13 GHz : $20\log(3.83 \text{ m} / 3.0 \text{ m}) = 2.13 \text{ dB}$
13 GHz - 40 GHz : $20\log(1.0 \text{ m} / 3.0 \text{ m}) = -9.54 \text{ dB}$

Average measurement value with duty factor

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2390.000	AV	44.03	28.41	14.23	41.66	3.83	2.13	50.97	53.9	2.9	*1)
Vert.	2390.000	AV	43.07	28.41	14.23	41.66	3.83	2.13	50.01	53.9	3.8	*1)

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Duty factor + Distance factor
Distance factor : 1 GHz - 13 GHz : $20\log(3.83 \text{ m} / 3.0 \text{ m}) = 2.13 \text{ dB}$
13 GHz - 40 GHz : $20\log(1.0 \text{ m} / 3.0 \text{ m}) = -9.54 \text{ dB}$

Duty factor refer to "Duty factor Calculation chart" sheet.

*1) Not out of band emission (Leakage Power)

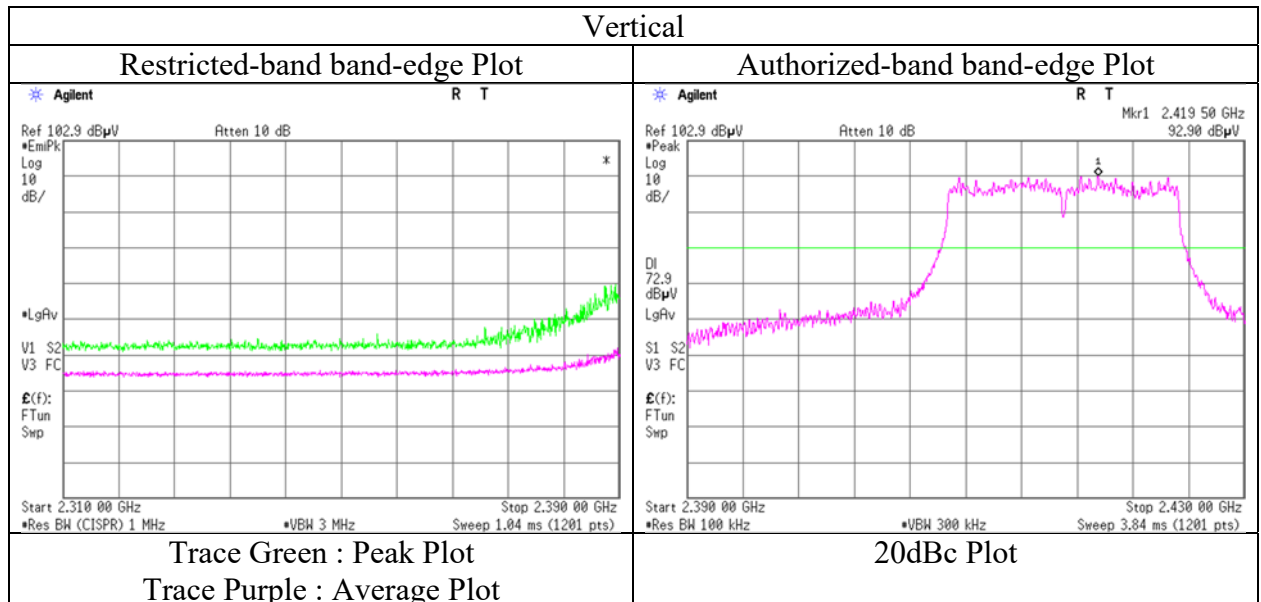
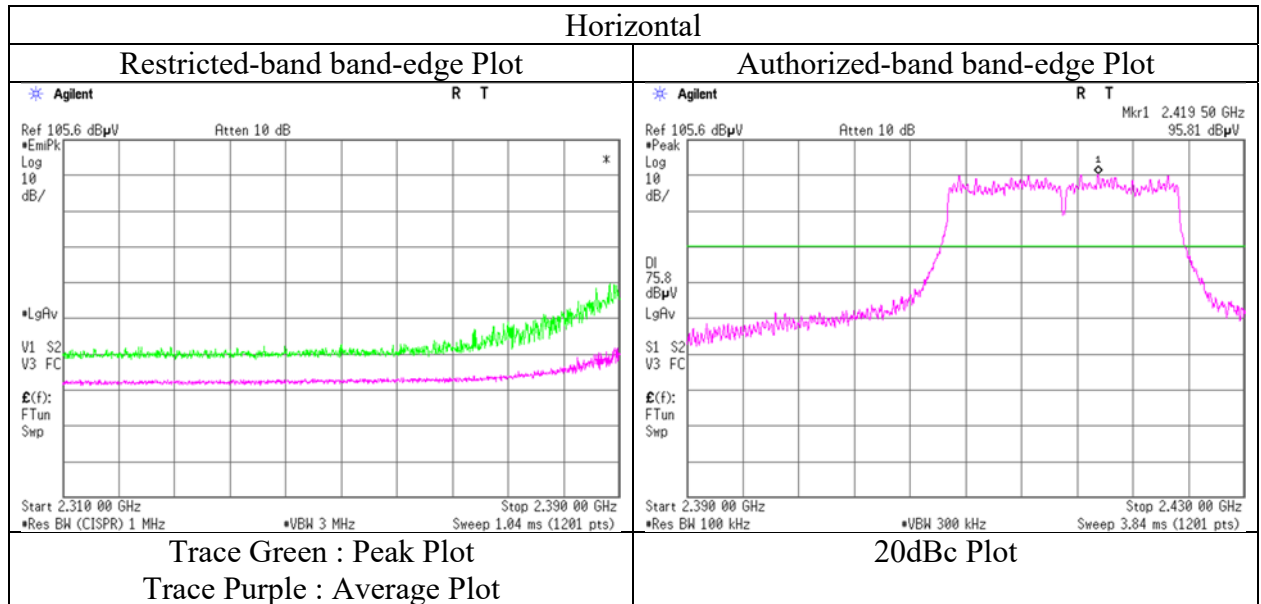
20 dBc Data Sheet (RBW 100 kHz, VBW 300 kHz)

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.	2417.000	PK	95.55	28.36	14.26	41.67	2.13	98.63	-	-	Carrier
Hori.	2400.000	PK	54.95	28.38	14.23	41.67	2.13	58.02	78.63	20.6	
Vert.	2417.000	PK	92.90	28.36	14.26	41.67	2.13	95.98	-	-	Carrier
Vert.	2400.000	PK	53.71	28.38	14.23	41.67	2.13	56.78	75.98	19.2	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor
Distance factor : 1 GHz - 13 GHz : $20\log(3.83 \text{ m} / 3.0 \text{ m}) = 2.13 \text{ dB}$
13 GHz - 40 GHz : $20\log(1.0 \text{ m} / 3.0 \text{ m}) = -9.54 \text{ dB}$

Radiated Spurious Emission
(Reference Plot for band-edge)

Report No. 13385909S-B-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber 3
Date July 22, 2020
Temperature / Humidity 23 deg.C / 57 %RH
Engineer Yusuke Tanikawara
Mode Tx 11g 2417 MHz with 11ac-20 MIMO 5745 MHz
EUT Lo type(9.8 inch Display)



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

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

UL Japan, Inc.

Shonan EMC Lab.

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

Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

Radiated Spurious Emission

Report No.	13385909S-B-R2		
Test place	Shonan EMC Lab.		
Semi Anechoic Chamber	3	3	3
Date	July 31, 2020	July 22, 2020	July 23, 2020
Temperature / Humidity	23 deg.C / 62 %RH	23 deg.C / 65 %RH	24 deg.C / 61 %RH
Engineer	Toshinori Yamada	Toshinori Yamada	Hiromasa Sato
	(30 MHz - 1 GHz)	(1 GHz - 13 GHz)	(13 GHz - 18 GHz)
Mode	Tx 11g 2437 MHz with 11ac-20 MIMO 5745 MHz		
EUT	Lo type(9.8 inch Display)		

(* PK: Peak, AV: 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.	251.608	QP	39.80	11.82	8.27	31.98	0.00	27.91	46.0	18.0	132	137	
Hori.	640.001	QP	35.00	19.27	9.94	31.95	0.00	32.26	46.0	13.7	148	218	
Hori.	652.834	QP	30.50	19.23	9.98	31.94	0.00	27.77	46.0	18.2	149	215	
Hori.	737.080	QP	30.50	20.09	10.29	31.77	0.00	29.11	46.0	16.8	124	165	
Hori.	748.900	QP	32.10	20.15	10.34	31.73	0.00	30.86	46.0	15.1	125	145	
Hori.	760.728	QP	32.20	20.31	10.38	31.72	0.00	31.17	46.0	14.8	123	130	
Hori.	819.624	QP	30.40	20.89	10.56	31.53	0.00	30.32	46.0	15.6	107	185	
Hori.	4874.000	PK	48.50	31.63	6.87	42.93	2.13	46.20	73.9	27.7	121	227	
Hori.	7311.000	PK	48.25	37.69	8.43	43.48	2.13	53.02	73.9	20.8	150	0	
Hori.	7311.000	AV	38.80	37.69	8.43	43.48	2.13	43.57	53.9	10.3	150	0	Floor noise
Vert.	56.754	QP	41.60	9.00	6.66	32.16	0.00	25.10	40.0	14.9	100	239	
Vert.	195.832	QP	26.00	16.51	7.80	32.05	0.00	18.26	43.5	25.2	100	346	
Vert.	4874.000	PK	48.66	31.63	6.87	42.93	2.13	46.36	73.9	27.5	239	274	
Vert.	7311.000	PK	48.55	37.69	8.43	43.48	2.13	53.32	73.9	20.5	150	0	
Vert.	7311.000	AV	38.77	37.69	8.43	43.48	2.13	43.54	53.9	10.3	150	0	Floor noise

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

Distance factor : 1 GHz - 13 GHz : 20log(3.83 m / 3.0 m) = 2.13 dB

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

Average measurement value with duty factor

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	4874.000	AV	38.98	31.63	6.87	42.93	3.83	2.13	40.51	53.9	13.3	-
Vert.	4874.000	AV	39.03	31.63	6.87	42.93	3.83	2.13	40.56	53.9	13.3	-

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

Distance factor : 1 GHz - 13 GHz : 20log(3.83 m / 3.0 m) = 2.13 dB

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

Duty factor refer to "Duty factor Calculation chart" sheet.

Radiated Spurious Emission

Report No. 13385909S-B-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber 3
Date July 22, 2020
Temperature / Humidity 23 deg.C / 57 %RH
Engineer Yusuke Tanikawara
(1 GHz - 2.8 GHz)
Mode Tx 11g 2457 MHz with 11ac-20 MIMO 5745 MHz
EUT Lo type(9.8 inch Display)

(* PK: Peak, AV: 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.	2483.500	PK	62.26	28.28	14.32	41.69	2.13	65.30	73.9	8.6	152	259	-
Vert.	2483.500	PK	52.10	28.28	14.32	41.69	2.13	55.14	73.9	18.7	209	241	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor
Distance factor : 1 GHz - 13 GHz : $20\log(3.83\text{ m} / 3.0\text{ m}) = 2.13\text{ dB}$
13 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.54\text{ dB}$

Average measurement value with duty factor

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2483.500	AV	40.92	28.28	14.32	41.69	3.83	2.13	47.79	53.9	6.1	*1)
Vert.	2483.500	AV	37.63	28.28	14.32	41.69	3.83	2.13	44.50	53.9	9.4	*1)

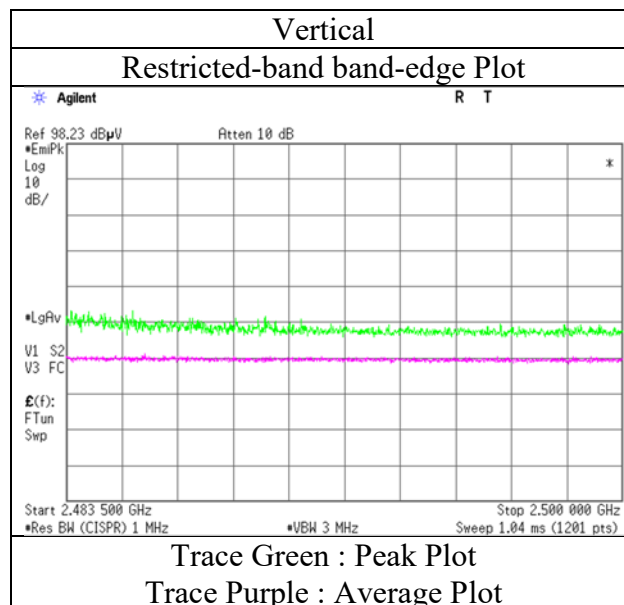
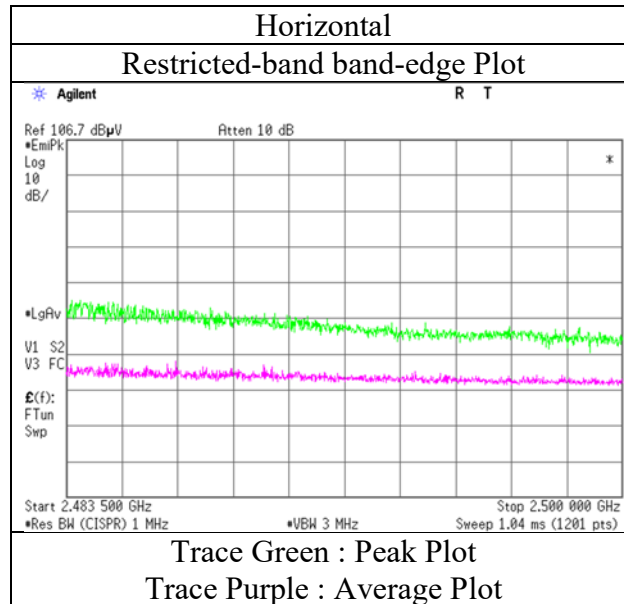
Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Duty factor + Distance factor
Distance factor : 1 GHz - 13 GHz : $20\log(3.83\text{ m} / 3.0\text{ m}) = 2.13\text{ dB}$
13 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.54\text{ dB}$

Duty factor refer to "Duty factor Calculation chart" sheet.

*1) Not out of band emission (Leakage Power)

Radiated Spurious Emission
(Reference Plot for band-edge)

Report No. 13385909S-B-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber 3
Date July 22, 2020
Temperature / Humidity 23 deg.C / 57 %RH
Engineer Yusuke Tanikawara
Mode Tx 11g 2457 MHz with 11ac-20 MIMO 5745 MHz
EUT Lo type(9.8 inch Display)



* 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. 13385909S-B-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber 3
Date July 22, 2020
Temperature / Humidity 23 deg.C / 57 %RH
Engineer Yusuke Tanikawara
(1 GHz - 2.8 GHz)
Mode Tx 11g 2462 MHz with 11ac-20 MIMO 5745 MHz
EUT Lo type(9.8 inch Display)

(* PK: Peak, AV: 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.	2483.500	PK	61.76	28.28	14.32	41.69	2.13	64.80	73.9	9.1	155	256	-
Vert.	2483.500	PK	53.57	28.28	14.32	41.69	2.13	56.61	73.9	17.2	199	258	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor
Distance factor : 1 GHz - 13 GHz : $20\log(3.83\text{ m} / 3.0\text{ m}) = 2.13\text{ dB}$
13 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.54\text{ dB}$

Average measurement value with duty factor

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2483.500	AV	42.12	28.28	14.32	41.69	3.83	2.13	48.99	53.9	4.9	*1)
Vert.	2483.500	AV	37.38	28.28	14.32	41.69	3.83	2.13	44.25	53.9	9.6	*1)

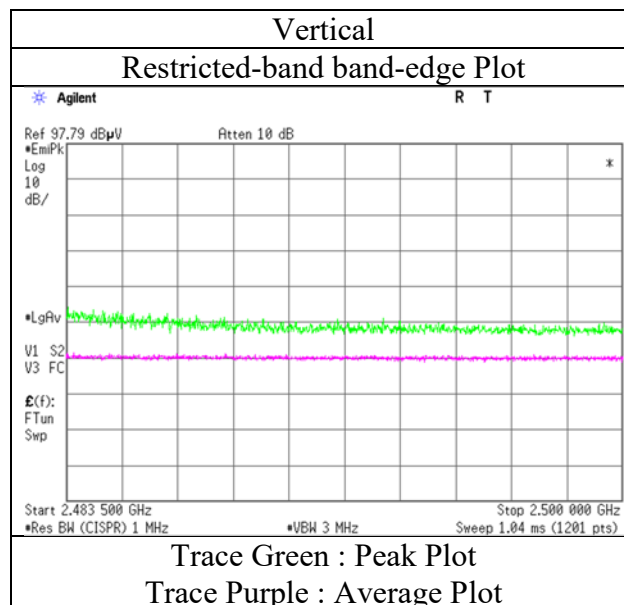
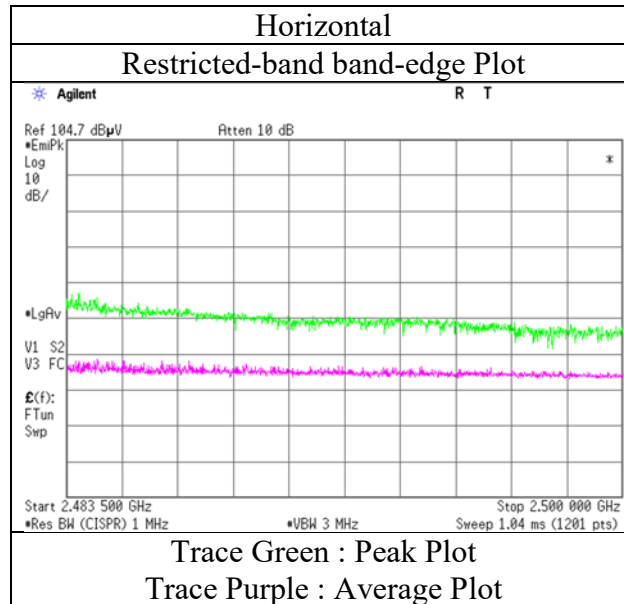
Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Duty factor + Distance factor
Distance factor : 1 GHz - 13 GHz : $20\log(3.83\text{ m} / 3.0\text{ m}) = 2.13\text{ dB}$
13 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.54\text{ dB}$

Duty factor refer to "Duty factor Calculation chart" sheet.

*1) Not out of band emission (Leakage Power)

Radiated Spurious Emission
(Reference Plot for band-edge)

Report No. 13385909S-B-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber 3
Date July 22, 2020
Temperature / Humidity 23 deg.C / 57 %RH
Engineer Yusuke Tanikawara
Mode Tx 11g 2462 MHz with 11ac-20 MIMO 5745 MHz
EUT Lo type(9.8 inch Display)



* 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. 13385909S-B-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber 3
Date July 22, 2020
Temperature / Humidity 23 deg.C / 57 %RH
Engineer Yusuke Tanikawara
(1 GHz - 2.8 GHz)
Mode Tx 11n-20 2412 MHz with 11ac-20 MIMO 5745 MHz
EUT Lo type(9.8 inch Display)

(* PK: Peak, AV: 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.	2390.000	PK	60.86	28.41	14.23	41.66	2.13	63.97	73.9	9.9	162	261	-
Vert.	2390.000	PK	57.13	28.41	14.23	41.66	2.13	60.24	73.9	13.6	147	257	-

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor
Distance factor : 1 GHz - 13 GHz : $20\log(3.83\text{ m} / 3.0\text{ m}) = 2.13\text{ dB}$
13 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.54\text{ dB}$

Average measurement value with duty factor

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2390.000	AV	42.37	28.41	14.23	41.66	4.06	2.13	49.54	53.9	4.3	*1)
Vert.	2390.000	AV	40.86	28.41	14.23	41.66	4.06	2.13	48.03	53.9	5.8	*1)

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Duty factor + Distance factor
Distance factor : 1 GHz - 13 GHz : $20\log(3.83\text{ m} / 3.0\text{ m}) = 2.13\text{ dB}$
13 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.54\text{ dB}$

Duty factor refer to "Duty factor Calculation chart" sheet.

*1) Not out of band emission (Leakage Power)

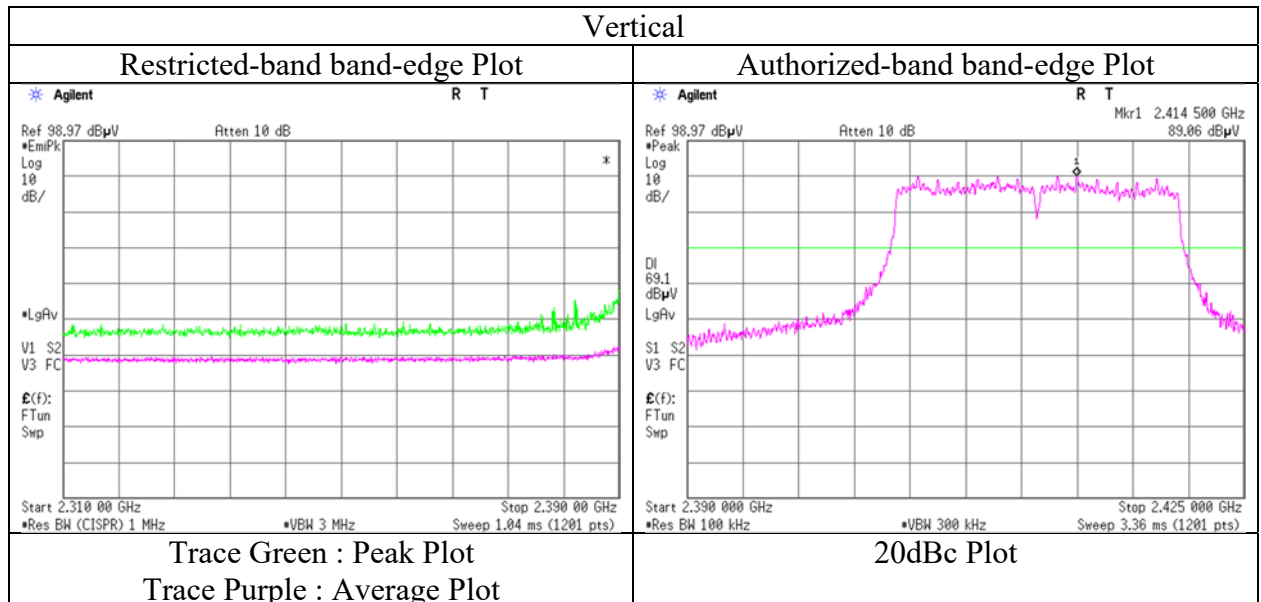
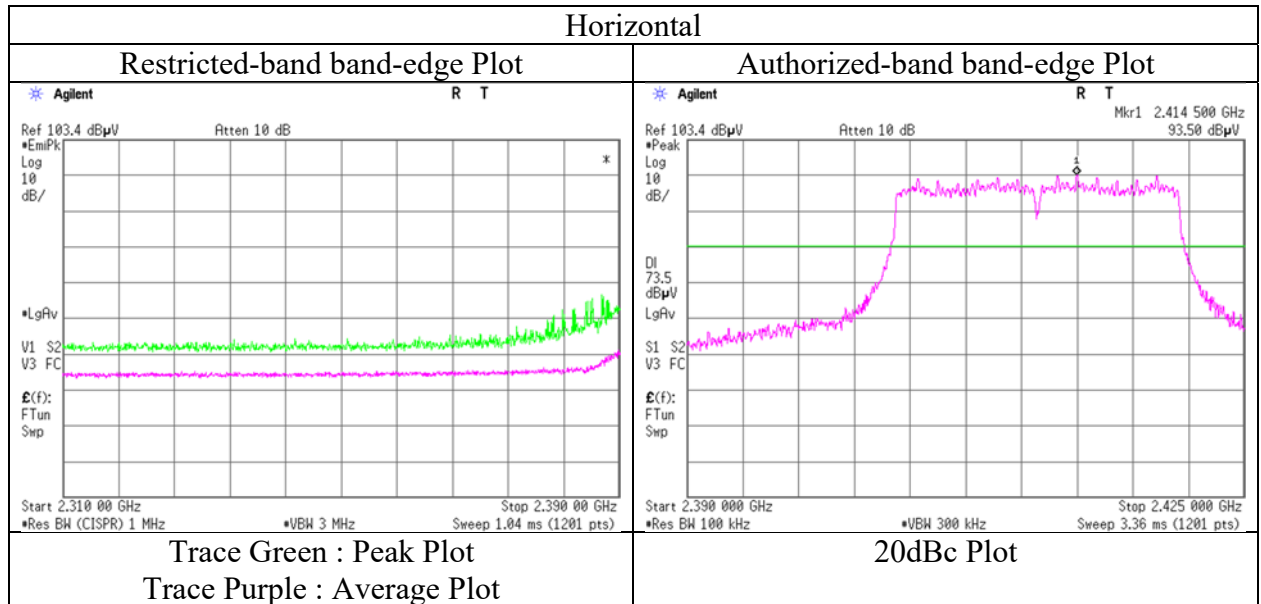
20 dBc Data Sheet (RBW 100 kHz, VBW 300 kHz)

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.	2412.000	PK	93.28	28.37	14.24	41.67	2.13	96.35	-	-	Carrier
Hori.	2400.000	PK	56.96	28.38	14.23	41.67	2.13	60.03	76.35	16.3	
Vert.	2412.000	PK	88.80	28.37	14.24	41.67	2.13	91.87	-	-	Carrier
Vert.	2400.000	PK	53.63	28.38	14.23	41.67	2.13	56.70	71.87	15.2	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor
Distance factor : 1 GHz - 13 GHz : $20\log(3.83\text{ m} / 3.0\text{ m}) = 2.13\text{ dB}$
13 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.54\text{ dB}$

Radiated Spurious Emission
(Reference Plot for band-edge)

Report No. 13385909S-B-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber 3
Date July 22, 2020
Temperature / Humidity 23 deg.C / 57 %RH
Engineer Yusuke Tanikawara
Mode Tx 11n-20 2412 MHz with 11ac-20 MIMO 5745 MHz
EUT Lo type(9.8 inch Display)



* 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. 13385909S-B-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber 3
Date July 22, 2020
Temperature / Humidity 23 deg.C / 57 %RH
Engineer Yusuke Tanikawara
(1 GHz - 2.8 GHz)
Mode Tx 11n-20 2417 MHz with 11ac-20 MIMO 5745 MHz
EUT Lo type(9.8 inch Display)

(* PK: Peak, AV: 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.	2390.000	PK	64.18	28.41	14.23	41.66	2.13	67.29	73.9	6.6	201	263	-
Vert.	2390.000	PK	61.20	28.41	14.23	41.66	2.13	64.31	73.9	9.5	167	262	-

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.83\text{ m} / 3.0\text{ m}) = 2.13\text{ dB}$
13 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.54\text{ dB}$

Average measurement value with duty factor

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2390.000	AV	41.47	28.41	14.23	41.66	4.06	2.13	48.64	53.9	5.2	*1)
Vert.	2390.000	AV	40.59	28.41	14.23	41.66	4.06	2.13	47.76	53.9	6.1	*1)

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.83\text{ m} / 3.0\text{ m}) = 2.13\text{ dB}$
13 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.54\text{ dB}$

Duty factor refer to "Duty factor Calculation chart" sheet.

*1) Not out of band emission (Leakage Power)

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

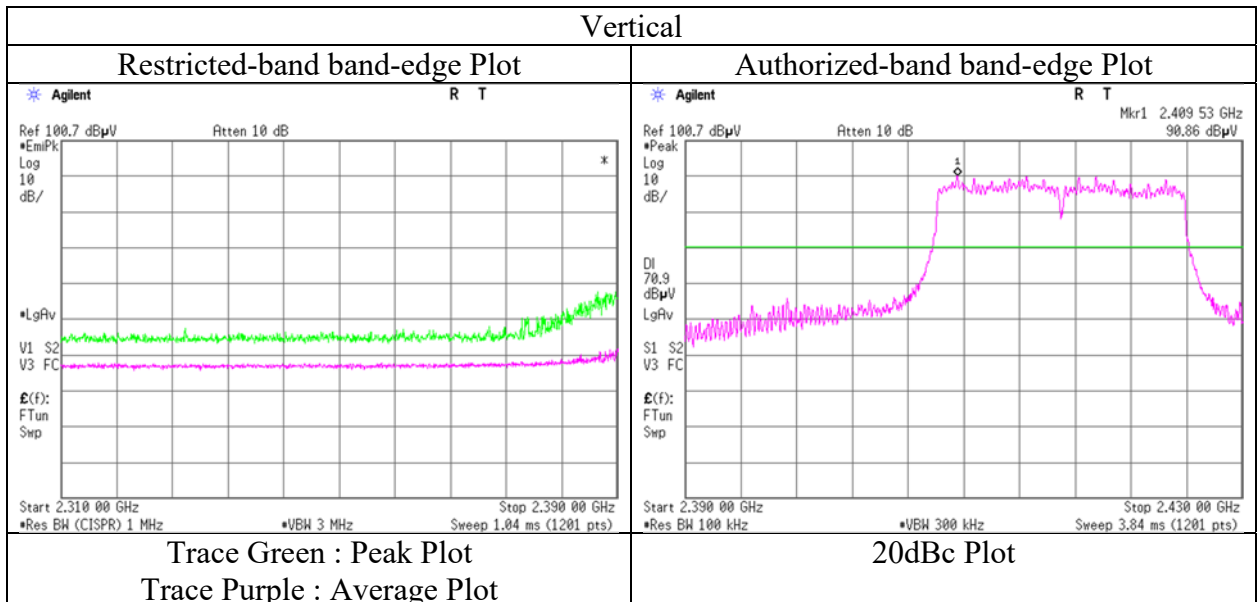
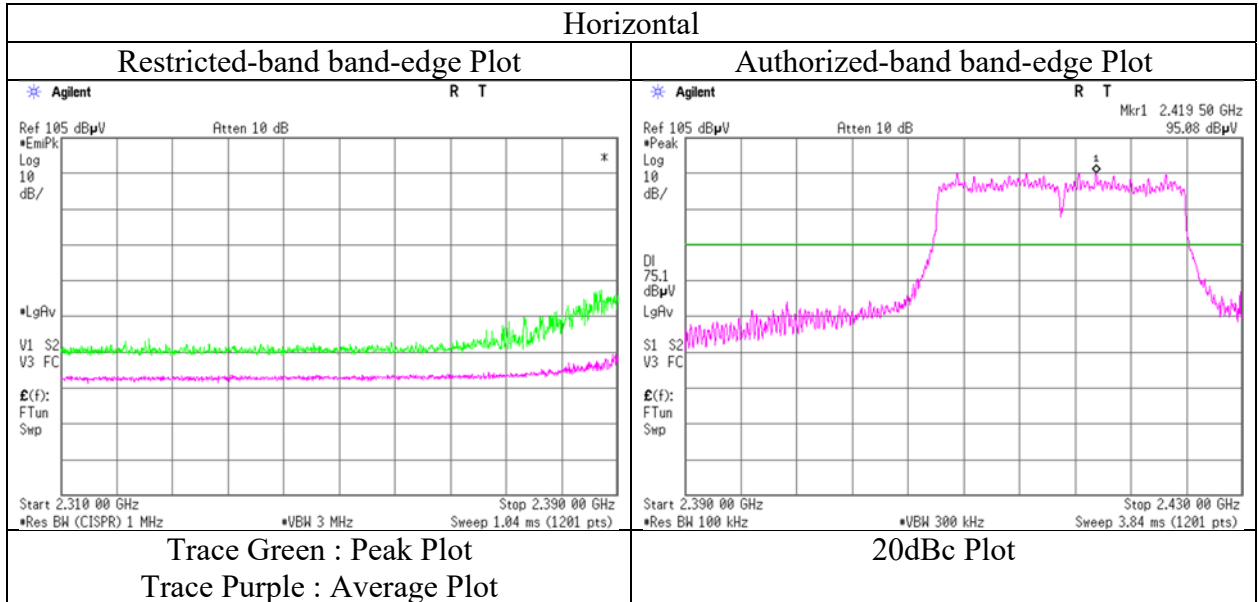
Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2417.000	PK	94.73	28.36	14.26	41.67	2.13	97.81	-	-	Carrier
Hori.	2400.000	PK	57.48	28.38	14.23	41.67	2.13	60.55	77.81	17.2	
Vert.	2417.000	PK	90.41	28.36	14.26	41.67	2.13	93.49	-	-	Carrier
Vert.	2400.000	PK	52.65	28.38	14.23	41.67	2.13	55.72	73.49	17.7	

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.83\text{ m} / 3.0\text{ m}) = 2.13\text{ dB}$
13 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.54\text{ dB}$

Radiated Spurious Emission
(Reference Plot for band-edge)

Report No. 13385909S-B-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber 3
Date July 22, 2020
Temperature / Humidity 23 deg.C / 57 %RH
Engineer Yusuke Tanikawara
Mode Tx 11n-20 2417 MHz with 11ac-20 MIMO 5745 MHz
EUT Lo type(9.8 inch Display)



* 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. 13385909S-B-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber 3
Date July 22, 2020
Temperature / Humidity 23 deg.C / 57 %RH
Engineer Yusuke Tanikawara
(1 GHz - 2.8 GHz)
Mode Tx 11n-20 2457 MHz with 11ac-20 MIMO 5745 MHz
EUT Lo type(9.8 inch Display)

(* PK: Peak, AV: 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.	2483.500	PK	61.83	28.28	14.32	41.69	2.13	64.87	73.9	9.0	158	259	-
Vert.	2483.500	PK	53.25	28.28	14.32	41.69	2.13	56.29	73.9	17.6	141	254	

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.83\text{ m} / 3.0\text{ m}) = 2.13\text{ dB}$

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

Average measurement value with duty factor

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2483.500	AV	39.71	28.28	14.32	41.69	4.06	2.13	46.81	53.9	7.0	*1)
Vert.	2483.500	AV	37.07	28.28	14.32	41.69	4.06	2.13	44.17	53.9	9.7	*1)

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.83\text{ m} / 3.0\text{ m}) = 2.13\text{ dB}$

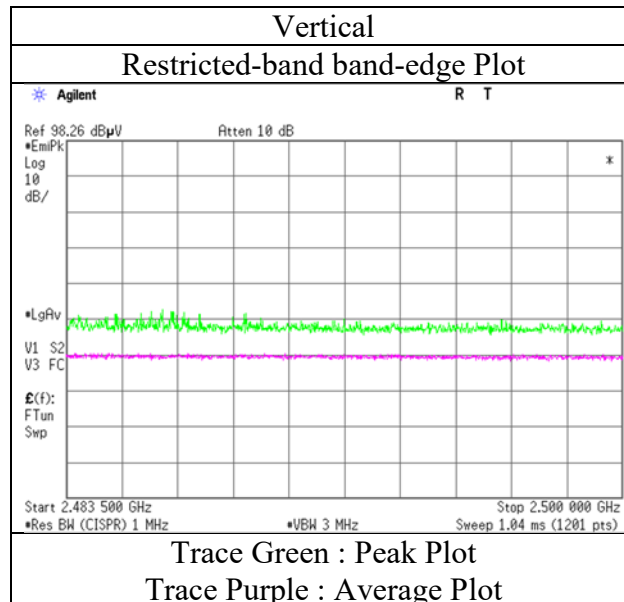
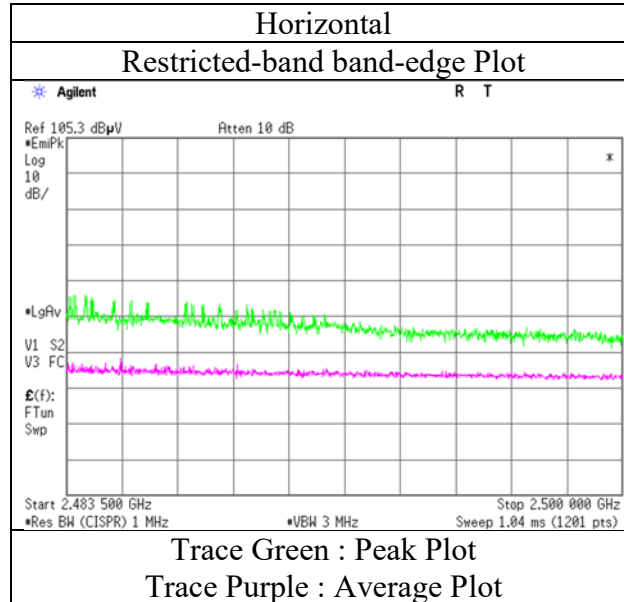
13 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.54\text{ dB}$

Duty factor refer to "Duty factor Calculation chart" sheet.

*1) Not out of band emission (Leakage Power)

Radiated Spurious Emission
(Reference Plot for band-edge)

Report No. 13385909S-B-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber 3
Date July 22, 2020
Temperature / Humidity 23 deg.C / 57 %RH
Engineer Yusuke Tanikawara
Mode Tx 11n-20 2457 MHz with 11ac-20 MIMO 5745 MHz
EUT Lo type(9.8 inch Display)



* 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. 13385909S-B-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber 3
Date July 22, 2020
Temperature / Humidity 23 deg.C / 57 %RH
Engineer Yusuke Tanikawara
(1 GHz - 2.8 GHz)
Mode Tx 11n-20 2462 MHz with 11ac-20 MIMO 5745 MHz
EUT Lo type(9.8 inch Display)

(* PK: Peak, AV: 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.	2483.500	PK	60.57	28.28	14.32	41.69	2.13	63.61	73.9	10.3	154	257	--
Vert.	2483.500	PK	51.68	28.28	14.32	41.69	2.13	54.72	73.9	19.2	180	250	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor
Distance factor : 1 GHz - 13 GHz : $20\log(3.83\text{ m} / 3.0\text{ m}) = 2.13\text{ dB}$
13 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.54\text{ dB}$

Average measurement value with duty factor

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2483.500	AV	40.03	28.28	14.32	41.69	4.06	2.13	47.13	53.9	6.8	*1)
Vert.	2483.500	AV	37.87	28.28	14.32	41.69	4.06	2.13	44.97	53.9	8.9	*1)

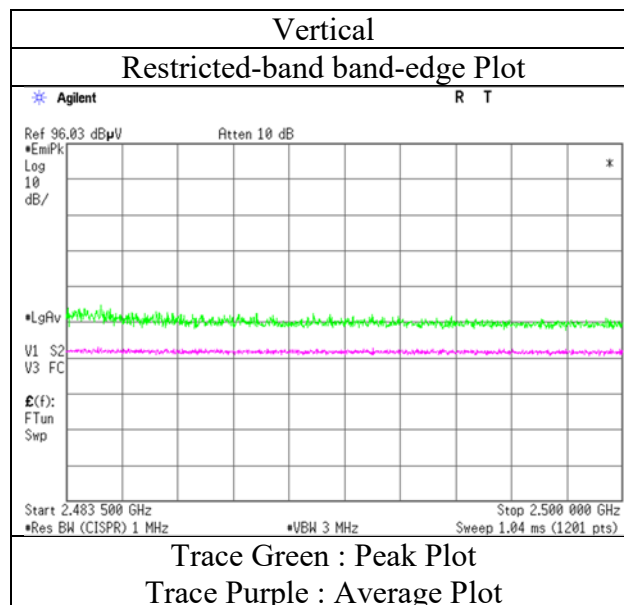
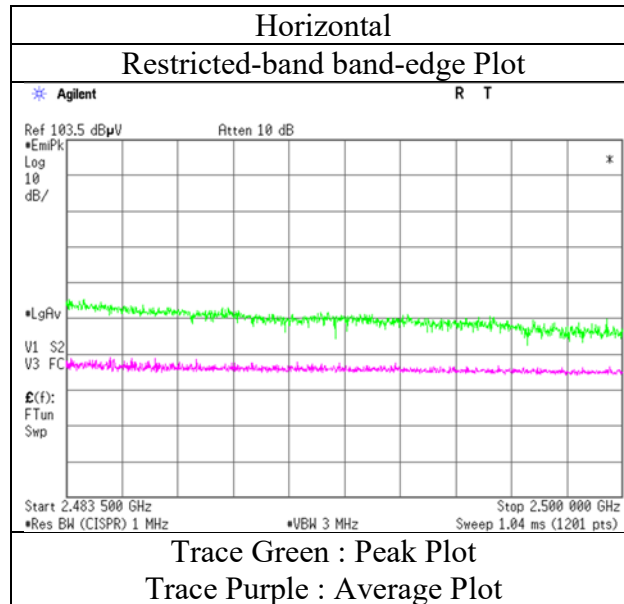
Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Duty factor + Distance factor
Distance factor : 1 GHz - 13 GHz : $20\log(3.83\text{ m} / 3.0\text{ m}) = 2.13\text{ dB}$
13 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.54\text{ dB}$

Duty factor refer to "Duty factor Calculation chart" sheet.

*1) Not out of band emission (Leakage Power)

Radiated Spurious Emission
(Reference Plot for band-edge)

Report No. 13385909S-B-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber 3
Date July 22, 2020
Temperature / Humidity 23 deg.C / 57 %RH
Engineer Yusuke Tanikawara
Mode Tx 11n-20 2462 MHz with 11ac-20 MIMO 5745 MHz
EUT Lo type(9.8 inch Display)

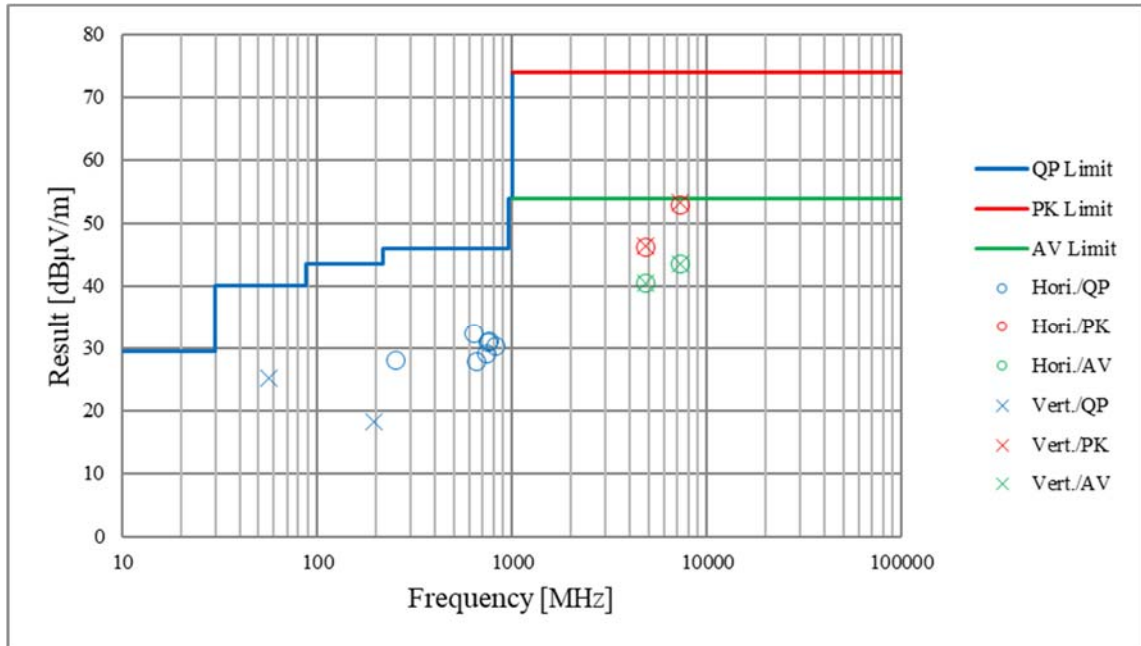


* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.

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

Radiated Spurious Emission
(Plot data, Worst case)

Report No.	13385909S-B-R2			
Test place	Shonan EMC Lab.			
Semi Anechoic Chamber	3	3	3	3
Date	July 31, 2020	July 22, 2020	July 23, 2020	July 23, 2020
Temperature / Humidity	23 deg.C / 62 %RH	23 deg.C / 65 %RH	24 deg.C / 61 %RH	22 deg.C / 63 %RH
Engineer	Toshinori Yamada (30 MHz - 1 GHz)	Toshinori Yamada (1 GHz - 13 GHz)	Hiromasa Sato (13 GHz - 18 GHz)	Toshinori Yamada (18 GHz - 26.5 GHz)
Mode	Tx 11g 2437 MHz with 11ac-20 MIMO 5745 MHz			
EUT	Lo type(9.8 inch Display)			



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

Radiated Spurious Emission

Report No.	13385909S-B-R2		
Test place	Shonan EMC Lab.		
Semi Anechoic Chamber	3	3	3
Date	August 2, 2020	June 27, 2020	July 8, 2020
Temperature / Humidity	24 deg.C / 54 %RH	24 deg.C / 66 %RH	24 deg.C / 64 %RH
Engineer	Kenichi Adachi (30 MHz - 1 GHz)	Kazuya Noda (1 GHz - 2.8 GHz)	Takahiro kawakami (2.8 GHz - 13 GHz)
Semi Anechoic Chamber	3	3	
Date	July 23, 2020	July 23, 2020	
Temperature / Humidity	24 deg.C / 61 %RH	22 deg.C / 63 %RH	
Engineer	Hiromasa Sato (13 GHz - 18 GHz)	Toshinori Yamada (18 GHz - 26.5 GHz)	
Mode	Tx BT LE 1 M-PHY 2402 MHz		
EUT	Lo type(9.8 inch Display)		

(* PK: Peak, AV: 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.	65.278	QP	34.13	7.19	6.48	32.15	0.00	15.65	40.0	24.3	319	120	-
Hori.	233.780	QP	35.67	11.43	8.17	32.00	0.00	23.27	46.0	22.7	144	306	
Hori.	251.571	QP	41.03	11.82	8.27	31.98	0.00	29.14	46.0	16.8	148	153	
Hori.	384.744	QP	28.28	15.28	8.93	31.93	0.00	20.56	46.0	25.4	100	141	
Hori.	479.999	QP	34.13	17.30	9.34	31.93	0.00	28.84	46.0	17.1	100	131	
Hori.	639.997	QP	37.41	19.27	9.94	31.95	0.00	34.67	46.0	11.3	160	212	
Hori.	772.853	QP	31.56	20.43	10.41	31.70	0.00	30.70	46.0	15.3	114	203	
Hori.	2348.052	PK	49.06	28.49	14.17	41.65	2.13	52.20	73.9	21.7	106	310	
Hori.	2390.000	PK	47.98	28.41	14.22	41.66	2.13	51.08	73.9	22.8	106	310	
Hori.	4804.000	PK	50.06	31.60	6.82	42.92	2.13	47.69	73.9	26.2	239	155	
Hori.	7206.000	PK	55.41	37.60	8.38	43.39	2.13	60.13	73.9	13.7	150	216	
Vert.	213.156	QP	34.79	11.25	8.05	32.03	0.00	22.06	43.5	21.4	100	86	
Vert.	480.006	QP	29.45	17.30	9.34	31.93	0.00	24.16	46.0	21.8	151	0	
Vert.	724.983	QP	26.46	20.05	10.25	31.81	0.00	24.95	46.0	21.0	100	103	
Vert.	2346.961	PK	49.21	28.49	14.17	41.65	2.13	52.35	73.9	21.5	148	110	
Vert.	2390.000	PK	47.61	28.41	14.22	41.66	2.13	50.71	73.9	23.1	148	110	
Vert.	4804.000	PK	49.01	31.60	6.82	42.92	2.13	46.64	73.9	27.2	260	294	
Vert.	7206.000	PK	53.96	37.60	8.38	43.39	2.13	58.68	73.9	15.2	100	358	

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

Distance factor : 1 GHz - 13 GHz : 20log(3.83 m / 3.0 m) = 2.13 dB

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

Peak measurement value with Duty cycle correction factor(DCCF)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	DCCF [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2348.052	PK	49.06	28.49	14.17	41.65	-22.15	2.13	30.05	53.9	23.9	*2)
Hori.	2390.000	PK	47.98	28.41	14.22	41.66	-22.15	2.13	28.93	53.9	25.0	*1)
Hori.	4804.000	PK	50.06	31.60	6.82	42.92	-22.15	2.13	25.54	53.9	28.4	
Vert.	2346.961	PK	49.21	28.49	14.17	41.65	-22.15	2.13	30.20	53.9	23.7	*2)
Vert.	2390.000	PK	47.61	28.41	14.22	41.66	-22.15	2.13	28.56	53.9	25.3	*1)
Vert.	4804.000	PK	49.01	31.60	6.82	42.92	-22.15	2.13	24.49	53.9	29.4	

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

Distance factor : 1 GHz - 13 GHz : 20log(3.83 m / 3.0 m) = 2.13 dB

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

Duty cycle correction factor (DCCF) refer to "Duty cycle correction factor" sheet.

*1) Not out of band emission (Leakage Power)

*2) Spurious emissions of the same duty cycle as carrier.

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	96.35	28.38	14.23	41.67	2.13	99.42	-	-	Carrier
Hori.	2400.000	PK	45.71	28.38	14.22	41.67	2.13	48.77	79.42	30.6	
Vert.	2402.000	PK	93.03	28.38	14.23	41.67	2.13	96.10	-	-	Carrier
Vert.	2400.000	PK	43.46	28.38	14.22	41.67	2.13	46.52	76.10	29.5	

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

Distance factor : 1 GHz - 13 GHz : 20log(3.83 m / 3.0 m) = 2.13 dB

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

UL Japan, Inc.

Shonan EMC Lab.

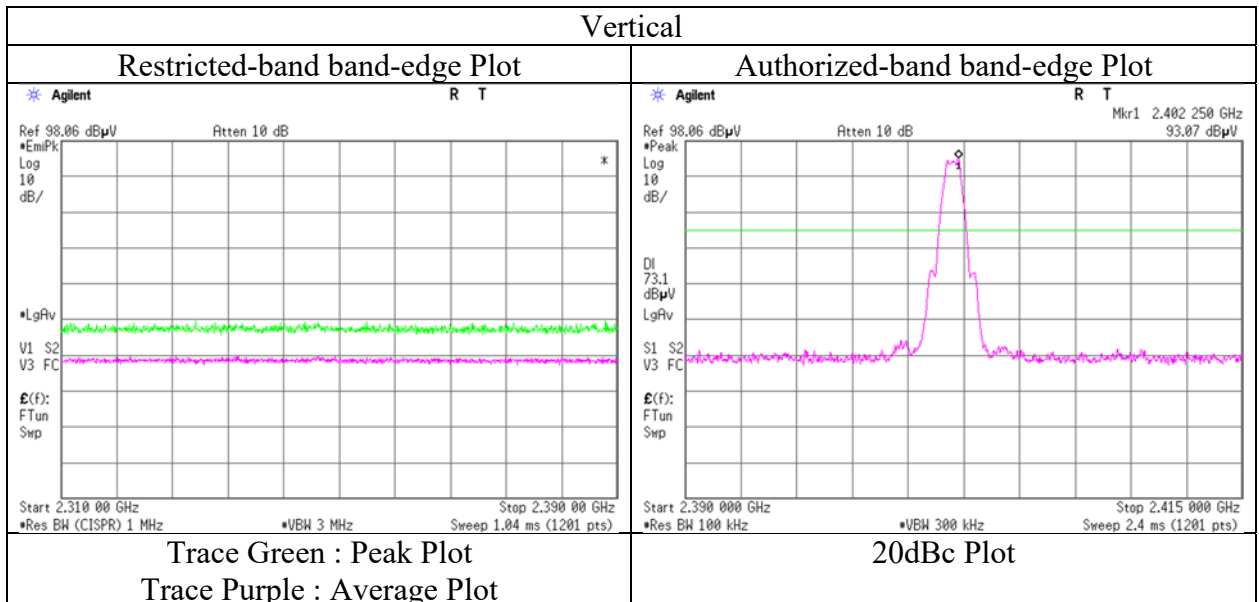
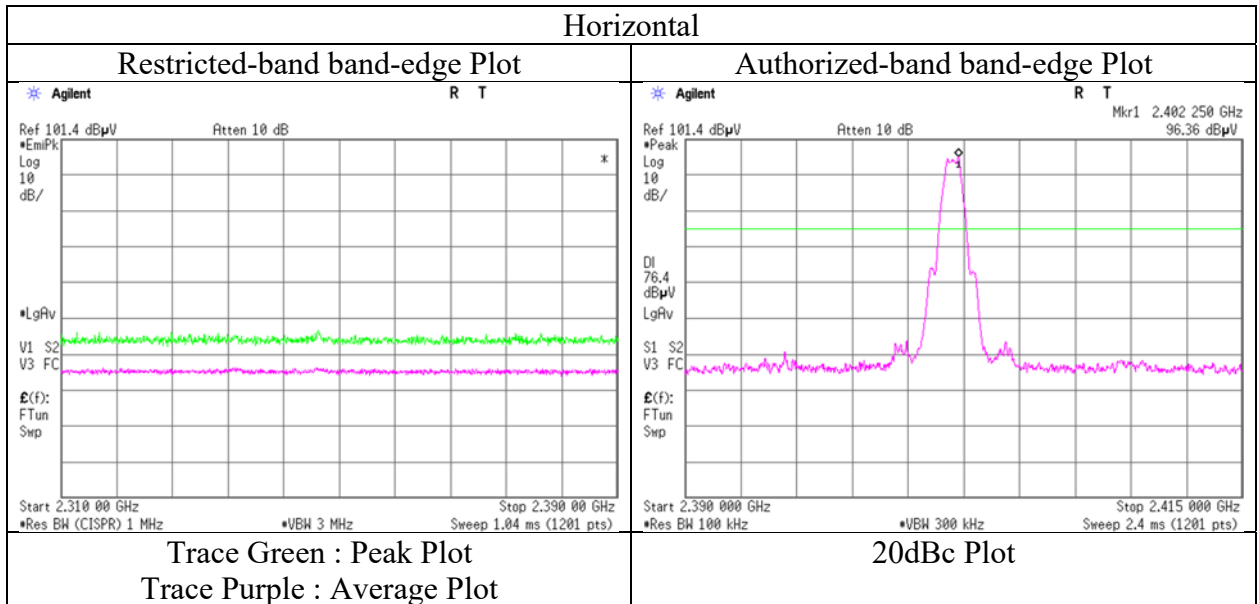
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

Radiated Spurious Emission
(Reference Plot for band-edge)

Report No. 13385909S-B-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber 3
Date June 27, 2020
Temperature / Humidity 24 deg.C / 66 %RH
Engineer Kazuya Noda
Mode Tx BT LE 1 M-PHY 2402 MHz
EUT Lo type(9.8 inch Display)



* 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.	13385909S-B-R2		
Test place	Shonan EMC Lab.		
Semi Anechoic Chamber	3	3	3
Date	August 2, 2020	July 8, 2020	July 8, 2020
Temperature / Humidity	24 deg.C / 54 %RH	25 deg.C / 59 %RH	24 deg.C / 64 %RH
Engineer	Kenichi Adachi (30 MHz - 1 GHz)	Kazuya Noda (1 GHz - 2.8 GHz)	Takahiro kawakami (2.8 GHz - 13 GHz)
Semi Anechoic Chamber	3	3	
Date	July 23, 2020	July 23, 2020	
Temperature / Humidity	24 deg.C / 61 %RH	22 deg.C / 63 %RH	
Engineer	Hirosasa Sato (13 GHz - 18 GHz)	Toshinori Yamada (18 GHz - 26.5 GHz)	
Mode	Tx BT LE 1 M-PHY 2440 MHz		
EUT	Lo type(9.8 inch Display)		

(* PK: Peak, AV: 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.	65.263	QP	34.23	7.19	6.48	32.15	0.00	15.75	40.0	24.2	326	117	-
Hori.	227.819	QP	35.51	11.30	8.14	32.01	0.00	22.94	46.0	23.0	188	134	
Hori.	251.483	QP	39.55	11.81	8.27	31.98	0.00	27.65	46.0	18.3	146	142	
Hori.	420.218	QP	30.23	16.04	9.09	31.94	0.00	23.42	46.0	22.5	100	145	
Hori.	479.980	QP	30.32	17.30	9.34	31.93	0.00	25.03	46.0	20.9	100	127	
Hori.	639.994	QP	37.32	19.27	9.94	31.95	0.00	34.58	46.0	11.4	153	212	
Hori.	772.341	QP	31.62	20.42	10.41	31.70	0.00	30.75	46.0	15.2	111	201	
Hori.	2373.185	PK	49.38	28.44	14.20	41.66	2.13	52.49	73.9	21.4	140	96	
Hori.	4880.000	PK	48.59	31.63	6.87	42.93	2.13	46.29	73.9	27.6	239	186	
Hori.	7320.000	PK	53.31	37.71	8.45	43.49	2.13	58.11	73.9	15.7	146	116	
Vert.	212.956	QP	34.04	11.25	8.05	32.03	0.00	21.31	43.5	22.1	100	78	
Vert.	639.895	QP	32.37	19.27	9.94	31.95	0.00	29.63	46.0	16.3	100	55	
Vert.	760.399	QP	27.85	20.30	10.38	31.72	0.00	26.81	46.0	19.1	100	7	
Vert.	2373.186	PK	48.59	28.44	14.20	41.66	2.13	51.70	73.9	22.2	259	333	
Vert.	4880.000	PK	47.96	31.63	6.87	42.93	2.13	45.66	73.9	28.2	136	275	
Vert.	7320.000	PK	52.50	37.71	8.45	43.49	2.13	57.30	73.9	16.6	116	1	

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

Distance factor : 1 GHz - 13 GHz : 20log(3.83 m / 3.0 m) = 2.13 dB

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

Peak measurement value with Duty cycle correction factor(DCCF)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	DCCF [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2373.185	PK	49.38	28.44	14.20	41.66	-22.15	2.13	30.34	53.9	23.6	*2)
Hori.	4880.000	PK	48.59	31.63	6.87	42.93	-22.15	2.13	24.14	53.9	29.8	
Hori.	7320.000	PK	53.31	37.71	8.45	43.49	-22.15	2.13	35.96	53.9	17.9	
Vert.	2373.186	PK	48.59	28.44	14.20	41.66	-22.15	2.13	29.55	53.9	24.4	*2)
Vert.	4880.000	PK	47.96	31.63	6.87	42.93	-22.15	2.13	23.51	53.9	30.4	
Vert.	7320.000	PK	52.50	37.71	8.45	43.49	-22.15	2.13	35.15	53.9	18.8	

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

Distance factor : 1 GHz - 13 GHz : 20log(3.83 m / 3.0 m) = 2.13 dB

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

Duty cycle correction factor (DCCF) refer to "Duty cycle correction factor" sheet.

*1) Not out of band emission (Leakage Power)

*2) Spurious emissions of the same duty cycle as carrier.

Radiated Spurious Emission

Report No.	13385909S-B-R2		
Test place	Shonan EMC Lab.		
Semi Anechoic Chamber	3	3	3
Date	August 2, 2020	June 27, 2020	July 8, 2020
Temperature / Humidity	24 deg.C / 54 %RH	24 deg.C / 66 %RH	24 deg.C / 64 %RH
Engineer	Kenichi Adachi (30 MHz - 1 GHz)	Kazuya Noda (1 GHz - 2.8 GHz)	Takahiro kawakami (2.8 GHz - 13 GHz)
Semi Anechoic Chamber	3	3	
Date	July 23, 2020	July 23, 2020	
Temperature / Humidity	24 deg.C / 61 %RH	22 deg.C / 63 %RH	
Engineer	Hirosasa Sato (13 GHz - 18 GHz)	Toshinori Yamada (18 GHz - 26.5 GHz)	
Mode	Tx BT LE 1 M-PHY 2480 MHz		
EUT	Lo type(9.8 inch Display)		

(* PK: Peak, AV: 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.	65.272	QP	34.21	7.19	6.48	32.15	0.00	15.73	40.0	24.2	320	117	-
Hori.	233.504	QP	36.56	11.42	8.17	32.00	0.00	24.15	46.0	21.8	189	116	
Hori.	251.485	QP	38.45	11.81	8.27	31.98	0.00	26.55	46.0	19.4	145	143	
Hori.	419.979	QP	30.10	16.04	9.09	31.94	0.00	23.29	46.0	22.7	100	141	
Hori.	480.003	QP	29.97	17.30	9.34	31.93	0.00	24.68	46.0	21.3	100	212	
Hori.	639.999	QP	37.63	19.27	9.94	31.95	0.00	34.89	46.0	11.1	151	210	
Hori.	772.050	QP	31.70	20.41	10.41	31.70	0.00	30.82	46.0	15.1	108	196	
Hori.	2483.500	PK	48.85	28.28	14.31	41.69	2.13	51.88	73.9	22.0	142	310	
Hori.	2487.865	PK	49.52	28.27	14.31	41.70	2.13	52.53	73.9	21.3	142	310	
Hori.	2550.358	PK	50.71	28.24	14.36	41.71	2.13	53.73	73.9	20.1	142	310	
Hori.	4960.000	PK	47.89	31.79	6.94	42.94	2.13	45.81	73.9	28.0	216	216	
Hori.	7440.000	PK	50.60	37.88	8.52	43.60	2.13	55.53	73.9	18.3	212	214	
Vert.	212.951	QP	34.21	11.25	8.05	32.03	0.00	21.48	43.5	22.0	100	79	
Vert.	640.002	QP	32.38	19.27	9.94	31.95	0.00	29.64	46.0	16.3	105	52	
Vert.	760.835	QP	27.86	20.31	10.38	31.72	0.00	26.83	46.0	19.1	100	152	
Vert.	2483.500	PK	47.71	28.28	14.31	41.69	2.13	50.74	73.9	23.1	204	113	
Vert.	2550.121	PK	49.44	28.24	14.36	41.71	2.13	52.46	73.9	21.4	204	113	
Vert.	4960.000	PK	48.58	31.79	6.94	42.94	2.13	46.50	73.9	27.4	174	160	
Vert.	7440.000	PK	50.69	37.88	8.52	43.60	2.13	55.62	73.9	18.2	146	215	

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

Distance factor : 1 GHz - 13 GHz : 20log(3.83 m / 3.0 m) = 2.13 dB

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

Peak measurement value with Duty cycle correction factor(DCCF)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	DCCF [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2483.500	PK	48.85	28.28	14.31	41.69	-22.15	2.13	29.73	53.9	24.2	*1)
Hori.	2487.865	PK	49.52	28.27	14.31	41.70	-22.15	2.13	30.38	53.9	23.5	*2)
Hori.	2550.358	PK	50.71	28.24	14.36	41.71	-22.15	2.13	31.58	53.9	22.3	*2)
Hori.	4960.000	PK	47.89	31.79	6.94	42.94	-22.15	2.13	23.66	53.9	30.2	
Hori.	7440.000	PK	50.60	37.88	8.52	43.60	-22.15	2.13	33.38	53.9	20.5	
Vert.	2483.500	PK	47.71	28.28	14.31	41.69	-22.15	2.13	28.59	53.9	25.3	*1)
Vert.	2550.121	PK	49.44	28.24	14.36	41.71	-22.15	2.13	30.31	53.9	23.6	*2)
Vert.	4960.000	PK	48.58	31.79	6.94	42.94	-22.15	2.13	24.35	53.9	29.6	
Vert.	7440.000	PK	50.69	37.88	8.52	43.60	-22.15	2.13	33.47	53.9	20.4	

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

Distance factor : 1 GHz - 13 GHz : 20log(3.83 m / 3.0 m) = 2.13 dB

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

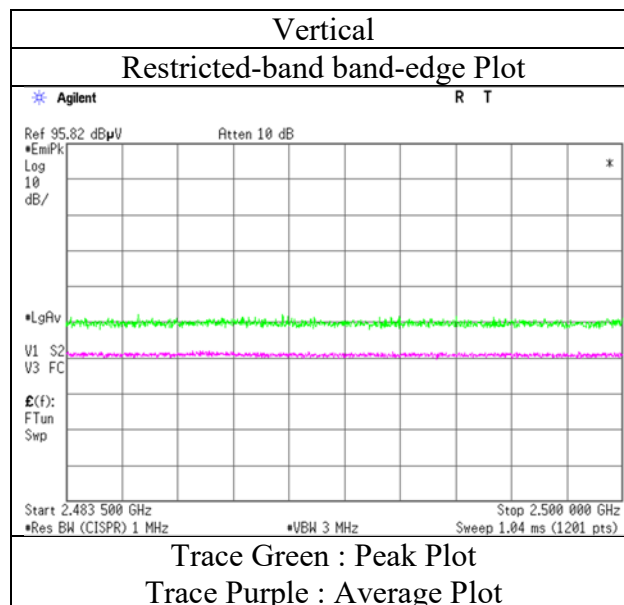
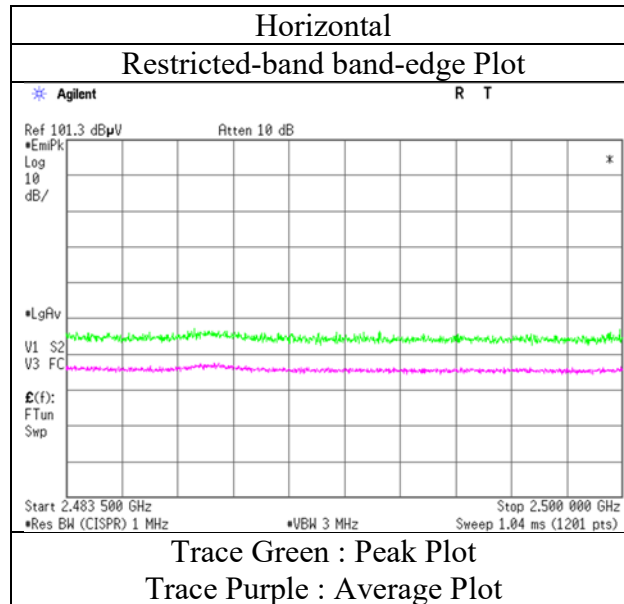
Duty cycle correction factor (DCCF) refer to "Duty cycle correction factor" sheet.

*1) Not out of band emission (Leakage Power)

*2) Spurious emissions of the same duty cycle as carrier.

Radiated Spurious Emission
(Reference Plot for band-edge)

Report No. 13385909S-B-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber 3
Date June 27, 2020
Temperature / Humidity 24 deg.C / 66 %RH
Engineer Kazuya Noda
Mode Tx BT LE 1 M-PHY 2480 MHz
EUT Lo type(9.8 inch Display)



* 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.	13385909S-B-R2		
Test place	Shonan EMC Lab.		
Semi Anechoic Chamber	3	3	3
Date	August 2, 2020	June 21, 2020	July 8, 2020
Temperature / Humidity	24 deg.C / 54 %RH	23 deg.C / 69 %RH	24 deg.C / 64 %RH
Engineer	Kenichi Adachi (30 MHz - 1 GHz)	Kenichi Adachi (1 GHz - 2.8 GHz)	Takahiro kawakami (2.8 GHz - 13 GHz)
Semi Anechoic Chamber	3	3	
Date	July 23, 2020	July 23, 2020	
Temperature / Humidity	24 deg.C / 61 %RH	22 deg.C / 63 %RH	
Engineer	Hirosasa Sato (13 GHz - 18 GHz)	Toshinori Yamada (18 GHz - 26.5 GHz)	
Mode	Tx BT LE 2 M-PHY 2402 MHz		
EUT	Lo type(9.8 inch Display)		

(* PK: Peak, AV: 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.	65.237	QP	33.92	7.20	6.48	32.15	0.00	15.45	40.0	24.5	321	117	-
Hori.	227.832	QP	36.38	11.30	8.14	32.01	0.00	23.81	46.0	22.1	198	125	
Hori.	251.422	QP	34.12	11.81	8.27	31.98	0.00	22.22	46.0	23.7	140	137	
Hori.	419.893	QP	29.73	16.04	9.09	31.94	0.00	22.92	46.0	23.0	100	141	
Hori.	479.992	QP	29.44	17.30	9.34	31.93	0.00	24.15	46.0	21.8	100	209	
Hori.	639.998	QP	36.00	19.27	9.94	31.95	0.00	33.26	46.0	12.7	152	209	
Hori.	772.196	QP	31.46	20.41	10.41	31.70	0.00	30.58	46.0	15.4	113	202	
Hori.	2335.309	PK	52.33	28.02	14.16	41.64	2.13	55.00	73.9	18.9	137	93	
Hori.	2390.000	PK	48.08	27.93	14.22	41.66	2.13	50.70	73.9	23.2	137	93	
Hori.	4804.000	PK	48.80	31.60	6.82	42.92	2.13	46.43	73.9	27.4	143	133	
Hori.	7206.000	PK	54.60	37.60	8.38	43.39	2.13	59.32	73.9	14.5	130	214	
Vert.	212.956	QP	34.45	11.25	8.05	32.03	0.00	21.72	43.5	21.7	100	80	
Vert.	640.002	QP	32.33	19.27	9.94	31.95	0.00	29.59	46.0	16.4	100	51	
Vert.	760.287	QP	27.37	20.30	10.38	31.72	0.00	26.33	46.0	19.6	100	151	
Vert.	2335.309	PK	48.26	28.02	14.16	41.64	2.13	50.93	73.9	22.9	252	339	
Vert.	2390.000	PK	47.28	27.93	14.22	41.66	2.13	49.90	73.9	24.0	252	339	
Vert.	4804.000	PK	48.09	31.60	6.82	42.92	2.13	45.72	73.9	28.1	140	196	
Vert.	7206.000	PK	54.02	37.60	8.38	43.39	2.13	58.74	73.9	15.1	111	356	

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

Distance factor : 1 GHz - 13 GHz : 20log(3.83 m / 3.0 m) = 2.13 dB

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

Peak measurement value with Duty cycle correction factor(DCCF)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	DCCF [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2335.309	PK	52.33	28.02	14.16	41.64	-28.17	2.13	26.83	53.9	27.1	*2)
Hori.	2390.000	PK	48.08	27.93	14.22	41.66	-28.17	2.13	22.53	53.9	31.4	*1)
Hori.	4804.000	PK	48.80	31.60	6.82	42.92	-28.17	2.13	18.26	53.9	35.6	
Hori.	7206.000	PK	54.60	37.60	8.38	43.39	-28.17	2.13	31.15	53.9	22.8	
Vert.	2335.309	PK	48.26	28.02	14.16	41.64	-28.17	2.13	22.76	53.9	31.1	*2)
Vert.	2390.000	PK	47.28	27.93	14.22	41.66	-28.17	2.13	21.73	53.9	32.2	*1)
Vert.	4804.000	PK	48.09	31.60	6.82	42.92	-28.17	2.13	17.55	53.9	36.4	
Vert.	7206.000	PK	54.02	37.60	8.38	43.39	-28.17	2.13	30.57	53.9	23.3	

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

Distance factor : 1 GHz - 13 GHz : 20log(3.83 m / 3.0 m) = 2.13 dB

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

Duty cycle correction factor (DCCF) refer to "Duty cycle correction factor" sheet.

*1) Not out of band emission (Leakage Power)

*2) Spurious emissions of the same duty cycle as carrier.

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	95.99	27.92	14.23	41.67	2.13	98.60	-	-	Carrier
Hori.	2400.000	PK	64.57	27.92	14.22	41.67	2.13	67.17	78.60	11.4	
Vert.	2402.000	PK	90.15	27.92	14.23	41.67	2.13	92.76	-	-	Carrier
Vert.	2400.000	PK	58.69	27.92	14.22	41.67	2.13	61.29	72.76	11.4	

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

Distance factor : 1 GHz - 13 GHz : 20log(3.83 m / 3.0 m) = 2.13 dB

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

UL Japan, Inc.

Shonan EMC Lab.

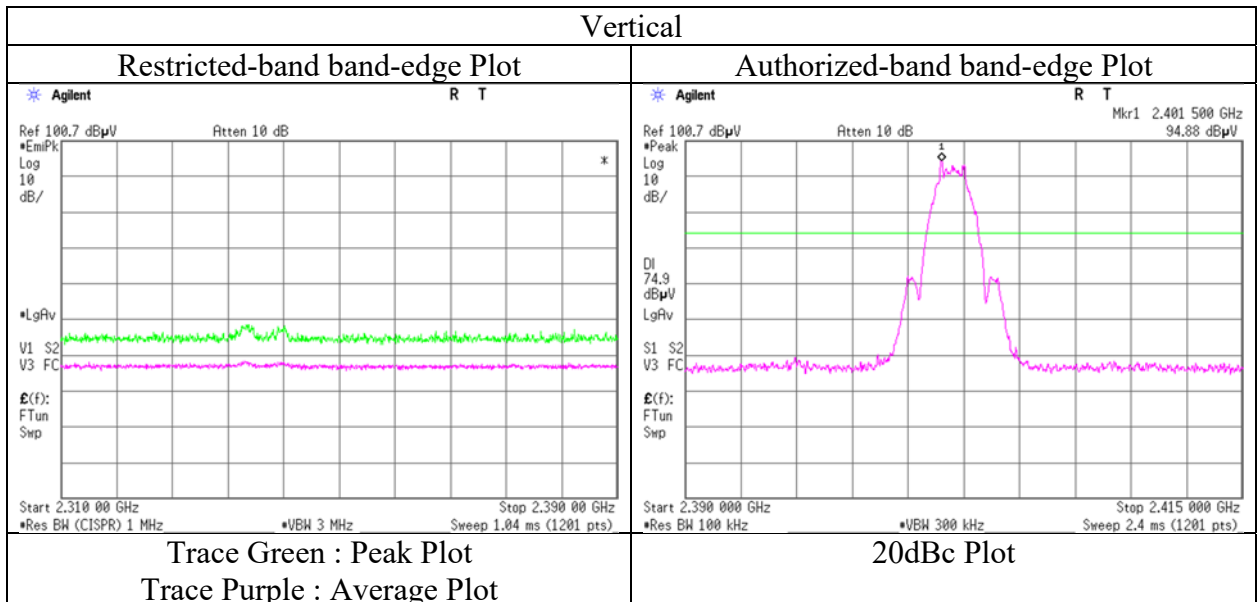
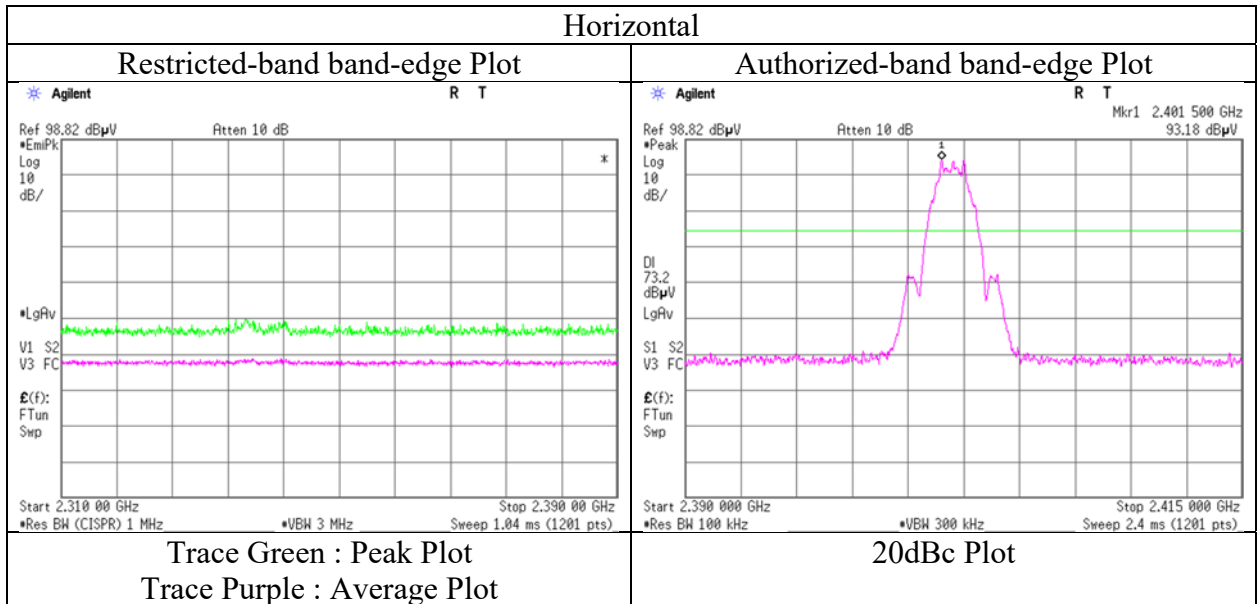
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

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Radiated Spurious Emission
(Reference Plot for band-edge)

Report No. 13385909S-B-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber 3
Date June 21, 2020
Temperature / Humidity 23 deg.C / 69 %RH
Engineer Kenichi Adachi
Mode Tx BT LE 2 M-PHY 2402 MHz
EUT Lo type(9.8 inch Display)



* 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.	13385909S-B-R2		
Test place	Shonan EMC Lab.		
Semi Anechoic Chamber	3	3	3
Date	August 2, 2020	July 8, 2020	July 8, 2020
Temperature / Humidity	24 deg.C / 54 %RH	25 deg.C / 59 %RH	24 deg.C / 64 %RH
Engineer	Kenichi Adachi (30 MHz - 1 GHz)	Kazuya Noda (1 GHz - 2.8 GHz)	Takahiro kawakami (2.8 GHz - 13 GHz)
Semi Anechoic Chamber	3	3	
Date	July 23, 2020	July 23, 2020	
Temperature / Humidity	24 deg.C / 61 %RH	22 deg.C / 63 %RH	
Engineer	Hirosasa Sato (13 GHz - 18 GHz)	Toshinori Yamada (18 GHz - 26.5 GHz)	
Mode	Tx BT LE 2 M-PHY 2440 MHz		
EUT	Lo type(9.8 inch Display)		

(* PK: Peak, AV: 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.	65.309	QP	34.42	7.19	6.48	32.15	0.00	15.94	40.0	24.0	324	118	-
Hori.	233.506	QP	35.18	11.42	8.17	32.00	0.00	22.77	46.0	23.2	200	119	
Hori.	251.393	QP	37.09	11.81	8.27	31.98	0.00	25.19	46.0	20.8	138	143	
Hori.	419.912	QP	30.04	16.04	9.09	31.94	0.00	23.23	46.0	22.7	100	145	
Hori.	480.000	QP	29.88	17.30	9.34	31.93	0.00	24.59	46.0	21.4	100	221	
Hori.	640.000	QP	37.89	19.27	9.94	31.95	0.00	35.15	46.0	10.8	143	209	
Hori.	771.805	QP	31.09	20.41	10.41	31.70	0.00	30.21	46.0	15.7	113	198	
Hori.	2370.774	PK	53.19	28.45	14.20	41.66	2.13	56.31	73.9	17.5	144	94	
Hori.	4880.000	PK	47.88	31.63	6.87	42.93	2.13	45.58	73.9	28.3	140	357	
Hori.	7320.000	PK	52.19	37.71	8.45	43.49	2.13	56.99	73.9	16.9	191	85	
Vert.	212.857	QP	33.61	11.25	8.05	32.03	0.00	20.88	43.5	22.6	100	85	
Vert.	640.000	QP	31.83	19.27	9.94	31.95	0.00	29.09	46.0	16.9	108	50	
Vert.	760.003	QP	27.55	20.30	10.38	31.72	0.00	26.51	46.0	19.4	100	152	
Vert.	2370.775	PK	50.29	28.45	14.20	41.66	2.13	53.41	73.9	20.4	252	339	
Vert.	4880.000	PK	48.31	31.63	6.87	42.93	2.13	46.01	73.9	27.8	188	43	
Vert.	7320.000	PK	52.14	37.71	8.45	43.49	2.13	56.94	73.9	16.9	189	244	

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

Distance factor : 1 GHz - 13 GHz : 20log(3.83 m / 3.0 m) = 2.13 dB

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

Peak measurement value with Duty cycle correction factor(DCCF)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	DCCF [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2370.774	PK	53.19	28.45	14.20	41.66	-28.17	2.13	28.14	53.9	25.8	*2)
Hori.	4880.000	PK	47.88	31.63	6.87	42.93	-28.17	2.13	17.41	53.9	36.5	
Hori.	7320.000	PK	52.19	37.71	8.45	43.49	-28.17	2.13	28.82	53.9	25.1	
Vert.	2370.775	PK	50.29	28.45	14.20	41.66	-28.17	2.13	25.24	53.9	28.7	*2)
Vert.	4880.000	PK	48.31	31.63	6.87	42.93	-28.17	2.13	17.84	53.9	36.1	
Vert.	7320.000	PK	52.14	37.71	8.45	43.49	-28.17	2.13	28.77	53.9	25.1	

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

Distance factor : 1 GHz - 13 GHz : 20log(3.83 m / 3.0 m) = 2.13 dB

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

Duty cycle correction factor (DCCF) refer to "Duty cycle correction factor" sheet.

*1) Not out of band emission (Leakage Power)

*2) Spurious emissions of the same duty cycle as carrier.

Radiated Spurious Emission

Report No.	13385909S-B-R2		
Test place	Shonan EMC Lab.		
Semi Anechoic Chamber	3	3	3
Date	August 2, 2020	June 21, 2020	July 8, 2020
Temperature / Humidity	24 deg.C / 54 %RH	23 deg.C / 69 %RH	24 deg.C / 64 %RH
Engineer	Kenichi Adachi	Kenichi Adachi	Takahiro kawakami
	(30 MHz - 1 GHz)	(1 GHz - 2.8 GHz)	(2.8 GHz - 13 GHz)
Semi Anechoic Chamber	3	3	
Date	July 23, 2020	July 23, 2020	
Temperature / Humidity	24 deg.C / 61 %RH	22 deg.C / 63 %RH	
Engineer	Hirosasa Sato	Toshinori Yamada	
	(13 GHz - 18 GHz)	(18 GHz - 26.5 GHz)	
Mode	Tx BT LE 2 M-PHY 2480 MHz		
EUT	Lo type(9.8 inch Display)		

(* PK: Peak, AV: 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.	65.214	QP	34.97	7.20	6.48	32.15	0.00	16.50	40.0	23.5	316	120	-
Hori.	233.491	QP	36.27	11.42	8.17	32.00	0.00	23.86	46.0	22.1	193	128	
Hori.	251.260	QP	36.44	11.81	8.27	31.98	0.00	24.54	46.0	21.4	138	141	
Hori.	419.783	QP	30.15	16.04	9.09	31.94	0.00	23.34	46.0	22.6	100	141	
Hori.	480.006	QP	29.69	17.30	9.34	31.93	0.00	24.40	46.0	21.6	100	217	
Hori.	640.000	QP	37.81	19.27	9.94	31.95	0.00	35.07	46.0	10.9	148	213	
Hori.	771.584	QP	30.69	20.41	10.41	31.70	0.00	29.81	46.0	16.1	108	204	
Hori.	2483.500	PK	49.12	27.84	14.31	41.69	2.13	51.71	73.9	22.1	135	99	
Hori.	2550.809	PK	53.59	27.82	14.36	41.71	2.13	56.19	73.9	17.7	135	99	
Hori.	4960.000	PK	47.93	31.79	6.94	42.94	2.13	45.85	73.9	28.0	100	164	
Hori.	7440.000	PK	49.57	37.88	8.52	43.60	2.13	54.50	73.9	19.4	162	229	
Vert.	212.893	QP	33.46	11.25	8.05	32.03	0.00	20.73	43.5	22.7	100	84	
Vert.	640.001	QP	32.83	19.27	9.94	31.95	0.00	30.09	46.0	15.9	139	143	
Vert.	759.895	QP	27.77	20.30	10.38	31.72	0.00	26.73	46.0	19.2	100	52	
Vert.	2483.500	PK	48.32	27.84	14.31	41.69	2.13	50.91	73.9	22.9	267	338	
Vert.	2550.809	PK	48.98	27.82	14.36	41.71	2.13	51.58	73.9	22.3	267	338	
Vert.	4960.000	PK	47.92	31.79	6.94	42.94	2.13	45.84	73.9	28.0	204	203	
Vert.	7440.000	PK	48.84	37.88	8.52	43.60	2.13	53.77	73.9	20.1	171	0	

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

Distance factor : 1 GHz - 13 GHz : 20log(3.83 m / 3.0 m) = 2.13 dB

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

Peak measurement value with Duty cycle correction factor(DCCF)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	DCCF [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2483.500	PK	49.12	27.84	14.31	41.69	-28.17	2.13	23.54	53.9	30.4	*1)
Hori.	2550.809	PK	53.59	27.82	14.36	41.71	-28.17	2.13	28.02	53.9	25.9	*2)
Hori.	4960.000	PK	47.93	31.79	6.94	42.94	-28.17	2.13	17.68	53.9	36.2	
Hori.	7440.000	PK	49.57	37.88	8.52	43.60	-28.17	2.13	26.33	53.9	27.6	
Vert.	2483.500	PK	48.32	27.84	14.31	41.69	-28.17	2.13	22.74	53.9	31.2	*1)
Vert.	2550.809	PK	48.98	27.82	14.36	41.71	-28.17	2.13	23.41	53.9	30.5	*2)
Vert.	4960.000	PK	47.92	31.79	6.94	42.94	-28.17	2.13	17.67	53.9	36.2	
Vert.	7440.000	PK	48.84	37.88	8.52	43.60	-28.17	2.13	25.60	53.9	28.3	

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

Distance factor : 1 GHz - 13 GHz : 20log(3.83 m / 3.0 m) = 2.13 dB

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

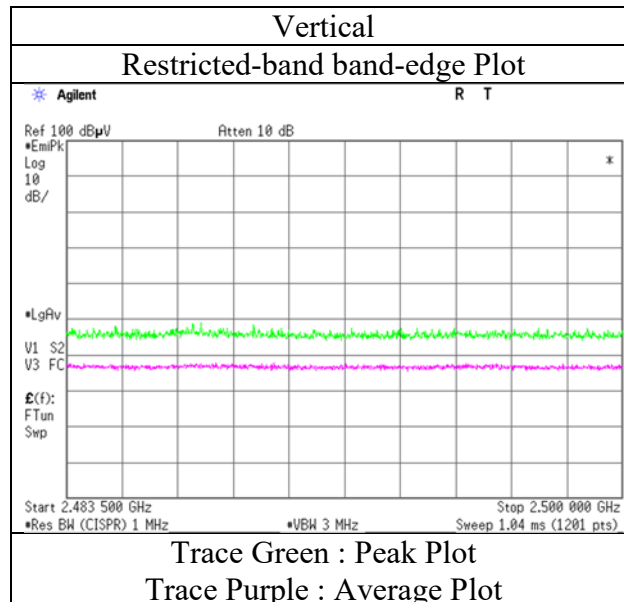
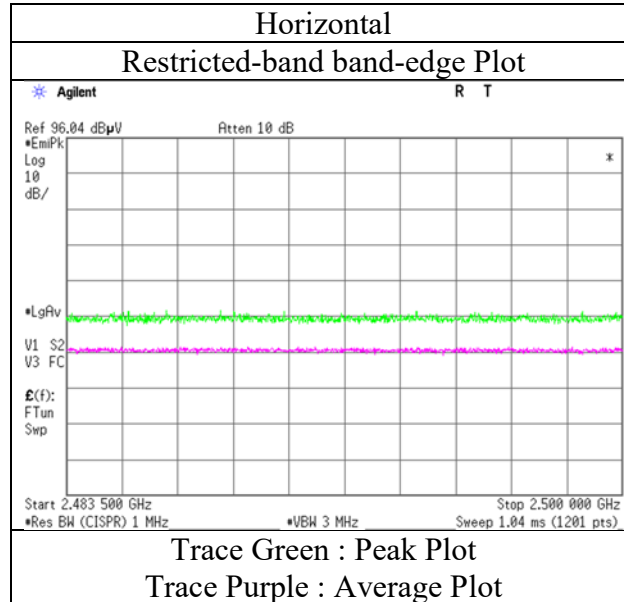
Duty cycle correction factor (DCCF) refer to "Duty cycle correction factor" sheet.

*1) Not out of band emission (Leakage Power)

*2) Spurious emissions of the same duty cycle as carrier.

Radiated Spurious Emission
(Reference Plot for band-edge)

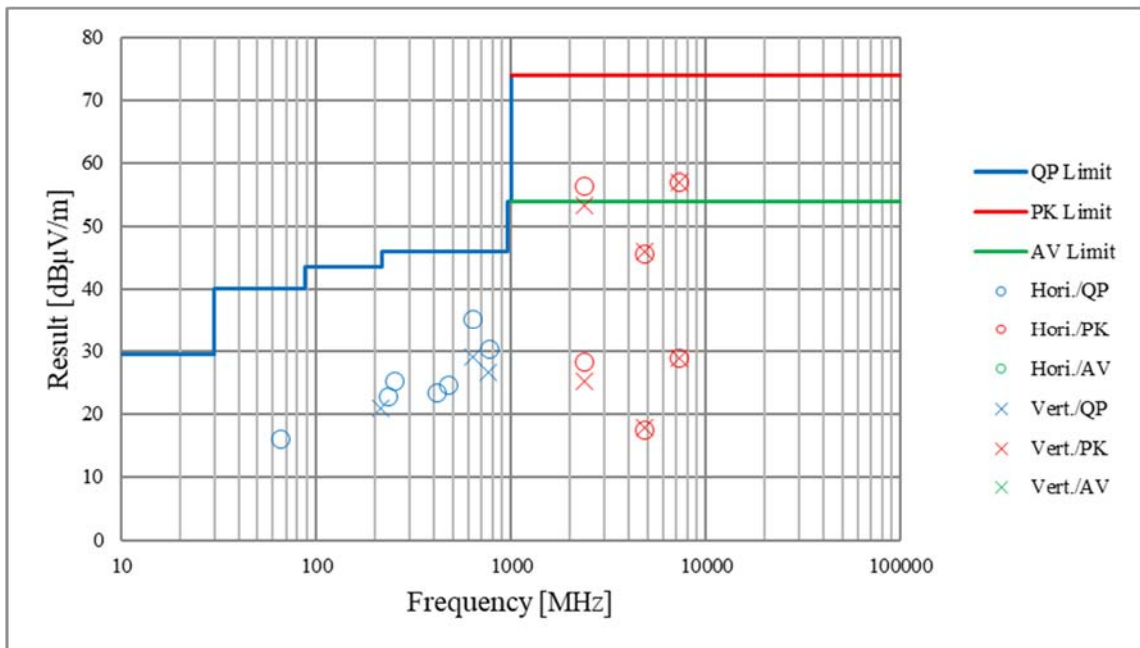
Report No. 13385909S-B-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber 3
Date June 21, 2020
Temperature / Humidity 23 deg.C / 69 %RH
Engineer Kenichi Adachi
Mode Tx BT LE 2 M-PHY 2480 MHz
EUT Lo type(9.8 inch Display)



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

Radiated Spurious Emission
(Plot data, Worst case)

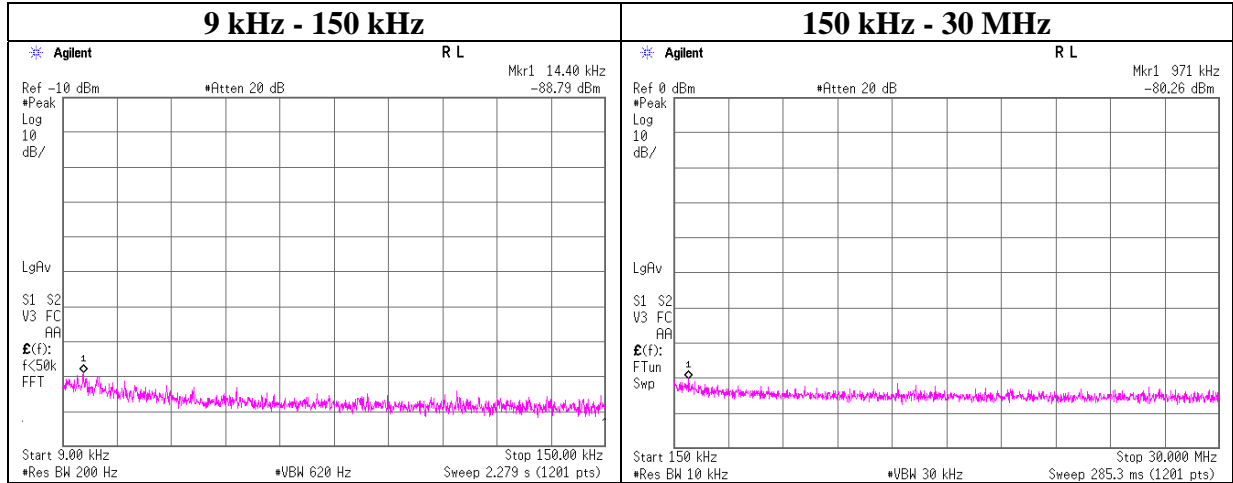
Report No.	13385909S-B-R2		
Test place	Shonan EMC Lab.		
Semi Anechoic Chamber	3	3	3
Date	August 2, 2020	July 8, 2020	July 8, 2020
Temperature / Humidity	24 deg.C / 54 %RH	25 deg.C / 59 %RH	24 deg.C / 64 %RH
Engineer	Kenichi Adachi (30 MHz - 1 GHz)	Kazuya Noda (1 GHz - 2.8 GHz)	Takahiro kawakami (2.8 GHz - 13 GHz)
Semi Anechoic Chamber	3	3	
Date	July 23, 2020	July 23, 2020	
Temperature / Humidity	24 deg.C / 61 %RH	22 deg.C / 63 %RH	
Engineer	Hirosasa Sato (13 GHz - 18 GHz)	Toshinori Yamada (18 GHz - 26.5 GHz)	
Mode	Tx BT LE 2 M-PHY 2440 MHz		
EUT	Lo type(9.8 inch Display)		



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

Conducted Spurious Emission

Report No. 13385909S-B-R2
 Test place Shonan EMC Lab. No.5 Shielded Room
 Date July 1, 2020
 Temperature / Humidity 24 deg. C / 62 % RH
 Engineer Kazuya Noda
 Mode Tx 11g 2437 MHz



Frequency [kHz]	Reading [dBm]	Cable Loss [dB]	Attenuator Loss [dB]	Antenna Gain *1 [dBi]	N (Number of Output)	EIRP [dBm]	Distance [m]	Ground bounce [dB]	E (field strength) [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
14.40	-88.79	0.01	9.73	4.04	1	-75.0	300	6.0	-13.7	44.4	58.1	-
971.00	-80.26	0.03	9.74	4.04	1	-66.5	30	6.0	14.8	27.8	13.0	-

*1) Antenna Gain applied the higher of the two models.

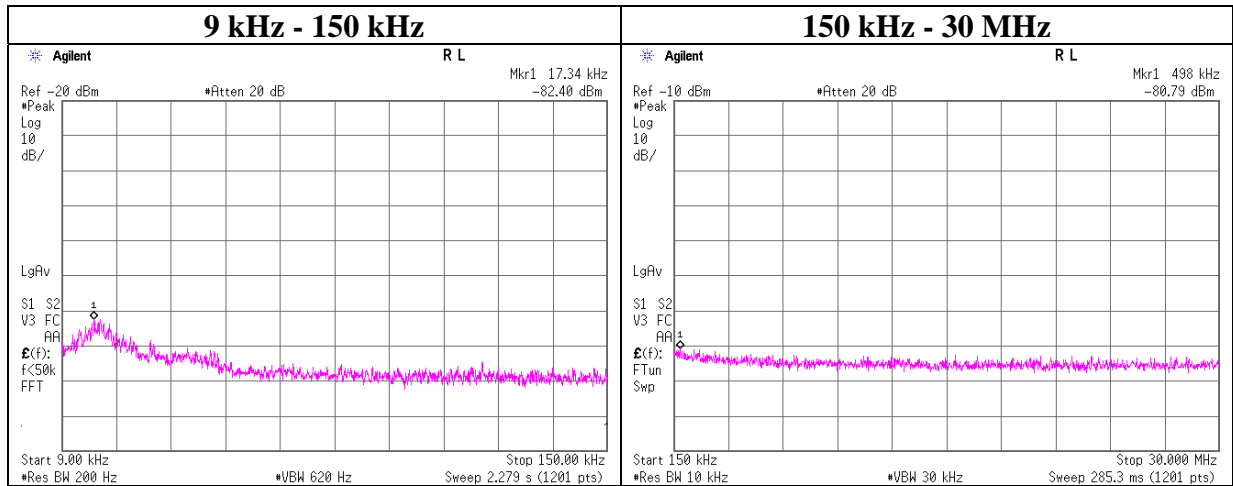
$$E \text{ [dBuV/m]} = \text{EIRP [dBm]} - 20 \log (\text{Distance [m]}) + \text{Ground bounce [dB]} + 104.8 \text{ [dBuV/m]}$$

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

N: Number of output

Conducted Spurious Emission

Report No. 13385909S-B-R2
 Test place Shonan EMC Lab. No.5 Shielded Room
 Date July 1, 2020
 Temperature / Humidity 24 deg. C / 62 % RH
 Engineer Kazuya Noda
 Mode Tx BT LE 1 M-PHY 2402 MHz



Frequency [kHz]	Reading [dBm]	Cable Loss [dB]	Attenuator Loss [dB]	Antenna Gain *1) [dBi]	N (Number of Output)	EIRP [dBm]	Distance [m]	Ground bounce [dB]	E (field strength) [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
17.34	-82.40	0.01	9.81	2.08	1	-70.5	300	6.0	-9.2	42.8	52.0	-
498.00	-80.79	0.02	9.81	2.08	1	-68.9	30	6.0	12.4	33.6	21.2	-

*1) Antenna Gain applied the higher of the two models.

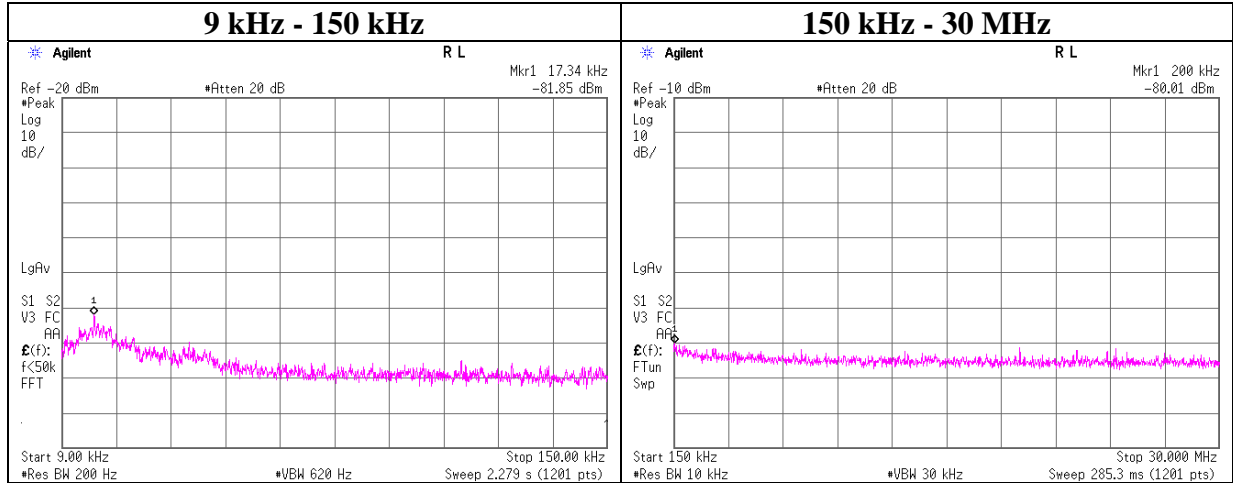
$$E \text{ [dBuV/m]} = \text{EIRP [dBm]} - 20 \log(\text{Distance [m]}) + \text{Ground bounce [dB]} + 104.8 \text{ [dBuV/m]}$$

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

N: Number of output

Conducted Spurious Emission

Report No. 13385909S-B-R2
 Test place Shonan EMC Lab. No.5 Shielded Room
 Date July 1, 2020
 Temperature / Humidity 24 deg. C / 62 % RH
 Engineer Kazuya Noda
 Mode Tx BT LE 1 M-PHY 2440 MHz



Frequency [kHz]	Reading [dBm]	Cable Loss [dB]	Attenuator Loss [dB]	Antenna Gain *1) [dBi]	N (Number of Output)	EIRP [dBm]	Distance [m]	Ground bounce [dB]	E (field strength) [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
17.34	-81.85	0.01	9.81	2.08	1	-70.0	300	6.0	-8.7	42.8	51.5	-
200.00	-80.01	0.01	9.81	2.08	1	-68.1	300	6.0	-6.9	21.5	28.4	-

*1) Antenna Gain applied the higher of the two models.

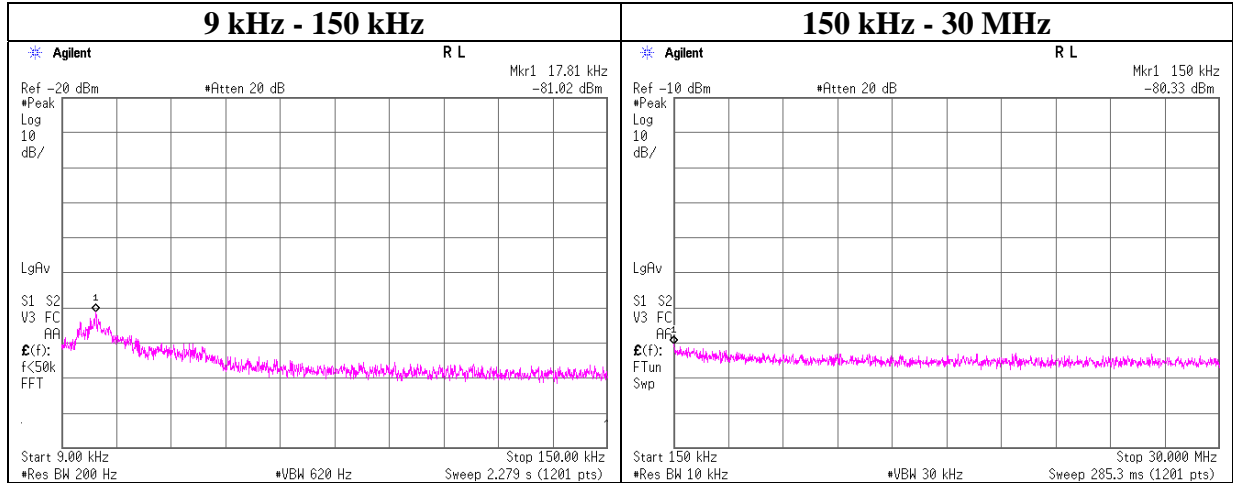
$$E \text{ [dBuV/m]} = \text{EIRP [dBm]} - 20 \log (\text{Distance [m]}) + \text{Ground bounce [dB]} + 104.8 \text{ [dBuV/m]}$$

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

N: Number of output

Conducted Spurious Emission

Report No. 13385909S-B-R2
Test place Shonan EMC Lab. No.5 Shielded Room
Date July 1, 2020
Temperature / Humidity 24 deg. C / 62 % RH
Engineer Kazuya Noda
Mode Tx BT LE 1 M-PHY 2480 MHz



Frequency [kHz]	Reading [dBm]	Cable Loss [dB]	Attenuator Loss [dB]	Antenna Gain *1) [dBi]	N (Number of Output)	EIRP [dBm]	Distance [m]	Ground bounce [dB]	E (field strength) [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
17.81	-81.02	0.01	9.81	2.08	1	-69.1	300	6.0	-7.9	42.5	50.4	-
150.00	-80.31	0.01	9.81	2.08	1	-68.4	300	6.0	-7.2	24.0	31.2	-

*1) Antenna Gain applied the higher of the two models.

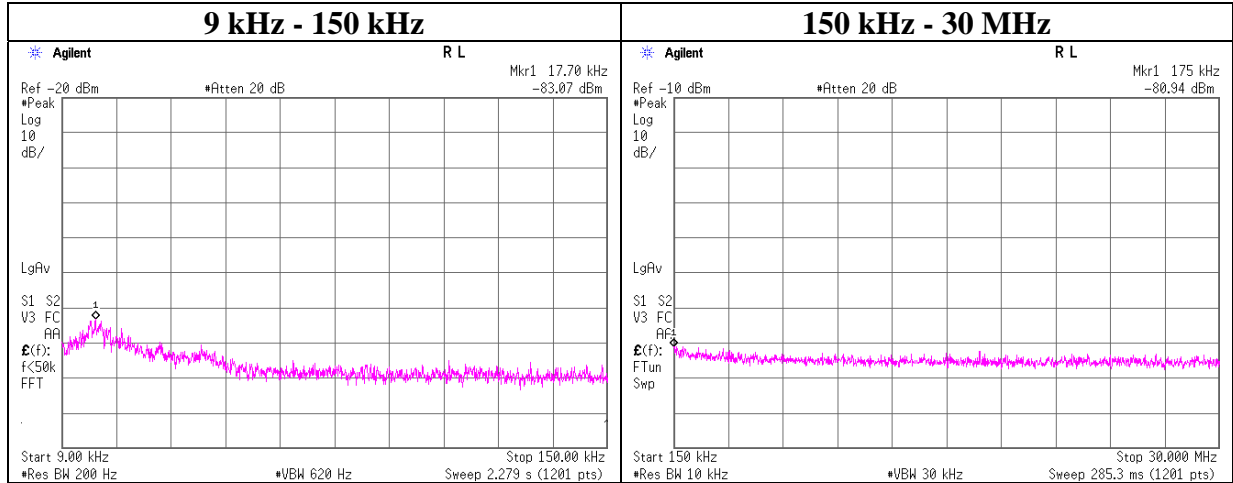
$$E \text{ [dBuV/m]} = \text{EIRP [dBm]} - 20 \log (\text{Distance [m]}) + \text{Ground bounce [dB]} + 104.8 \text{ [dBuV/m]}$$

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

N: Number of output

Conducted Spurious Emission

Report No. 13385909S-B-R2
 Test place Shonan EMC Lab. No.5 Shielded Room
 Date July 1, 2020
 Temperature / Humidity 24 deg. C / 62 % RH
 Engineer Kazuya Noda
 Mode Tx BT LE 2 M-PHY 2402 MHz



Frequency [kHz]	Reading [dBm]	Cable Loss [dB]	Attenuator Loss [dB]	Antenna Gain *1) [dBi]	N (Number of Output)	EIRP [dBm]	Distance [m]	Ground bounce [dB]	E (field strength) [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
17.70	-83.07	0.01	9.81	2.08	1	-71.2	300	6.0	-9.9	42.6	52.5	-
175.00	-80.94	0.01	9.81	2.08	1	-69.0	300	6.0	-7.8	22.7	30.5	-

*1) Antenna Gain applied the higher of the two models.

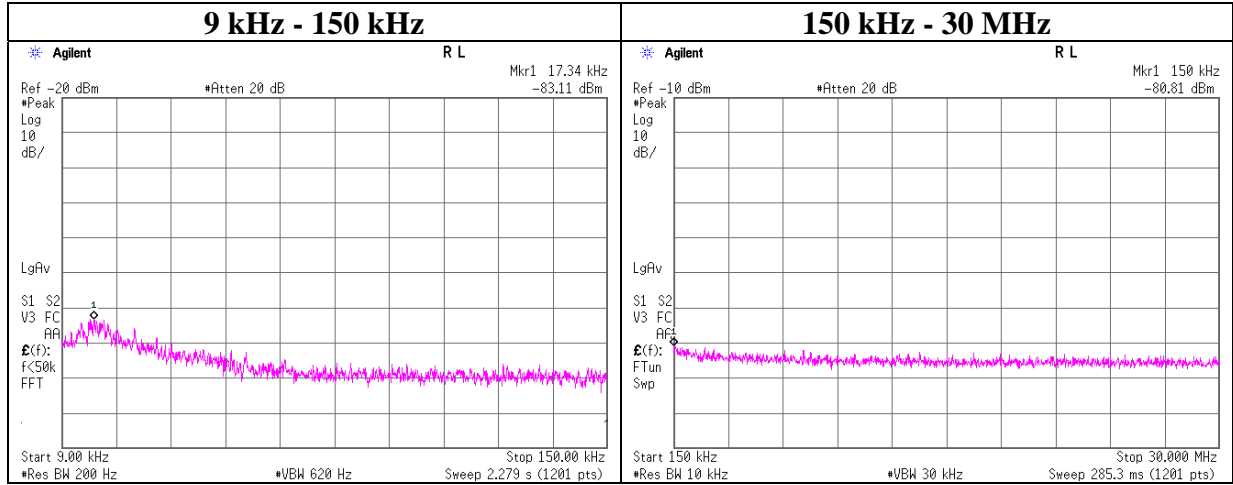
$$E \text{ [dBuV/m]} = \text{EIRP [dBm]} - 20 \log (\text{Distance [m]}) + \text{Ground bounce [dB]} + 104.8 \text{ [dBuV/m]}$$

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

N: Number of output

Conducted Spurious Emission

Report No. 13385909S-B-R2
 Test place Shonan EMC Lab. No.5 Shielded Room
 Date July 1, 2020
 Temperature / Humidity 24 deg. C / 62 % RH
 Engineer Kazuya Noda
 Mode Tx BT LE 2 M-PHY 2440 MHz



Frequency [kHz]	Reading [dBm]	Cable Loss [dB]	Attenuator Loss [dB]	Antenna Gain *1) [dBi]	N (Number of Output)	EIRP [dBm]	Distance [m]	Ground bounce [dB]	E (field strength) [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
17.34	-83.11	0.01	9.81	2.08	1	-71.2	300	6.0	-10.0	42.8	52.8	-
150.00	-80.81	0.01	9.81	2.08	1	-68.9	300	6.0	-7.7	24.0	31.7	-

*1) Antenna Gain applied the higher of the two models.

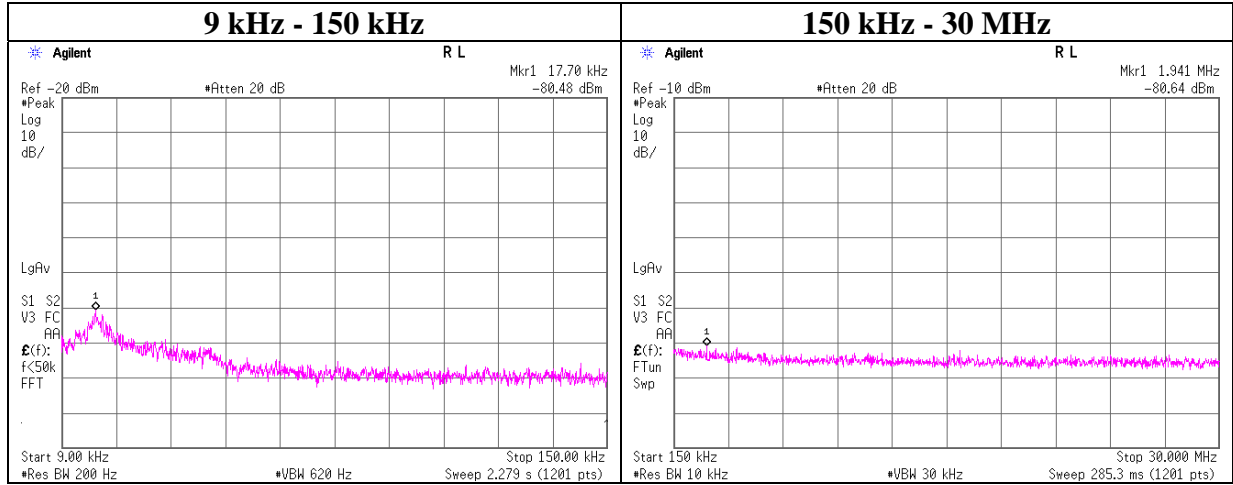
$$E \text{ [dBuV/m]} = \text{EIRP [dBm]} - 20 \log(\text{Distance [m]}) + \text{Ground bounce [dB]} + 104.8 \text{ [dBuV/m]}$$

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

N: Number of output

Conducted Spurious Emission

Report No. 13385909S-B-R2
 Test place Shonan EMC Lab. No.5 Shielded Room
 Date July 1, 2020
 Temperature / Humidity 24 deg. C / 62 % RH
 Engineer Kazuya Noda
 Mode Tx BT LE 2 M-PHY 2480 MHz



Frequency [kHz]	Reading [dBm]	Cable Loss [dB]	Attenuator Loss [dB]	Antenna Gain *1) [dBi]	N (Number of Output)	EIRP [dBm]	Distance [m]	Ground bounce [dB]	E (field strength) [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
17.70	-80.48	0.01	9.81	2.08	1	-68.6	300	6.0	-7.3	42.6	49.9	-
1941.00	-80.64	0.03	9.81	2.08	1	-68.7	30	6.0	12.5	29.5	17.0	-

*1) Antenna Gain applied the higher of the two models.

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

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

N: Number of output

Power Density

Report No. 13385909S-B-R2
Test place Shonan EMC Lab. No.5 Shielded Room
Date July 1, 2020
Temperature / Humidity 24 deg. C / 62 % RH
Engineer Kazuya Noda
Mode Tx

11b

Freq.	Reading	Cable Loss	Atten. Loss	Result	Limit	Margin
[MHz]	[dBm]	[dB]	[dB]	[dBm]	[dBm]	[dB]
2412	-18.13	2.33	9.81	-5.99	8.00	13.99
2437	-18.14	2.33	9.82	-5.99	8.00	13.99
2462	-20.64	2.34	9.82	-8.48	8.00	16.48

11g

Freq.	Reading	Cable Loss	Atten. Loss	Result	Limit	Margin
[MHz]	[dBm]	[dB]	[dB]	[dBm]	[dBm]	[dB]
2412	-26.59	2.33	9.81	-14.45	8.00	22.45
2437	-24.62	2.33	9.82	-12.47	8.00	20.47
2462	-28.03	2.34	9.82	-15.87	8.00	23.87

11n-20

Freq.	Reading	Cable Loss	Atten. Loss	Result	Limit	Margin
[MHz]	[dBm]	[dB]	[dB]	[dBm]	[dBm]	[dB]
2412	-27.01	2.33	9.81	-14.87	8.00	22.87
2437	-26.61	2.33	9.82	-14.46	8.00	22.46
2462	-29.38	2.34	9.82	-17.22	8.00	25.22

BT LE 1 M-PHY

Freq.	Reading	Cable Loss	Atten. Loss	Result	Limit	Margin
[MHz]	[dBm]	[dB]	[dB]	[dBm]	[dBm]	[dB]
2402	-23.51	2.33	9.88	-11.30	8.00	19.30
2440	-23.58	2.34	9.88	-11.36	8.00	19.36
2480	-23.76	2.35	9.88	-11.53	8.00	19.53

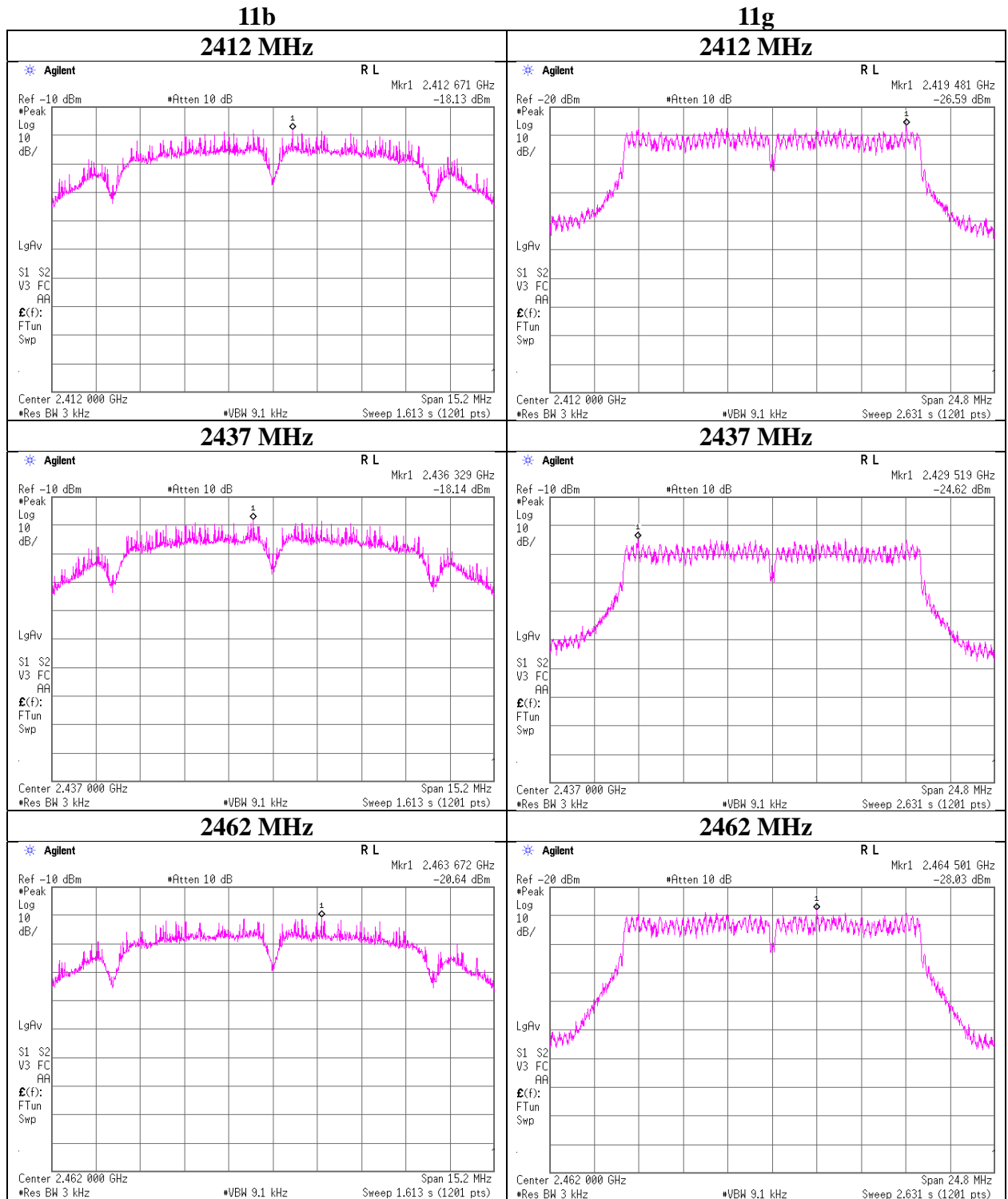
BT LE 2 M-PHY

Freq.	Reading	Cable Loss	Atten. Loss	Result	Limit	Margin
[MHz]	[dBm]	[dB]	[dB]	[dBm]	[dBm]	[dB]
2402	-25.24	2.33	9.88	-13.03	8.00	21.03
2440	-26.32	2.34	9.88	-14.10	8.00	22.10
2480	-25.52	2.35	9.88	-13.29	8.00	21.29

Sample Calculation:

Result = Reading + Cable Loss (including the cable(s) customer supplied) + Attenuator

Power Density



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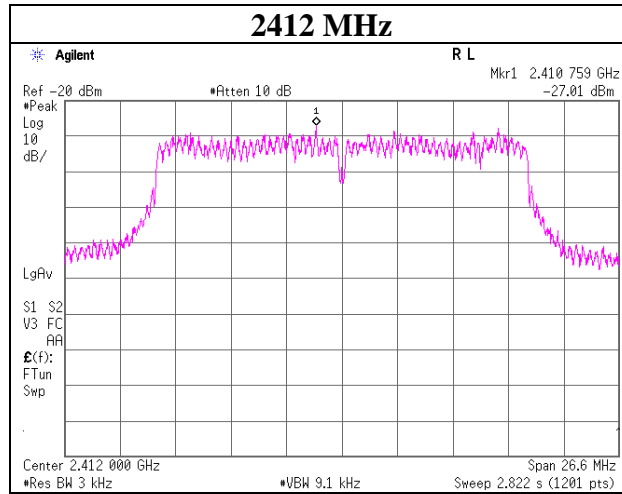
Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

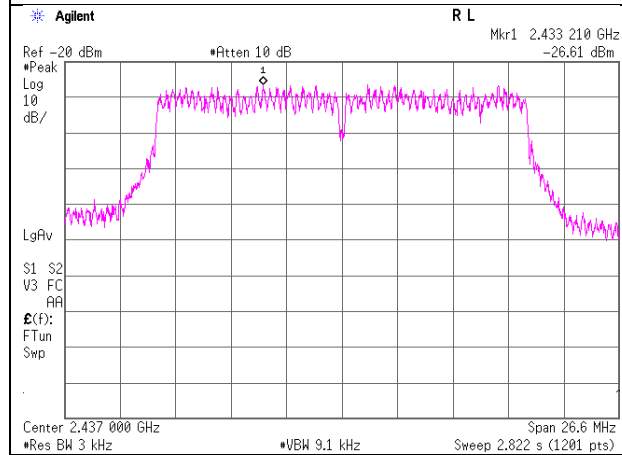
Power Density

11n-20

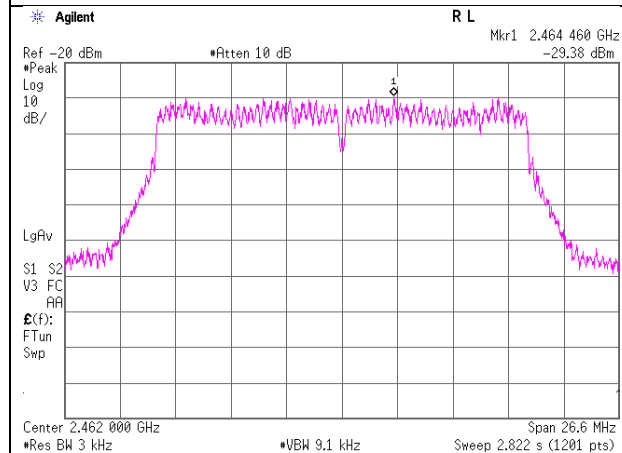
2412 MHz



2437 MHz



2462 MHz



UL Japan, Inc.

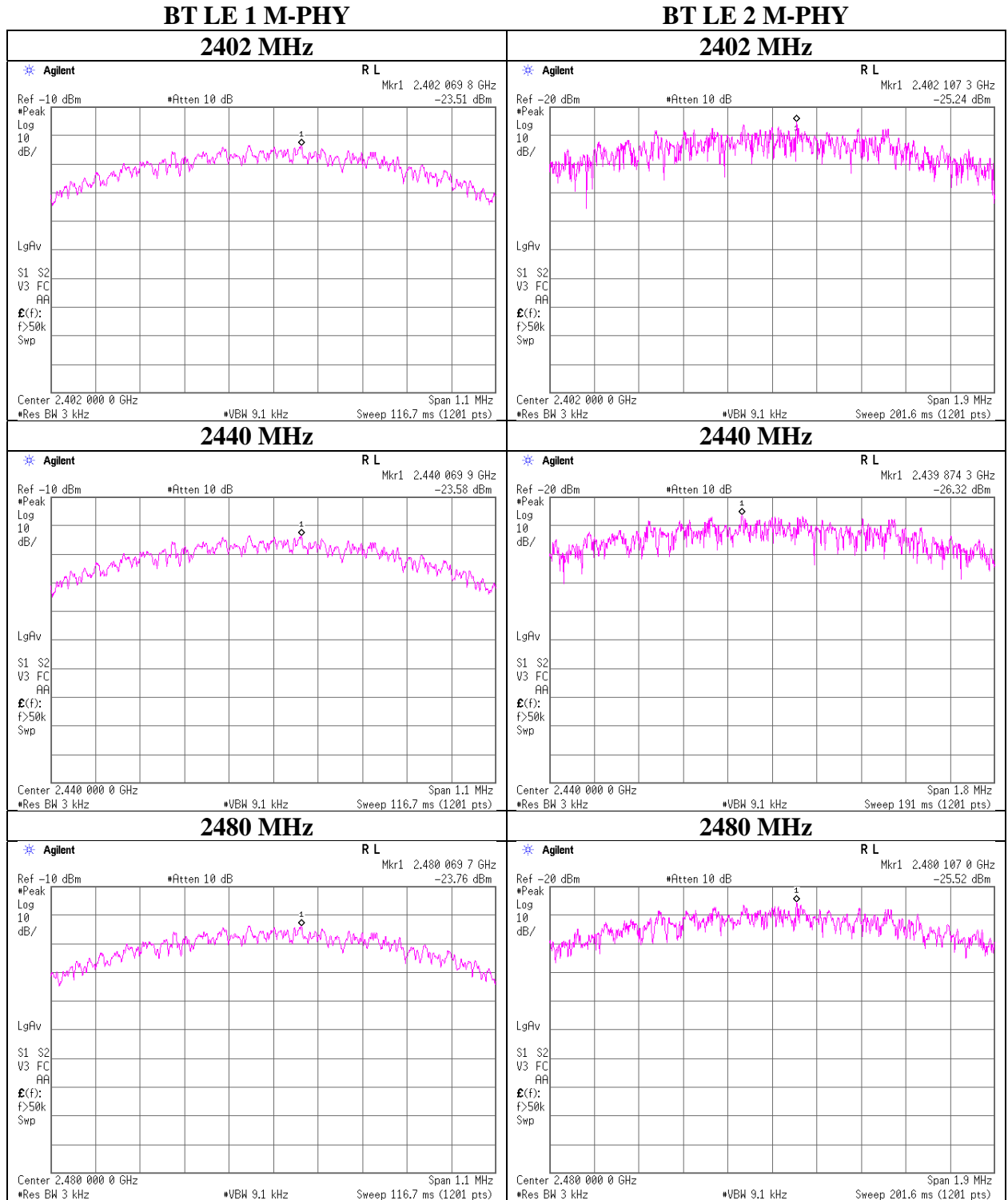
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Power Density



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APPENDIX 2: Test instruments

Test equipment (1/2)

Test Name	Local ID	LIMS ID	Description	Manufacturer	Model	Serial	Last Calibration Date	Calibration Interval (Month)
AT	KTS-07	145111	Digital Tester	SANWA	PC500	7019232	2019/10/01	12
AT	SAT10-14	154591	Attenuator	Weinschel Corp.	54A-10	81595	2020/04/01	12
AT	SAT10-16	160494	Attenuator	Weinschel Corp.	54A-10	83420	2019/12/12	12
AT	SCC-G66	196947	Coaxial Cable	HUBER+SUNER	SUCOFLEX 102	803478/2	2020/03/10	12
AT	SCC-G67	196949	Coaxial Cable	HUBER+SUNER	SUCOFLEX 102	803480/2	2020/03/10	12
AT	SOS-19	175823	Humidity Indicator	CUSTOM. Inc	CTH-201	-	2019/12/19	12
AT	SPM-07	146247	Power Meter	Keysight Technologies Inc	8990B	MY5100272	2020/05/27	12
AT	SPSS-04	146310	Power sensor	Keysight Technologies Inc	N1923A	MY5326009	2020/05/27	12
AT	SPSS-05	146311	Power sensor	Keysight Technologies Inc	N1923A	MY5349008	2020/05/27	12
AT	STM-G6	146207	Terminator	JFW	50T-128	-	2019/11/05	12
AT,RE	KSA-08	145089	Spectrum Analyzer	Keysight Technologies Inc	E4446A	MY46180525	2019/11/05	12
RE	COTS-SEMI-5	170932	EMI Software	TSJ (Techno Science Japan)	TEPTO-DV3(RE,CE,M E,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-04	145127	Pre Amplifier	Toyo Corporation	TPA0118-36	2072554	2020/06/02	12
RE	SAF-06	145005	Pre Amplifier	Toyo Corporation	TPA0118-36	1440491	2020/02/20	12
RE	SAF-08	145007	Pre Amplifier	Toyo Corporation	HAP18-26W	19	2020/03/03	12
RE	SAT10-05	145136	Attenuator(above 1GHz)	Keysight Technologies Inc	8493C-010	74864	2019/11/06	12

UL Japan, Inc.

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Facsimile : +81 463 50 6401

Test equipment (2/2)

Test Name	Local ID	LIMS ID	Description	Manufacturer	Model	Serial	Last Calibration Date	Calibration Interval (Month)
RE	SAT10-06	145137	Attenuator	Keysight Technologies Inc	8493C-010	74865	2019/11/06	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/T OYO	8D2W/12DSFA/141PE/141PE/141PE/141PE/NS4906	-/0901-271(RF Selector)	2020/04/12	12
RE	SCC-G15	145176	Coaxial Cable	Suhner	SUCOFLEX 102	32703/2	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-G44	168300	Coaxial Cable	HUBER+SUNER	SUCOFLEX 104	800375/4A	2019/11/11	12
RE	SCC-G57	179540	Coaxial Cable	Huber+Suhner	SUCOFLEX 102	802815/2	2020/05/12	12
RE	SCC-G58	183047	Coaxial Cable	HUBER+SUNER	SUCOFLEX 104	800287/4A	2020/06/04	12
RE	SFL-02	145301	Highpass Filter	MICRO-TRONICS	HPM50111	51	2019/11/06	12
RE	SHA-01	145383	Horn Antenna	Schwarzbeck Mess - Elektronik	BBHA9120D	9120D-725	2020/05/27	12
RE	SHA-03	145501	Horn Antenna	Schwarzbeck Mess - Elektronik	BBHA9120D	9120D-739	2020/06/15	12
RE	SHA-04	145512	Horn Antenna	ETS LINDGREN	3160-09	00094868	2020/06/15	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	-	2019/12/12	12
RE	SSA-02	145800	Spectrum Analyzer	Keysight Technologies Inc	E4448A	MY48250106	2020/04/16	12
RE	SSA-03	145801	Spectrum Analyzer	Keysight Technologies Inc	E4448A	MY48250152	2019/08/08	12
RE	STR-08	150463	Test Receiver	Rohde & Schwarz	ESW44	101581	2019/11/22	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: RE: Radiated Emission test
AT: Antenna Terminal Conducted test

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