4.6 Restricted Band of Operation

4.6.1 Measurement procedure

[FCC 15.247(d), 15.205, 15.209, KDB558074 D01 v05r02]

Test was applied by following conditions.

Test method	:	ANSI C63.10
Test place	:	3m Semi-anechoic chamber
EUT was placed on	:	Styrofoam table / (W)1.0m × (D)1.0m × (H)0.8m (below 1GHz) Styrofoam table / (W)0.6m × (D)0.6m ×(H)1.5m (above 1GHz)
Antenna distance	:	3m

Spectrum analyzer setting

- Peak	:	RBW=1MHz, VBW=3MHz, Span=Arbitrary setting, Sweep=auto
- Average	:	RBW=1MHz, VBW=1,3,5kHz, Span= Arbitrary setting, Sweep=auto Display mode=Linear

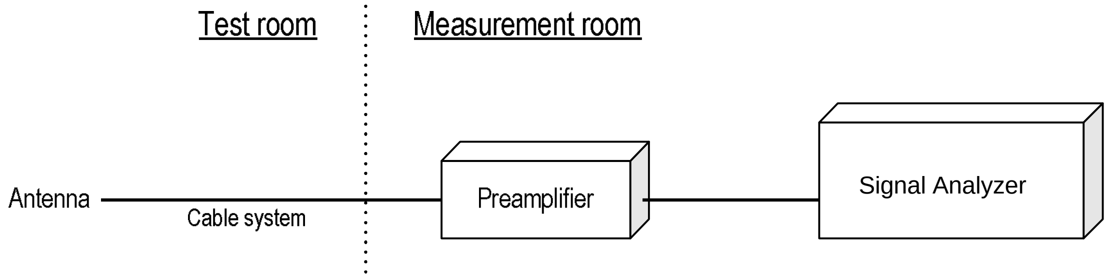
Average Measurement Setting [VBW]

Mode	Duty Cycle (%)	T_{on} (us)	T_{off} (us)	$1/T_{on}$ (kHz)	Determined VBW Setting
Bluetooth 5.1 LE(1Mbps)	61.50	385	241	2.597	3kHz
Bluetooth 5.1 LE (2Mbps)	32.26	201	422	4.975	5kHz
Bluetooth 5.1 LE (LongRange S2)	56.80	1065	810	0.939	1kHz
Bluetooth 5.1 LE (LongRange S8)	82.56	3096	654	0.323	1kHz

Although these tests were performed other than open area test site, adequate comparison measurements were confirmed against 30 m open are test site. Therefore, sufficient tests were made to demonstrate that the alternative site produces results that correlate with the ones of tests made in an open field based on KDB 937606.

Radiated emission measurements are performed at 3m distance with the broadband antenna (Loop antenna, Biconical antenna, Log periodic antenna, Double ridged guide antenna and Broad-band horn Antenna). The antenna is positioned both the horizontal and vertical planes of polarization and height is varied 1m to 4m and stopped at height producing the maximum emission. As for the Loop antenna, it is positioned with its plane vertical, and the center of the Loop antenna is 1m above the ground plane.
The EUT is Placed on a turntable, which is 0.8m/1.5m above ground plane. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level. The test results represent the worst case emission for each emission with manipulating the EUT, support equipment, interconnecting cables and varying the mode of operation. Sufficient time for the EUT, support equipment, and test equipment are allowed in order for them to warm up to their normal operating condition.

- Test configuration



4.6.2 Limit

Emission at the boundary of the restricted band provided by 15.205 shall be lower than 15.209 limit.

4.6.3 Measurement result

Channel	Frequency [MHz]	Results Chart	Result
Low	2402	See the Trace Data	Pass
High	2480	See the Trace Data	Pass

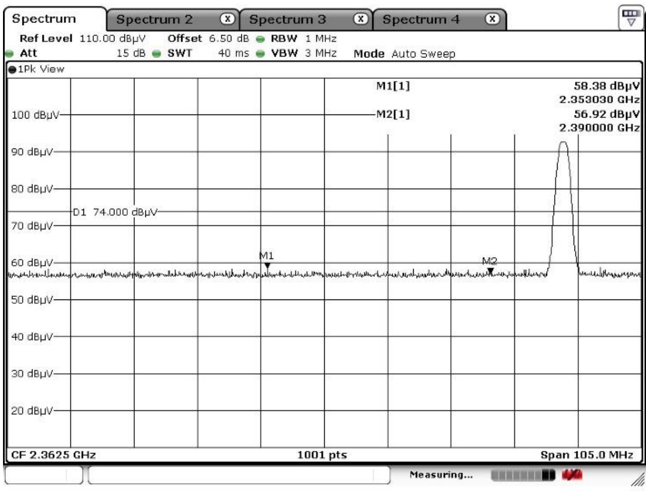
4.6.4 Test data

Date : 18-September-2021
Temperature : 22.3 [˚C]
Humidity : 66.9 [%]
Test place : 3m Semi-anechoic chamber

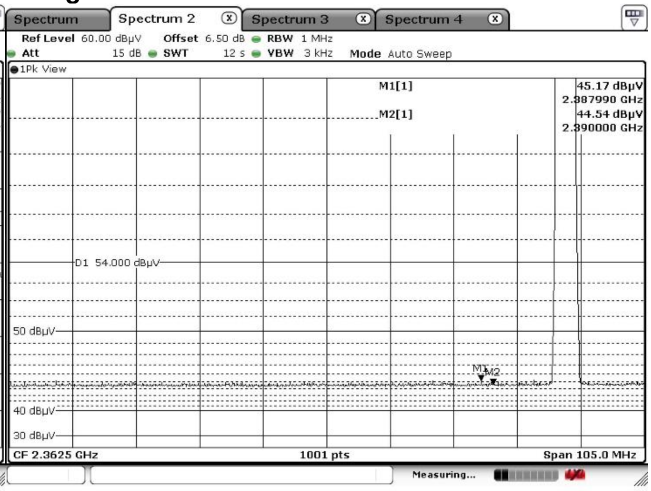
Test engineer : Taiki Watanabe

[BT_LE (1Mbps)]
Channel: Low
Horizontal

Peak

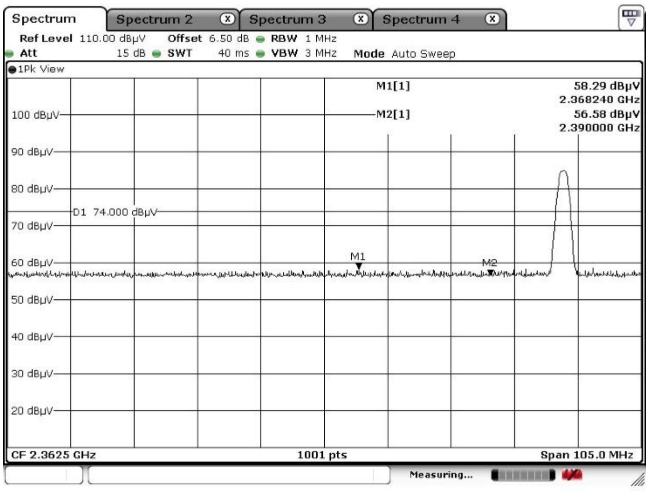


Average



Vertical

Peak



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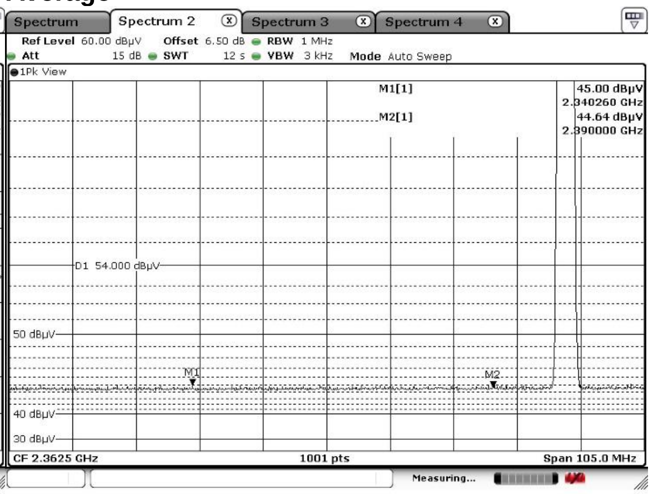
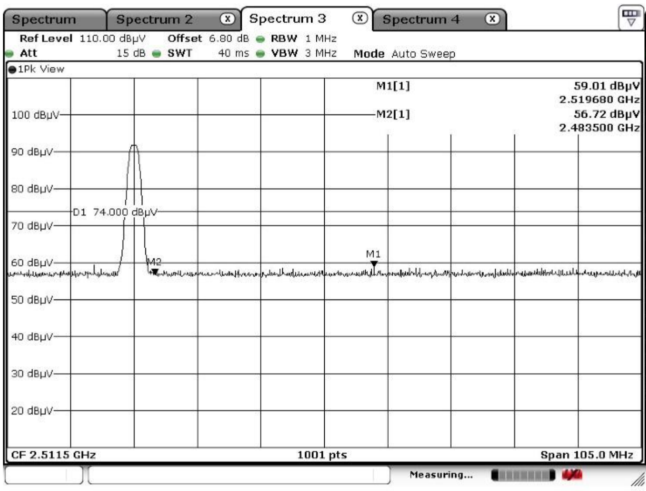
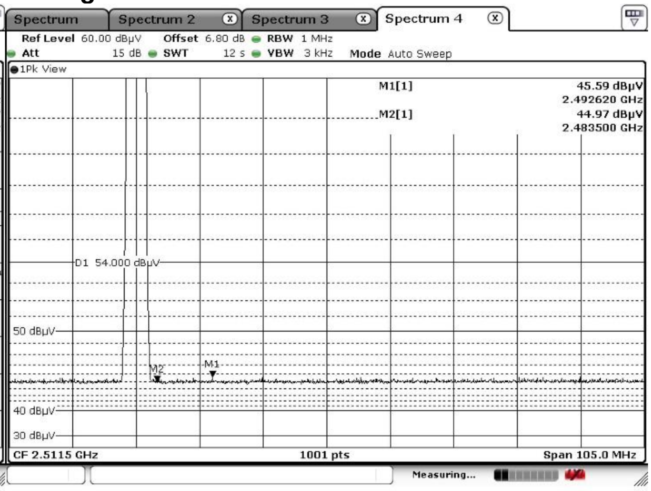


[BT_LE (1Mbps)]
Channel: High
Horizontal

Peak

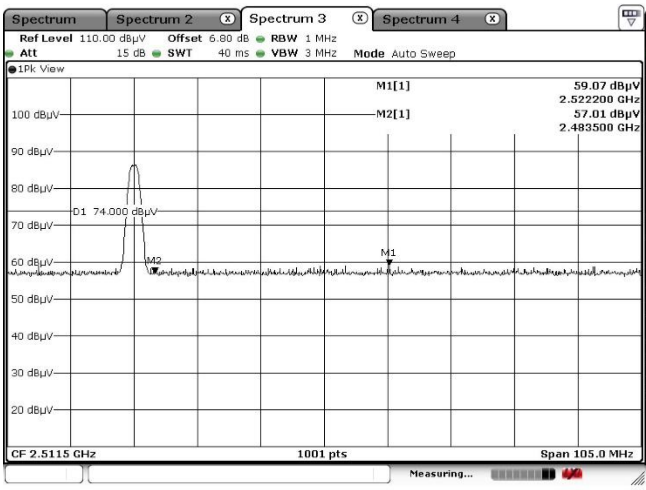


Average

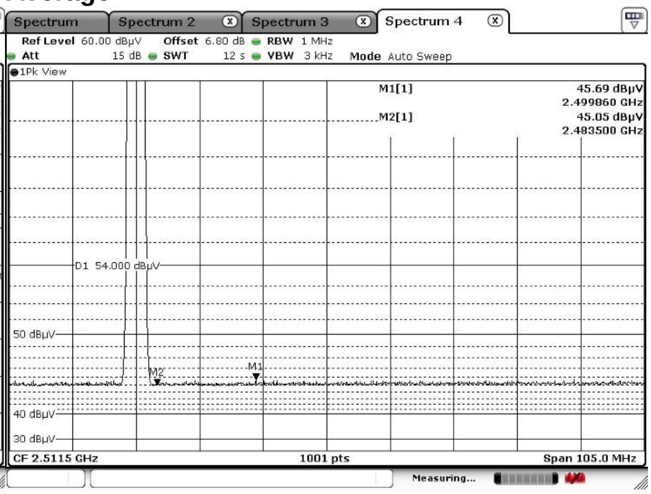


Vertical

Peak

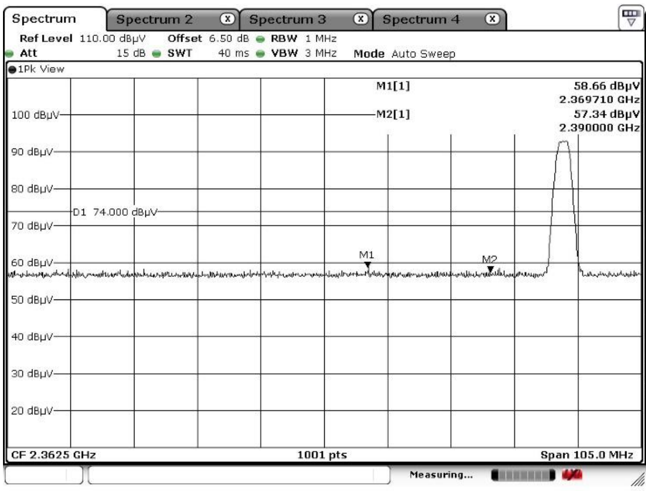


Average

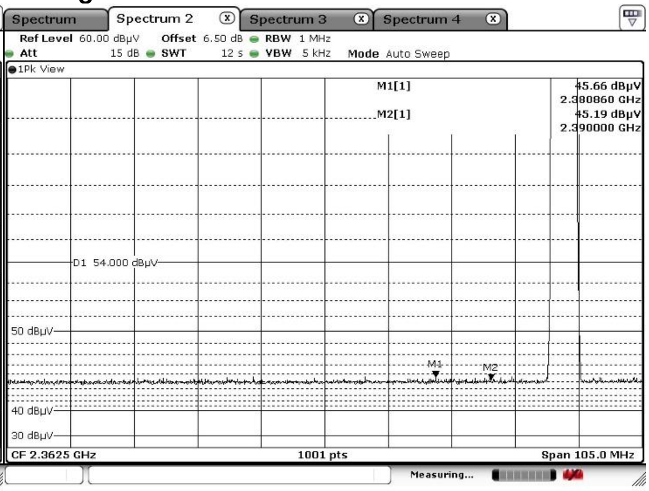


[BT_LE (2Mbps)]
Channel: Low
Horizontal

Peak

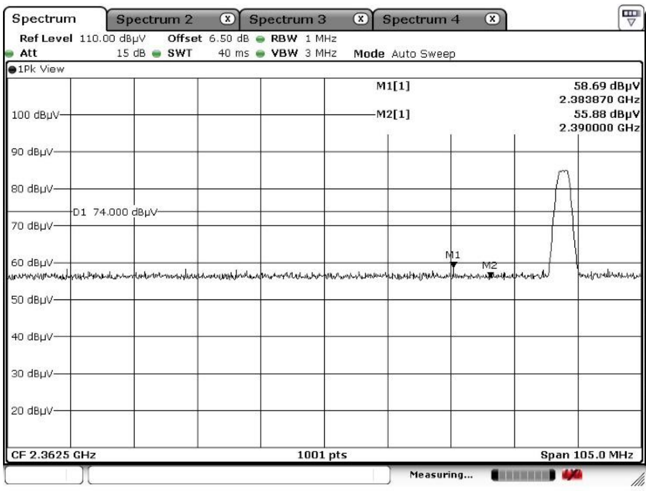


Average

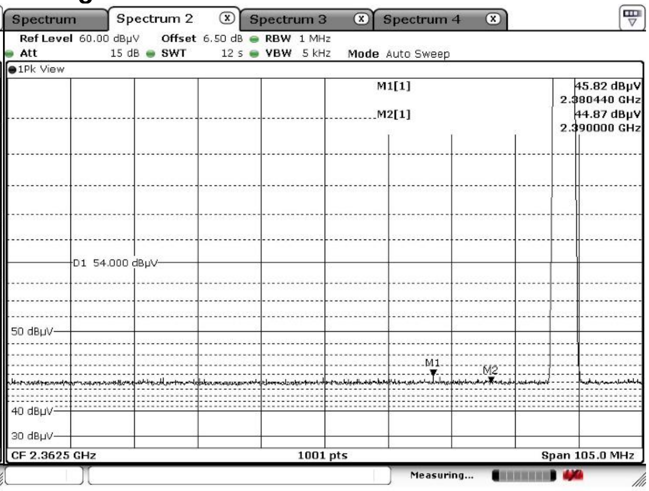


Vertical

Peak

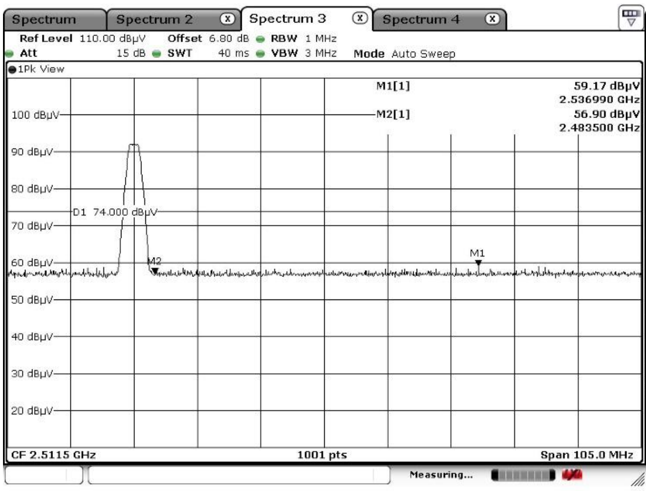


Average

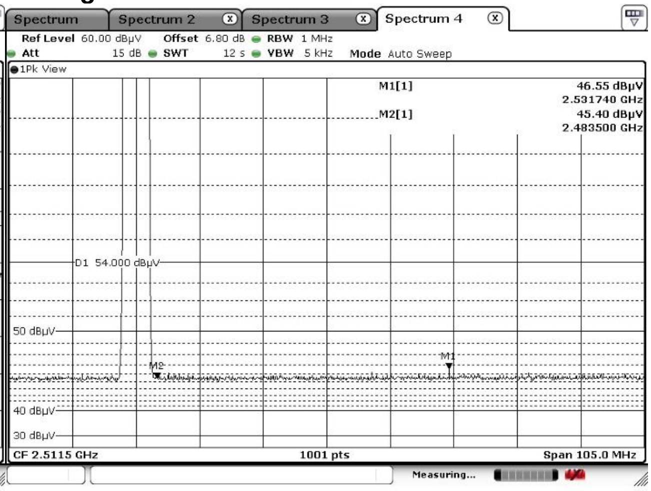


[BT_LE (2Mbps)]
Channel: High
Horizontal

Peak

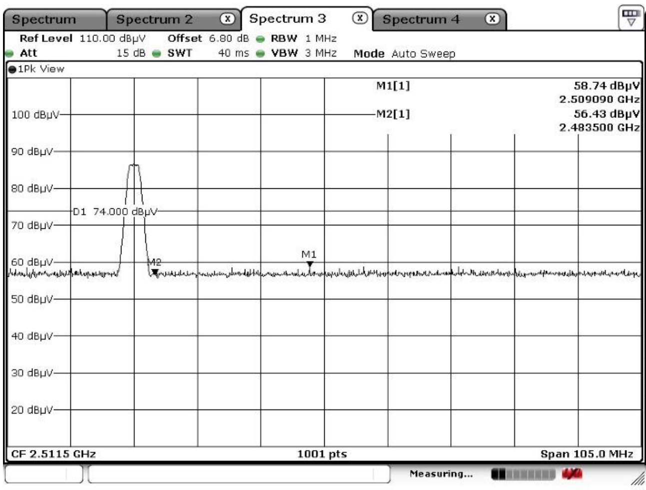


Average

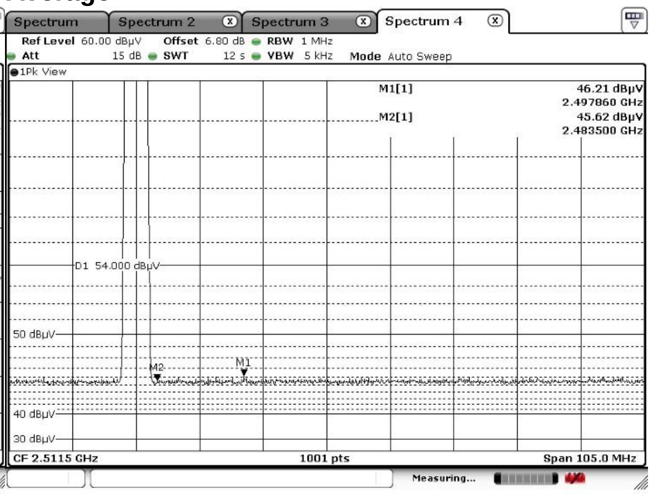


Vertical

Peak

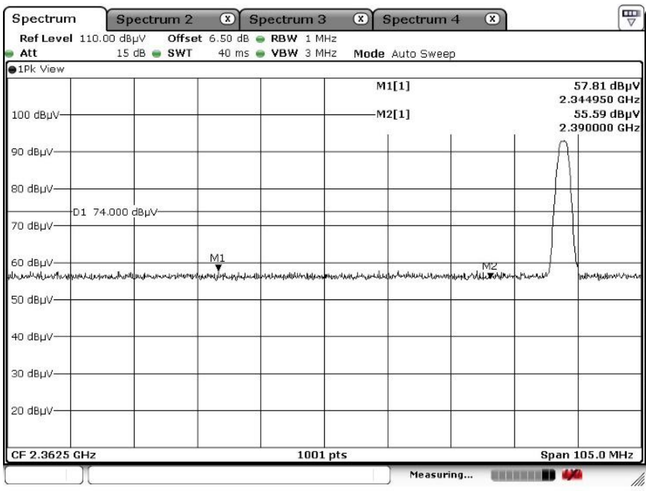


Average

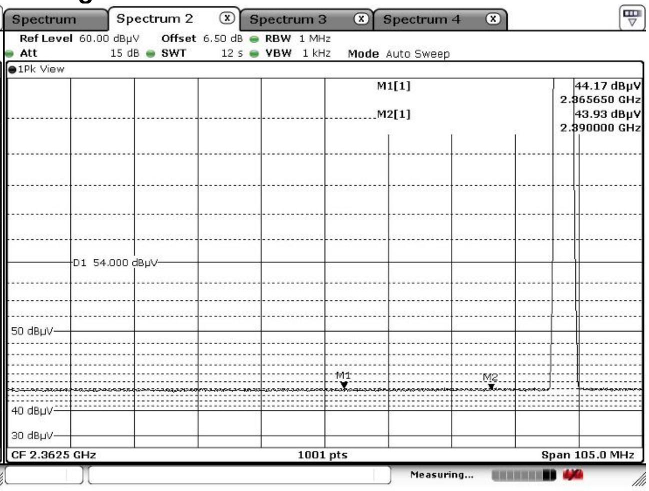


[BT_LE (LongRange S2)]
Channel: Low
Horizontal

Peak

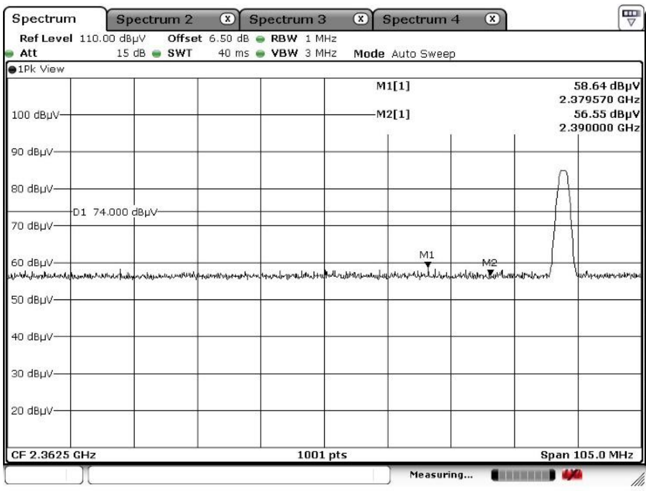


Average

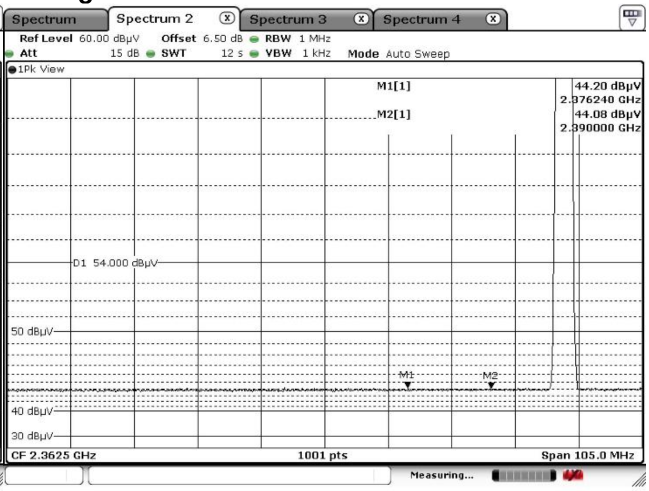


Vertical

Peak

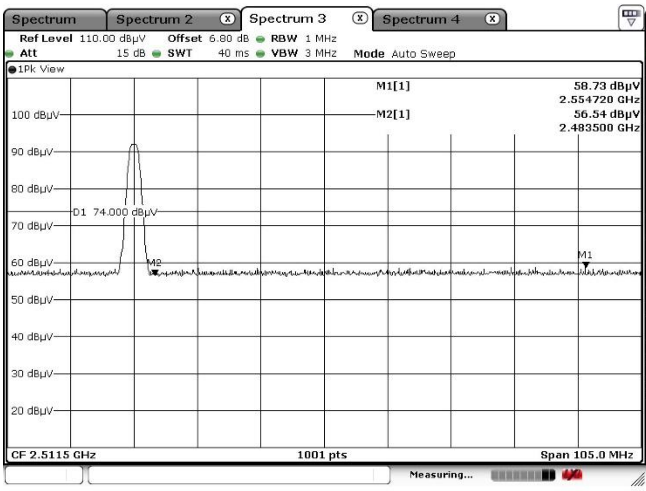


Average

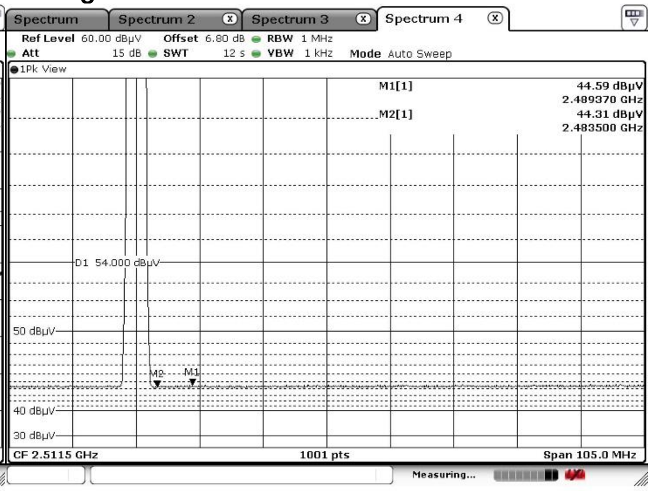


[BT_LE (LongRange S2)]
Channel: High
Horizontal

Peak

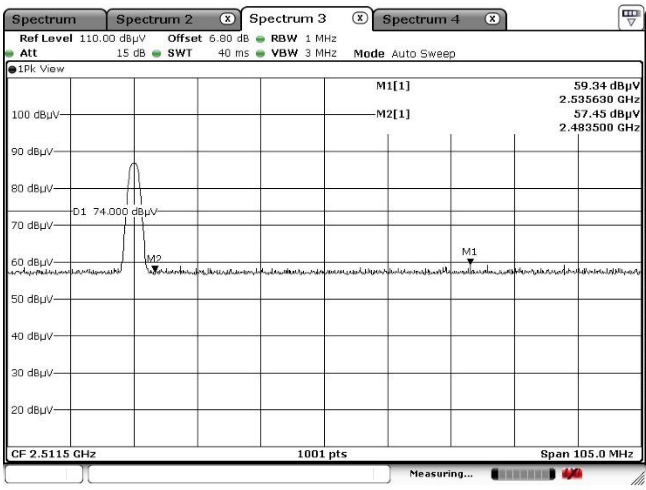


Average

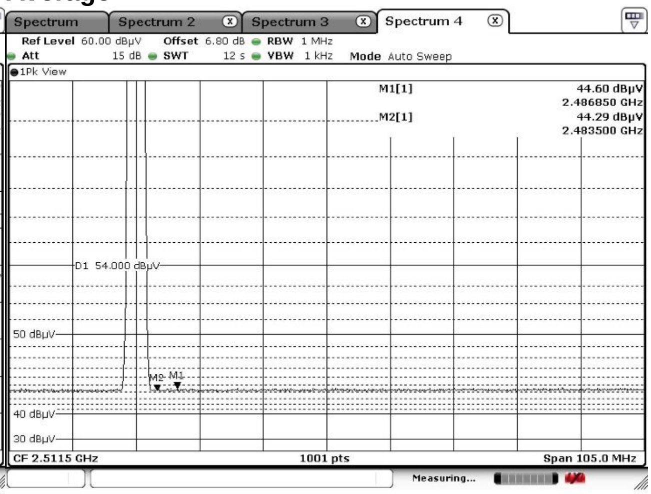


Vertical

Peak

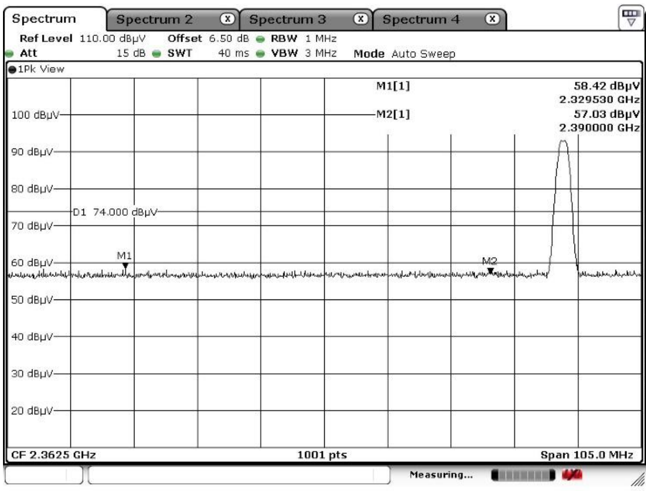


Average

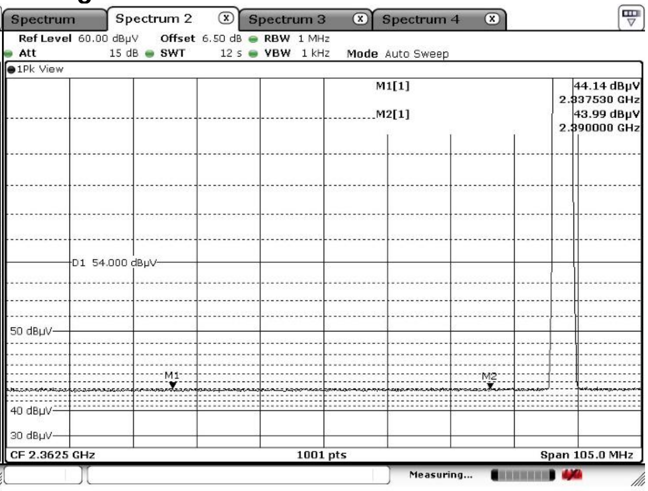


[BT_LE (LongRange S8)]
Channel: Low
Horizontal

Peak

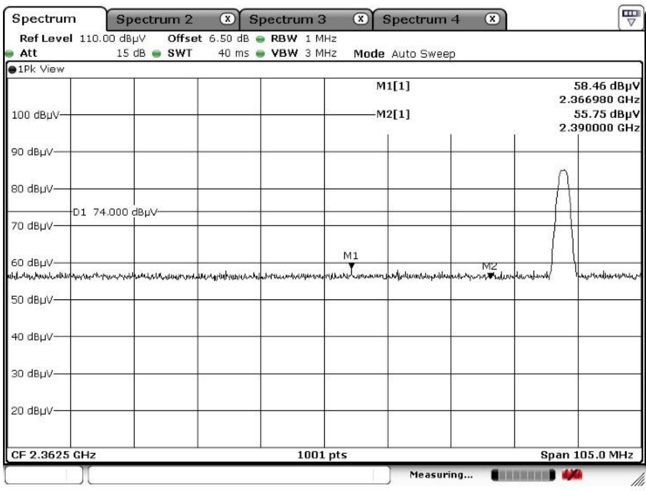


Average

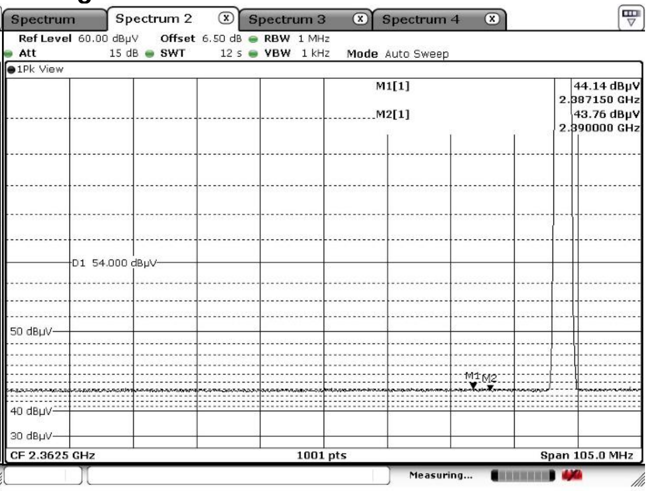


Vertical

Peak



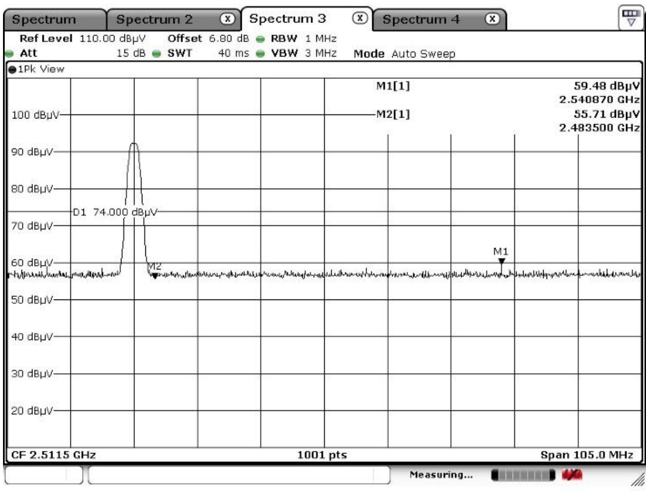
Average



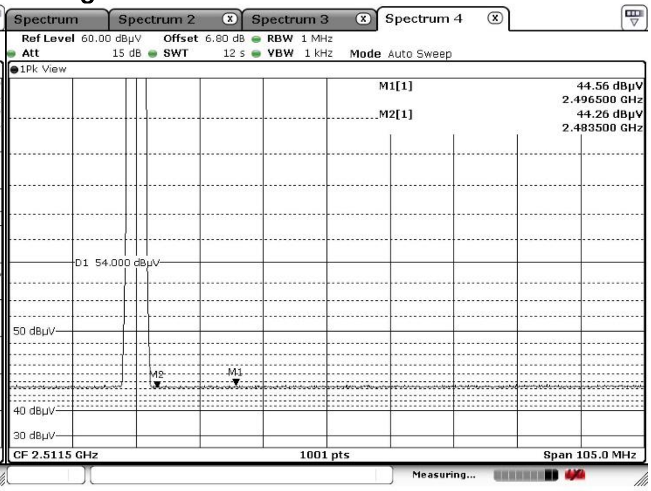
Japan

[BT_LE (LongRange S8)]
Channel: High
Horizontal

Peak

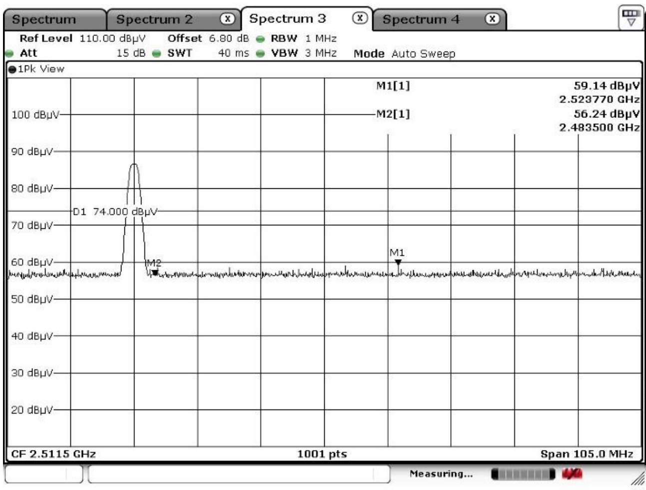


Average

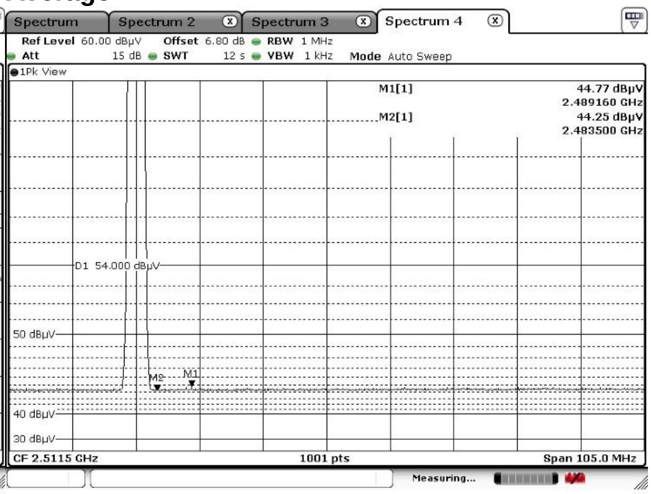


Vertical

Peak



Average



4.7 Transmitter Power Spectral Density

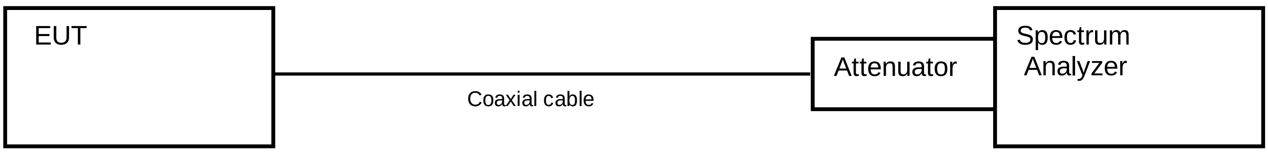
4.7.1 Measurement procedure

[FCC 15.247(e), KDB558074 D01 v05r02]

The peak power is measured with a spectrum analyzer connected to the antenna terminal, while EUT is operating in transmission mode at the appropriate center frequency.

The spectrum analyzer is set to;
a) Span = 1.5 times the 6 dB bandwidth.
b) RBW = 3kHz - 100kHz.
c) VBW ≥ 3 x RBW.
d) Sweep time = auto-couple.
e) Detector = peak.
f) Trace mode = max hold.

- Test configuration



4.7.2 Limit

The peak power spectral density shall not be greater than 8dBm in any 3kHz band.

4.7.3 Measurement result

Date : 6-September-2021
Temperature : 24.6 [˚C]
Humidity : 48.9 [%]
Test place : Shielded room No.3

Test engineer : Tadahiro Seino

Date : 8-September-2021
Temperature : 24.4 [˚C]
Humidity : 56.4 [%]
Test place : Shielded room No.3

Test engineer : Tadahiro Seino

[BT_LE (1Mbps)]

Channel	Center Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dBm)	Result
Low	2402	-21.29	10.53	-10.76	8.00	18.76	PASS
Middle	2440	-19.90	10.53	-9.37	8.00	17.37	PASS
High	2480	-20.22	10.53	-9.69	8.00	17.69	PASS

Calculation;
Transmitter Power Spectral Density Level (Margin) = Limit – (Reading + Factor)

[BT_LE (2Mbps)]

Channel	Center Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dBm)	Result
Low	2402	-24.43	10.53	-13.90	8.00	21.90	PASS
Middle	2440	-23.03	10.53	-12.50	8.00	20.50	PASS
High	2480	-23.33	10.53	-12.80	8.00	20.80	PASS

[BT_LE (LongRange S2)]

Channel	Center Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dBm)	Result
Low	2402	-12.95	10.53	-2.42	8.00	10.42	PASS
Middle	2440	-11.52	10.53	-0.99	8.00	8.99	PASS
High	2480	-11.86	10.53	-1.33	8.00	9.33	PASS

[BT_LE (LongRange S8)]

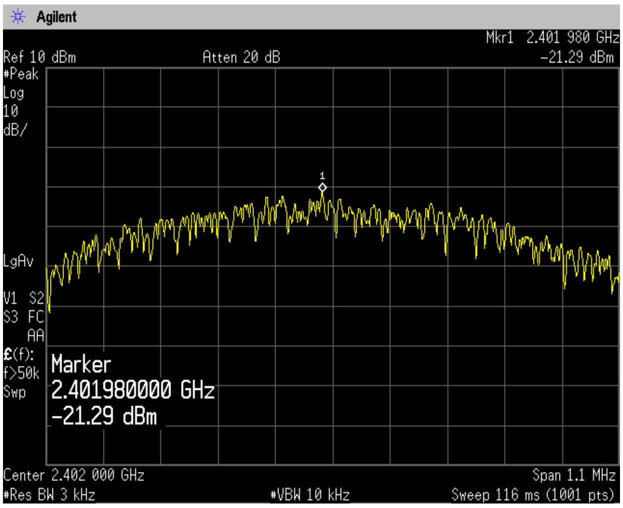
Channel	Center Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dBm)	Result
Low	2402	-12.90	10.53	-2.37	8.00	10.37	PASS
Middle	2440	-11.50	10.53	-0.97	8.00	8.97	PASS
High	2480	-11.86	10.53	-1.33	8.00	9.33	PASS

Calculation;
Transmitter Power Spectral Density Level (Margin) = Limit – (Reading + Factor)

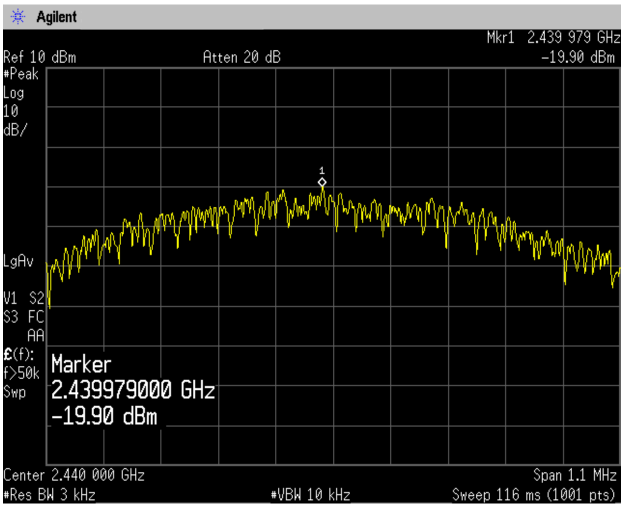
4.7.4 Trace data

[BT_LE (1Mbps)]

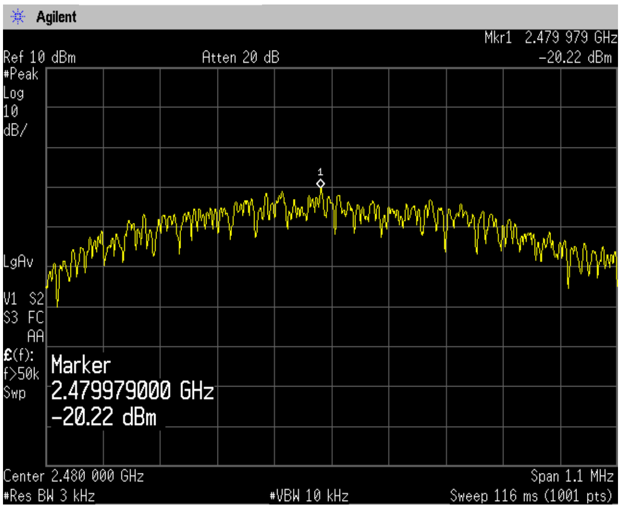
Channel Low



Channel Middle

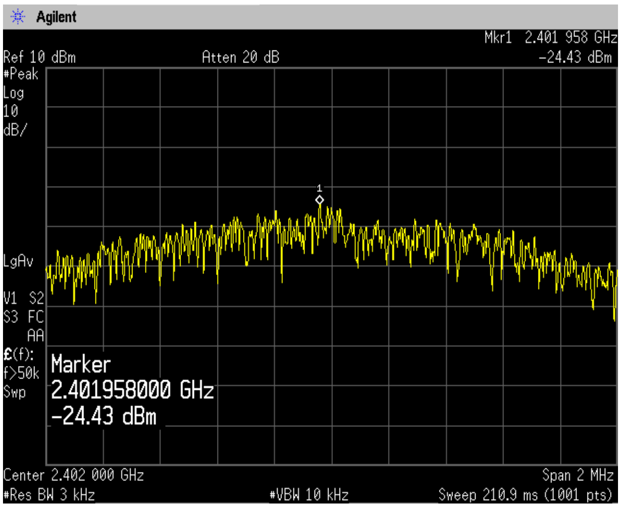


Channel High

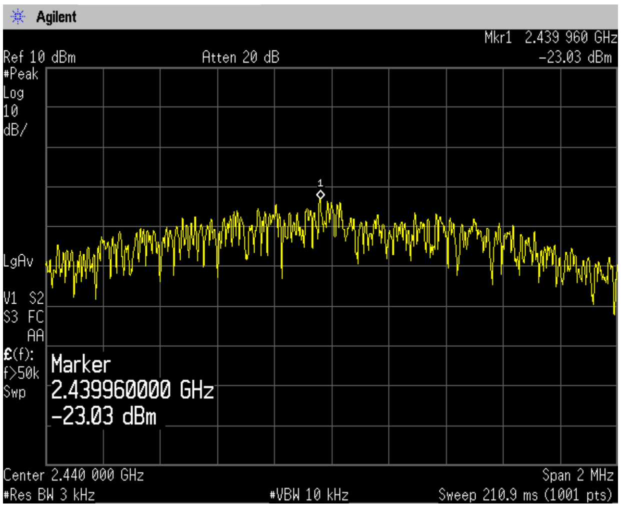


[BT_LE (2Mbps)]

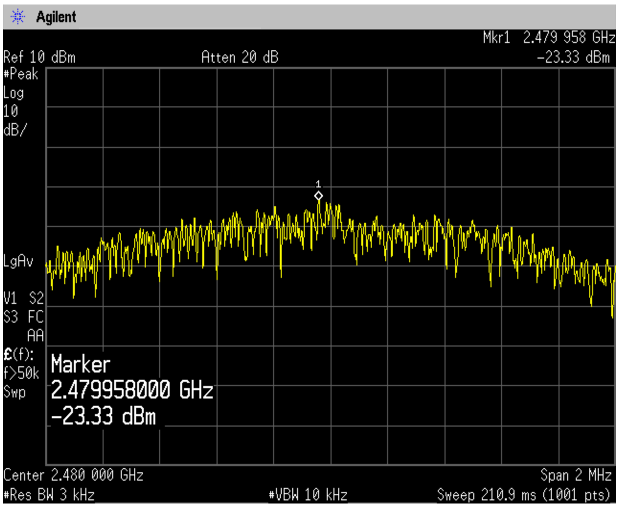
Channel Low



Channel Middle

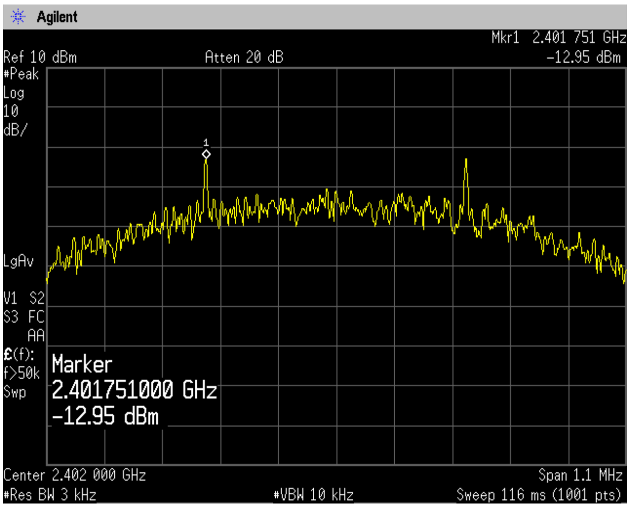


Channel High

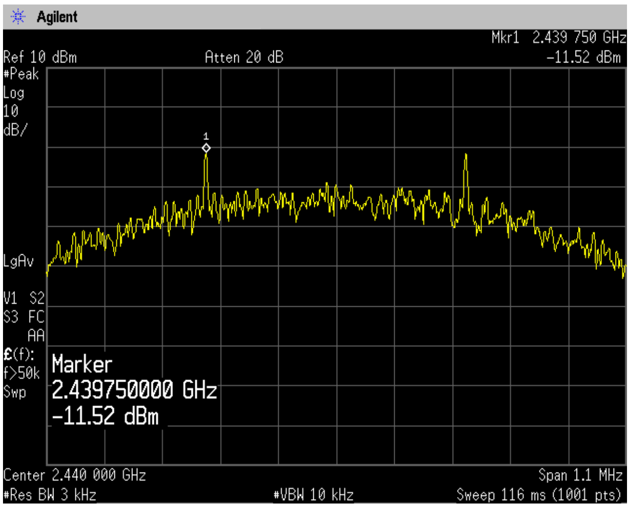


[BT_LE (LongRange S2)]

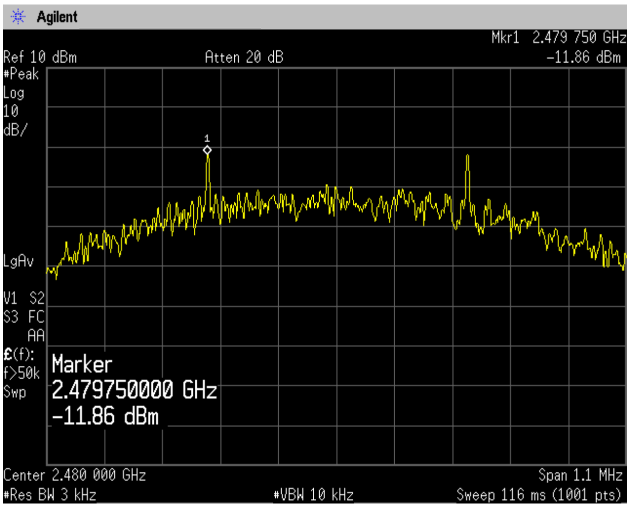
Channel Low



Channel Middle

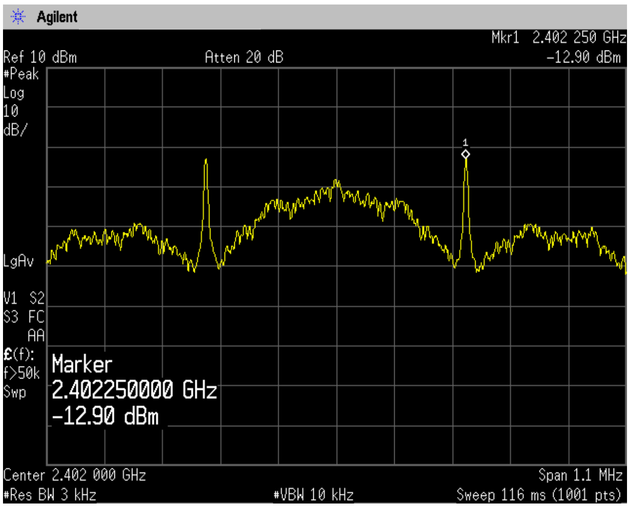


Channel High

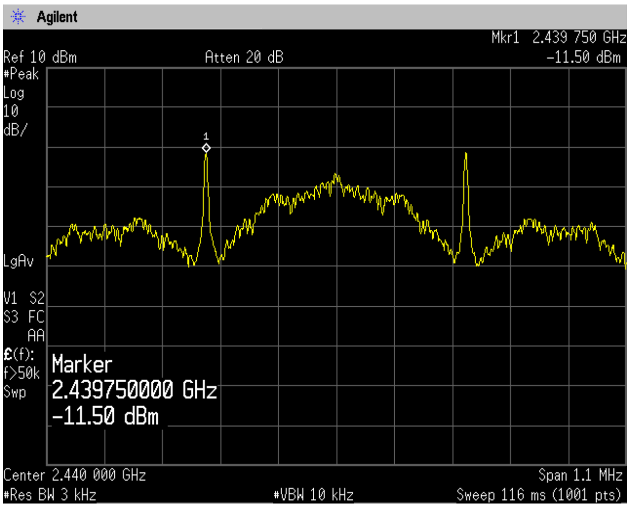


[BT_LE (LongRange S8)]

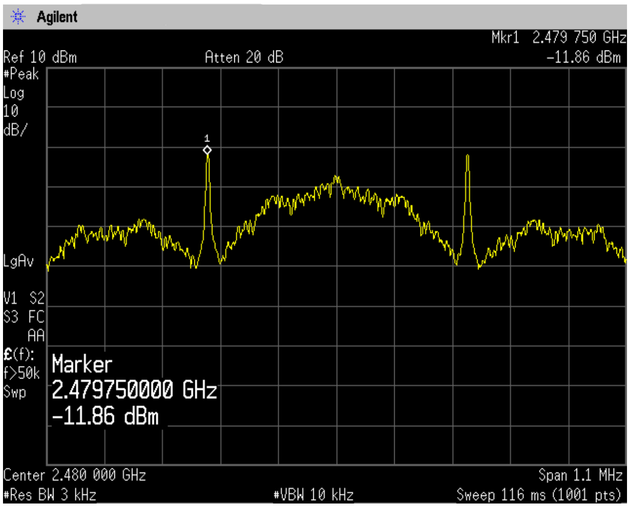
Channel Low



Channel Middle



Channel High



TÜV SÜD Japan

4.8 AC Power Line Conducted Emissions

4.8.1 Measurement procedure

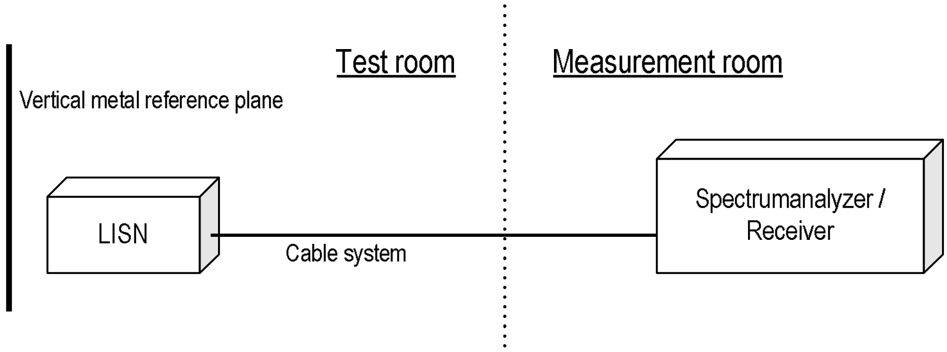
[FCC 15.207]

Test was applied by following conditions.

Test method	:	ANSI C63.10
Frequency range	:	0.15 MHz to 30 MHz
Test place	:	3 m Semi-anechoic chamber
EUT was placed on	:	FRP table / (W)2.0 m × (D)1.0 m × (H)0.8 m
Vertical Metal Reference Plane	:	(W)2.0 m × (H)2.0 m 0.4 m away from EUT
Test receiver setting		
- Detector	:	Quasi-peak, Average
- Bandwidth	:	9 kHz

EUT and peripherals are connected to 50Ω/50μH Line Impedance Stabilization Network (LISN) which are connected to reference ground plane, and are placed 80cm away from EUT. Excess of AC power cable is bundled in center.
LISN for peripheral is terminated in 50Ω.
EUT operating mode is selected to emit the maximum noise. Overall frequency range is investigated with spectrum analyzer using peak detector. Maximum emission configuration is determined by manipulating the EUT, peripherals, interconnecting cables. Then, emission measurements are performed with test receiver in above setting to each current-carrying conductor of the mains port. Sufficient time for EUT, peripherals and test equipment is provided in order for them to warm up to their normal operating condition. If the average limit is met when using a quasi-peak detector receiver, the EUT shall be deemed to meet both limits.

- Test configuration



4.8.2 Calculation method

Emission level = Reading + (LISN. Factor + Cable system loss)
Margin = Limit – Emission level

Example:
Limit @ 6.770 MHz: 60.0 dBμV(Quasi-peak)
: 50.0 dBμV(Average)
(Quasi peak) Reading = 41.2 dBμV c.f = 10.3 dB
Emission level = 41.2 + 10.3 = 51.5 dBμV
Margin = 60.0 – 51.5 = 8.5 dB
(Average) Reading = 35.0 dBμV c.f = 10.3 dB
Emission level = 35.0 + 10.3 = 45.3 dBμV
Margin = 50.0 – 45.3 = 4.7 dB

4.8.3 Limit

Frequency [MHz]	**Limit**	
	QP [dBuV]	**AV [dBuV]**
0.15-0.5	66-56*	56-46*
0.5-5	56	46
5-30	60	50

*: The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.5MHz.

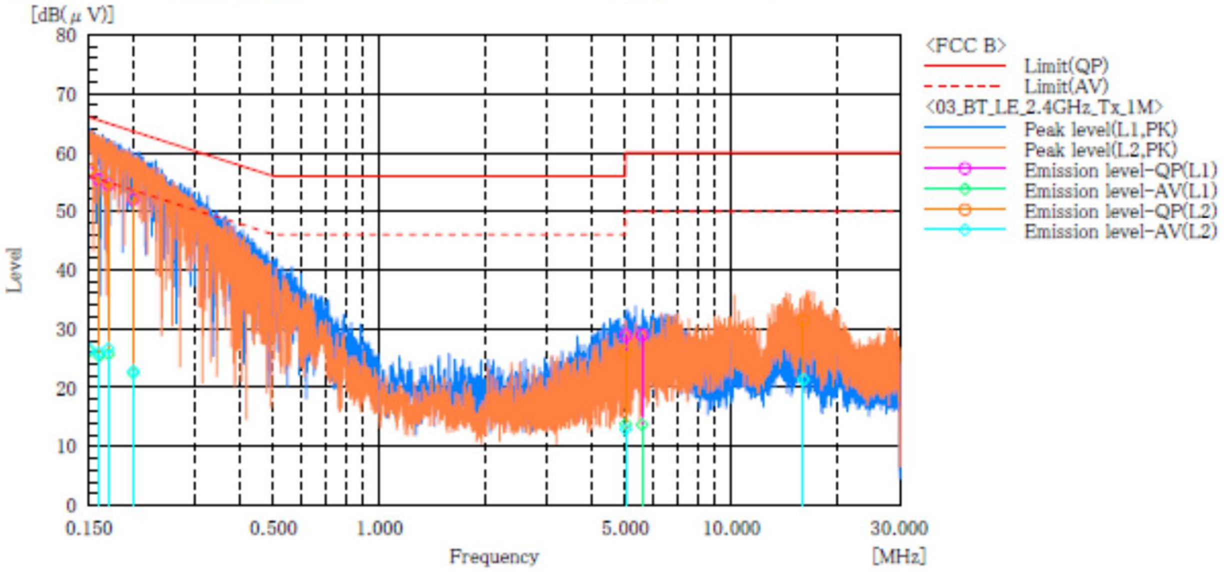
4.8.4 Test data

Date : 8-October-2021
Temperature : 21.6 [˚C]
Humidity : 62.3 [%]
Test place : 3m Semi-anechoic chamber

Test engineer : Tadahiro Seino

[BT_LE (1Mbps)]

Company Name	: KYOCERA Corporation	Standard	: FCC Part.15 Subpart C
EUT	: Mobile Phone	Operator	: T.Seino
Model No.	: EB1073	Temp,Hum,Atm	: 21.6[℃] 62.3[%]
Serial No.	: N/A	Note1	:
Test mode	: BT_LE_Tx_1M	Note2	:



Final Result

--- L1 Phase ---

No.	Frequency [MHz]	Reading QP [dB(μV)]	Reading CAV [dB(μV)]	c.f [dB]	Result QP [dB(μV)]	Result CAV [dB(μV)]	Limit QP [dB(μV)]	Limit AV [dB(μV)]	Margin QP [dB]	Margin CAV [dB]
1	0.150	46.0	15.6	10.6	56.6	26.2	66.0	56.0	9.4	29.8
2	0.160	44.9	14.9	10.5	55.4	25.4	65.5	55.5	10.1	30.1
3	0.170	44.1	15.2	10.5	54.6	25.7	65.0	55.0	10.4	29.3
4	0.200	41.6	12.0	10.5	52.1	22.5	63.6	53.6	11.5	31.1
5	5.001	18.2	3.1	10.7	28.9	13.8	60.0	50.0	31.1	36.2
6	5.570	18.3	3.0	10.7	29.0	13.7	60.0	50.0	31.0	36.3

--- L2 Phase ---

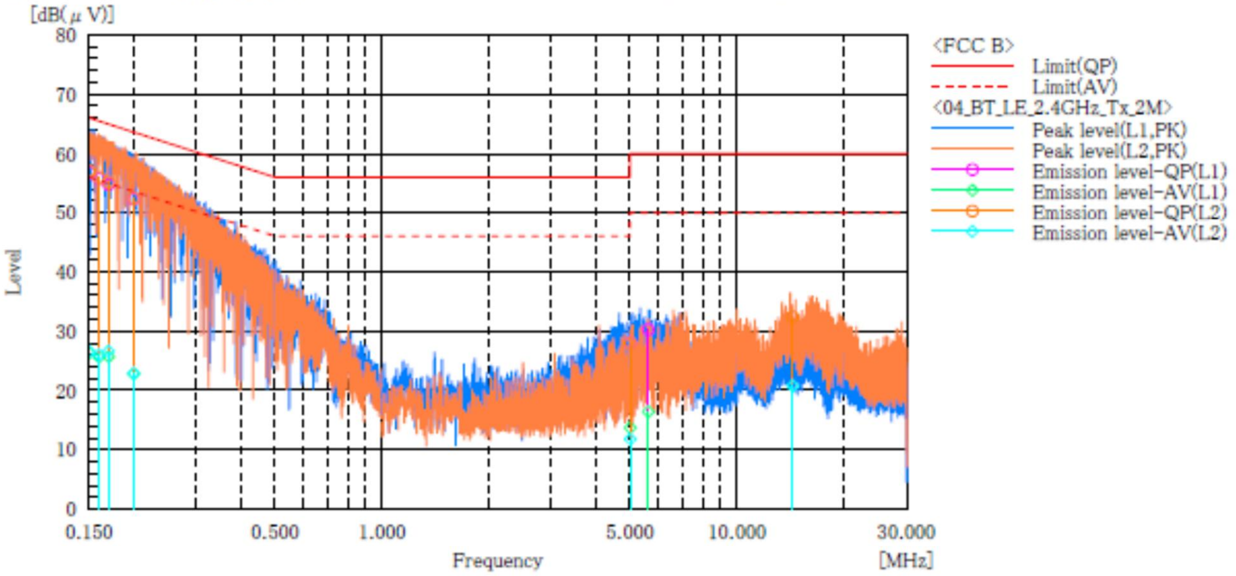
No.	Frequency [MHz]	Reading QP [dB(μV)]	Reading CAV [dB(μV)]	c.f [dB]	Result QP [dB(μV)]	Result CAV [dB(μV)]	Limit QP [dB(μV)]	Limit AV [dB(μV)]	Margin QP [dB]	Margin CAV [dB]
1	0.150	46.5	16.0	10.6	57.1	26.6	66.0	56.0	8.9	29.4
2	0.160	45.4	15.3	10.6	56.0	25.9	65.5	55.5	9.5	29.6
3	0.170	44.4	16.0	10.6	55.0	26.6	65.0	55.0	10.0	28.4
4	0.200	42.0	12.3	10.5	52.5	22.8	63.6	53.6	11.1	30.8
5	5.002	15.4	2.2	10.7	26.1	12.9	60.0	50.0	33.9	37.1
6	16.003	19.6	9.6	11.8	31.4	21.4	60.0	50.0	28.6	28.6

Japan

[BT_LE (2Mbps)]

Company Name : KYOCERA Corporation
EUT : Mobile Phone
Model No. : EB1073
Serial No. : N/A
Test mode : BT_LE_Tx_2M

Standard : FCC Part.15 Subpart C
Operator : T.Seino
Temp,Hum,Atm : 21.6[℃] 62.3[%]
Note1 :
Note2 :



Final Result

--- L1 Phase ---

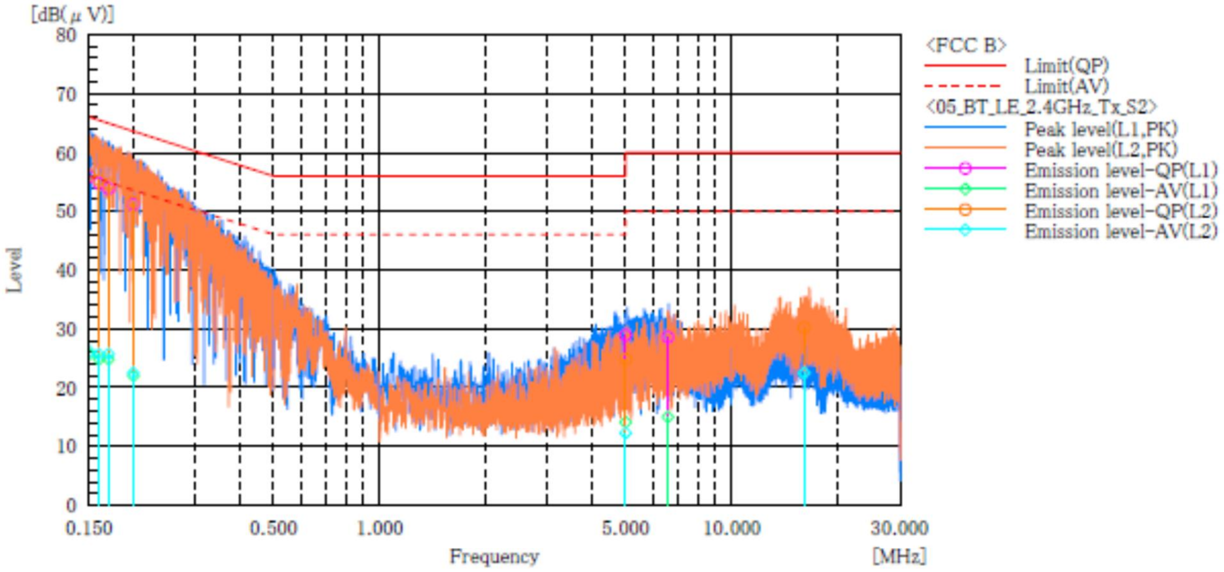
No.	Frequency [MHz]	Reading QP [dB(μV)]	Reading CAV [dB(μV)]	c.f [dB]	Result QP [dB(μV)]	Result CAV [dB(μV)]	Limit QP [dB(μV)]	Limit AV [dB(μV)]	Margin QP [dB]	Margin CAV [dB]
1	0.150	46.2	15.7	10.6	56.8	26.3	66.0	56.0	9.2	29.7
2	0.160	45.2	15.1	10.5	55.7	25.6	65.5	55.5	9.8	29.9
3	0.170	44.3	15.2	10.5	54.8	25.7	65.0	55.0	10.2	29.3
4	0.200	41.8	12.3	10.5	52.3	22.8	63.6	53.6	11.3	30.8
5	5.001	17.3	3.0	10.7	28.0	13.7	60.0	50.0	32.0	36.3
6	5.626	19.6	5.7	10.7	30.3	16.4	60.0	50.0	29.7	33.6

--- L2 Phase ---

No.	Frequency [MHz]	Reading QP [dB(μV)]	Reading CAV [dB(μV)]	c.f [dB]	Result QP [dB(μV)]	Result CAV [dB(μV)]	Limit QP [dB(μV)]	Limit AV [dB(μV)]	Margin QP [dB]	Margin CAV [dB]
1	0.150	46.5	16.0	10.6	57.1	26.6	66.0	56.0	8.9	29.4
2	0.160	45.4	15.4	10.6	56.0	26.0	65.5	55.5	9.5	29.5
3	0.170	44.6	16.0	10.6	55.2	26.6	65.0	55.0	9.8	28.4
4	0.200	42.0	12.4	10.5	52.5	22.9	63.6	53.6	11.1	30.7
5	5.002	17.2	1.1	10.7	27.9	11.8	60.0	50.0	32.1	38.2
6	14.335	20.8	9.2	11.6	32.4	20.8	60.0	50.0	27.6	29.2

[BT_LE (LongRange S2)]

Company Name	: KYOCERA Corporation	Standard	: FCC Part.15 Subpart C
EUT	: Mobile Phone	Operator	: T.Seino
Model No.	: EB1073	Temp,Hum,Atm	: 21.6[℃] 62.3[%]
Serial No.	: N/A	Note1	:
Test mode	: BT_LE_Tx_S2	Note2	:



Final Result

--- L1 Phase ---

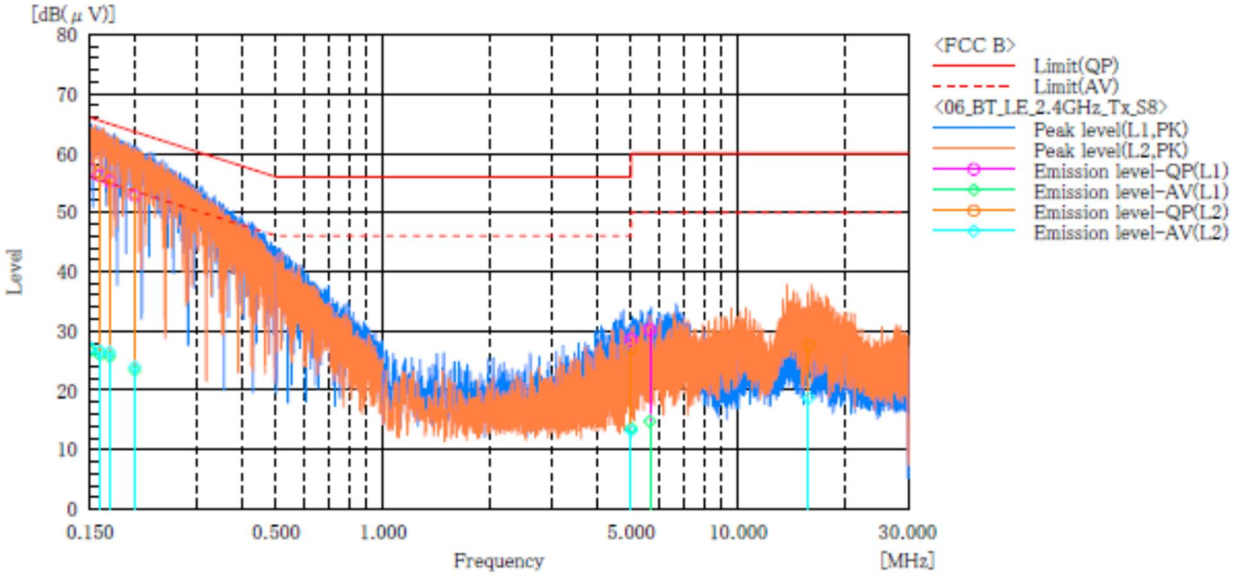
No.	Frequency [MHz]	Reading QP [dB(μV)]	Reading CAV [dB(μV)]	c.f [dB]	Result QP [dB(μV)]	Result CAV [dB(μV)]	Limit QP [dB(μV)]	Limit AV [dB(μV)]	Margin QP [dB]	Margin CAV [dB]
1	0.150	45.3	15.1	10.6	55.9	25.7	66.0	56.0	10.1	30.3
2	0.160	44.3	14.3	10.5	54.8	24.8	65.5	55.5	10.7	30.7
3	0.170	43.4	14.3	10.5	53.9	24.8	65.0	55.0	11.1	30.2
4	0.200	40.8	11.5	10.5	51.3	22.0	63.6	53.6	12.3	31.6
5	4.995	18.2	3.4	10.7	28.9	14.1	56.0	46.0	27.1	31.9
6	6.582	17.8	4.2	10.8	28.6	15.0	60.0	50.0	31.4	35.0

--- L2 Phase ---

No.	Frequency [MHz]	Reading QP [dB(μV)]	Reading CAV [dB(μV)]	c.f [dB]	Result QP [dB(μV)]	Result CAV [dB(μV)]	Limit QP [dB(μV)]	Limit AV [dB(μV)]	Margin QP [dB]	Margin CAV [dB]
1	0.150	45.7	15.5	10.6	56.3	26.1	66.0	56.0	9.7	29.9
2	0.160	44.7	15.0	10.6	55.3	25.6	65.5	55.5	10.2	29.9
3	0.170	44.0	15.1	10.6	54.6	25.7	65.0	55.0	10.4	29.3
4	0.200	41.1	12.0	10.5	51.6	22.5	63.6	53.6	12.0	31.1
5	4.999	14.1	1.6	10.7	24.8	12.3	56.0	46.0	31.2	33.7
6	16.057	18.4	10.7	11.8	30.2	22.5	60.0	50.0	29.8	27.5

[BT_LE (LongRange S8)]

Company Name	: KYOCERA Corporation	Standard	: FCC Part.15 Subpart C
EUT	: Mobile Phone	Operator	: T.Seino
Model No.	: EB1073	Temp,Hum,Atm	: 21.6[℃] 63.2[%]
Serial No.	: N/A	Note1	:
Test mode	: BT_LE_Tx_S8	Note2	:



Final Result

--- L1 Phase ---

No.	Frequency [MHz]	Reading QP [dB(μV)]	Reading CAV [dB(μV)]	c.f [dB]	Result QP [dB(μV)]	Result CAV [dB(μV)]	Limit QP [dB(μV)]	Limit AV [dB(μV)]	Margin QP [dB]	Margin CAV [dB]
1	0.150	46.8	16.1	10.6	57.4	26.7	66.0	56.0	8.6	29.3
2	0.160	45.7	15.5	10.5	56.2	26.0	65.5	55.5	9.3	29.5
3	0.170	44.8	15.2	10.5	55.3	25.7	65.0	55.0	9.7	29.3
4	0.200	42.4	12.9	10.5	52.9	23.4	63.6	53.6	10.7	30.2
5	4.999	17.9	3.0	10.7	28.6	13.7	56.0	46.0	27.4	32.3
6	5.633	19.5	4.1	10.7	30.2	14.8	60.0	50.0	29.8	35.2

--- L2 Phase ---

No.	Frequency [MHz]	Reading QP [dB(μV)]	Reading CAV [dB(μV)]	c.f [dB]	Result QP [dB(μV)]	Result CAV [dB(μV)]	Limit QP [dB(μV)]	Limit AV [dB(μV)]	Margin QP [dB]	Margin CAV [dB]
1	0.150	47.1	16.6	10.6	57.7	27.2	66.0	56.0	8.3	28.8
2	0.160	46.1	16.0	10.6	56.7	26.6	65.5	55.5	8.8	28.9
3	0.170	45.2	15.8	10.6	55.8	26.4	65.0	55.0	9.2	28.6
4	0.200	42.8	13.4	10.5	53.3	23.9	63.6	53.6	10.3	29.7
5	4.999	16.3	2.5	10.7	27.0	13.2	56.0	46.0	29.0	32.8
6	15.781	16.0	7.0	11.7	27.7	18.7	60.0	50.0	32.3	31.3

5 Antenna requirement

According to FCC section 15.203, an intentional radiator shall be designed to ensure that no antenna other than furnished by the responsible party shall be used with the device.
The antenna is a special antenna mounted inside of the EUT. Therefore, the EUT complies with the antenna requirement of FCC section 15.203.

6 Measurement Uncertainty

Expanded uncertainties stated are calculated with a coverage Factor k=2.
Please note that these results are not taken into account when measurement uncertainty considerations contained in ETSI TR 100 028 Parts 1 and 2 determining compliance or non-compliance with test result.

Test item	Measurement uncertainty
Conducted emission, AMN (9 kHz – 150 kHz)	±3.7 dB
Conducted emission, AMN (150 kHz – 30 MHz)	±3.3 dB
Radiated emission (9kHz – 30 MHz)	±3.2 dB
Radiated emission (30 MHz – 1000 MHz)	±5.3 dB
Radiated emission (1 GHz – 6 GHz)	±4.8 dB
Radiated emission (6 GHz – 18 GHz)	±4.5 dB
Radiated emission (18 GHz – 40 GHz)	±6.4 dB
Radio Frequency	$\pm 1.4 * 10^{-8}$
RF power, conducted	±0.8 dB
Adjacent channel power	±2.4 dB
Temperature	±0.6 °C
Humidity	±1.2 %
Voltage (DC)	±0.4 %
Voltage (AC, <10kHz)	±0.2 %

Judge	Measured value and standard limit value
PASS	**Case1** Standard limit value; +Uncertainty; -Uncertainty; Measured value. Even if it takes uncertainty into consideration, a standard limit value is fulfilled.
	Case2 Although measured value is in a standard limit value, a limit value won't be fulfilled if uncertainty is taken into consideration.
FAIL	**Case3** Although measured value exceeds a standard limit value, a limit value will be fulfilled if uncertainty is taken into consideration.
	Case4 Even if it takes uncertainty into consideration, a standard limit value isn't fulfilled.

7 Laboratory Information

Testing was performed and the report was issued at:

TÜV SÜD Japan Ltd. Yonezawa Testing Center

Address: 5-4149-7 Hachimanpara, Yonezawa-shi, Yamagata, 992-1128 Japan
Phone: +81-238-28-2881

Accreditation and Registration
A2LA
Certificate #3686.03

VLAC
Accreditation No.: VLAC-013

BSMI
Laboratory Code: SL2-IN-E-6018, SL2-A1-E-6018

Innovation, Science and Economic Development Canada
ISED#: 4224A

VCCI Council
Registration number: A-0166

Appendix A. Test Equipment

Antenna port conducted test

Equipment	Company	Model No.	Serial No.	Cal. Due	Cal. Date
Spectrum analyzer	Agilent Technologies	E4440A	US40420937	31-Dec-2021	11-Dec-2020
Spectrum analyzer	Agilent Technologies	E4440A	US44302655	31-Aug-2021	20-Aug-2020
				30-Sep-2022	01-Sep-2021
Attenuator	Weinschel	56-10	J4180	31-Dec-2021	14-Dec-2020
Power meter	Keysight	N1911A	MY57390003	31-Mar-2022	10-Mar-2021
Power sensor	Keysight	N1921A	MY57370009	31-Mar-2022	10-Mar-2021

Radiated emission

Equipment	Company	Model No.	Serial No.	Cal. Due	Cal. Date
EMI Receiver	ROHDE&SCHWARZ	ESCI	100765	30-Sep-2021	28-Sep-2020
				30-Sep-2022	15-Sep-2021
Spectrum analyzer	Agilent Technologies	E4447A	MY46180188	31-Mar-2022	11-Mar-2021
Spectrum analyzer	Agilent Technologies	E4440A	US40420937	31-Dec-2021	11-Dec-2020
Spectrum analyzer	ROHDE&SCHWARZ	FSV40	101731	30-Jun-2022	08-Jun-2021
Preamplifier	SONOMA	310	372170	30-Sep-2021	29-Sep-2020
				30-Sep-2022	15-Sep-2021
Loop antenna	ROHDE&SCHWARZ	HFH2-Z2	100515	30-Apr-2022	27-Apr-2021
Biconical antenna	Schwarzbeck	VHBB9124/BBA9106	1333	31-Dec-2021	15-Dec-2020
Log periodic antenna	Schwarzbeck	VUSLP9111B	345	31-Oct-2021	19-Oct-2020
Attenuator	TOYO Connector	NA-PJ-6/6dB	N/A(S541)	30-Sep-2021	29-Sep-2020
				30-Sep-2022	16-Sep-2021
Attenuator	TAMAGAWA.ELEC	CFA-10/3dB	N/A(S503)	31-Jul-2022	20-Jul-2021
Preamplifier	TSJ	MLA-100M18-B02-40	1929118	31-Dec-2021	15-Dec-2020
Attenuator	AEROFLEX	26A-10	081217-08	31-Dec-2021	14-Dec-2020
Double ridged guide antenna	ETS LINDGREN	3117	00052315	31-Mar-2022	30-Mar-2021
Attenuator	HUBER+SUHNER	6803.17.B	N/A(2340)	31-Dec-2021	15-Dec-2020
Double ridged guide antenna	A.H.Systems Inc.	SAS-574	469	30-Sep-2021	02-Sep-2020
				31-Aug-2022	02-Aug-2021
Preamplifier	TSJ	MLA-1840-B03-35	1240332	30-Sep-2021	02-Sep-2020
				31-Aug-2022	02-Aug-2021
Microwave cable	HUBER+SUHNER	SUCOFLEX104/9m	MY30037/4	31-Dec-2021	15-Dec-2020
		SUCOFLEX104/1m	my24610/4	31-Dec-2021	15-Dec-2020
		SUCOFLEX104/8m	SN MY30033/4	31-Dec-2021	15-Dec-2020
		SUCOFLEX104	MY32976/4	31-Dec-2021	15-Dec-2020
		SUCOFLEX104/1.5m	SN MY28404/4	31-Dec-2021	15-Dec-2020
		SUCOFLEX104/7m	41625/6	31-Dec-2021	15-Dec-2020
PC	DELL	DIMENSION E521	75465BX	N/A	N/A
Software	TOYO Corporation	EP5/RE-AJ	0611193/V6.0.140	N/A	N/A
Absorber	RIKEN	PFP30	N/A	N/A	N/A
3m Semi an-echoic Chamber	TOKIN	N/A	N/A(9002-NSA)	31-May-2022	20-May-2021
3m Semi an-echoic Chamber	TOKIN	N/A	N/A(9002-SVSWR)	31-May-2022	20-May-2021

Conducted emission at mains port

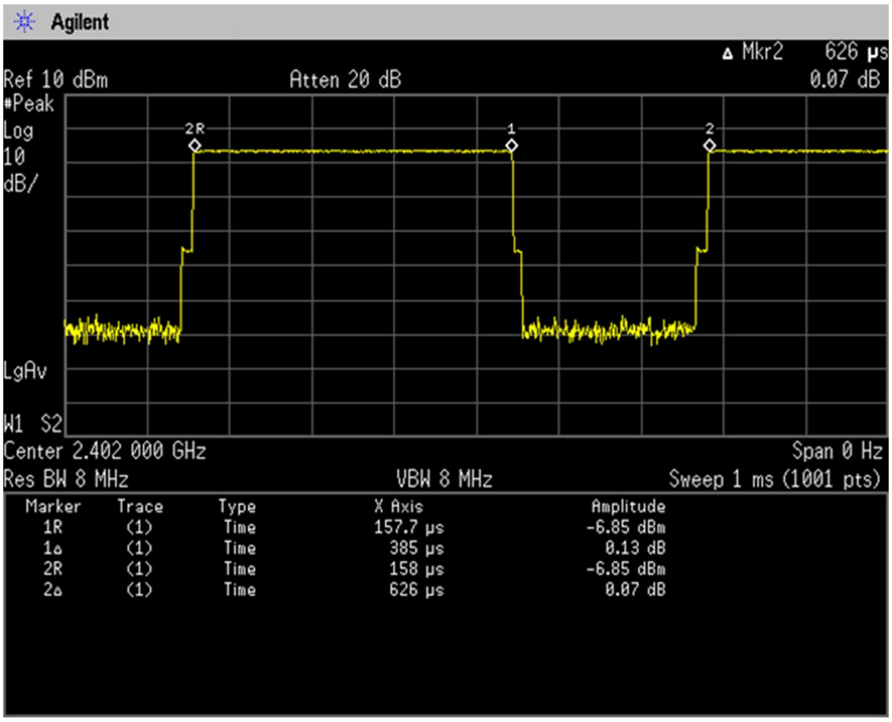
Equipment	Company	Model No.	Serial No.	Cal. Due	Cal. Date
EMI Receiver	ROHDE&SCHWARZ	ESCI	100765	30-Sep-2021	28-Sep-2020
				30-Sep-2022	15-Sep-2021
Attenuator	HUBER+SUHNER	6810.01.A	N/A (S411)	31-Dec-2021	15-Dec-2020
Attenuator	HUBER+SUHNER	6810.01.A	N/A (S411)	31-Dec-2021	15-Dec-2020
Line impedance stabilization network	Kyoritsu Electrical Works, Ltd.	TNW-407F2	12-17-110-2	30-Jun-2022	17-Jun-2021
Coaxial cable	FUJIKURA	5D-2W/4m	N/A (S350)	31-Dec-2021	15-Dec-2020
Coaxial cable	FUJIKURA	5D-2W/1m	N/A (S193)	31-Dec-2021	15-Dec-2020
Coaxial cable	HUBER+SUHNER	RG214/U/10m	N/A (S194)	31-Dec-2021	15-Dec-2020
PC	DELL	DIMENSION	75465BX	N/A	N/A
Software	TOYO Corporation	EP5/CE-AJ	0611193/V5.4.11	N/A	N/A

*: The calibrations of the above equipment are traceable to NIST or equivalent standards of the reference organizations.

Appendix B. Duty Cycle

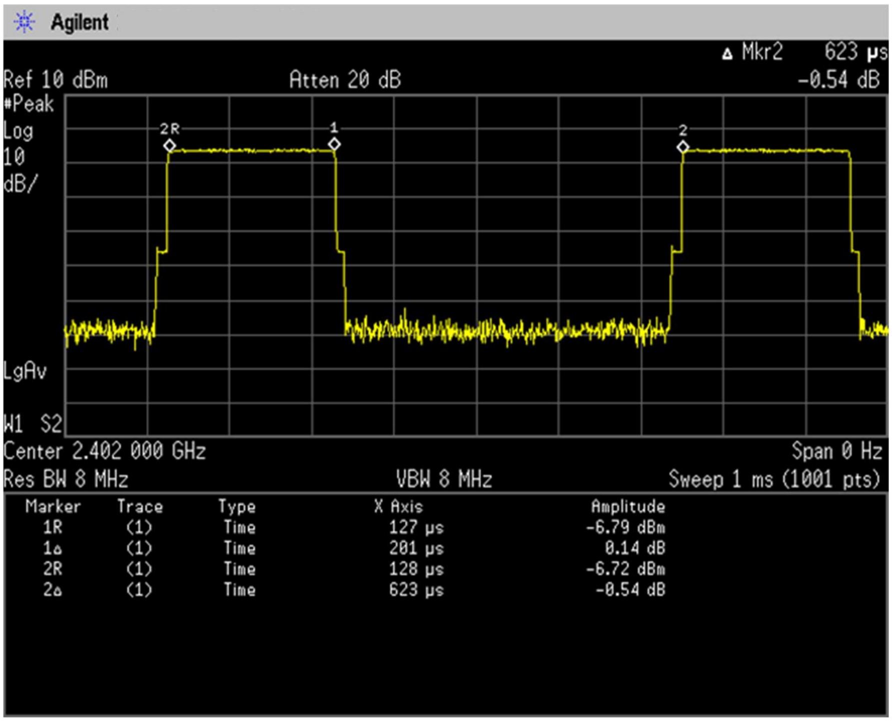
[Plot & Calculation]

BT_LE (1Mbps)



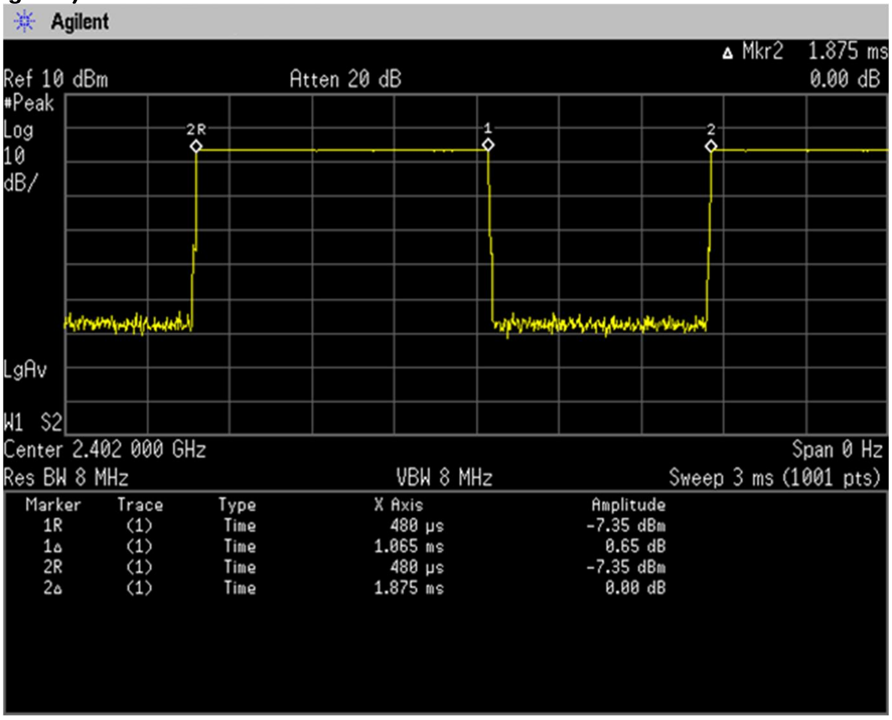
Duty Cycle = Ton / (Ton + Toff) = 385[μs] / (385[μs] + 241[μs]) = 61.5[%]

BT_LE (2Mbps)



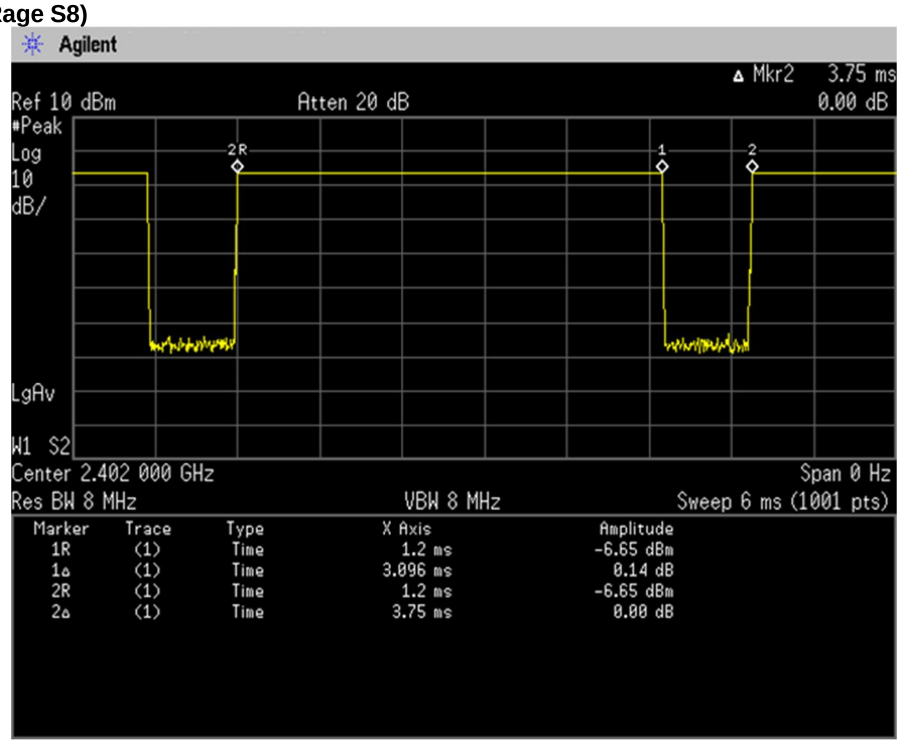
Duty Cycle = Ton / (Ton + Toff) = 201[μs] / (201[μs] + 422[μs]) = 32.26[%]

BT_LE (LongRage S2)



Duty Cycle = Ton / (Ton + Toff) = 1065[μs] / (1065[μs] + 810[μs]) = 56.8[%]

BT_LE (LongRage S8)



Duty Cycle = Ton / (Ton + Toff) = 3096[μs] / (3096[μs] + 654[μs]) = 82.56[%]