Report on the RF Testing of:

KYOCERA Corporation Mobile Phone, Model: EB1083 FCC ID: JOYEB1083

In accordance with FCC Part 15 Subpart C

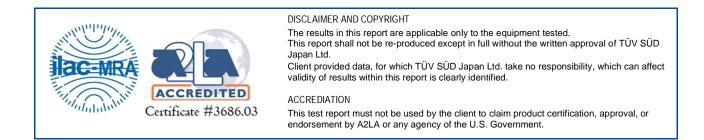
Prepared for: KYOCERA Corporation Yokohama Office 2-1-1 Kagahara, Tsuzuki-ku Yokohama-shi, Kanagawa, Japan Phone: +81-45-943-6253 Fax: +81-45-943-6314

COMMERCIAL-IN-CONFIDENCE

Document Number: JPD-TR-21194-0

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Hiroaki Suzuki	Deputy Manager of RF Group	Approved Signatory	2021.10.15		
Signatures in this approval box have checked this document in line with the requirements of TÜV SÜD Japan Ltd. document control rules.					

EXECUTIVE SUMMARY – Result: Complied A sample of this product was tested and the result above was confirmed in accordance with FCC Part 15 Subpart C.



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Japan Add value.

Inspire trust.



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1 Summary of Test

1.1 Modification history of the test report

Document Number	Modification History	Issue Date
JPD-TR-21194-0	First Issue	Refer to the cover page

1.2 Standards

CFR47 FCC Part 15 Subpart C

1.3 Test methods

ANSI C63.10-2013, KDB 558074 D01 15.247 Meas Guidance v05r02

1.4 Deviation from standards

None

1.5 List of applied test(s) of the EUT

Test item section	Test item	Condition	Result	Remark
15.247(a)(2)	6dB Bandwidth	Conducted	PASS	-
15.247(b)(3)	Maximum Peak Output Power	Conducted	PASS	-
15.247(d)	Band Edge Compliance of RF Conducted Emissions	Conducted	PASS	-
15.247(d)		Conducted	PASS	-
15.205 15.209	Spurious Emissions	Radiated	PASS	-
15.247(d) 15.205 15.209	Restricted Bands of Operation	Radiated	PASS	-
15.247(e)	Transmitter Power Spectral Density	Conducted	PASS	-
15.207	AC Power Line Conducted Emissions	Conducted	PASS	-

1.6 Test information

None

1.7 Test set up

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1.8 Test period

10-August-2021 - 8-October-2021



2 Equipment Under Test

All information in this chapter was provided by the applicant.

2.1 EUT information

Applicant	KYOCERA Corporation
	Yokohama Office 2-1-1 Kagahara, Tsuzuki-ku Yokohama-shi, Kanagawa, Japan
	Phone: +81-45-943-6253 Fax: +81-45-943-6314
Equipment Under Test (EUT)	Mobile Phone
Model number	EB1083
Serial number	352837520004929, RF1
Trade name	Kyocera
Number of sample(s)	2
EUT condition	Pre-Production
Power rating	Battery: DC 3.87 V
Size	(W) 72 mm × (D) 8.9 mm × (H) 156 mm
Environment	Indoor and Outdoor use
Terminal limitation	-20 °C to 60 °C
Hardware version	DMT
Software version	0029.a
Firmware version	Not applicable
RF Specification	
Protocol	Bluetooth 5.1 + EDR
Frequency range	2402 MHz-2480 MHz
Number of RF Channels	40 Channels
Modulation method/Data rate	GFSK (1 Mbps, 2Mbps),
	LongRange S2/S8 (500 kbps/125 kbps)
Channel separation	2 MHz
Conducted power	5.962 mW
Antenna type	Internal antenna
Antenna gain	-3.3 dBi



2.2 Modification to the EUT

The table below details modifications made to the EUT during the test project.

Modification State Description of Modification		Modification fitted by	Date of Modification				
	Model: EB1083, Serial Number: 352837520004929, RF1						
	0 As supplied by the applicant		Not Applicable	Not Applicable			

2.3 Variation of family model(s)

2.3.1 List of family model(s)

Not applicable

2.3.2 Reason for selection of EUT

Not applicable

2.4 Operating channels and frequencies

Channel	el Frequency [MHz] C		Frequency [MHz]	
0	0 2402		2442	
1	2404	21	2444	
2	2406	22	2446	
3	2408	23	2448	
4	2410	24	2450	
5	2412	25	2452	
6	2414	26	2454	
7	2416	27	2456	
8	2418	28	2458	
9	2420	29	2460	
10	2422	30	2462	
11	2424	31	2464	
12	2426	32	2466	
13	2428	33	2468	
14	2430	34	2470	
15	2432	35	2472	
16	2434	36	2474	
17	2436	37	2476	
18	2438	38	2478	
19	2440	39	2480	



2.5 Operating mode

The EUT had been tested under operating condition. There are three channels have been tested as following:

Tested Channel	Frequency [MHz]	
Low	2402	
Middle	2440	
High	2480	

The pre-test has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates.

Tested Channel	Modulation Type	Data Rate
Low, Middle, High	GFSK	1 Mbps
Low, Middle, High	GFSK	2 Mbps
Low, Middle, High	GFSK, LongRange S2	500 kbp
Low, Middle, High	GFSK, LongRange S8	125 kbps

The field strength of spurious emissions was measured at each position of all three axis X, Y and Z to compare the level, and the maximum noise.

The worst emission was found in Z-axis and the worst case recorded.

Pre-scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports.

2.6 Operating flow

[Tx mode]

- i) Test program setup to the Software
- ii) Select a Test mode
 Operating frequency: Channel Low: 2402 MHz, Channel Middle: 2440 MHz, Channel High: 2480 MHz
- iii) Start test mode

[Rx mode]

- i) Test program setup to the Software
- ii) Select a Test mode
 - Operating frequency: Channel Low: 2402 MHz, Channel Middle: 2440 MHz, Channel High: 2480 MHz
- iii) Start test mode



3 Configuration of Equipment

Numbers assigned to equipment on the diagram in "3.3 System configuration" correspond to the list in "3.1 Equipment used" and "3.2 Cable(s) used".

This test configuration is based on the manufacture's instruction.

Cabling and setup(s) were taken into consideration and test data was taken under worse case condition.

3.1 Equipment used

No.	Equipment	Company	Model No.	Serial No.	FCC ID/DoC	Comment
1	Mobile Phone	KYOCERA	EB1083	352837520004929,	JOYEB1083	EUT
				RF1		
2	AC Adapter	KDDI	0602PQA	N/A	N/A	*

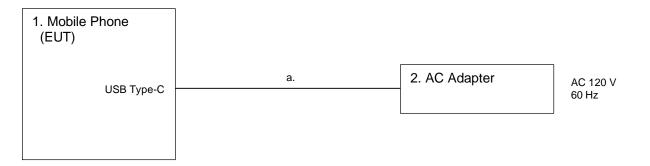
*:AC power line Conducted Emission Test.

3.2 Cable(s) used

No.	Equipment	Length[m]	Shield	Connector	Comment
а	USB cable (for AC Adapter)	1.5	No	Plastic	*
* * * •					

*: AC power line Conducted Emission Test.

3.3 System configuration





4 Test Result

4.1 6dB Bandwidth / Occupied Bandwidth (99%)

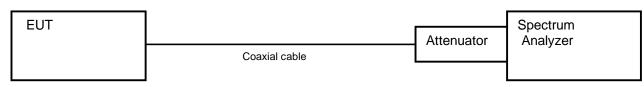
4.1.1 Measurement procedure

[FCC 15.247(a)(2), KDB558074 D01 v05r02]

The bandwidth at 6 dB down from the highest inband spectral density is measured with 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) RBW = 100 kHz
- b) VBW \geq 3 x RBW
- c) Sweep time = auto-couple
- d) Detector = peak
- e) Trace mode = max hold
 - Test configuration



4.1.2 Limit

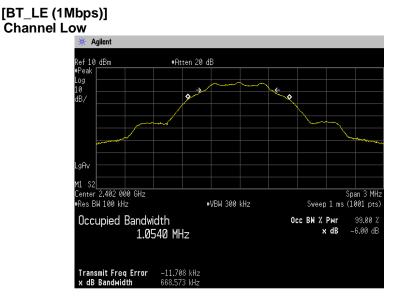
The minimum permissible 6dB bandwidth is 500kHz.

4.1.3 Measurement result

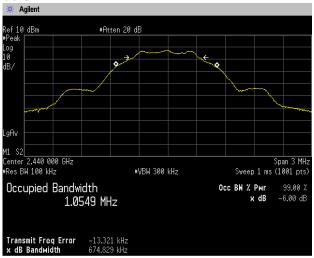
: 10-August-2021		
: 24.6 [[°] C]		
: 60.9 [%]	Test engineer	:
: Shielded room No.4	-	Kazunori Saito
	: 24.6 [°C] : 60.9 [%]	: 24.6 [[°] C] : 60.9 [%] Test engineer

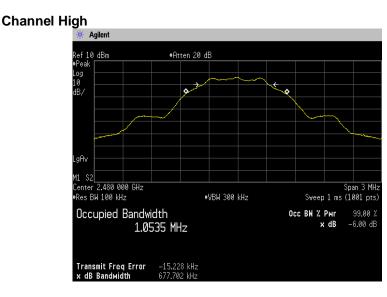
		6dB bandwidth [MHz]								
Channel	BT_LE									
	1Mbps	2Mbps	LongRange S2	LongRange S8						
Low	0.669	1.147	0.668	0.607						
Middle	0.675	1.144	0.673	0.611						
High	0.678	1.156	0.667	0.610						

4.1.4 Trace data



Channel Middle



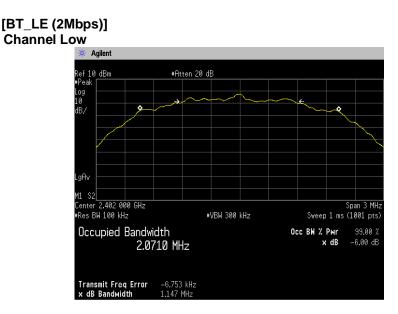




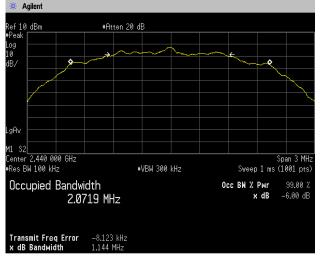


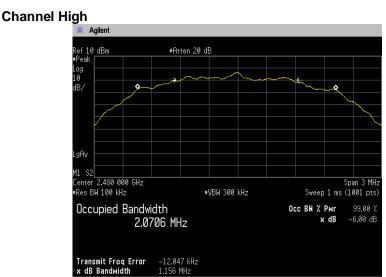




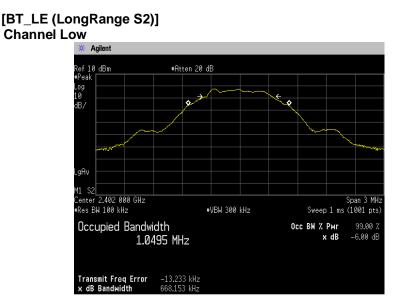


Channel Middle

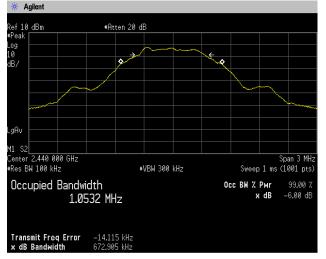


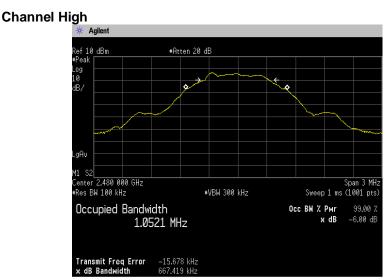




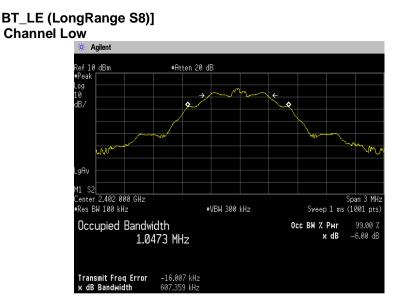


Channel Middle

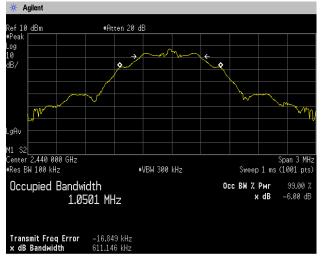


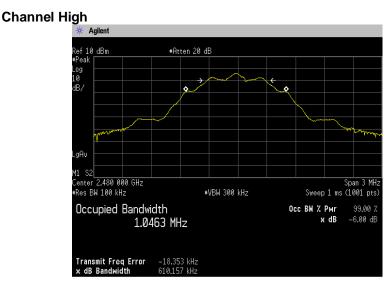






Channel Middle







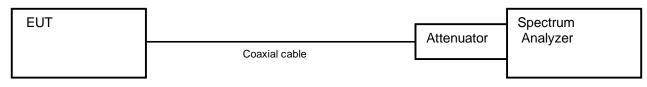
4.2 Maximum Peak Output Power

4.2.1 Measurement procedure s

[FCC 15.247(b)(3), KDB558074 D01 v05r02]

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

- Test configuration



4.2.2 Limit

1 W(1000 mW) or less

4.2.3 **Measurement result**

Date	:	11-August-2021			
Temperature	:	23.5 [°C]			
Humidity	:	61.0 [%]	Test engineer	:	
Test place	:	Shielded room No.4			Kazunori Saito

Battery Full (1Mbps)

Channel	Center Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Peak Output Power (mW)	Limit (mW)	Result
Low	2402	-3.01	10.49	7.48	5.594	≦1000	PASS
Middle	2440	-3.16	10.49	7.33	5.406	≦1000	PASS
High	2480	-3.15	10.49	7.34	5.419	≦1000	PASS

Battery Full (2Mbps)

Channel	Center Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Peak Output Power (mW)	Limit (mW)	Result
Low	2402	-2.77	10.49	7.72	5.916	≦1000	PASS
Middle	2440	-2.74	10.49	7.75	5.962	≦1000	PASS
High	2480	-2.74	10.49	7.75	5.962	≦1000	PASS

Calculation;

Reading (dBm) + Factor (dB) = Level (dBm)

¹⁰logP = Level (dBm) P = 10^(Maximum Peak Output Power / 10) (mW)



Battery Full (LongRange S2)

Channel	Center Frequenc y (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Peak Output Power (mW)	Limit (mW)	Result
Low	2402	-3.00	10.49	7.49	5.605	≦1000	PASS
Middle	2440	-3.05	10.49	7.44	5.551	≦1000	PASS
High	2480	-3.92	10.49	6.57	4.538	≦1000	PASS

Battery Full (LongRange S8)

Channel	Center Frequenc y (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Peak Output Power (mW)	Limit (mW)	Result
Low	2402	-3.05	10.49	7.44	5.545	≦1000	PASS
Middle	2440	-3.11	10.49	7.38	5.465	≦1000	PASS
High	2480	-3.95	10.49	6.54	4.510	≦1000	PASS

Calculation;

Reading (dBm) + Factor (dB) = Level (dBm) $10\log P = Level (dBm)$ $P = 10^{(Maximum Peak Output Power / 10)} (mW)$



4.3 Band Edge Compliance of RF Conducted Emissions

4.3.1 Measurement procedure

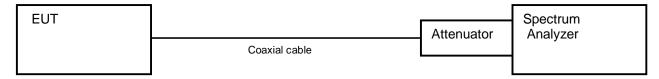
[FCC 15.247(d), KDB558074 D01 v05r02]

The Band Edge 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 = Arbitrary setting. (Setting suitable for measurement.)
- b) RBW = 100 kHz
- c) VBW \ge 3 x RBW
- d) Sweep time = auto-couple
- e) Detector = peak
- f) Trace mode = max hold

- Test configuration



4.3.2 Limit

In any 100kHz bandwidth outside the frequency band the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power.

4.3.3 Measurement result

Date	:	10-August-2021			
Temperature	:	24.6 [°C]			
Humidity	:	60.9 [%]	Test engineer	:	
Test place	:	Shielded room No.4			Kazunori Saito

[BT_LE (1Mbps)]

Channel	Frequency (MHz)	RF Power Level (dBm)	Band- edge Frequency (MHz)	Band- edge Level (dBm)	Difference Level (dBm)	Limit (dBm)	
Low	2402	-3.08	2399.95	-59.19	56.11	At least 20dB below from peak of RF	PASS
High	2480	-3.73	2483.55	-67.77	64.04	At least 20dB below from peak of RF	PASS



[BT_LE (2Mbps)]

Channel	Frequency (MHz)	RF Power Level (dBm)	Band- edge Frequency (MHz)	Band- edge Level (dBm)	Difference Level (dBm)	Limit (dBm)	Result
Low	2402	-2.31	2399.95	-44.27	41.96	At least 20dB below from peak of RF	PASS
High	2480	-3.68	2483.60	-66.72	63.04	At least 20dB below from peak of RF	PASS

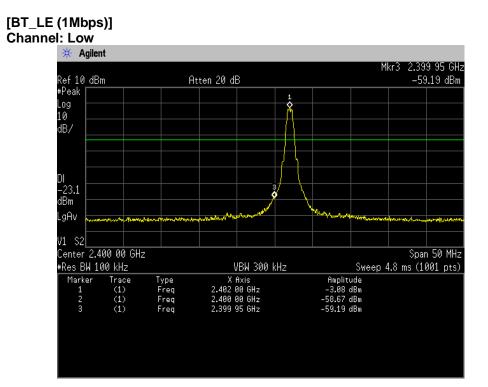
[BT_LE (LongRange S2)]

Channel	Frequency (MHz)	RF Power Level (dBm)	Band- edge Frequency (MHz)	Band- edge Level (dBm)	Difference Level (dBm)	Limit (dBm)	Result
Low	2402	-2.42	2399.80	-58.94	56.52	At least 20dB below from peak of RF	PASS
High	2480	-3.57	2483.60	-69.33	65.76	At least 20dB below from peak of RF	PASS

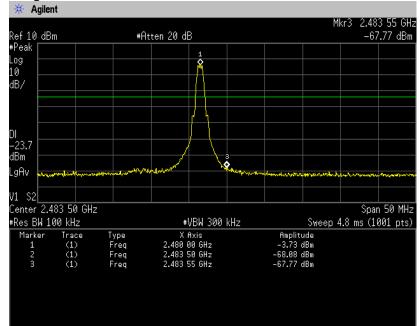
[BT_LE (LongRange S8)]

Channel	Frequency (MHz)	RF Power Level (dBm)	Band- edge Frequency (MHz)	Band- edge Level (dBm)	Difference Level (dBm)	Limit (dBm)	Result
Low	2402	-2.68	2399.95	-58.90	56.22	At least 20dB below from peak of RF	PASS
High	2480	-4.37	2483.55	-68.77	64.40	At least 20dB below from peak of RF	PASS

Trace data

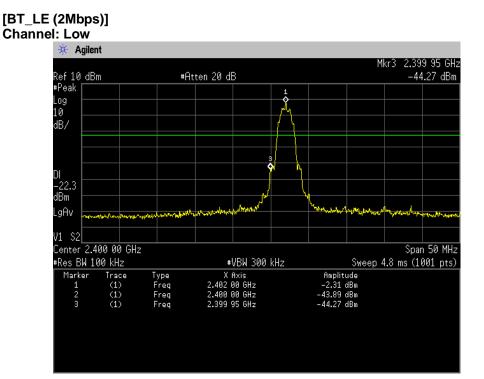




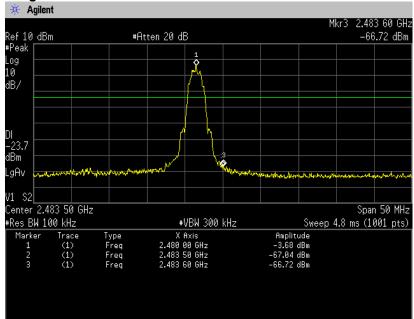


Japan

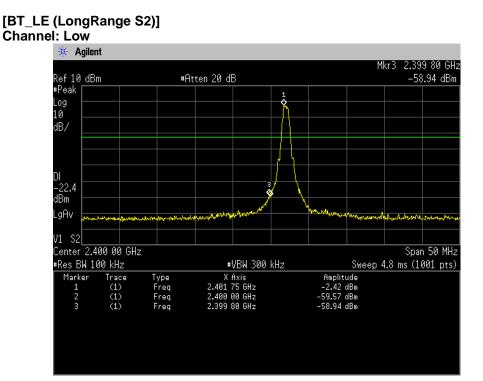




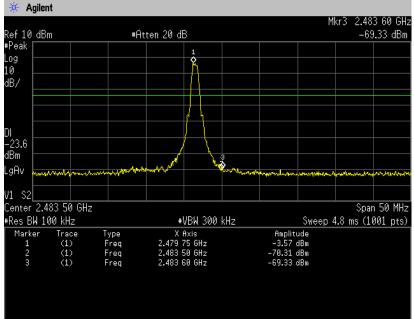




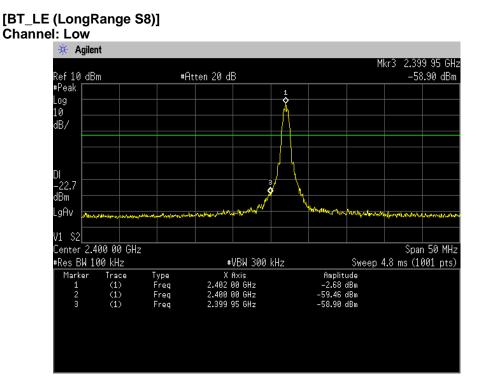




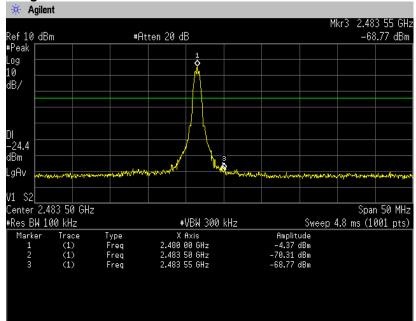








Channel: High





4.4 Spurious emissions - Conducted -

4.4.1 Measurement procedure

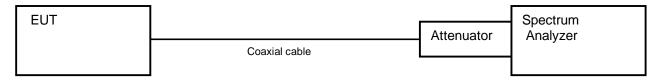
[FCC 15.247(d), KDB558074 D01 v05r02]

The spurious emissions (Conducted) are 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 = wide enough to fully capture the emission being measured.
- b) RBW = 100 kHz
- c)́ VBW ≥ RBW
- d) Sweep time = auto-couple
- e) Detector = peak
- f) Trace mode = max hold

- Test configuration



4.4.2 Limit

In any 100kHz bandwidth outside the frequency band the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power.

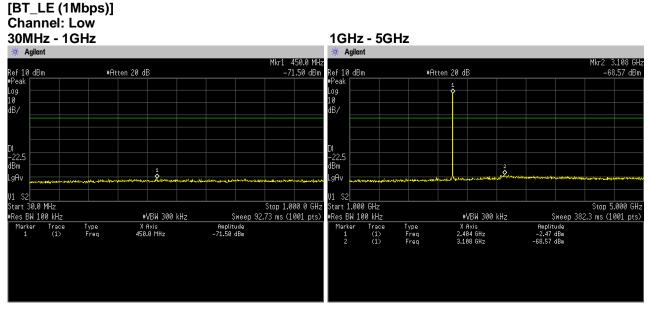
4.4.3 Measurement result

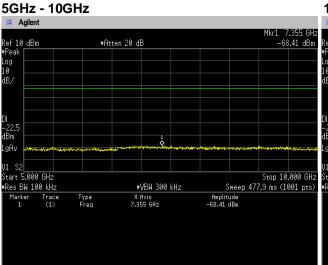
Date	:	10-August-2021			
Temperature	:	24.6 [[°] C]			
Humidity	:	60.9 [%]	Test engineer	:	
Test place	:	Shielded room No.3			Kazunori Saito

Channel	Frequency [MHz]	Limit [dB]	Results Chart	Result
Low	2402	At least 20dB below from peak of RF	See the trace Data	PASS
Middle	2440	At least 20dB below from peak of RF	See the trace Data	PASS
High	2480	At least 20dB below from peak of RF	See the trace Data	PASS

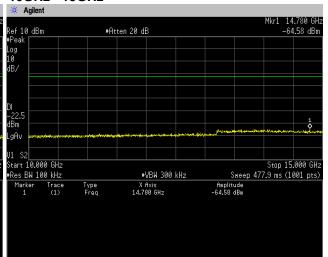


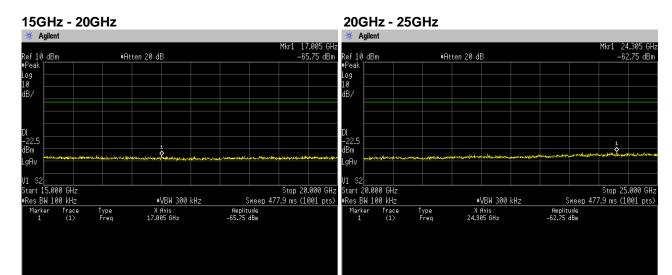
4.4.4 Trace data



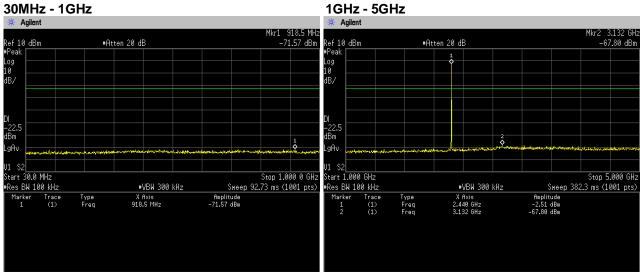


10GHz - 15GHz

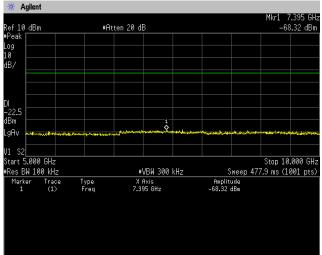




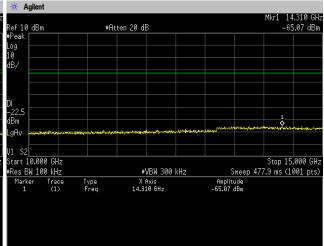
[BT_LE (1Mbps)] Channel: Middle

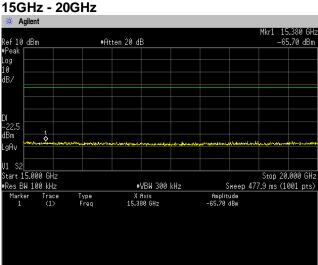


5GHz - 10GHz

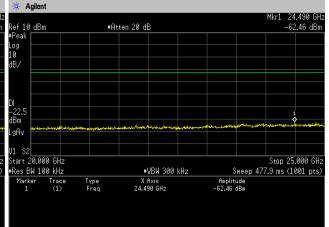


10GHz - 15GHz



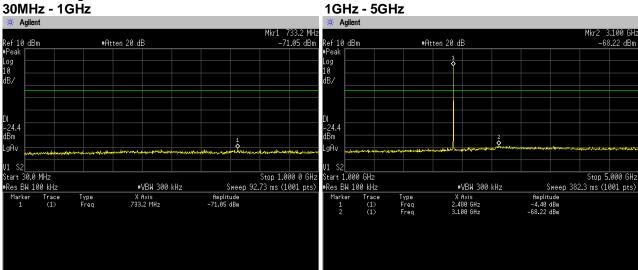


20GHz - 25GHz



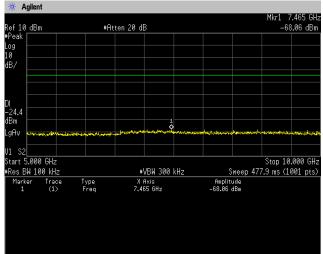


[BT_LE (1Mbps)] Channel: High

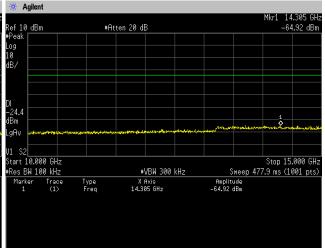


5GHz - 10GHz

15GHz - 20GHz

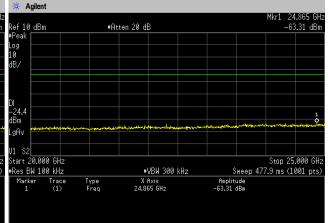


10GHz - 15GHz



Agiler Mkr1 17.425 GHz -65.50 dBm #Atten 20 dB Ref 10 dBm #Peak Log 10 dB/ u -24.4 dBm LgAv \$ start 15.000 GHz #Res BW 100 kHz Stop 20.000 GHz Sweep 477.9 ms (1001 pts) #VBW 300 kHz Marker Trace 1 (1) Type Freg X Axis 17.425 GHz Amplitude -65.50 dBm

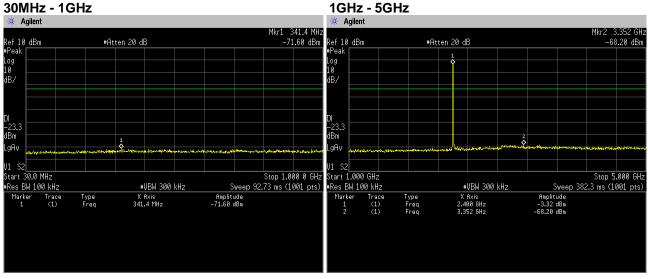
20GHz - 25GHz



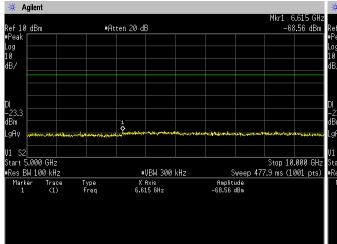
1GHz - 5GHz



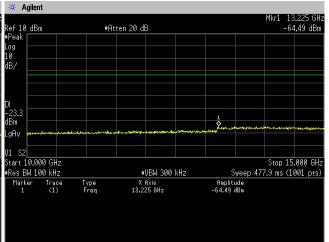
[BT_LE (2Mbps)] Channel: Low



5GHz - 10GHz



10GHz - 15GHz

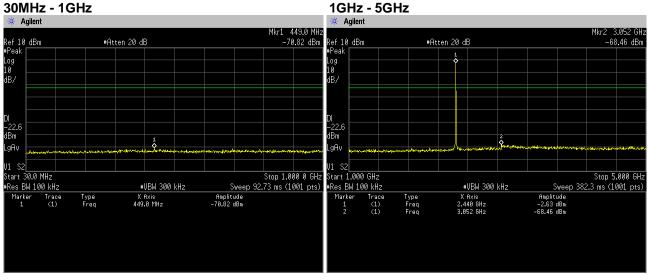




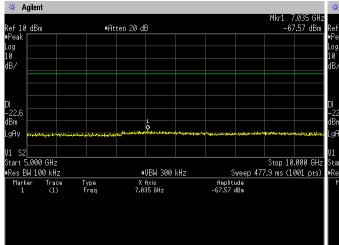
1GHz - 5GHz



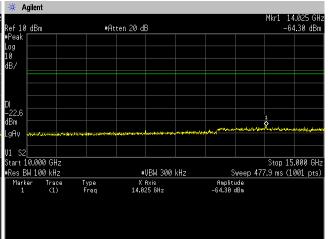
[BT_LE (2Mbps)] Channel: Middle 30MHz - 1GHz

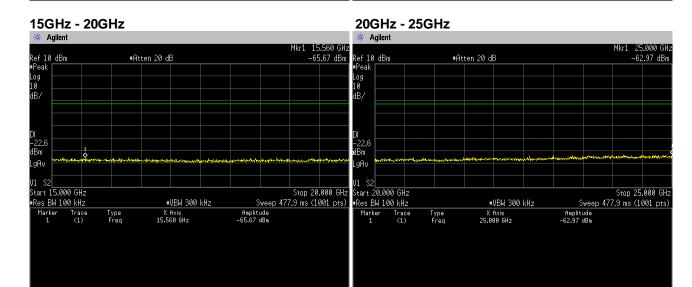


5GHz - 10GHz



10GHz - 15GHz

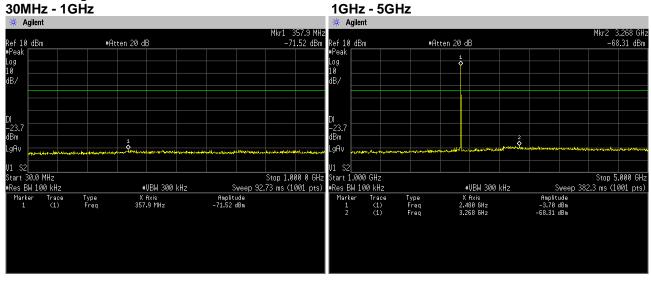




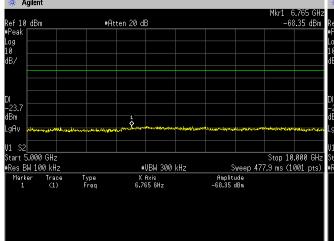
5011



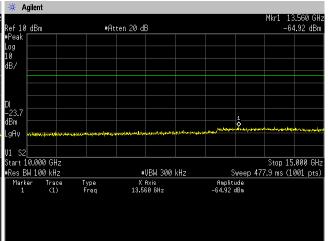
[BT_LE (2Mbps)] Channel: High

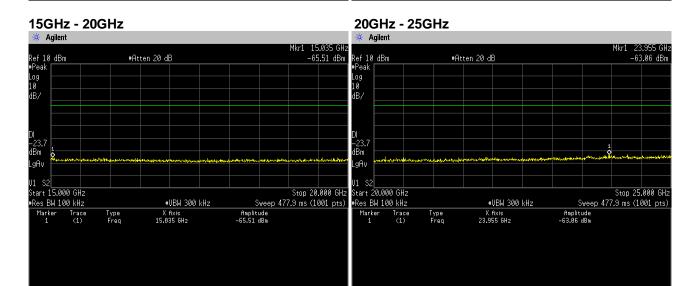


5GHz - 10GHz



10GHz - 15GHz



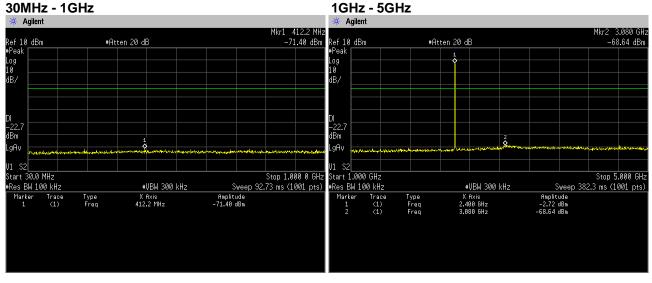


SÜD Japan

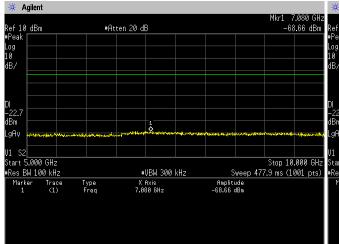
Agilent



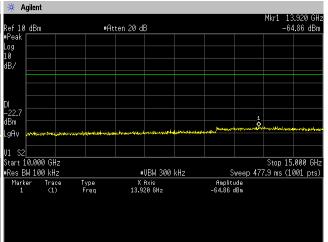
[BT_LE (LongRange S2)] Channel: Low 30MHz - 1GHz

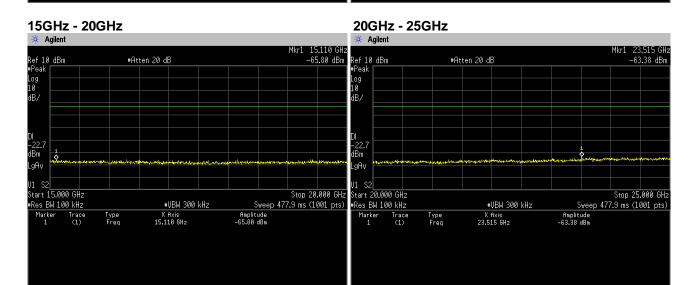


5GHz - 10GHz



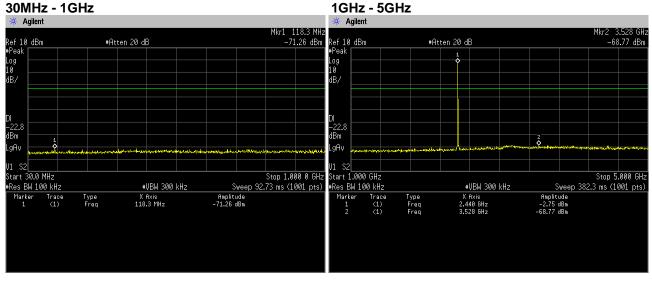
10GHz - 15GHz



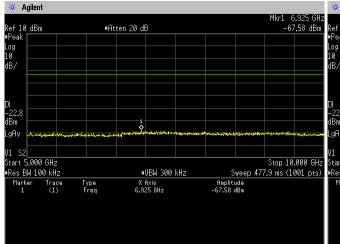




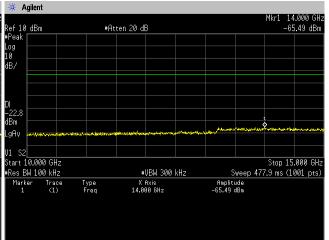
[BT_LE (LongRange S2)] Channel: Middle 30MHz - 1GHz

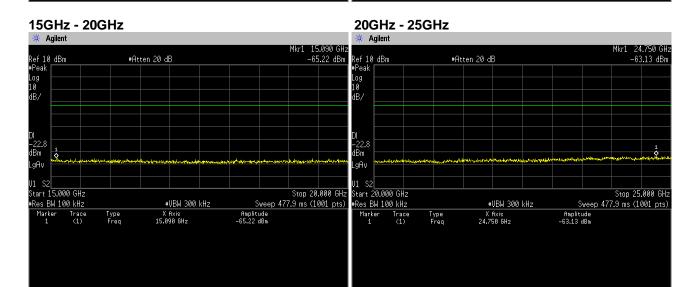


5GHz - 10GHz



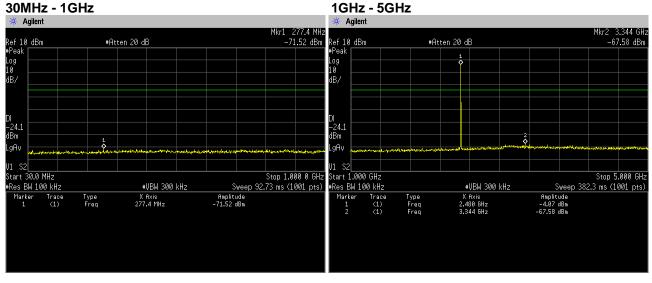
10GHz - 15GHz



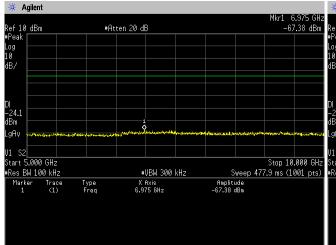




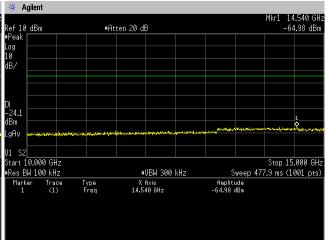
[BT_LE (LongRange S2)] Channel: High 30MHz - 1GHz

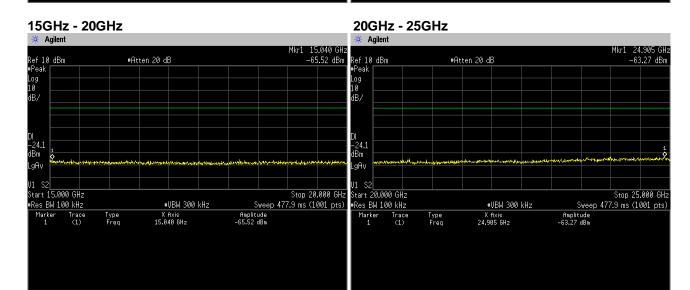


5GHz - 10GHz



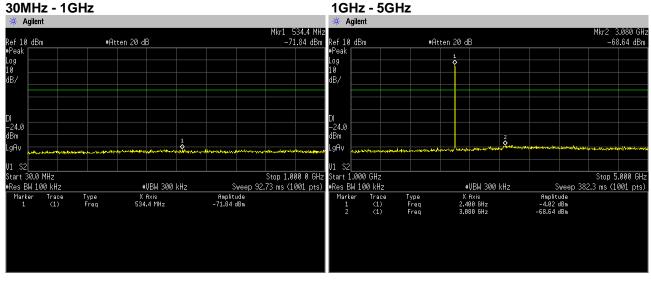
10GHz - 15GHz



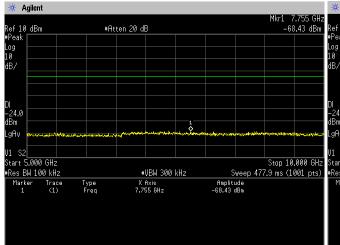




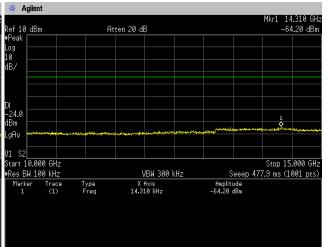
[BT_LE (LongRange S8)] Channel: Low 30MHz - 1GHz

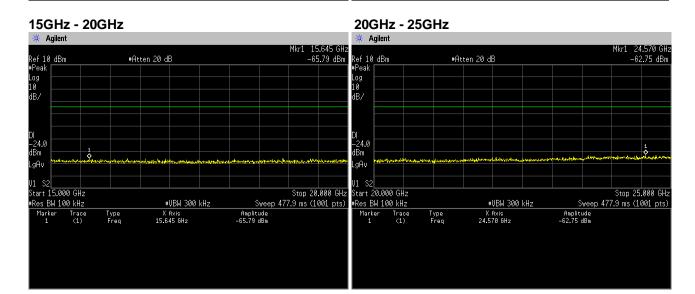


5GHz - 10GHz



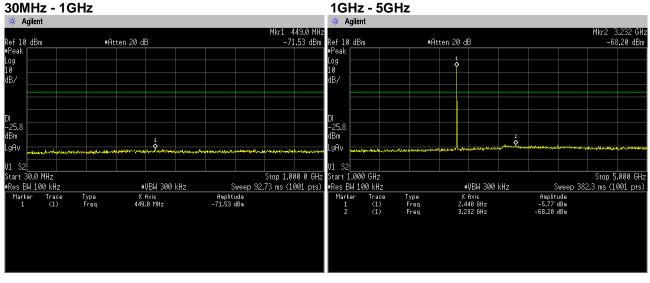
10GHz - 15GHz



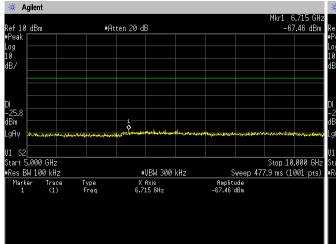




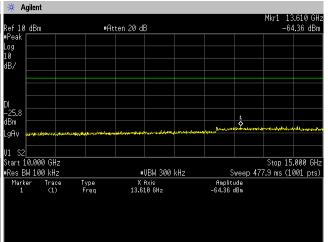
[BT_LE (LongRange S8)] **Channel: Middle** 30MHz - 1GHz



5GHz - 10GHz



10GHz - 15GHz



15GHz - 20GHz 20GHz - 25GHz Agilent Agilent Mkr1 18.960 GHz -64.95 dBm #Atten 20 dB Ref 10 dBm #Atten 20 dB lef 10 dBm ea eal .og 10 Log 10 dB/ dB, -25.8 dBm –25.8 dBm .gAv .gAv Stop 25.000 GHz Sweep 477.9 ms (1001 pts) -62.63 dBm tart 15.000 GHz Res BW 100 kHz Stop 20.000 GHz Start 20.000 GHz Sweep 477.9 ms (1001 pts) #Res BW 100 kHz ₩VBW 300 kHz #VBW 300 kHz Marker 1 Trace (1) Amplitude -64.95 dBm Marker 1 Type Freq Type Freq X Axis 18.960 GHz Trace (1) X Axis 23.870 GHz

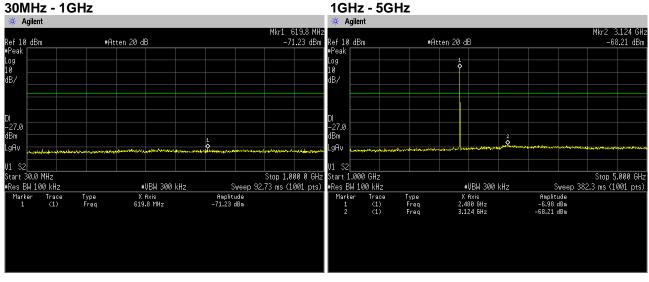
TÜV SÜD Japan Ltd.

Mkr1 23.870 GH –62.63 dBm

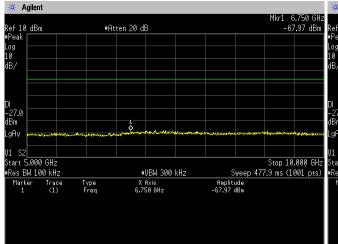
1



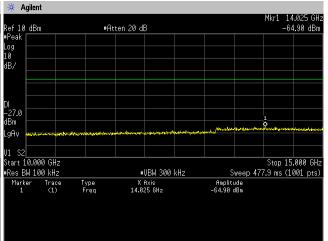
[BT_LE (LongRange S8)] Channel: High 30MHz - 1GHz

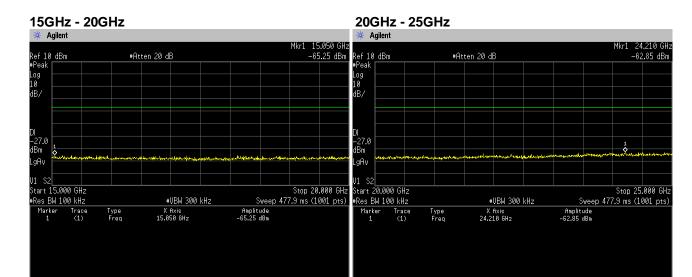


5GHz - 10GHz



10GHz - 15GHz







4.5 Spurious Emissions - Radiated -

4.5.1 Measurement procedure

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

Test was applied by following conditions.

Test method Frequency range Test place EUT was placed on Antenna distance	:	ANSI C63.10 9kHz to 25GHz 3m Semi-anechoic chamber 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) 3m
Test receiver setting - Detector - Bandwidth Spectrum analyzer setting - Peak - Average	:	Below 1GHz Average (9kHz-90kHz, 110kHz-490kHz), Quasi-peak 200Hz, 120kHz Above 1GHz RBW=1MHz, VBW=3MHz, Span=0Hz, Sweep=auto RBW=1MHz, VBW=3kHz (1Mbps), 10kHz (2Mbps), 1kHz (LongRange S2, S8), Span=0Hz, 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)	62.46	391	235	2.558	3kHz
Bluetooth 5.1 LE (2Mbps)	32.96	206	419	4.854	10kHz
Bluetooth 5.1 LE (LongRange S2)	57.12	1071	804	0.934	1kHz
Bluetooth5.1 LE (LongRange S8)	82.72	3102	648	0.322	1kHz

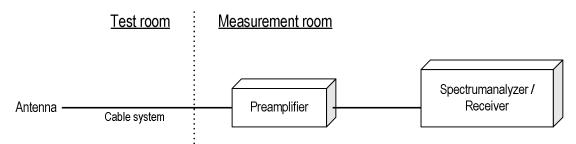
Although these tests were performed other than open area test site,

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



4.5.2 Calculation method

[9kHz to 150kHz] Emission level = Reading + (Ant factor + Cable system loss) Margin = Limit – Emission level

[150kHz to 25GHz] Emission level = Reading + (Ant factor + Cable system loss - Amp. Gain) Margin = Limit – Emission level

Example: Limit @ 4804.0MHz: 74.0dBuV/m (Peak Limit) S.A Reading = 39.9dBuV Cable system loss = 8.3dB Result = 39.9 + 8.3 = 48.2dBuV/m Margin = 74.0 - 48.2 = 25.8dB

4.5.3 Limit

Frequency	Field s	Distance		
[MHz]	[uV/m]	[dBuV/m]	[m]	
0.009-0.490	2400 / F [kHz]	20logE [uV/m]	300	
0.490-1.705	24000 / F [kHz]	20logE [uV/m]	30	
1.705-30	30	29.5	30	
30-88	100	40.0	3	
88-216	150	43.5	3	
216-960	200	46.0	3	
Above 960	500	54.0	3	

Note:

1. The lower limit shall apply at the transition frequencies.

2. Emission level [dBuV/m] = 20log Emission [uV/m]

3. As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition modulation.

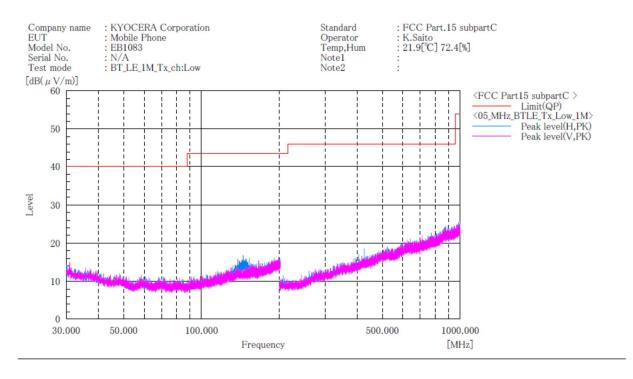


4.5.4 Test data

Date Temperature Humidity Test place	 16- September -2021 21.5 [°C] 59.8 [%] 3m Semi-anechoic chamber 	Test engineer :	Taiki Watanabe
Date Temperature Humidity Test place	: 17- September -2021 : 20.5 [°C] : 59.4 [%] : 3m Semi-anechoic chamber	Test engineer :	Taiki Watanabe
Date Temperature Humidity Test place	 18- September -2021 22.3 [°C] 66.9 [%] 3m Semi-anechoic chamber 	Test engineer :	Taiki Watanabe
Date Temperature Humidity Test place	: 19- September -2021 : 21.9 [°C] : 72.4 [%] : 3m Semi-anechoic chamber	Test engineer :	Kazunori Saito
Date Temperature Humidity Test place	 20- September -2021 21.4 [°C] 60.4 [%] 3m Semi-anechoic chamber 	Test engineer :	Kazunori Saito



[Transmission mode] [BT_LE (1Mbps)] Channel: Low BELOW 1 GHz



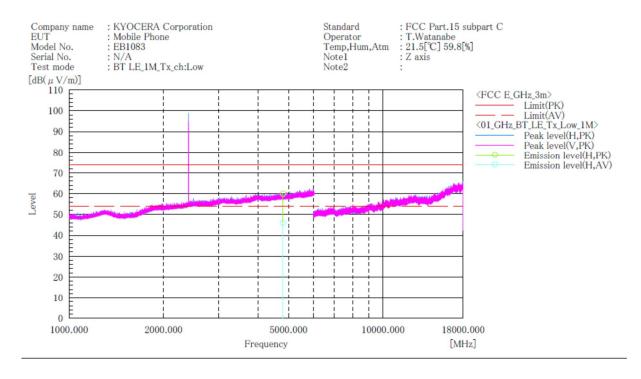
Final Result

No.	Frequency	(P)	c.f	Height	Angle	Remark
	[MHz]		[dB(1/m)]	[cm]	[°]	

- 1. Emission Level (Margin) = Limit [Reading + Factor (Antenna + Cable Amp)]
- 2. No emission were detected in frequency range 9kHz to 30MHz at the 3 meters distance.



[BT_LE (1Mbps)] Channel: Low ABOVE 1 GHz



Final Result

No.	Frequency				c. f	Result	Result	Limit		Margin				Remark
	[MHz]													
1	4804.000	н	49.3	35.4	10.6	59.9	46.0	74.0	54.0	14.1	8.0	109.0	204.0	

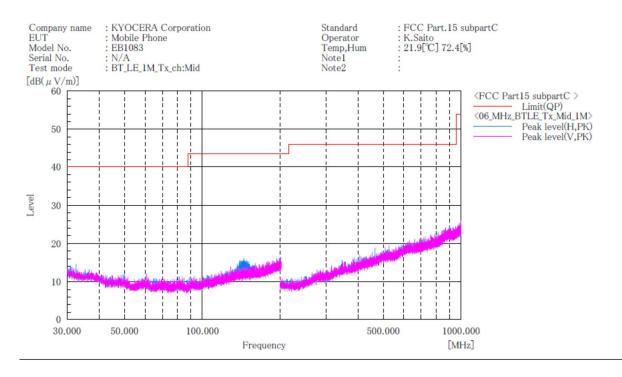
Note:

1. Emission Level (Margin) = Limit - [Reading + Factor (Antenna + Cable - Amp)]

2. No emission were detected in frequency range 18GHz to 25GHz at the 3 meters distance.



[BT_LE (1Mbps)] Channel: Middle BELOW 1 GHz



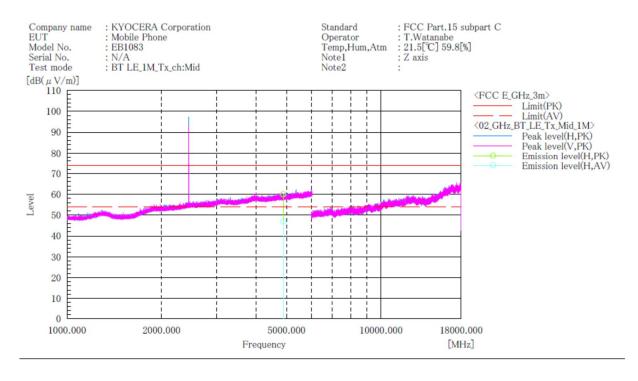
Final Result

No.	Frequency	(P)	c.f	Height	Angle	Remark
	[MHz]		[dB(1/m)]	[cm]	[°]	

- 1. Emission Level (Margin) = Limit [Reading + Factor (Antenna + Cable Amp)]
- 2. No emission were detected in frequency range 9kHz to 30MHz at the 3 meters distance.



[BT_LE (1Mbps)] Channel: Middle ABOVE 1 GHz



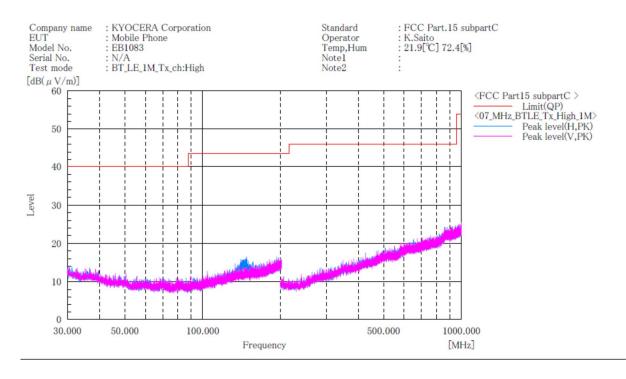
Final Result

No.	Frequency	(P)		c. f	Result	Result	Limit		Margin			Angle	Remark
1	[MHz] 4880.000	Н	[dB(μV)] 36.3	[dB(1/m)] 10.7	$[dB(\mu V/m)]$ 60.0	[dB(µV/m)] 47.0	$[dB(\mu V/m)]$ 74.0	$\begin{bmatrix} AV \\ [dB(\mu V/m)] \\ 54.0 \end{bmatrix}$	PK [dB] 14.0	[dB] 7.0	[cm] 103.0	[°] 218.0	

- 1. Emission Level (Margin) = Limit [Reading + Factor (Antenna + Cable Amp)]
- 2. No emission were detected in frequency range 18GHz to 25GHz at the 3 meters distance.



[BT_LE (1Mbps)] Channel: High BELOW 1 GHz



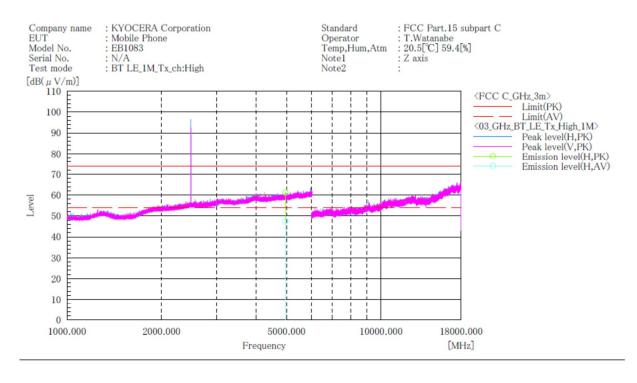
Final Result

No.	Frequency	(P)	c.f	Height	Angle	Remark
	[MHz]		[dB(1/m)]	[cm]	[°]	

- 1. Emission Level (Margin) = Limit [Reading + Factor (Antenna + Cable Amp)]
- 2. No emission were detected in frequency range 9kHz to 30MHz at the 3 meters distance.



[BT_LE (1Mbps)] Channel: High ABOVE 1 GHz



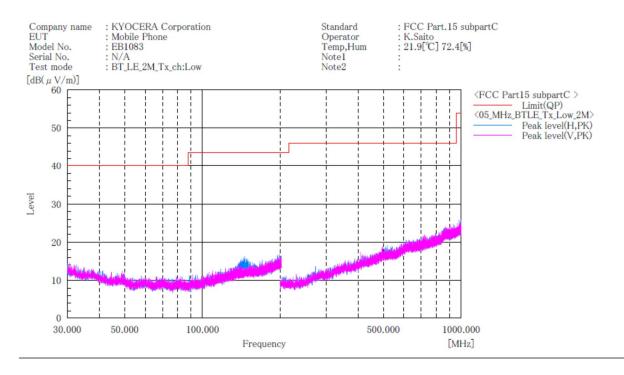
Final Result

No.	Frequency			Result	Result	Limit		Margin		Angle	Remark
1	[MHz] 4960.000	[dB(µV)] 50.4	[dB(μV)] 36.7		[dB(µV/m)] 47.5	[dB(µV/m)] 74.0	$\begin{bmatrix} AV \\ [dB(\mu V/m)] \\ 54.0 \end{bmatrix}$	PK [dB] 12.8	[dB] 6.5	[°] 177.0	

- 1. Emission Level (Margin) = Limit [Reading + Factor (Antenna + Cable Amp)]
- 2. No emission were detected in frequency range 18GHz to 25GHz at the 3 meters distance.



[BT_LE (2Mbps)] Channel: Low BELOW 1 GHz



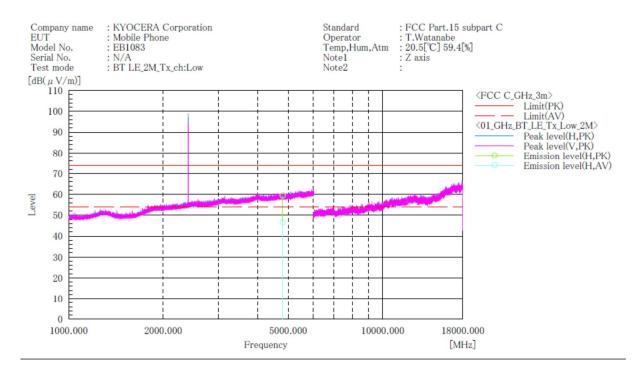
Final Result

No.	Frequency	(P)	c.f	Height	Angle	Remark
	[MHz]		[dB(1/m)]	[cm]	[°]	

- 1. Emission Level (Margin) = Limit [Reading + Factor (Antenna + Cable Amp)]
- 2. No emission were detected in frequency range 9kHz to 30MHz at the 3 meters distance.



[BT_LE (2Mbps)] Channel: Low ABOVE 1 GHz



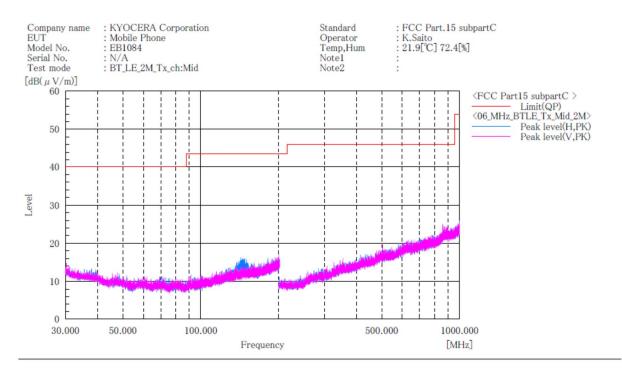
Final Result

No.	Frequency	(P)	Reading	Reading	c. f	Result	Result	Limit	Limit	Margin	Margin	Height	Angle	Remark
	[MHz]										AV [dB]	[cm]	[°]	
1	4804.000	H	48.9	36.0	10.6	59.5	46.6	74.0	54.0	14.5	7.4	100.0	208.0	

- 1. Emission Level (Margin) = Limit [Reading + Factor (Antenna + Cable Amp)]
- 2. No emission were detected in frequency range 18GHz to 25GHz at the 3 meters distance.



[BT_LE (2Mbps)] Channel: Middle BELOW 1 GHz



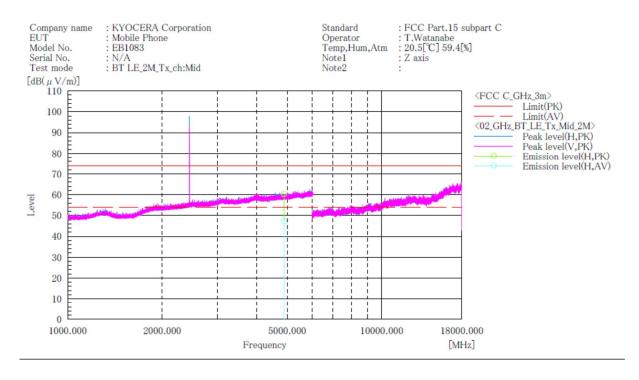
Final Result

No.	Frequency	(P)	c.f	Height	Angle	Remark
	[MHz]		[dB(1/m)]	[cm]	[°]	

- 1. Emission Level (Margin) = Limit [Reading + Factor (Antenna + Cable Amp)]
- 2. No emission were detected in frequency range 9kHz to 30MHz at the 3 meters distance.



[BT_LE (2Mbps)] Channel: Middle ABOVE 1 GHz



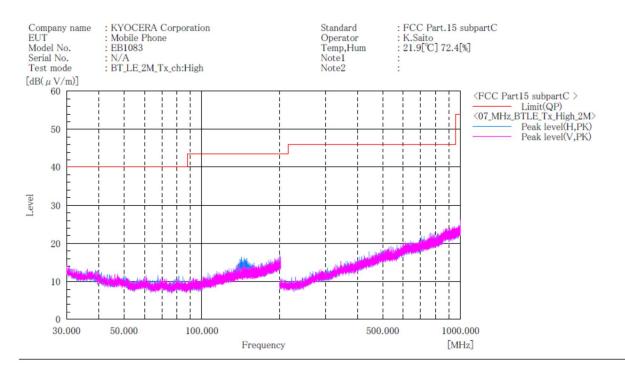
Final Result

No.	Frequency			Reading	c. f	Result	Result	Limit	Limit	Margin			Angle	Remark
1	[MHz] 4880.000	Н	PK [dB(μV)] 49.6		[dB(1/m)] 10.7			PK [dB(μV/m)] 74.0	AV [dB(μV/m)] 54.0	PK [dB] 13.7	AV [dB] 6.7	[cm] 100.0	[°] 204.0	

- 1. Emission Level (Margin) = Limit [Reading + Factor (Antenna + Cable Amp)]
- 2. No emission were detected in frequency range 18GHz to 25GHz at the 3 meters distance.



[BT_LE (2Mbps)] Channel: High BELOW 1 GHz



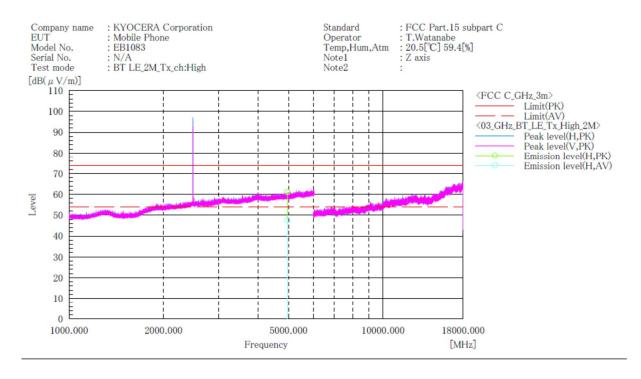
Final Result

No.	Frequency	(P)	c.f	Height	Angle	Remark
	[MHz]		[dB(1/m)]	[cm]	[°]	

- 1. Emission Level (Margin) = Limit [Reading + Factor (Antenna + Cable Amp)]
- 2. No emission were detected in frequency range 9kHz to 30MHz at the 3 meters distance.



[BT_LE (2Mbps)] Channel: High ABOVE 1 GHz



Final Result

No.	Frequency				c. f	Result	Result	Limit		Margin			Angle	Remark
			PK	AV		PK	AV	PK	$\begin{bmatrix} AV \\ [dB(\mu V/m) \end{bmatrix}$	PK [dB]	AV			
	[MHz]		$[dB(\mu V)]$	$[dB(\mu V)]$	[dB(1/m)]	$[dB(\mu V/m)]$	$[dB(\mu V/m)]$	$[dB(\mu V/m)]$	$[dB(\mu V/m)]$	[dB]	[dB]	[cm]	[°]	
1	4960.000	H	50.3	36.8	10.8	61.1	47.6	74.0	54.0	12.9	6.4	100.0	188.0	

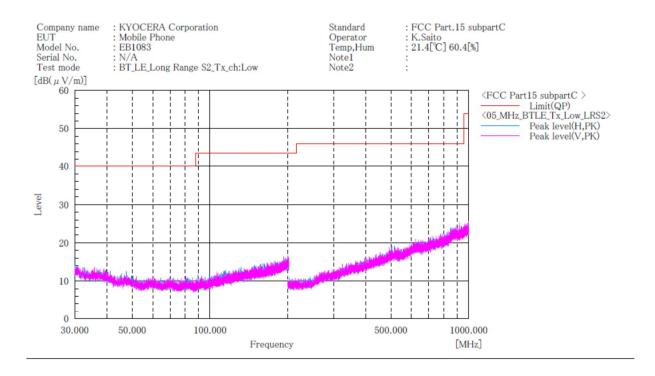
Note:

1. Emission Level (Margin) = Limit - [Reading + Factor (Antenna + Cable - Amp)]

2. No emission were detected in frequency range 18GHz to 25GHz at the 3 meters distance.



[BT_LE (LongRange S2)] Channel: Low BELOW 1 GHz



Final Result

No.	Frequency	(P)	c.f	Height	Angle	Remark
	[MHz]		[dB(1/m)]	[cm]	[°]	

Note:

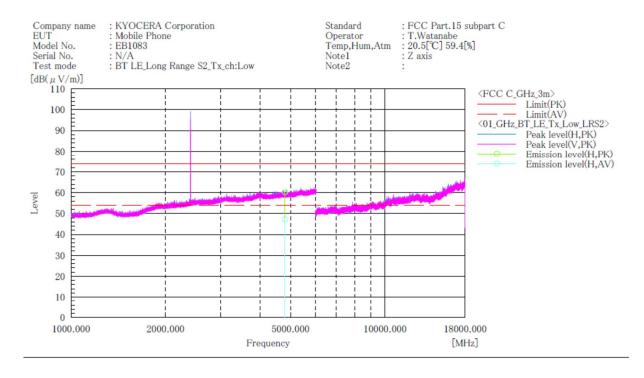
1. Emission Level (Margin) = Limit - [Reading + Factor (Antenna + Cable - Amp)]

2. No emission were detected in frequency range 9kHz to 30MHz at the 3 meters distance.

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[BT_LE (LongRange S2)] Channel: Low ABOVE 1 GHz



Final Result

No.	Frequency			Reading	c. f	Result	Result	Limit	Limit	Margin	Margin	Height	Angle	Remark
1	[MHz] 4804.000	Н	PK [dB(μV)] 49.7	AV [dB(μV)] 36.7	[dB(1/m)] 10.6	PK [dB(μV/m)] 60.3	AV [dB(μV/m)] 47.3	PK [dB(μV/m)] 74.0	AV [dB(µV/m)] 54.0	PK [dB] 13.7	AV [dB] 6.7	[cm] 129.0	[°] 200.0	

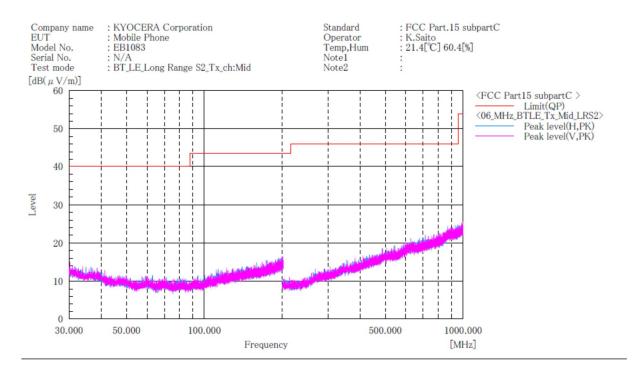
Note:

1. Emission Level (Margin) = Limit - [Reading + Factor (Antenna + Cable - Amp)]

2. No emission were detected in frequency range 18GHz to 25GHz at the 3 meters distance.



[BT_LE (LongRange S2)] Channel: Middle BELOW 1 GHz



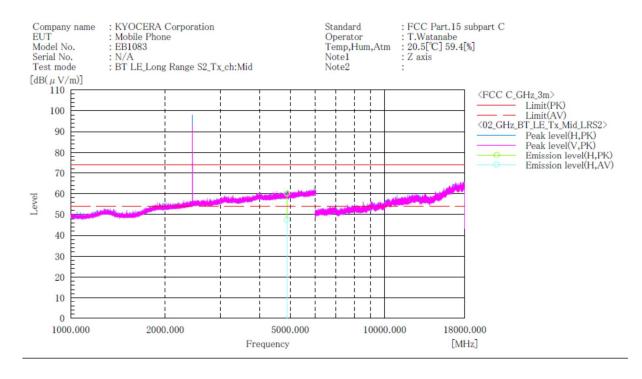
Final Result

No.	Frequency	(P)	c.f	Height	Angle	Remark
	[MHz]		[dB(1/m)]	[cm]	[°]	

- 1. Emission Level (Margin) = Limit [Reading + Factor (Antenna + Cable Amp)]
- 2. No emission were detected in frequency range 9kHz to 30MHz at the 3 meters distance.



[BT_LE (LongRange S2)] Channel: Middle ABOVE 1 GHz



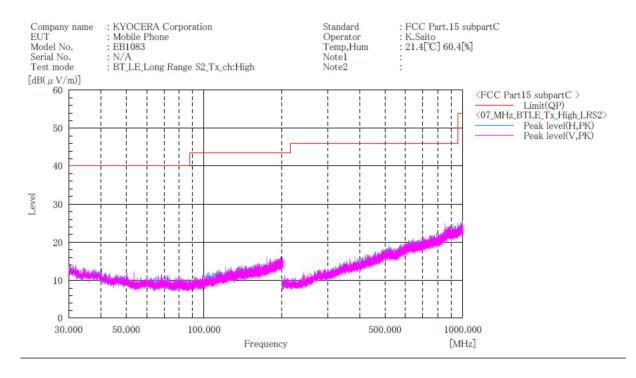
Final Result

No.	Frequency			Reading	c. f	Result	Result	Limit	Limit	Margin			Angle	Remark
1	[MHz] 4880.000	Н	PK [dB(μV)] 49.5	AV [dB(μV)] 36.8	[dB(1/m)] 10.7			PK [dB(μV/m)] 74.0	AV [dB(μV/m)] 54.0	PK [dB] 13.8	AV [dB] 6.5	[cm] 149.0	[°] 202.0	

- 1. Emission Level (Margin) = Limit [Reading + Factor (Antenna + Cable Amp)]
- 2. No emission were detected in frequency range 18GHz to 25GHz at the 3 meters distance.



[BT_LE (LongRange S2)] Channel: High BELOW 1 GHz



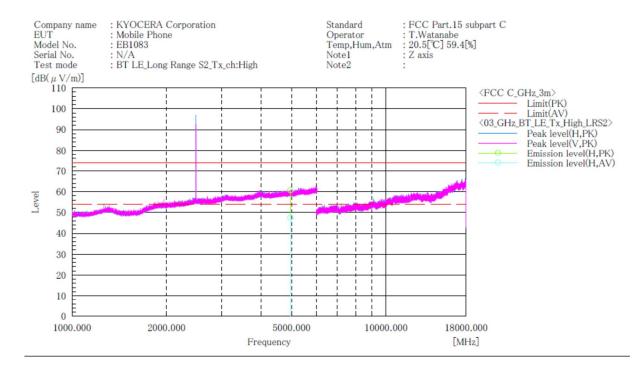
Final Result

No.	Frequency	(P)	c.f	Height	Angle	Remark
	[MHz]		[dB(1/m)]	[cm]	[°]	

- 1. Emission Level (Margin) = Limit [Reading + Factor (Antenna + Cable Amp)]
- 2. No emission were detected in frequency range 9kHz to 30MHz at the 3 meters distance.



[BT_LE (LongRange S2)] Channel: High ABOVE 1 GHz



Final Result

No.	Frequency	(P)				Result	Result	Limit			Margin		Angle	Remark
	[MHz]		PK [dB(μ V)]	$\begin{bmatrix} AV \\ [dB(\mu V)] \end{bmatrix}$	[dB(1/m)]	PK [dB($\mu V/m$)]	$\begin{bmatrix} AV \\ [dB(\mu V/m) \end{bmatrix}$	PK [dB(μ V/m)]	ΑV [dB(μV/m)]	PK [dB]	AV [dB]	[cm]	[°]	
1	4960.000	H	49.9	36.8	10.8	60.7	47.6	74.0	54.0	13.3	6.4	107.0	196.0	

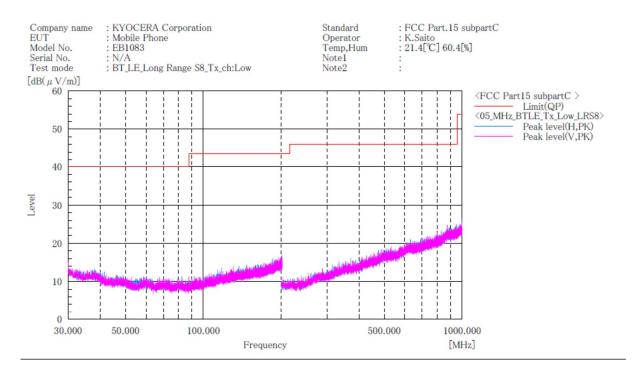
Note:

1. Emission Level (Margin) = Limit - [Reading + Factor (Antenna + Cable - Amp)]

2. No emission were detected in frequency range 18GHz to 25GHz at the 3 meters distance.



[BT_LE (LongRange S8)] Channel: Low BELOW 1 GHz



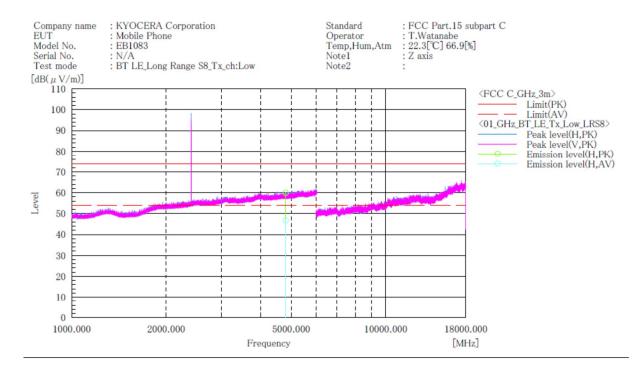
Final Result

No.	Frequency	(P)	c.f	Height	Angle	Remark
	[MHz]		[dB(1/m)]	[cm]	[°]	

- 1. Emission Level (Margin) = Limit [Reading + Factor (Antenna + Cable Amp)]
- 2. No emission were detected in frequency range 9kHz to 30MHz at the 3 meters distance.



[BT_LE (LongRange S8)] Channel: Low ABOVE 1 GHz



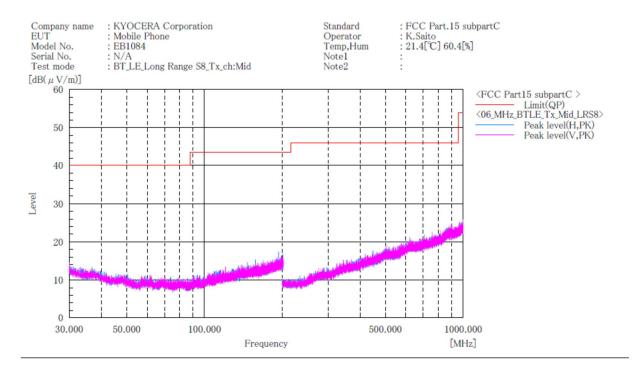
Final Result

No.	Frequency				c. f	Result	Result	Limit	Limit	Margin		Height	Angle	Remark
1	[MHz] 4804.000	Н	PK [dB(μV)] 49.3	AV [dB(μV)] 36.2	[dB(1/m)] 10.6	PK [dB(μV/m)] 59.9	AV [dB(μV/m)] 46.8	$\begin{bmatrix} dB(\mu V/m) \\ 74.0 \end{bmatrix}$	AV [dB(μV/m)] 54.0	PK [dB] 14.1	AV [dB] 7.2	[cm] 102.0	[°] 153.0	

- 1. Emission Level (Margin) = Limit [Reading + Factor (Antenna + Cable Amp)]
- 2. No emission were detected in frequency range 18GHz to 25GHz at the 3 meters distance.



[BT_LE (LongRange S8)] Channel: Middle BELOW 1 GHz



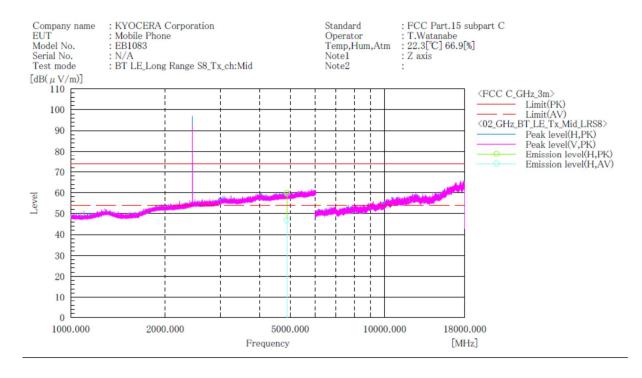
Final Result

No.	Frequency	(P)	c.f	Height	Angle	Remark
	[MHz]		[dB(1/m)]	[cm]	[°]	

- 1. Emission Level (Margin) = Limit [Reading + Factor (Antenna + Cable Amp)]
- 2. No emission were detected in frequency range 9kHz to 30MHz at the 3 meters distance.



[BT_LE (LongRange S8)] Channel: Middle ABOVE 1 GHz



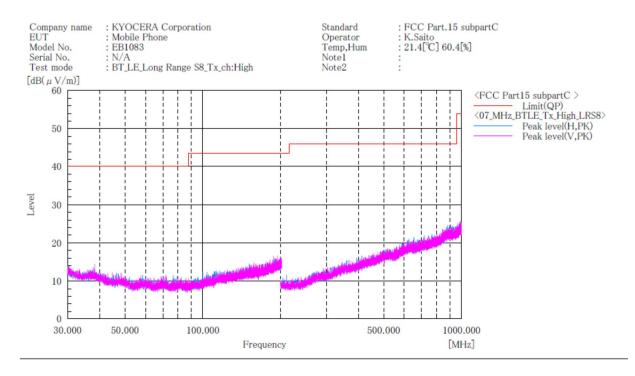
Final Result

No.	Frequency				c. f	Result	Result	Limit	Limit	Margin	Height	Angle	Remark
1	[MHz] 4880.000	Н	PK [dB(μV)] 49.1	AV [dB(μV)] 36.1	[dB(1/m)] 10.7		AV [dB(μV/m)] 46.8	$\begin{bmatrix} dB(\mu V/m) \\ 74.0 \end{bmatrix}$	AV [dB(μV/m)] 54.0	PK [dB] 14. 2	[cm] 117.0	[°] 198.0	

- 1. Emission Level (Margin) = Limit [Reading + Factor (Antenna + Cable Amp)]
- 2. No emission were detected in frequency range 18GHz to 25GHz at the 3 meters distance.



[BT_LE (LongRange S8)] Channel: High BELOW 1 GHz



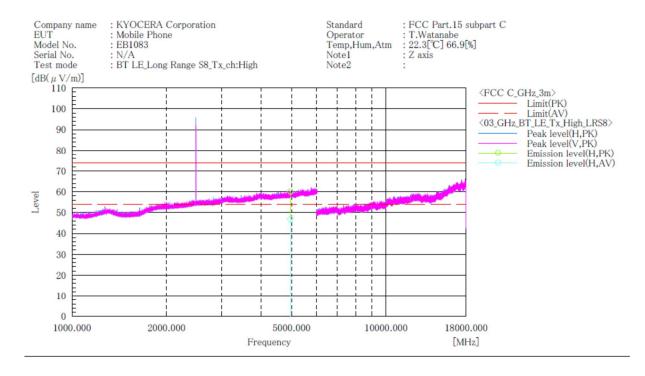
Final Result

No.	Frequency	(P)	c.f	Height	Angle	Remark
	[MHz]		[dB(1/m)]	[cm]	[°]	

- 1. Emission Level (Margin) = Limit [Reading + Factor (Antenna + Cable Amp)]
- 2. No emission were detected in frequency range 9kHz to 30MHz at the 3 meters distance.



[BT_LE (LongRange S8)] Channel: High ABOVE 1 GHz



Final Result

No.	Frequency	(P)	Reading	Reading	c. f	Result	Result	Limit	Limit	Margin			Angle	Remark
1	[MHz] 4960.000	Н	PK [dB(μV)] 49.3	AV [dB(μV)] 36.1	[dB(1/m)] 10.8	PK [dB(µV/m)] 60.1	AV [dB(μV/m)] 46.9	PK [dB(μV/m)] 74.0	AV [dB(μV/m)] 54.0	PK [dB] 13.9	AV [dB] 7.1	[cm] 100.0	[°] 17.0	

Note:

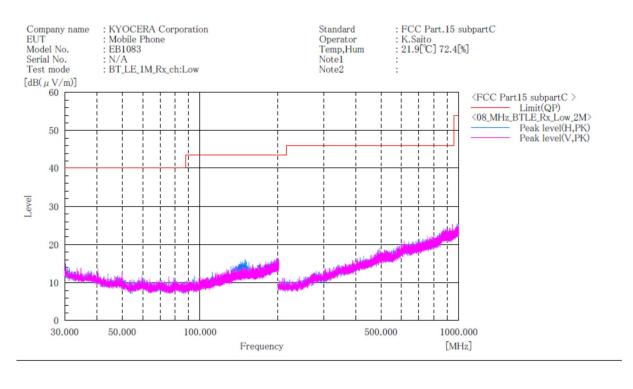
1. Emission Level (Margin) = Limit - [Reading + Factor (Antenna + Cable - Amp)]

2. No emission were detected in frequency range 18GHz to 25GHz at the 3 meters distance.



[Receive mode]

Channel: Low BELOW 1 GHz



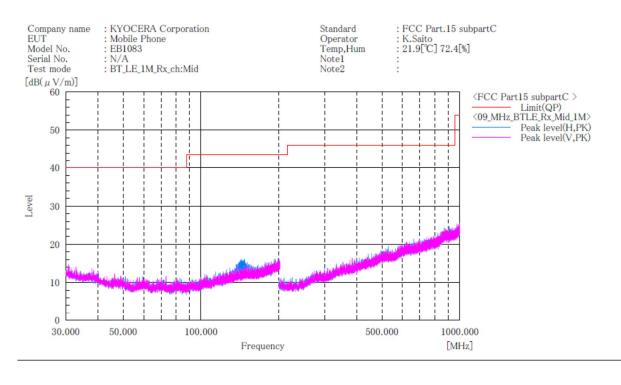
Final Result

No.	Frequency	(P)	c.f	Height	Angle	Remark
	[MHz]		[dB(1/m)]	[cm]	[°]	

- 1. Emission Level (Margin) = Limit [Reading + Factor (Antenna + Cable Amp)]
- 2. No emission were detected in frequency range 9kHz to 30MHz and 1GHz to 25GHz at the 3 meters distance.



Channel: Middle BELOW 1 GHz



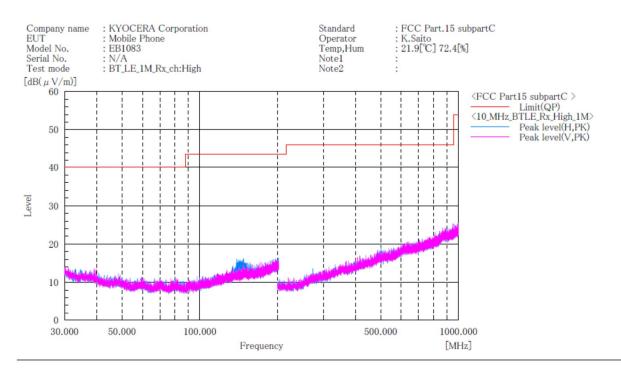
Final Result

No.	Frequency	(P)	c.f	Height	Angle	Remark
	[MHz]		[dB(1/m)]	[cm]	[°]	

- Emission Level (Margin) = Limit [Reading + Factor (Antenna + Cable Amp)]
 No emission were detected in frequency range 9kHz to 30MHz and 1GHz to 25GHz at the 3 meters distance.



Channel: High BELOW 1 GHz



Final Result

No.	Frequency	(P)	c.f	Height	Angle	Remark
	[MHz]		[dB(1/m)]	[cm]	[°]	

- 1. Emission Level (Margin) = Limit [Reading + Factor (Antenna + Cable Amp)]
- 2. No emission were detected in frequency range 9kHz to 30MHz and 1GHz to 25GHz at the 3 meters distance.