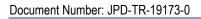


No.	Frequency	(P)	c.f	Height	Angle	
	[MHz]		[dB(1/m)]	[cm]	[°]	

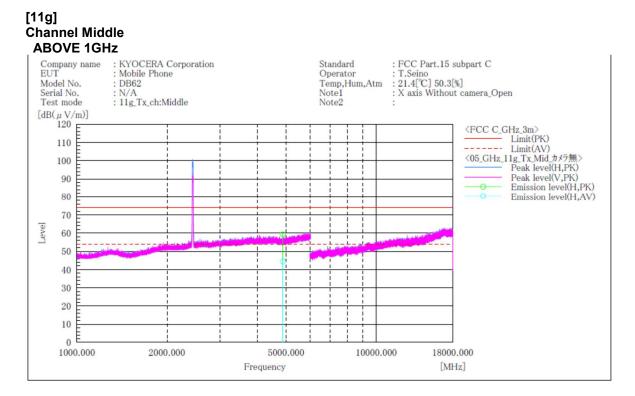
Note:

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

2. No emission were detected in frequency range 9kHz to 1000MHz at the 3 meters distance.







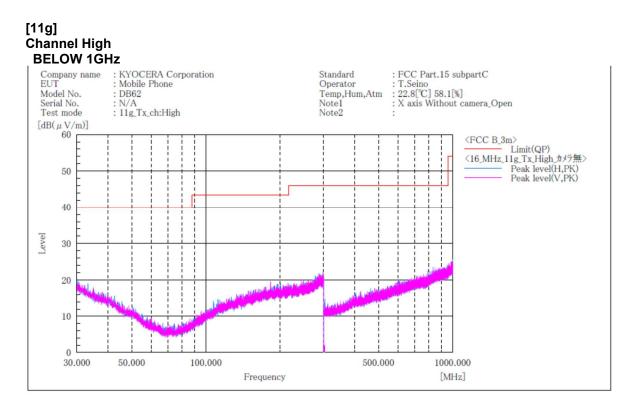
No.	Frequency	(P)	PK	Reading	c.f	Result PK	Result AV	Limit PK	Limit AV	PK	Margin	Height	Angle
1	[MHz] 4874.000	Н	[dB(µV)] 49.0	[dB(μV)] 34.2	[dB(1/m)] 10.3	[dB(µV/m)] 59.3	[dB(µV/m)] 44.5	[dB(µV/m)] 74.0	[dB(µV/m)] 54.0	[dB] 14.7	[dB] 9.5	[cm] 201.0	[°] 178.0

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.



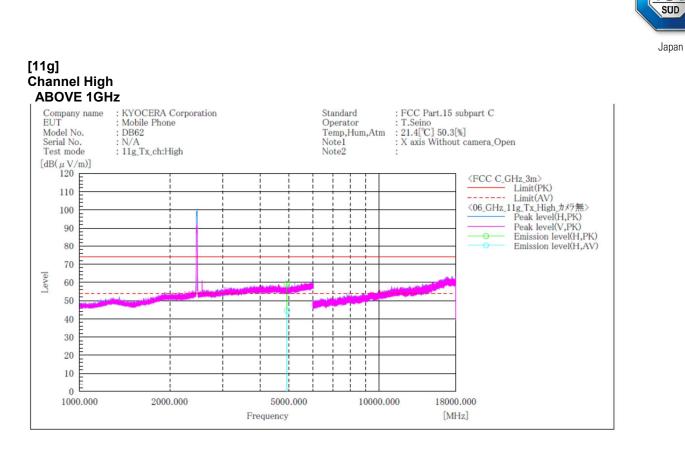


No.	Frequency	(P)	c.f	Height	Angle	
	[MHz]		[dB(1/m)]	[cm]	[°]	

Note:

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

2. No emission were detected in frequency range 9kHz to 1000MHz at the 3 meters distance.



No.	Frequency	(P)	Reading PK	Reading	c.f	Result PK	Result	Limit	Limit	Margin PK	Margin AV	Height	Angle
1	[MHz] 4924.000	Н	[dB(µV)] 48.8	[dB(µV)] 34.1	[dB(1/m)] 10.4		[dB(µV/m)] 44.5		[dB(µV/m)] 54.0	[dB] 14.8	[dB] 9.5	[cm] 193.0	[°] 171.0

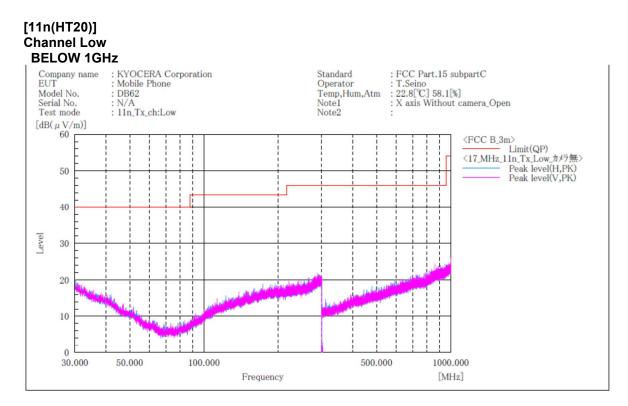
Note:

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.

SÜD



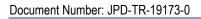


No.	Frequency	(P)	c.f	Height	Angle
	[MHz]		[dB(1/m)]	[cm]	[°]

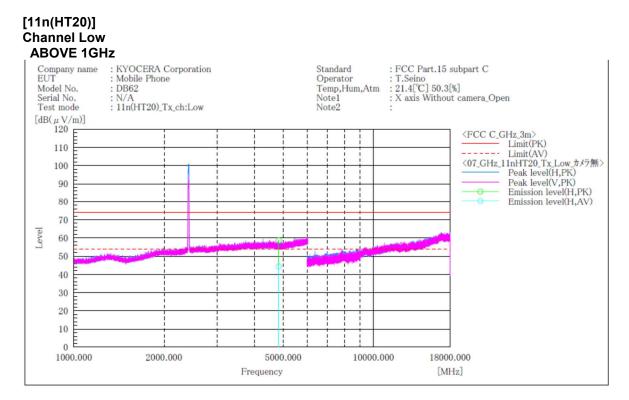
Note:

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

2. No emission were detected in frequency range 9kHz to 1000MHz at the 3 meters distance.







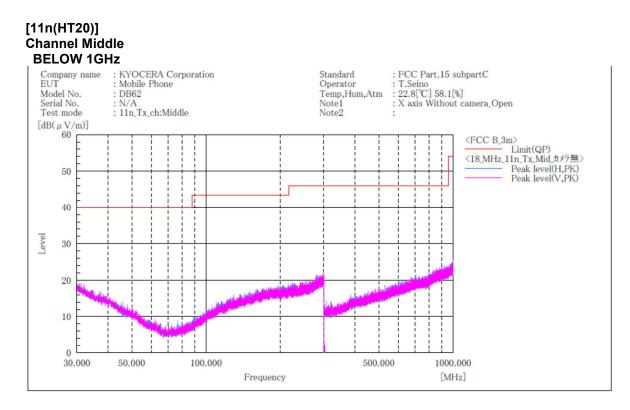
No.	Frequency	(P)	PK	Reading AV	c.f	Result PK	Result	Limit PK	Limit AV	Margin PK	Margin	Height	Angle
1	[MHz] 4824.000	Н	[dB(µV)] 48.5	[dB(μV)] 34.3	[dB(1/m)] 10.1	[dB(µV/m)] 58.6	[dB(µV/m)] 44.4	$\begin{bmatrix} dB(\mu V/m) \end{bmatrix} \\ 74.0$	[dB(µV/m)] 54.0	[dB] 15.4	[dB] 9.6	[cm] 195.0	[°] 182. 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.



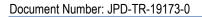


No.	Frequency	(P)	c.f	Height	Angle
	[MHz]		[dB(1/m)]	[cm]	[°]

Note:

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

2. No emission were detected in frequency range 9kHz to 1000MHz at the 3 meters distance.





[11n(HT20)] **Channel Middle ABOVE 1GHz** Company name EUT : FCC Part.15 subpart C : T.Seino : 21.4[°C] 50.3[%] : X axis Without camera_Open : KYOCERA Corporation : Mobile Phone Standard Operator Model No. : DB62 : N/A : 11n(HT20)_Tx_ch:Middle Temp,Hum,Atm Serial No. Test mode Note1 Note2 [dB(µV/m)] 120 F <FCC C_GHz_3m> Limit(PK) Limit(AV) 110 Comm(AV) Comm(AV) Common 100 90 80 70 Level 60 50 40 30 20 10 ł 0 E 2000.000 10000.000 18000.000 1000.000 5000.000 [MHz] Frequency

Final Result

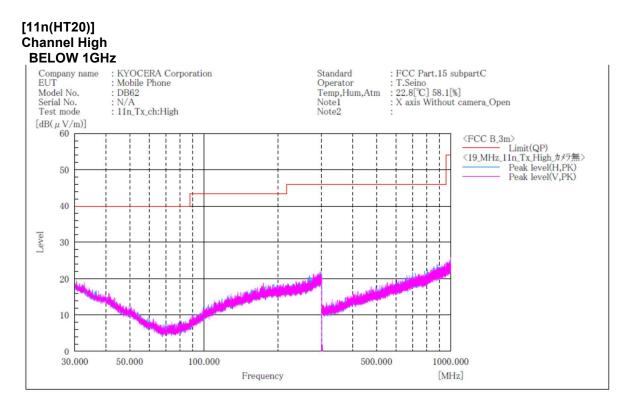
No.	Frequency	(P)	PK	Reading	c.f	Result	Result	Limit	Limit	PK	Margin	Height	Angle
1	[MHz] 4874.000	H	[dB(µV)] 48.6	[dB(μV)] 34.2	[dB(1/m)] 10.3	[dB(µV/m)] 58.9	[dB(µV/m)] 44.5	$\begin{bmatrix} dB(\mu V/m) \end{bmatrix} \\ 74.0$	[dB(µV/m)] 54.0	[dB] 15.1	[dB] 9.5	[cm] 498.0	[°] 166.0

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.





No.	Frequency	(P)	c.f	Height	Angle
	[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 1000MHz at the 3 meters distance.



[11n(HT20)] **Channel High ABOVE 1GHz** : FCC Part.15 subpart C : T.Seino : 21.4[°C] 50.3[%] : X axis Without camera_Open Company name EUT : KYOCERA Corporation : Mobile Phone Standard Operator Model No. : DB62 Temp,Hum,Atm Serial No. Test mode : N/A : 11n(HT20)_Tx_ch:High Note1 Note2 [dB(µV/m)] 120 F <FCC C_GHz_3m> 〈FCC C_GHz,3m〉 Limit(PK) く09_GHz_11nHT20_Tx_High_カメラ無〉 Peak level(H,PK) Peak level(V,PK) Emission level(Y,PK) Emission level(H,AV) 110 100 90 80 70 Level 60 50 40 30 20 10 0 1000.000 2000.000 5000.000 10000.000 18000.000 [MHz] Frequency

Final Result

No.	Frequency	(P)	Reading PK	Reading	c.f	Result	Result AV	Limit	Limit	Margin PK	Margin	Height	Angle
1	[MHz] 4924.000	H	[dB(µV)] 48.6	[dB(μV)] 34.4	[dB(1/m)] 10.4	[dB(µV/m)] 59.0	[dB(µV/m)] 44.8	$\begin{bmatrix} dB(\mu V/m) \end{bmatrix} \\ 74.0$	[dB(µV/m)] 54.0	[dB] 15.0	[dB] 9.2	[cm] 202.0	[°] 168.0

Note:

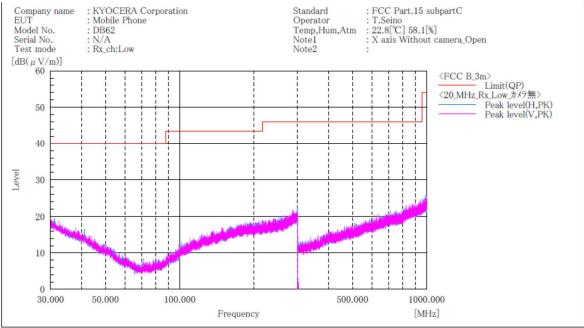
1. Emission Level (Margin) = Limit - [Reading + Factor (Antenna + Cable - Amp)]

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



4.5.4.4 Receive mode - With camera

Channel Low BELOW 1GHz



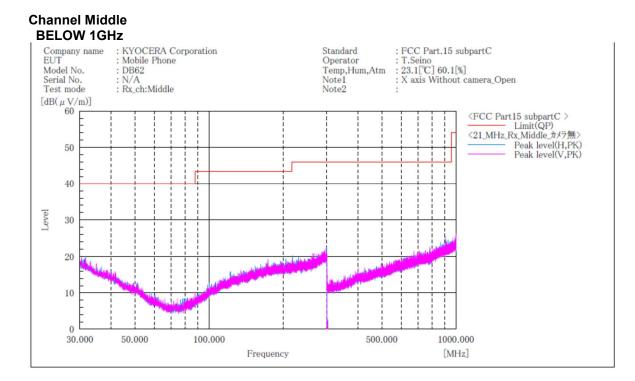
Final Result

No.	Frequency	(P)	c.f	Height	Angle	
	[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 1000MHz and 1GHz to 25GHz at the 3 meters distance.





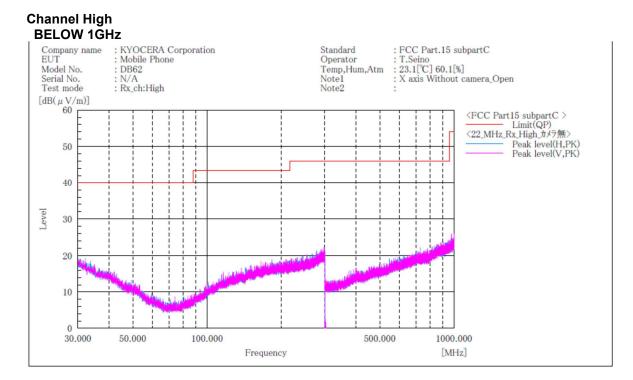
No.	Frequency	(P)	c.f	Height	Angle
	[MHz]		[dB(1/m)]	[cm]	[°]

Note:

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

2. No emission were detected in frequency range 9kHz to 1000MHz and 1GHz to 25GHz at the 3 meters distance.





No.	Frequency	(P)	c.f	Height	Angle
	[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 1000MHz and 1GHz to 25GHz at the 3 meters distance.



4.6 Restricted Band of Operation

4.6.1 Measurement procedure

[FCC 15.247(d), 15.205, 15.209, KDB 558074 D01 v05r02, Section 8.6]

Test was applied by following conditions.

Test method Test place EUT was placed on Antenna distance	:	ANSI C63.10 3m Semi-anechoic chamber Styrofoam table / (W) 1.0 × (D) 1.0 × (H) 0.8 m (below 1 GHz) Styrofoam table / (W) 0.6 × (D) 0.6 ×(H) 1.5 m (above 1 GHz) 3m
Spectrum analyzer setting - Peak - Average	:	RBW=1 MHz, VBW=3 MHz, Span=Arbitrary setting, Sweep=auto RBW=1 MHz, VBW=10Hz, Span=0 Hz, Sweep=auto Display mode=Linear

Average Measurement Setting [VBW]

Mode	Duty Cycle (%)	T _{on} (us)	T _{off} (us)	Determined VBW Setting
IEEE802.11b	99.22	1024	8	10Hz (Duty Cycle \geq 98%)
IEEE802.11g	99.42	1364	8	10Hz (Duty Cycle \geq 98%)
IEEE802.11n(HT20)	99.22	1272	10	10Hz (Duty Cycle \geq 98%)

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

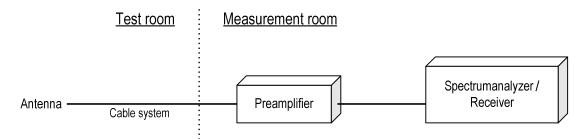
were confirmed against 30 m open are test site.

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 (Double ridged guide 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.

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

[IEEE802.11b、IEEE802.11g、IEEE802.11n (HT20)]

Channel	Frequency [MHz]	Results Chart	Result
Low	2412	See the Trace Data	Pass
High	2462	See the Trace Data	Pass

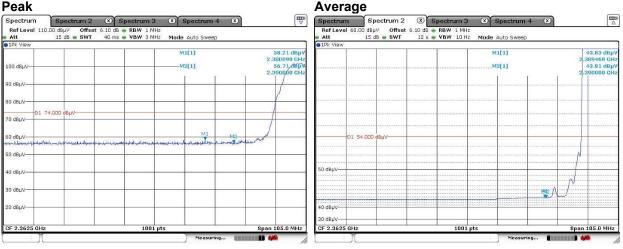
4.6.4 Test data

Date Temperature Humidity Test place	: 9-August-2019 : 21.4 [°C] : 57.9 [%] : Shielded room No.4	Test engineer	: Tadahiro Seino
Date Temperature Humidity Test place	: 10-August-2019 : 21.4 [°C] : 63.8 [%] : Shielded room No.4	Test engineer	: Tadahiro Seino



[IEEE802.11b - With camera]

Channel Low Horizontal Peak

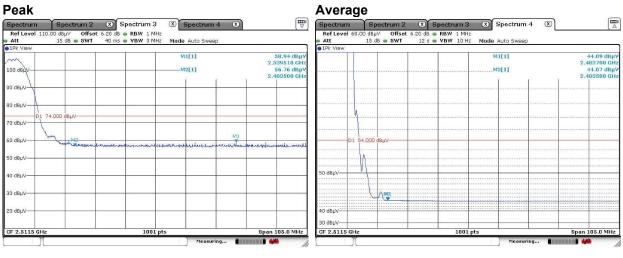


Vertical Poak

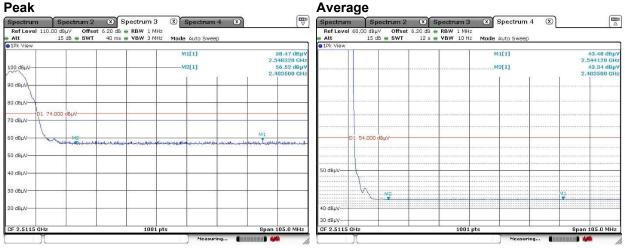
100 dEµV	Peak				Average	9			
Att 15 db SWT 40 ms VINUE Node Auto Sweep 10P View	Spectrum Spectrur	m 2 🙁 Spectrum 3	Spectrum 4 (X)		Spectrum	Spectrum 2	(X) Spectrum 3	Spectrum 4 (X	
IDP: View MI[1] Se. 08 dpt/ MI[1] 2.85 0.00 dpt/ 100 dBt/V M2[1] 2.85 0.00 dpt/ M2[1] 2.85 0.00 dpt/ 90 dBt/V M2[1] 2.90000 gr/st M2[1] 2.390000 gr/st 80 dBt/V M2 M2 M2 M2 M2 90 dBt/V M2				<u>,</u>				Mode Auto Sweep	
100 dEµV	1Pk View			8	1Pk View				
80 deuv 01 74.000 deuv 01 74.000 deuv 00 deuv	100 dBµV			2.351460 GHz 56.76 dBµV					43.17 dBµ 2.388720 GH 43.13 dBµ 2.390000 GH
01 74.000 dep/*	90 dBµV								
	BD dBµV								
				1					
S0 dBµV Image: Constraint of the con	50 dBµV	MI - 1 Web where we will be a set of the set			D1 54	.000 dBµV			
									·····
	40 dBµV								
20 deµV									
29 dBµV 30 dBµV 30 dBµV 30 dBµV	30 OBUV							MBI2	
	20 dBµV				40 dBµV				
CF 2.3625 GHz 1001 pts Span 105.0 MHz CF 2.3625 GHz 1001 pts Span 105.0					Contraction of the second s				
Measuring 🚺 👹 👍	3F 2.3625 GHz	1001 p			CF 2.3625 GHz		1001 pt		Span 105.0 MHz



Channel High Horizontal



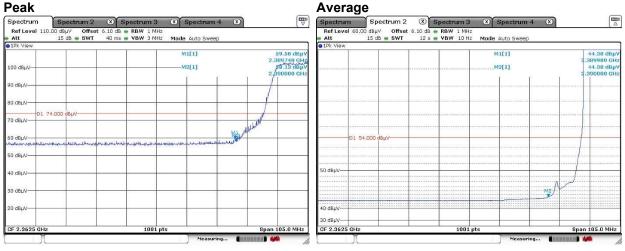
Vertical





[IEEE802.11g - With camera]

Channel Low Horizontal Peak

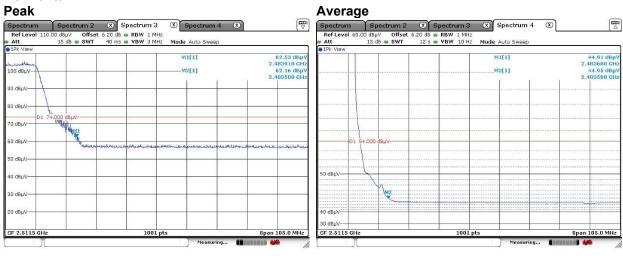


Vertical Peak

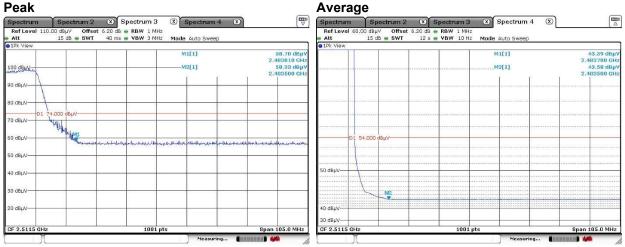
Peak			Average		
	Spectrum 3 🙁 Spectrum 4	× (***	Spectrum Spectrum 2 (Spectrum 3 🛞 Spectrum 4 🗵	
Att 15 dB 🖷 SWT 40	D dB 🖶 RBW 1 MHz D ms 🖶 YBW 3 MHz 🛛 Mode Auto Sweep		🖷 Att 15 dB 🖷 SWT	0 dB 🖶 RBW 1 MHz 12 s 🖷 YBW 10 Hz 🛛 Mode Auto Sweep	
1Pk View			• 1Pk View		
100 dBµV-	M1[1] M2[1]	58.36 dBµV 2.375790 GHz 56.92 dBµV 2.390000 <u>GH</u> a		M1[1] M2[1]	43.23 dBµ 2,389980 GF 43.23 dBµ 2,390000 GF
90 dBhA					
80 dBµV					
D1 74.000 dBµV					
60 dBµV	M1	M2	D1 54.000 dBµV		
50 dBµV	and the second		· · · · · · · · · · · · · · · · · · ·		••••••••••••••••••••••••••••
40 dBuV			50 dBµV		
					/
30 dBµV				M2	
20 dBµV			40 dBµV		
CF 2.3625 GHz			30 dBµV		
GF 2.3625 GHZ	1001 pts	8pan 105.0 MHz	GF 2.3625 GHZ	1001 pts	8pan 105.0 MH:



Channel High Horizontal



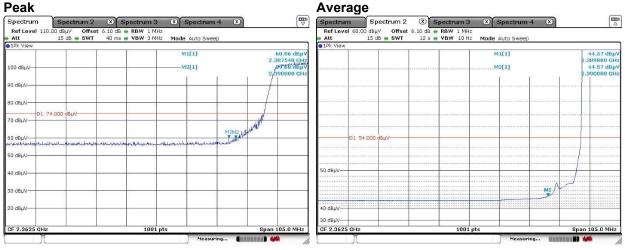
Vertical





[IEEE802.11n (HT20) - With camera]

Channel Low Horizontal Peak

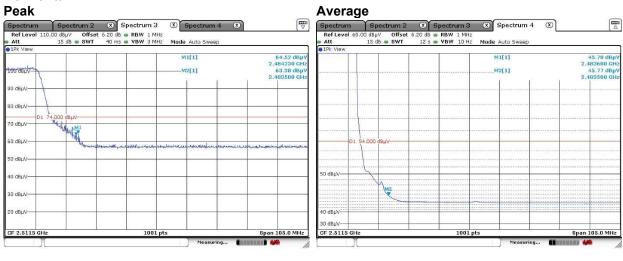


Vertical Peak

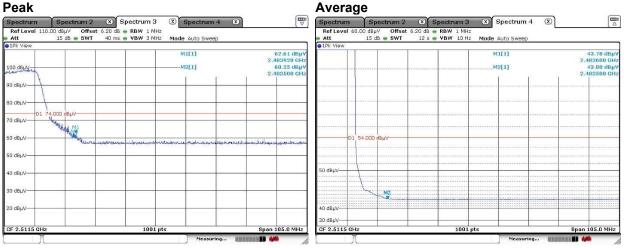
Peak			_	Average	5			_
Spectrum Spectrum 2	Spectrum 3	Spectrum 4	×) 🕎	Spectrum	Spectrum 2	Spectrum 3	Spectrum 4 (X)	
Ref Level 110.00 dBμV Offset Att 15 dB ■ SWT	6.10 dB - RBW 1 MHz 40 ms - VBW 3 MHz	Mode Auto Sween		Ref Level 60.0	OdBµV Offset 15 dB ■ SWT	6.10 dB . RBW 1 MHz 12 s . VBW 10 Hz	Mode Auto Sweep	
1Pk View			8	1Pk View				
100 dBµV-		M1[1] —M2[1]	58.65 dBµV 2.363200 GHz 57.13 dBµV 2.300099.6Hz				M1[1] M2[1]	43.28 dBμ 2.389770 GH 43.27 dBμ 2.390000 GH
90 dBµV					******			••••••••••••••••••••••••••••••••••••••
80 dBµV-	25 63							
D1 74.000 dBµV					******			
50 dBµV	MI		12 march 100	D1 5	4.000 dBµV			
ennen Umphindus and en half de annual terraine 50 dBµV	war of the second se	al hanning a faith and the and the appropriate stand and an an all						
40 dBµV				50 dBµV				
30 dBuV								
JO GDDA								
20 dBµV				40 dBµV				
CF 2.3625 GHz				30 dBµV CF 2.3625 GHz				
3F 2.3625 GHZ	1001 pt:	5	Span 105.0 MHz	GF 2.3625 GHz		1001 pi		8pan 105.0 MHz



Channel High Horizontal



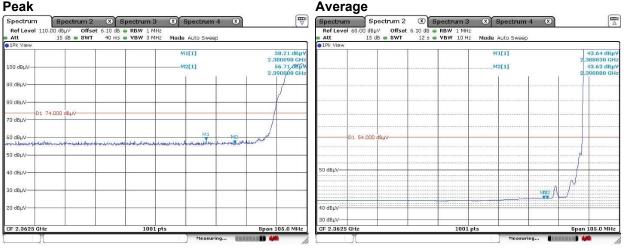
Vertical





[IEEE802.11b - Without camera]

Channel Low Horizontal

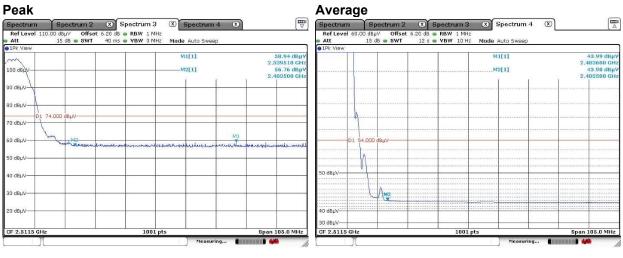


Vertical

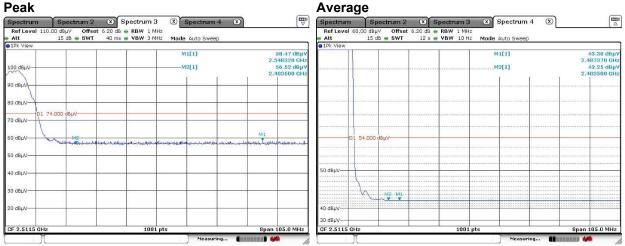
Peak Average Spectrum Spectrum 2 Spectrum 3 Spectrum 4 Spectrum 4 Ref Level 60.00 dBµ/ Offset 6.10 dB = RBW 1 MHz Mode Auto Sweep In High Att 15 dB = 8WT 12 s = VBW 10 Hz Mode Auto Sweep Ink View Ink View In High Mode Auto Sweep 43.00 dBµ\ 385470 GH 42.97 dBµ\ 390000 GH M1[1] 58.08 dBµV 2.351460 GHz 56.76 dBµV 2.390000 GHz M1[1] 100 dBµV-M2[1] M2[1] 2 90 dBµV 80 dBµV D1 74.000 dBµV 70 dBµV-60 dBµ\ 01 54.00 50 dBµV 0 dBµV 40 dBµV 30 dBµV M1 M2 20 dBµV-40 dBμV· 0 dBuV 8pan 105.0 MHz F 2.3625 1001 05.0 MHz F 2.3625 GHz 1001 Spa



Channel High Horizontal



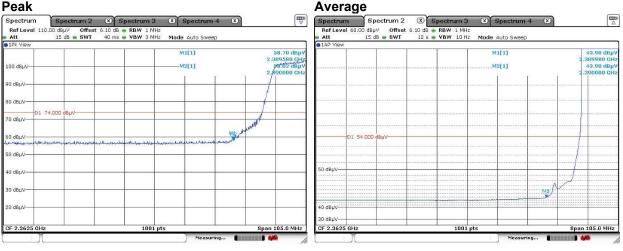
Vertical





[IEEE802.11g - Without camera]

Channel Low Horizontal Peak

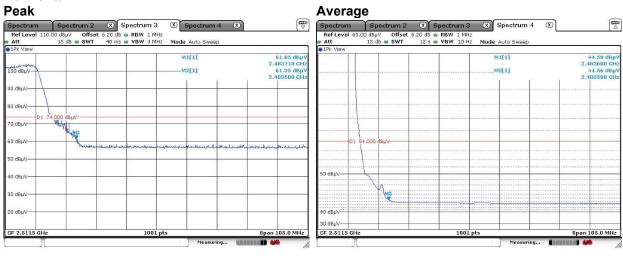


Vertical

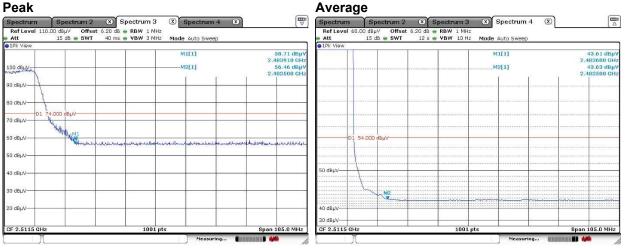
Peak			Average
Spectrum Spectrum 2	(*) Spectrum 3 (*) Spectrum 4		
	10 dB . RBW 1 MHz 40 ms . YBW 3 MHz Mode Auto Sweep		Ref Level 60.00 dBµV Offset 6.10 dB = RBW 1 MHz Att 15 dB = SWT 12 s = VBW 10 Hz Mode Auto Sweep
1Pk View		8	IPk View
100 dBµV	M1[1] M2[1]	57.97 dBµV 2.333830 GHz 55.87 dBµV 2.3 <u>90000 c</u> H≫	M1[1] 43.15 d Z.389980 M2[1] 43.15 2.390600 2.390600
90 dBµV			
80 dBµV			
D1 74.000 dBµV			
60 dBµV		M2 walked by	D1 54.000 dBuV
levent metaleven herden verstaden 50 dBµV	honoristamäännetaraanaitaa oliamerteräine	no sector and the sector of th	
No. 00 100 - 00			50 dBuV-
40 dBµV			
30 dBµV			M2
20 dBµV			40 dBµV
CF 2.3625 GHz			30 dBµV
3F 2.3625 GHZ	1001 pts	Span 105.0 MHz	CF 2.3625 GHz 1001 pts 8pan 105.0 M



Channel High Horizontal



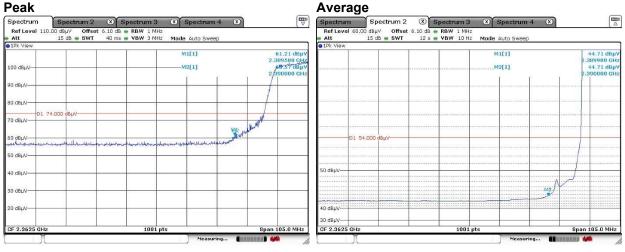
Vertical





[IEEE802.11n (HT20) - Without camera]

Channel Low Horizontal Peak

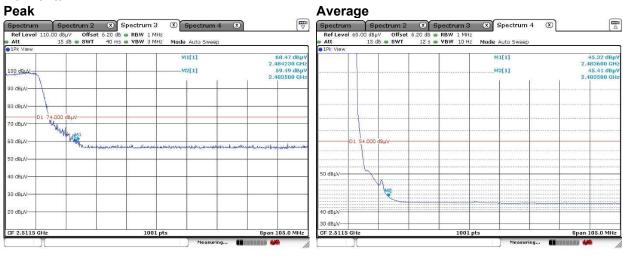


Vertical Poak

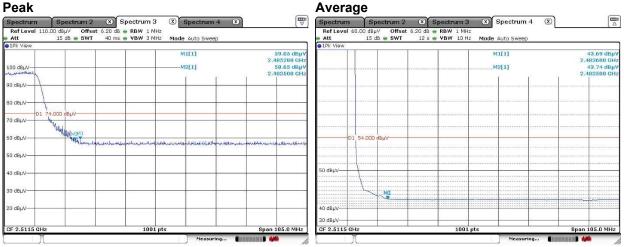
Peak				Average				_
Spectrum 2 Spectrum 2	Spectrum 3 (X) 5	pectrum 4 🛛 🙁		Spectrum	Spectrum 2	Spectrum 3	Spectrum 4 🙁	
Ref Level 110.00 dBµ∀ Offset Att 15 dB ■ SWT	6.10 d8 RBW 1 MHz 40 ms VBW 3 MHz Mode	Auto Sweep		Ref Level 60.0	OdBµV Offset 15 dB ■ SWT	6.10 dB	Mode Auto Sweep	•
1Pk View			50	1Pk View				
100 dBµV-		[1] 2[1]	57.86 dBµV 2.313590 GHz 57.45 dBµV 2.390000.010				M1[1] M2[1]	43.29 dBµ 2,389980 GH 43.29 dBµ 2,390000 GH
90 dBµV								
80 dBµV			1					
D1 74.000 dBµV			/					
-Min	respected meriliphic and an advantage to a construction of	ND MARKEN LINE AND MARKEN	ho ^d	D1 5	4.000 dBµV			
50 dBµV							*********	····
40 dBuV				50 dBµV				
30 dBµV							M2	
20 dBµV				40 dBµV				
				30 dBµV				
CF 2.3625 GHz	1001 pts		8pan 105.0 MHz	CF 2.3625 GHz	- 1	1001 p ⁱ	ts	Span 105.0 MHz



Channel High Horizontal



Vertical





4.7 Transmitter Power Spectral Density

4.7.1 Measurement procedure

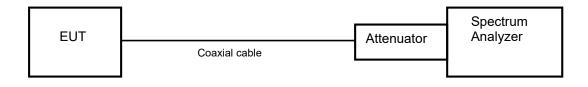
[FCC 15.247(e), KDB 558074 D01 v05r02, Section 8.4]

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 \geq 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 8 dBm in any 3 kHz band.

4.7.3 Measurement result

Date	:	23-August-2019			
Temperature	:	24.5 [°C]			
Humidity	:	56.0 [%]	Test engineer	:	
Test place	:	Shielded room No.4			Tadahiro Seino

[IEEE802.11b]

Channel	Center Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dBm)	Result
Low	2412	-17.81	10.58	-7.23	8.00	15.23	PASS
Middle	2437	-18.95	10.58	-8.37	8.00	16.37	PASS
High	2462	-18.12	10.58	-7.54	8.00	15.54	PASS

Calculation;

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

[IEEE802.11g]

Channel	Center Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dBm)	Result
Low	2412	-25.15	10.58	-14.57	8.00	22.57	PASS
Middle	2437	-25.89	10.58	-15.31	8.00	23.31	PASS
High	2462	-24.68	10.58	-14.10	8.00	22.10	PASS

Calculation;

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

[IEEE802.11n (HT20)]

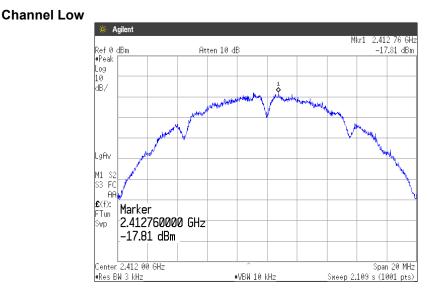
Channel	Center Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dBm)	Result
Low	2412	-25.54	10.58	-14.96	8.00	22.96	PASS
Middle	2437	-24.52	10.58	-13.94	8.00	21.94	PASS
High	2462	-24.68	10.58	-14.10	8.00	22.10	PASS

Calculation;

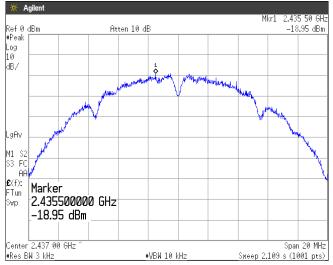
Transmitter Power Spectral Density Level (Margin) = Limit – (Reading + Factor)



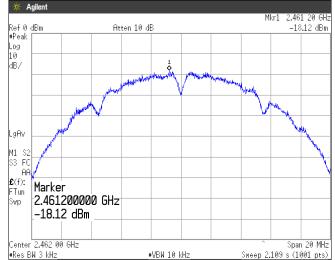
10.4 Trace data [IEEE802.11b]



Channel Middle

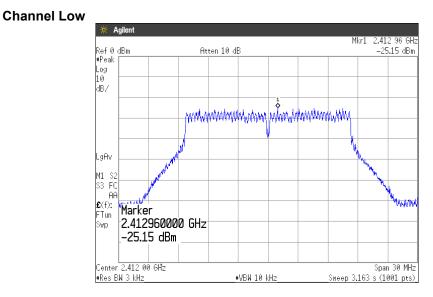


Channel High

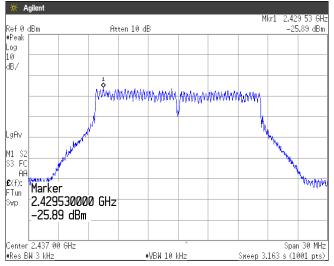




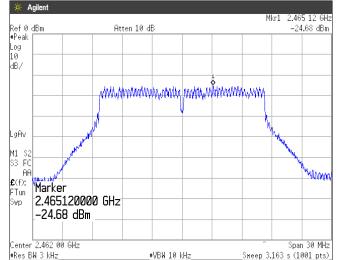
[IEEE802.11g]



Channel Middle

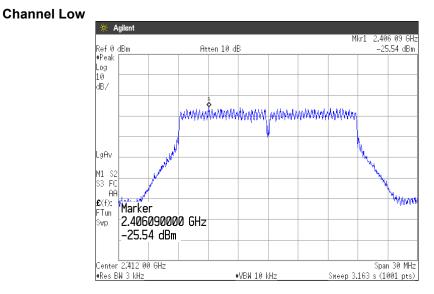


Channel High

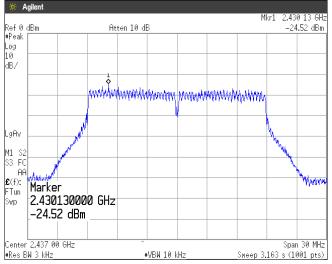




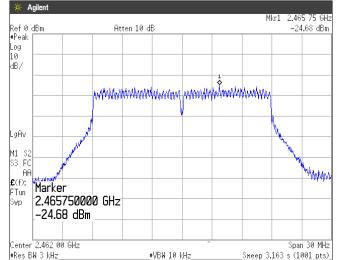
[IEEE802.11n (HT20)]



Channel Middle



Channel High







4.8 AC Power Line Conducted Emissions

4.8.1 Measurement procedure

[FCC 15.207]

Test was applied by following conditions.

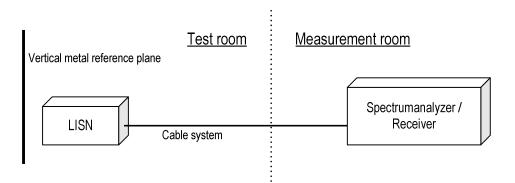
Test method Frequency range	:	ANSI C63.10 0.15 MHz to 30 MHz
Test place	:	3m Semi-anechoic chamber
EUT was placed on		FRP table / (W) 2.0 × (D) 1.0 × (H) 0.8 m
Vertical Metal Reference Plane	:	(W) 2.0 × (H) 2.0 m, 0.4 m away from EUT
Test receiver setting		
- Detector	:	Quasi-peak, Average
- Bandwidth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

EUT and peripherals are connected to $50\Omega/50 \mu$ H 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 @ 0.403 MHz: 57.8 dB μ V(Quasi-peak) : 47.8 dB μ V(Average) (Quasi peak)Reading = 22.7 dB μ V c.f. = 10.4 dB Emission level = 22.7 + 10.4 = 33.1 dB μ V Margin = 57.8 - 33.1 = 24.7 dB (Average) Reading = 6.5 dB μ V c.f. = 10.4 dB Emission level = 6.5 + 10.4 = 16.9 dB μ V Margin = 47.8 - 16.9 = 30.9 dB



4.8.3 Limit

Frequency	Limit				
[MHz]	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.

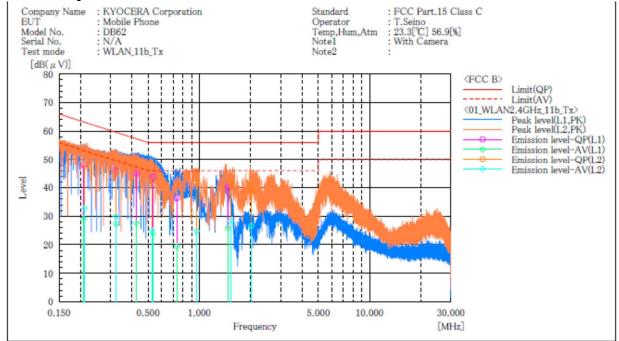
4.8.4 Test data

Date	:	8-August-2019			
Temperature	:	23.3 [°C]			
Humidity	:	56.9 [%]	Test engineer	:	
Test place	:	3m Semi-anechoic chamber			Tadahiro Seino



Japan

[With camera]

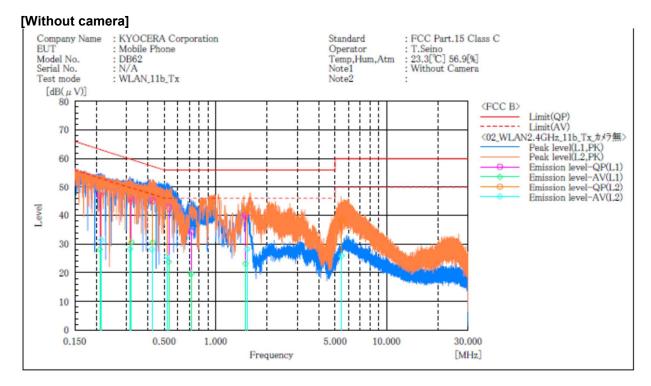


Final Result

	L1 Phase	-								
No.	Frequency	Reading	Reading	c.f	Result	Result	Limit	Limit	Margin	Margin
		QP	AV		QP	AV	QP	AV	QP	AV
	[MHz]	$[dB(\mu V)]$	$[dB(\mu V)]$	[dB]	$[dB(\mu V)]$	$[dB(\mu V)]$	$[dB(\mu V)]$	$[dB(\mu V)]$	[dB]	[dB]
1	0.209	37.4	18.7	10.4	47.8	29.1	63.2	53.2	15.4	24.1
2	0.324	35.5	17.0	10.4	45.9	27.4	59.6	49.6	13.7	22.2
1 2 3	0.427	34.7	17.1	10.4	45.1	27.5	57.3	47.3	12.2	19.8
4	0.533	33.3	13.6	10.4	43.7	24.0	56.0	46.0	12.3	22.0
45	0.737	26.0	9.0	10.4	36.4	19.4	56.0	46.0	19.6	26.6
6	1.471	29.9	15.4	10.4	40.3	25.8	56.0	46.0	15.7	20.2
	LO Dhana									
	L2 Phase		D 12	e	D	D 14	12.24	1.2.2.4		14
No.	Frequency	Reading	Reading	c.f	Result	Result	Limit	Limit	Margin	Margin
	Come 2	QP	AV	5	QP	AV	QP	AV	QP	AV
	[MHz]	$[dB(\mu V)]$	$[dB(\mu V)]$	[dB]	$[dB(\mu V)]$	$[dB(\mu V)]$	$[dB(\mu V)]$	$[dB(\mu V)]$	[dB]	[dB]
1	0.212	37.6	22.4	10.4	48.0	32.8	63.1	53.1	15.1	20.3
2	0.324	35.2	19.5	10.4	45.6	29.9	59.6	49.6	14.0	19.7
3	0.526	32.1	14.7	10.4	42.5	25.1	56.0	46.0	13.5	20.9
1 2 3 4	0.960	31.5	14.4	10.4	41.9	24.8	56.0	46.0	14.1	21.2
5	1.523	31.2	17.9	10.4	41.6	28.3	56.0	46.0	14.4	17.7
6	2.017	28.9	16.1	10.5	39.4	26.6	56.0	46.0	16.6	19.4



Japan



Final Result

	L1 Phase	-								
No.	Frequency	Reading	Reading	c.f	Result	Result	Limit	Limit	Margin	Margin
		QP	AV		QP	AV	QP	AV	QP	AV
	[MHz]	$[dB(\mu V)]$	$[dB(\mu V)]$	[dB]	$[dB(\mu V)]$	$[dB(\mu V)]$	$[dB(\mu V)]$	$[dB(\mu V)]$	[dB]	[dB]
1	0.210	36.7	17.8	10.4	47.1	28.2	63.2	53.2	16.1	25.0
2	0.321	35.1	20.3	10.4	45.5	30.7	59.7	49.7	14.2	19.0
23	0.428	34.8	20.2	10.4	45.2	30.6	57.3	47.3	12.1	16.7
4	0.532	32.4	13.4	10.4	42.8	23.8	56.0	46.0	13.2	22.2
456	0.719	23.9	9.3	10.4	34.3	19.7	56.0	46.0	21.7	26.3
6	1.494	29.6	12.8	10.4	40.0	23.2	56.0	46.0	16.0	22.8
	L2 Phase	-								
No.	Frequency	Reading	Reading	c.f	Result	Result	Limit	Limit	Margin	Margin
No.		QP	AV		QP	AV	QP	AV	QP	AV
No.	Frequency [MHz]			c.f [dB]	QP [dB(μ V)]				QP [dB]	
		QP	AV		QP	AV	QP	AV	QP	AV
	[MHz]	QP [dB(μ V)]	ΑV [dB(μV)]	[dB]	QP [dB(μ V)]	ΑV [dB(μV)]	QP [dB(μV)]	ΑV [dB(μV)]	QP [dB]	AV [dB]
	[MHz] 0.214	QP [dB(μV)] 37.0	AV [dB(μV)] 21.0	[dB] 10.4	QP [dB(μV)] 47.4	AV [dB(μV)] 31.4	QP [dB(μV)] 63.0	AV [dB(μV)] 53.0	QP [dB] 15.6	AV [dB] 21.6
	[MHz] 0.214 0.315	QP [dB(μV)] 37.0 34.9	AV [dB(μV)] 21.0 17.9	[dB] 10.4 10.4	QP [dB(μV)] 47.4 45.3	AV [dB(µV)] 31.4 28.3	QP [dB(μV)] 63.0 59.8	AV [dB(μV)] 53.0 49.8	QP [dB] 15.6 14.5	AV [dB] 21.6 21.5
No. 1 2 3 4 5	[MHz] 0.214 0.315 0.424	QP [dB(μV)] 37.0 34.9 34.4	AV [dB(µV)] 21.0 17.9 17.8	[dB] 10.4 10.4 10.4	QP [dB(μV)] 47.4 45.3 44.8	AV [dB(μV)] 31.4 28.3 28.2	QP [dB(μV)] 63.0 59.8 57.4	AV [dB(μV)] 53.0 49.8 47.4	QP [dB] 15.6 14.5 12.6	AV [dB] 21.6 21.5 19.2
	[MHz] 0.214 0.315 0.424 0.519	QP [dB(μV)] 37.0 34.9 34.4 31.8	AV [dB(µV)] 21.0 17.9 17.8 15.3	[dB] 10.4 10.4 10.4 10.4	QP [dB(μV)] 47.4 45.3 44.8 42.2	AV [dB(μV)] 31.4 28.3 28.2 25.7	QP [dB(μV)] 63.0 59.8 57.4 56.0	AV [dB(μV)] 53.0 49.8 47.4 46.0	QP [dB] 15.6 14.5 12.6 13.8	AV [dB] 21.6 21.5 19.2 20.3



5 Antenna requirement

According to FCC section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that 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)	±3.8 dB
Conducted emission, AMN (150 kHz – 30 MHz)	±3.3 dB
Radiated emission (9kHz – 30 MHz)	±3.1 dB
Radiated emission (30 MHz – 1000 MHz)	±4.9 dB
Radiated emission (1 GHz – 6 GHz)	±4.8 dB
Radiated emission (6 GHz – 18 GHz)	±5.1 dB
Radiated emission (18 GHz – 40 GHz)	±5.8 dB
Radio Frequency	±1.4 * 10 ⁻⁸
RF power, conducted	±0.6 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	Imit value +Uncertainty -Uncertainty Even if it takes uncertainty into consideration, Measured value a standard limit value is fulfilled. Although measured value is in a standard limit value, a limit value won't be fulfilled if uncertainty is taken into consideration.							
FAIL	Case4	Although measured value exceeds a standard limit value, a limit value will be fulfilled if uncertainty is taken into consideration.							
		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

 Fax:
 +81-238-28-2888

Accreditation and Registration

NVLAP LAB CODE: 200306-0

VLAC Accreditation No.: VLAC-013

BSMI

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

Innovation, Science and Economic Development Canada

Site number	Facility	Expiration date
4224A-4	3 m Semi-anechoic chamber	27-November-2020
4224A-5	10 m Semi-anechoic chamber No. 1	27-November-2020
4224A-6	10 m Semi-anechoic chamber No. 2	14-December-2019

VCCI Council

Registration number	Expiration date
A-0166	03-July-2021



Appendix A. Test Equipment

Antenna port conducted test

Equipment	Company	Model No.	Serial No.	Cal. Due	Cal. Date
Spectrum analyzer	Agilent Technologies	E4440A	US44302655	31-Aug-2020	05-Aug-2019
Attenuator	Weinschel	56-10	J4180	31-Jul-2020	18-Jul-2019
Power meter	ROHDE&SCHWARZ	NRP2	103269	31-Jul-2020	18-Jul-2019
Power sensor	ROHDE&SCHWARZ	NRP-Z81	102467	31-Jul-2020	18-Jul-2019

Radiated emission

Equipment	Company	Model No.	Serial No.	Cal. Due	Cal. Date
EMI Receiver	ROHDE&SCHWARZ	ESCI	100765	30-Sep-2019	20-Sep-2018
Spectrum analyzer	Agilent Technologies	E4440A	US44302655	31-Aug-2020	05-Aug-2019
Signal analyzer	ROHDE&SCHWARZ	FSV40	101731	31-Dec-2019	07-Dec-2018
Preamplifier	SONOMA	310	372170	30-Sep-2019	20-Sep-2018
Loop antenna	ROHDE&SCHWARZ	HFH2-Z2	100515	31-Mar-2020	07-Mar-2019
Attenuator	TOYO Connector	NA-PJ-6	N/A(S507)	31-Dec-2019	17-Dec-2018
Biconical antenna	Schwarzbeck	VHA9103/BBA9106	VHA91031308	31-May-2020	16-May-2019
Log periodic antenna	Schwarzbeck	UHALP9108A	0728	31-May-2020	16-May-2019
Attenuator	TAMAGAWA.ELEC	CFA-01/6dB	N/A(S465)	31-May-2020	17-May-2019
Attenuator	TAMAGAWA.ELEC	CFA-10/3dB	N/A(S503)	31-Jul-2020	17-Jul-2019
Preamplifier	TSJ	MLA-100M18-B02-40	1929118	31-Jan-2020	17-Jan-2019
Attenuator	AEROFLEX	26A-10	081217-08	31-Jan-2020	17-Jan-2019
Double ridged guide antenna	ETS LINDGREN	3117	00224193	31-Jan-2020	23-Jan-2019
Attenuator	Agilent Technologies	8491B	MY39268633	31-Mar-2020	08-Mar-2019
DRGH antenna	A.H.Systems Inc.	SAS-574	469	31-Aug-2019	24-Aug-2018
				31-Aug-2020	28-Aug-2019
Preamplifier	TSJ	MLA-1840-B03-35	1240332	31-Aug-2019	24-Aug-2018
				31-Aug-2020	28-Aug-2019
Notch filter	Micro-Tronics	BRM50702	045	31-May-2020	16-May-2019
Microwave cable	HUBER+SUHNER	SUCOFLEX104/9m	MY30037/4	31-Jan-2020	16-Jan-2019
		SUCOFLEX104/1m	my24610/4	31-Jan-2020	16-Jan-2019
		SUCOFLEX104/8m	SN MY30031/4	31-Jan-2020	16-Jan-2019
		SUCOFLEX104	MY32976/4	31-Jan-2020	16-Jan-2019
		SUCOFLEX104/1.5m	MY19309/4	31-Jan-2020	16-Jan-2019
		SUCOFLEX104/7m	41625/6	31-Jan-2020	16-Jan-2019
PC	DELL	DIMENSION E521	75465BX	N/A	N/A
Software	TOYO Corporation	EP5/RE-AJ	0611193/V5.6.0	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-2020	14-May-2019
3m Semi an-echoic Chamber	TOKIN	N/A	N/A(9002-SVSWR)	31-May-2020	13-May-2019

Conducted emission at mains port

Equipment	Company	Model No.	Serial No.	Cal. Due	Cal. Date
EMI Receiver	ROHDE&SCHWARZ	ESCI	100765	30-Sep-2019	20-Sep-2018
Attenuator	HUBER+SUHNER	6810.01.A	N/A (S411)	31-Jan-2020	17-Jan-2019
Line impedance stabilization network	Kyoritsu Electrical Works, Ltd.	TNW-407F2	12-17-110-2	31-May-2020	16-May-2019
Coaxial cable	FUJIKURA	5D-2W/4m	N/A (S350)	31-Jan-2020	16-Jan-2019
Coaxial cable	FUJIKURA	5D-2W/1m	N/A (S193)	31-Jan-2020	16-Jan-2019
Coaxial cable	HUBER+SUHNER	RG214/U/10m	N/A (S194)	31-Jan-2020	16-Jan-2019
PC	DELL	DIMENSION	75465BX	N/A	N/A
Software	TOYO Corporation	EP5/CE-AJ	0611193/V5.4.11	N/A	N/A

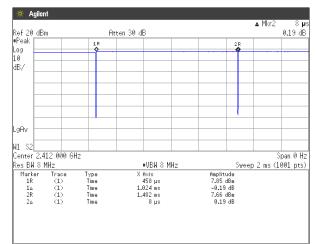
*: The calibrations of the above equipment are traceable to NIST or equivalent standards of the reference organizations.



Appendix B. Duty Cycle

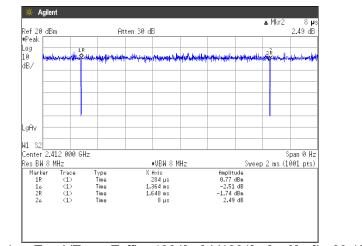
[Plot & Calculation]

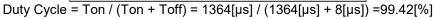
11b



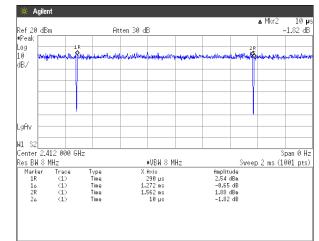
Duty Cycle = Ton / (Ton + Toff) = 1024[µs] / (1024[µs] + 8[µs]) =99.22[%]

11g





11n (HT20)



Duty Cycle = Ton / (Ton + Toff) = 1272[µs] / (1272[µs] + 10[µs]) =99.22[%]