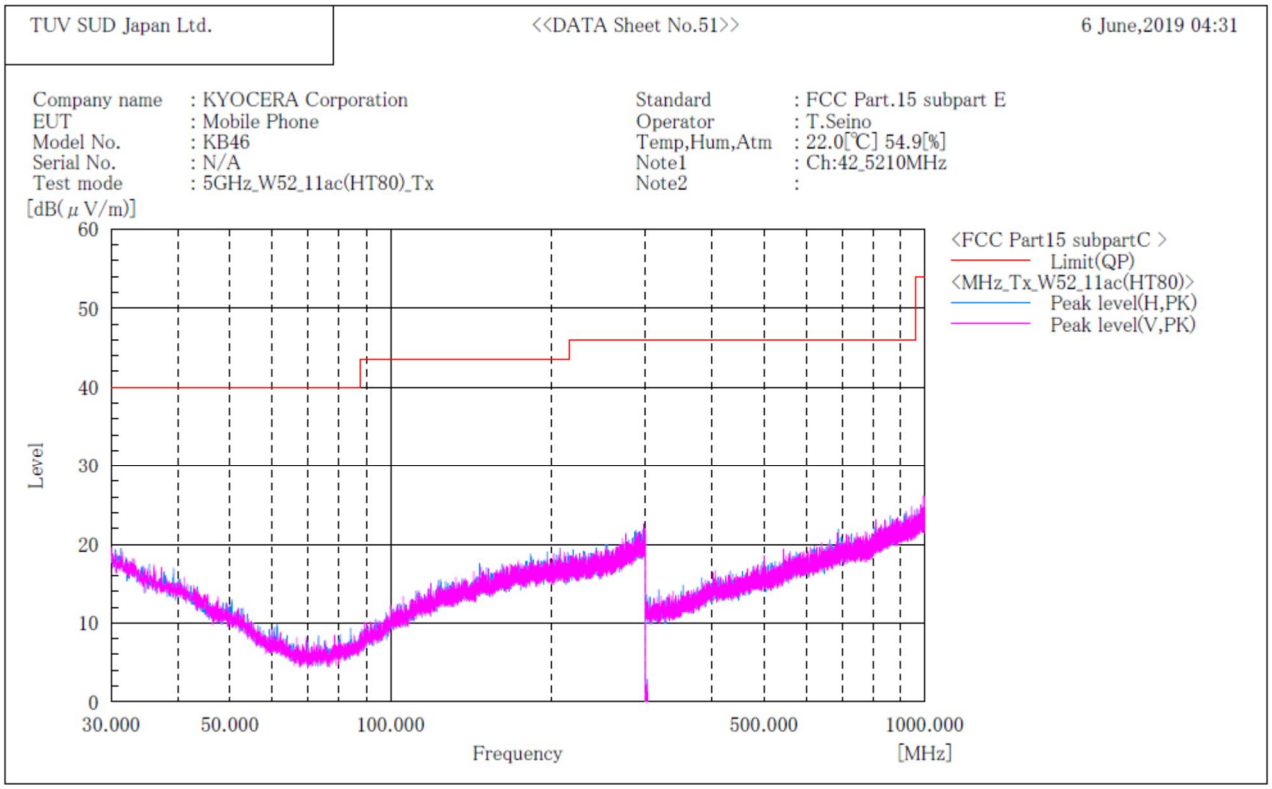
Japan

[11n(HT80)]
W52
BELOW 1GHz

******* RADIATED EMISSION *******
[3m Semi-anechoic chamber]

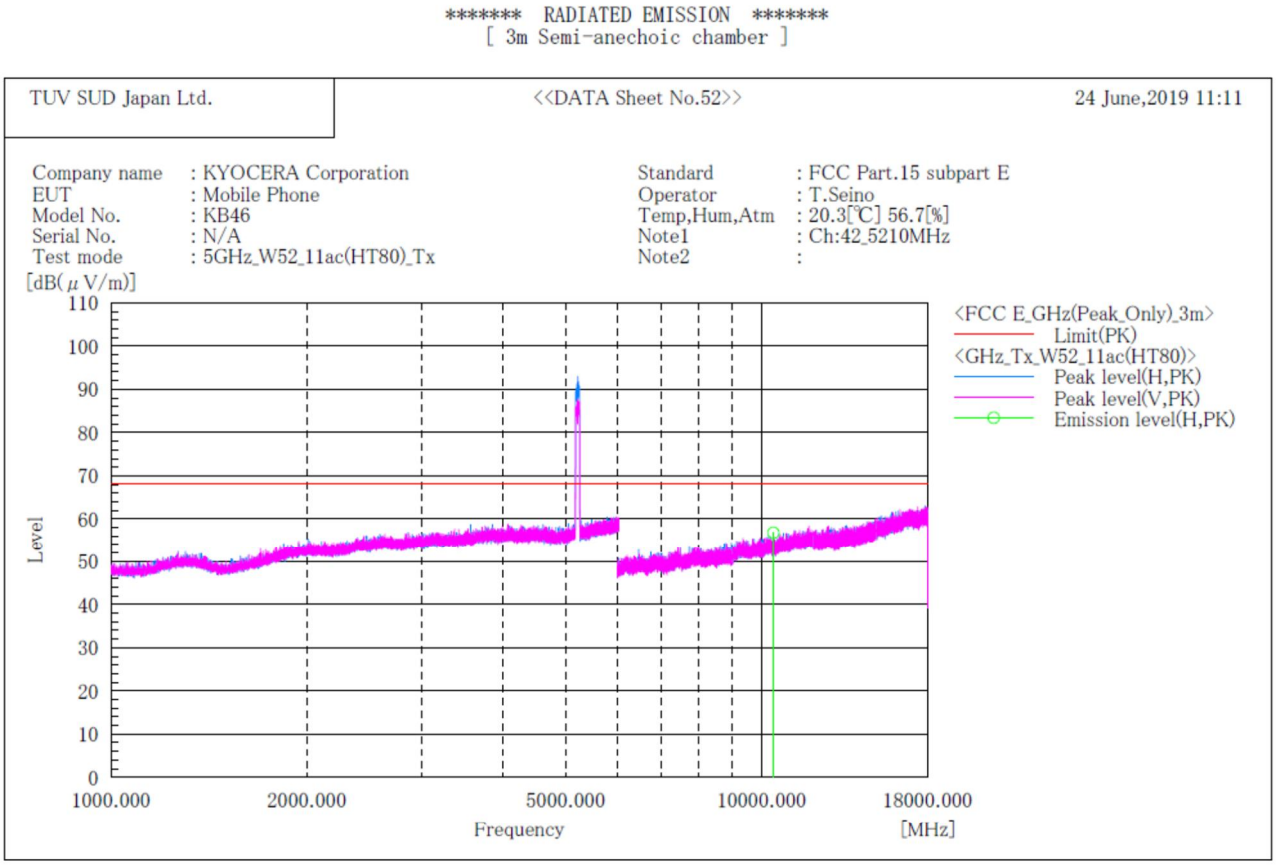


Final Result

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

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(HT80)]
W52
ABOVE 1GHz



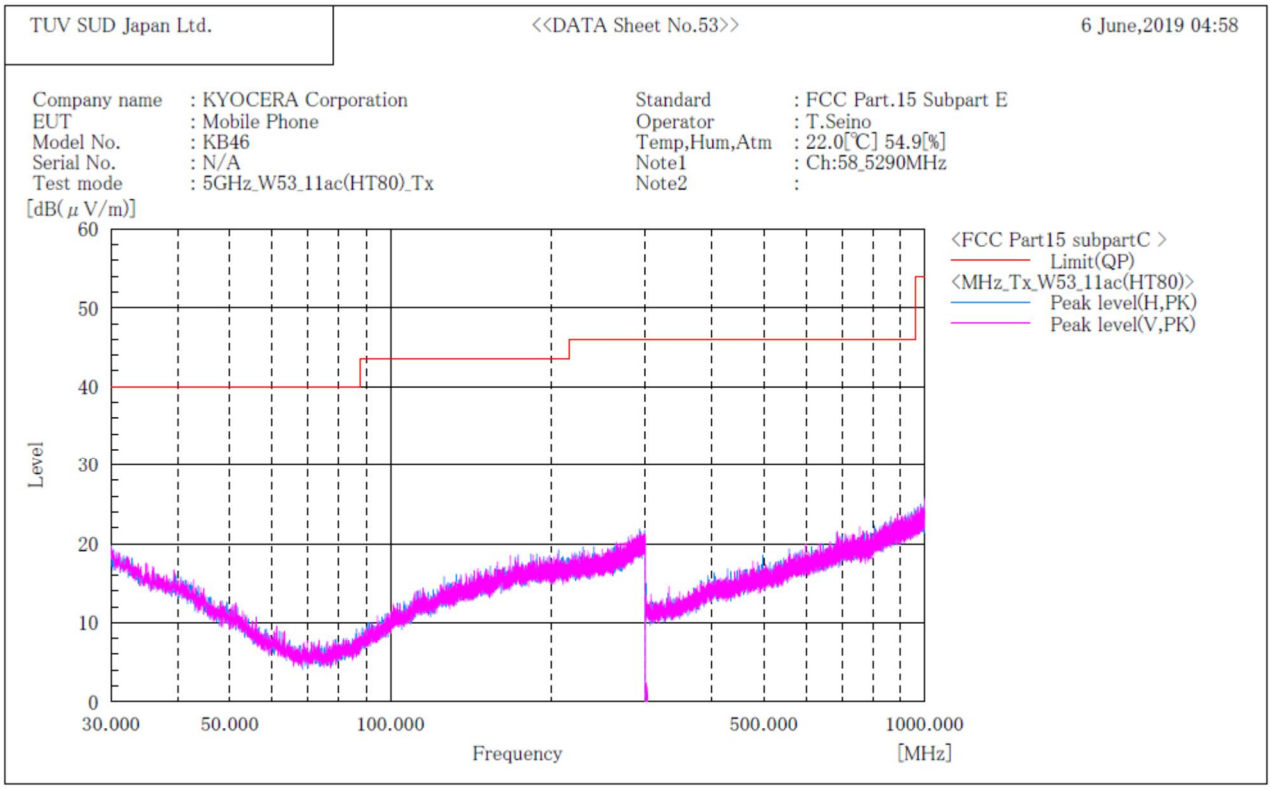
Final Result

No.	Frequency	(P)	Reading PK	c.f	Result PK	Limit PK	Margin PK	Height	Angle
	[MHz]		[dB(μV)]	[dB(1/m)]	[dB(μV/m)]	[dB(μV/m)]	[dB]	[cm]	[°]
1	10420.000	H	45.9	10.9	56.8	68.2	11.4	100.0	241.0

Note:
1. Emission Level (Margin) = Limit - [Reading + Factor (Antenna + Cable – Amp)]
2. No emission were detected in frequency range 18GHz to 40GHz at the 3 meters distance.

[11n(HT80)]
W53
BELOW 1GHz

******* RADIATED EMISSION *******
[3m Semi-anechoic chamber]



Final Result

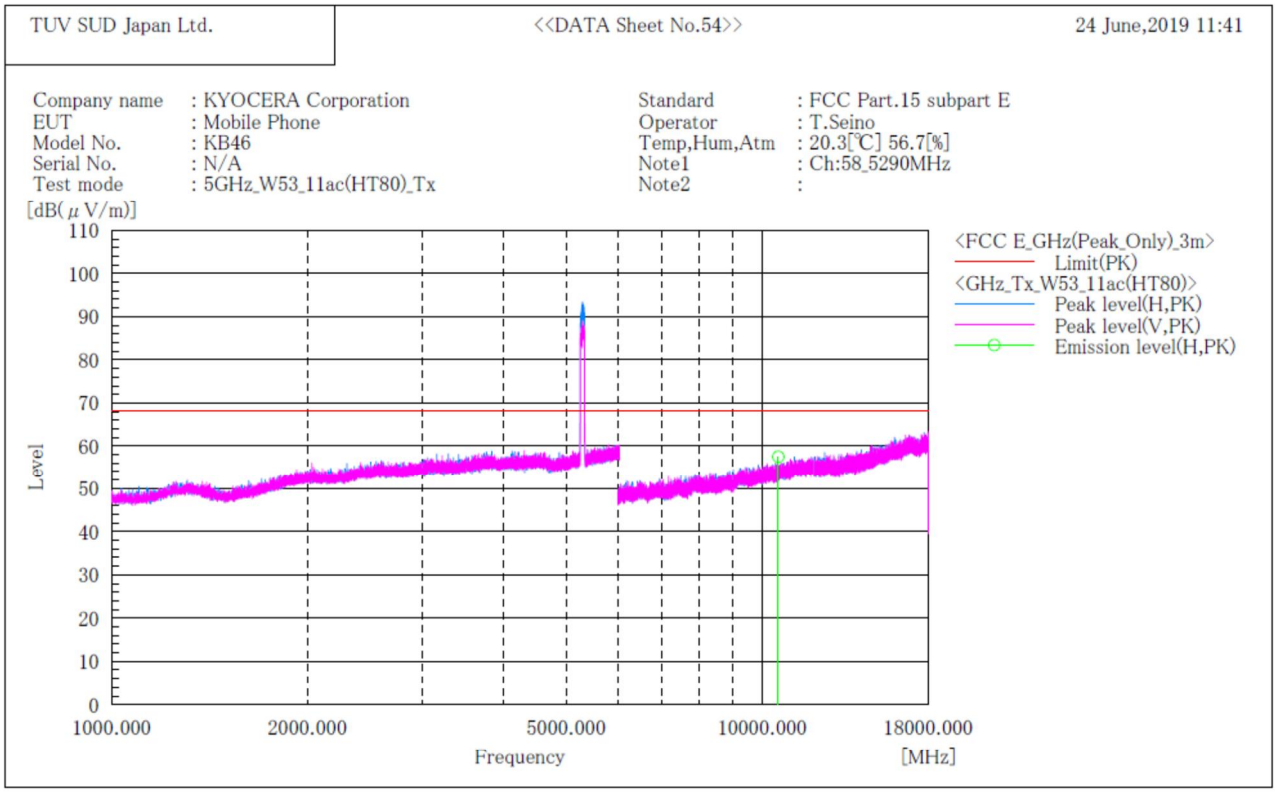
No.	Frequency [MHz]	(P)	c.f [dB(1/m)]	Height [cm]	Angle [°]

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.

Japan

[11n(HT80)]
W53
ABOVE 1GHz

******* RADIATED EMISSION *******
[3m Semi-anechoic chamber]



Final Result

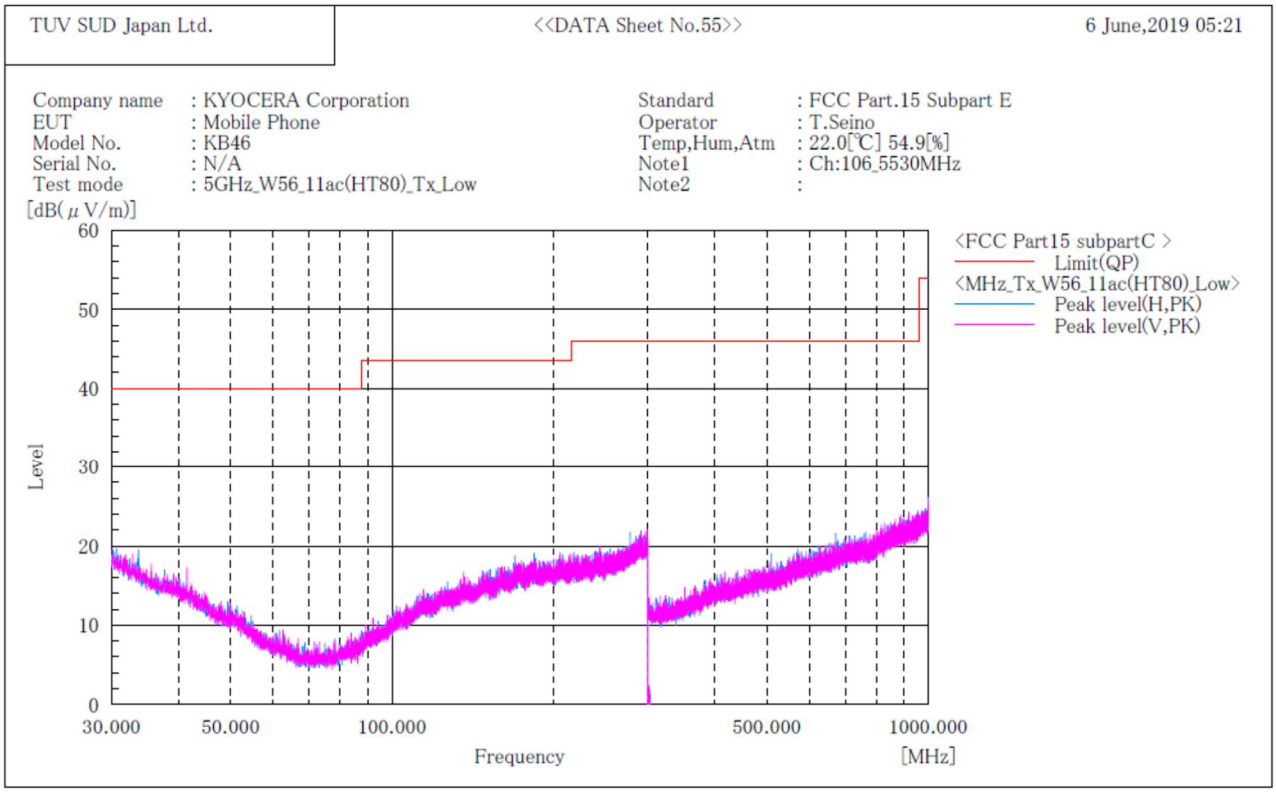
No.	Frequency	(P)	Reading PK	c.f	Result PK	Limit PK	Margin PK	Height	Angle
	[MHz]		[dB(μV)]	[dB(1/m)]	[dB(μV/m)]	[dB(μV/m)]	[dB]	[cm]	[°]
1	10580.000	H	46.3	11.2	57.5	68.2	10.7	100.0	247.0

Note:
1. Emission Level (Margin) = Limit - [Reading + Factor (Antenna + Cable – Amp)]
2. No emission were detected in frequency range 18GHz to 40GHz at the 3 meters distance.

Japan

[11n(HT80)]
W56 / Channel Low
BELOW 1GHz

******* RADIATED EMISSION *******
[3m Semi-anechoic chamber]



Final Result

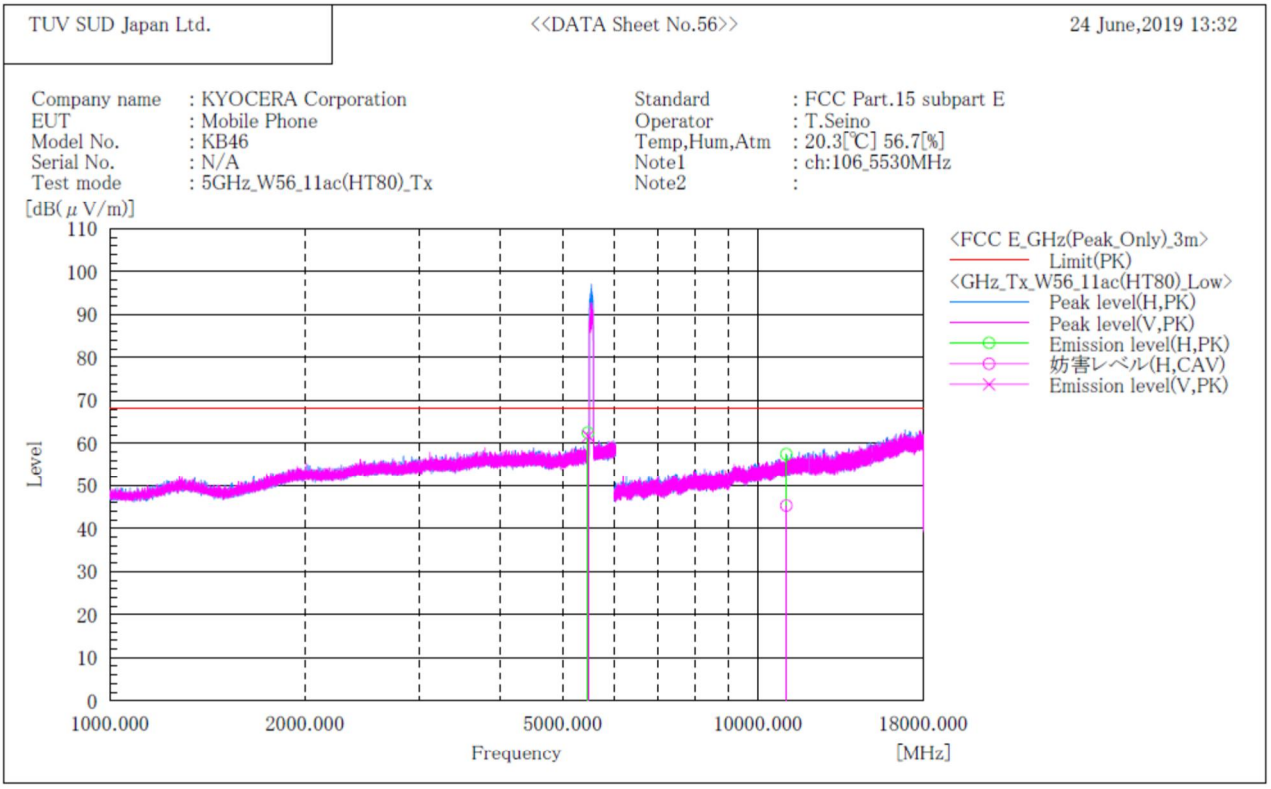
No.	Frequency [MHz]	(P)	c.f [dB(1/m)]	Height [cm]	Angle [°]

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.

Japan

[11n(HT80)]
W56 / Channel Low
ABOVE 1GHz

******* RADIATED EMISSION *******
[3m Semi-anechoic chamber]



Final Result

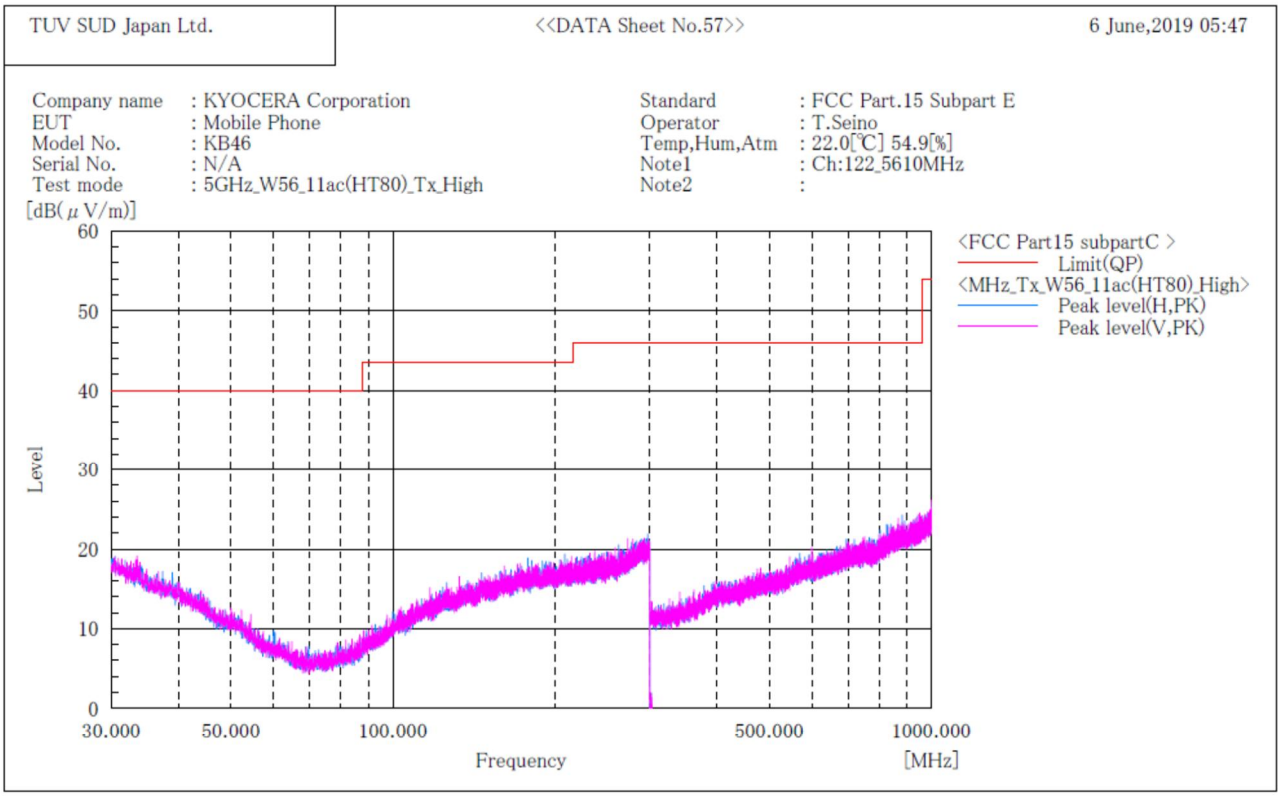
No.	Frequency [MHz]	(P)	Reading PK [dB(μV)]	Reading CAV [dB(μV)]	c.f [dB(1/m)]	Result PK [dB(μV/m)]	Result CAV [dB(μV/m)]	Limit PK [dB(μV/m)]	Margin PK [dB]	Margin CAV [dB]	Height [cm]	Angle [°]
1	5463.360	H	51.5	--------	11.0	62.5	--------	68.2	5.7	--------	100.0	281.0
2	5467.610	V	50.7	--------	11.0	61.7	--------	68.2	6.5	--------	100.0	60.0
3	11060.000	H	45.6	33.4	11.9	57.5	45.3	74.0	16.5	8.7	100.0	279.0

Note:
1. Emission Level (Margin) = Limit - [Reading + Factor (Antenna + Cable – Amp)]
2. No emission were detected in frequency range 18GHz to 40GHz at the 3 meters distance.

Japan

[11n(HT80)]
W56 / Channel High
BELOW 1GHz

******* RADIATED EMISSION *******
[3m Semi-anechoic chamber]



Final Result

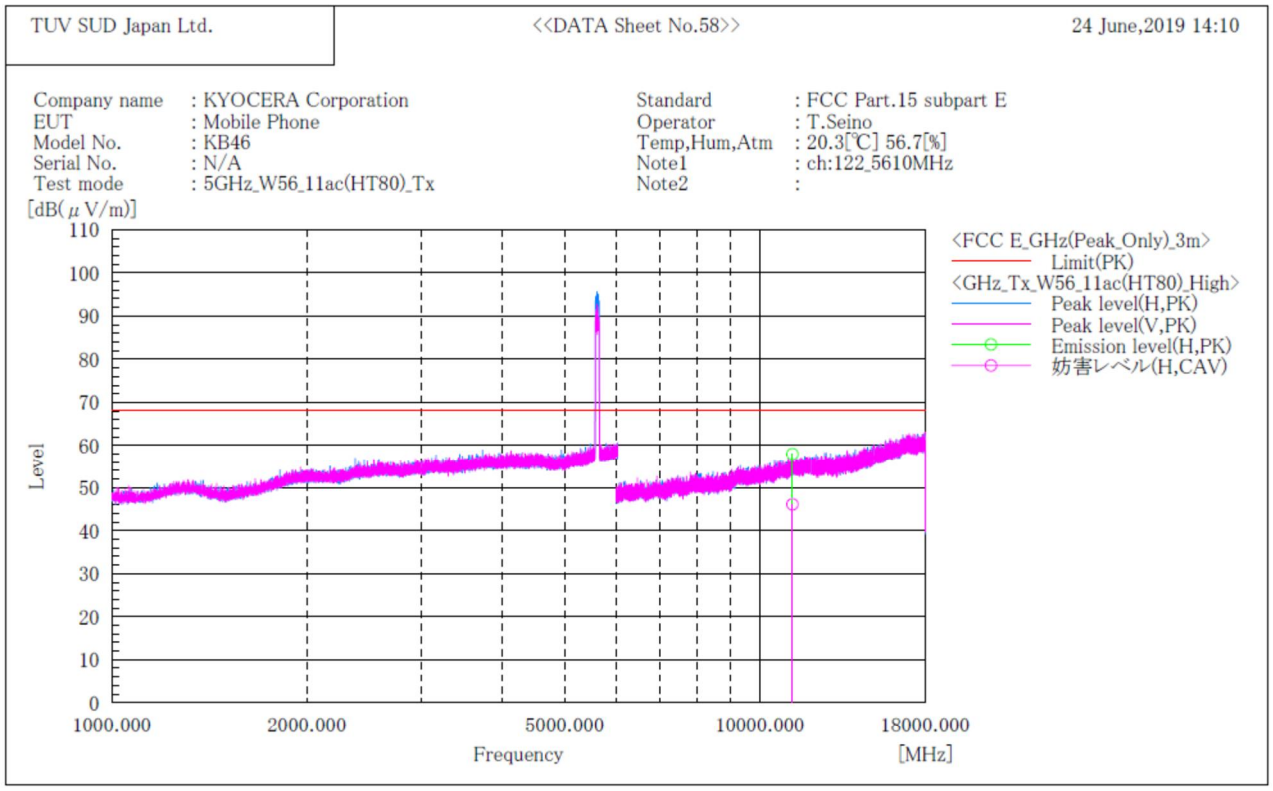
No.	Frequency [MHz]	(P)	c.f [dB(1/m)]	Height [cm]	Angle [°]

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.

Japan

[11n(HT80)]
W56 / Channel High
ABOVE 1GHz

******* RADIATED EMISSION *******
[3m Semi-anechoic chamber]



Final Result

No.	Frequency	(P)	Reading PK	Reading CAV	c.f	Result PK	Result CAV	Limit PK	Margin PK	Margin CAV	Height	Angle
	[MHz]		[dB(μV)]	[dB(μV)]	[dB(1/m)]	[dB(μV/m)]	[dB(μV/m)]	[dB(μV/m)]	[dB]	[dB]	[cm]	[°]
1	11220.000	H	45.9	34.0	12.1	58.0	46.1	74.0	16.0	7.9	100.0	279.0

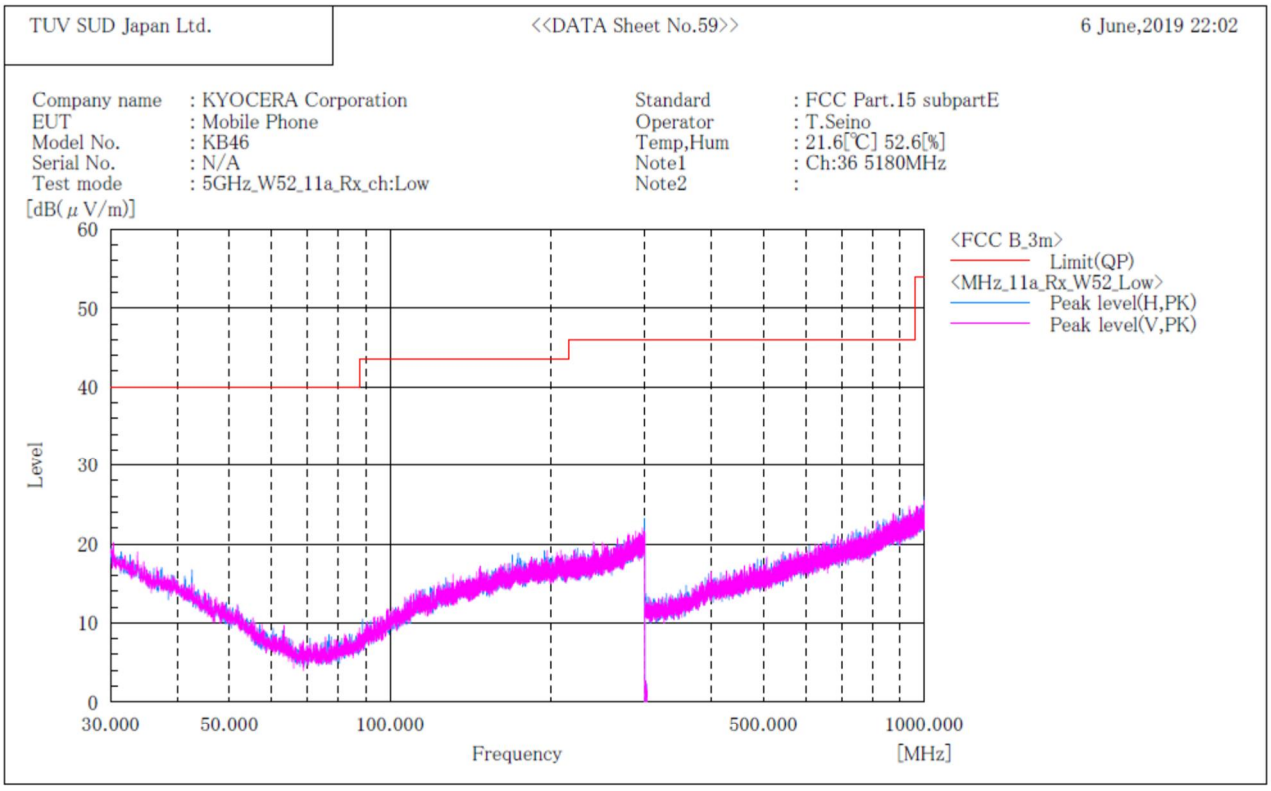
Note:
1. Emission Level (Margin) = Limit - [Reading + Factor (Antenna + Cable – Amp)]
2. No emission were detected in frequency range 18GHz to 40GHz at the 3 meters distance.

Japan

Receive mode

W52 / Channel Low
BELOW 1GHz

******* RADIATED EMISSION *******
[3m Semi-anechoic chamber]



Final Result

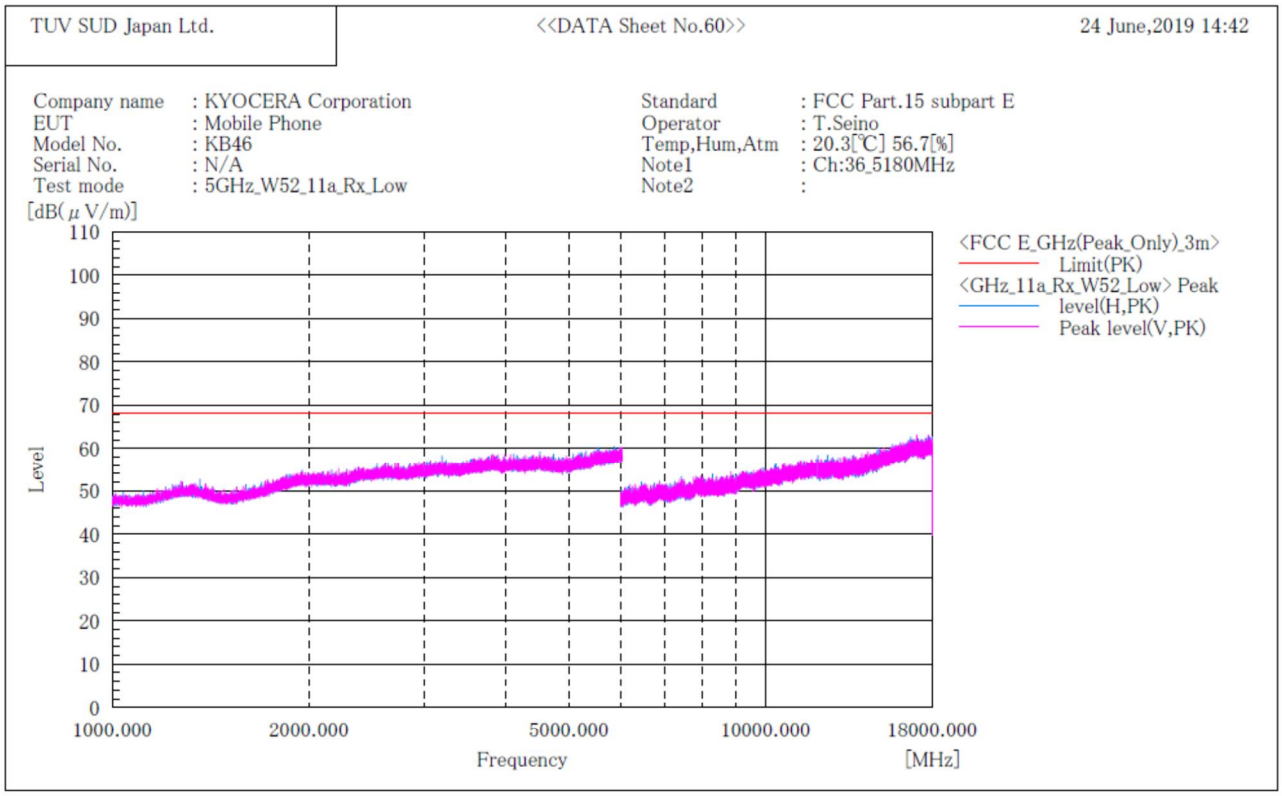
No.	Frequency [MHz]	(P)	c.f [dB(1/m)]	Height [cm]	Angle [°]

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.

Japan

W52 / Channel Low
ABOVE 1GHz

******* RADIATED EMISSION *******
[3m Semi-anechoic chamber]



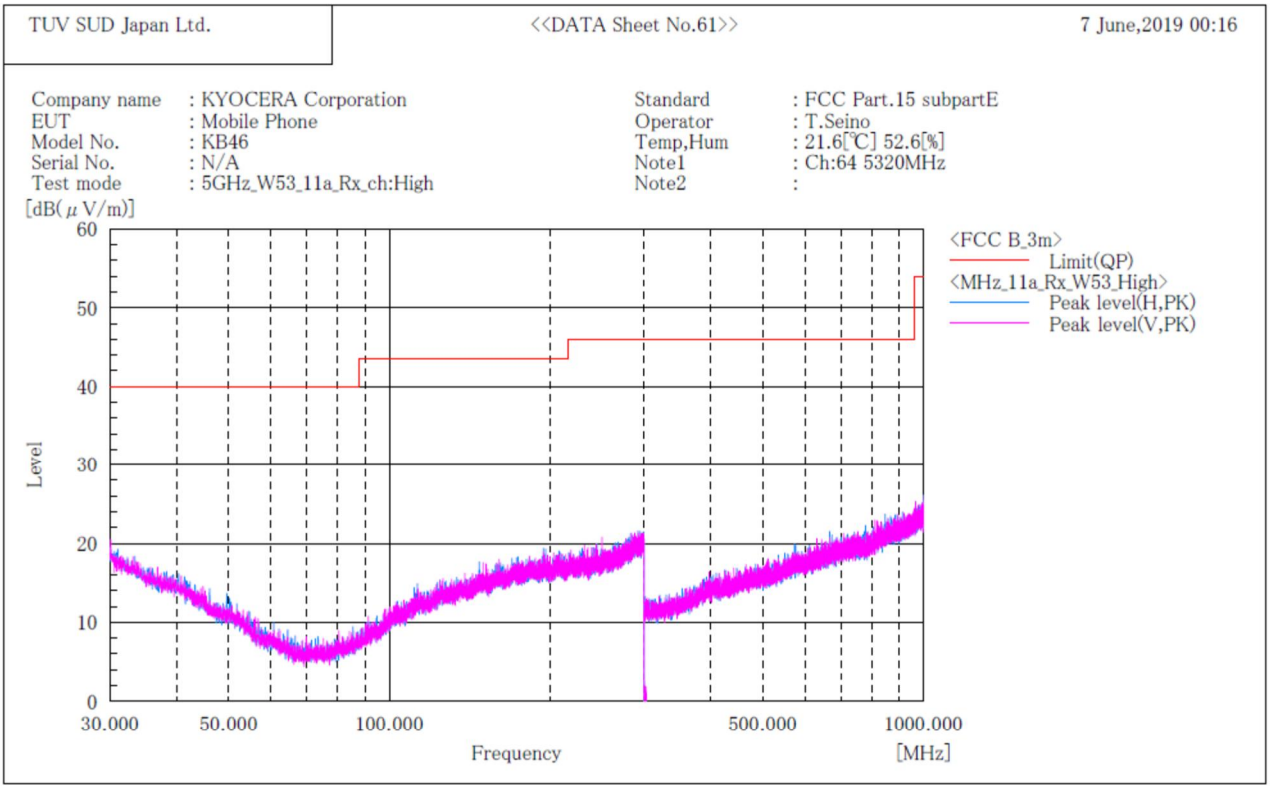
Final Result

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

Note:
1. Emission Level (Margin) = Limit - [Reading + Factor (Antenna + Cable – Amp)]
2. No emission were detected in frequency range 18GHz to 40GHz at the 3 meters distance.

W53 / Channel High
BELOW 1GHz

******* RADIATED EMISSION *******
[3m Semi-anechoic chamber]



Final Result

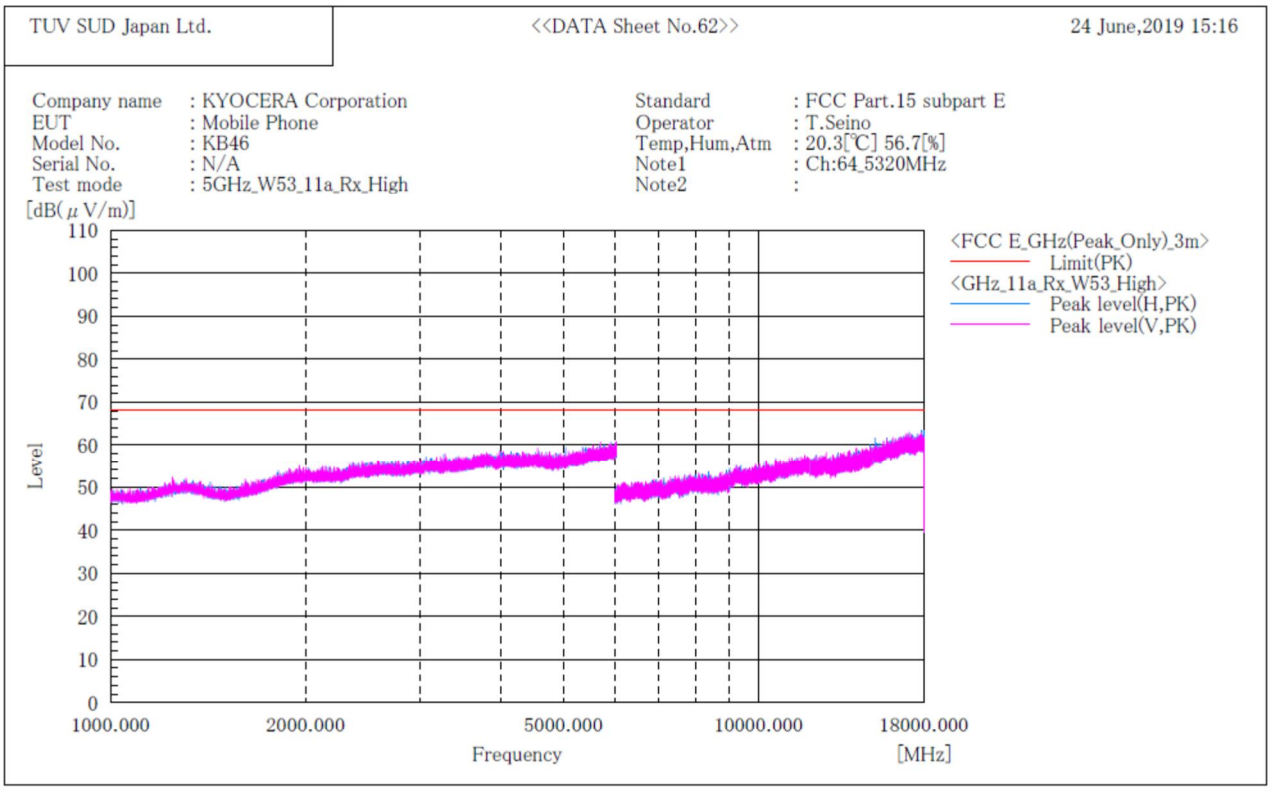
No.	Frequency [MHz]	(P)	c.f [dB(1/m)]	Height [cm]	Angle [°]

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.

Japan

W53 / Channel High
ABOVE 1GHz

******* RADIATED EMISSION *******
[3m Semi-anechoic chamber]



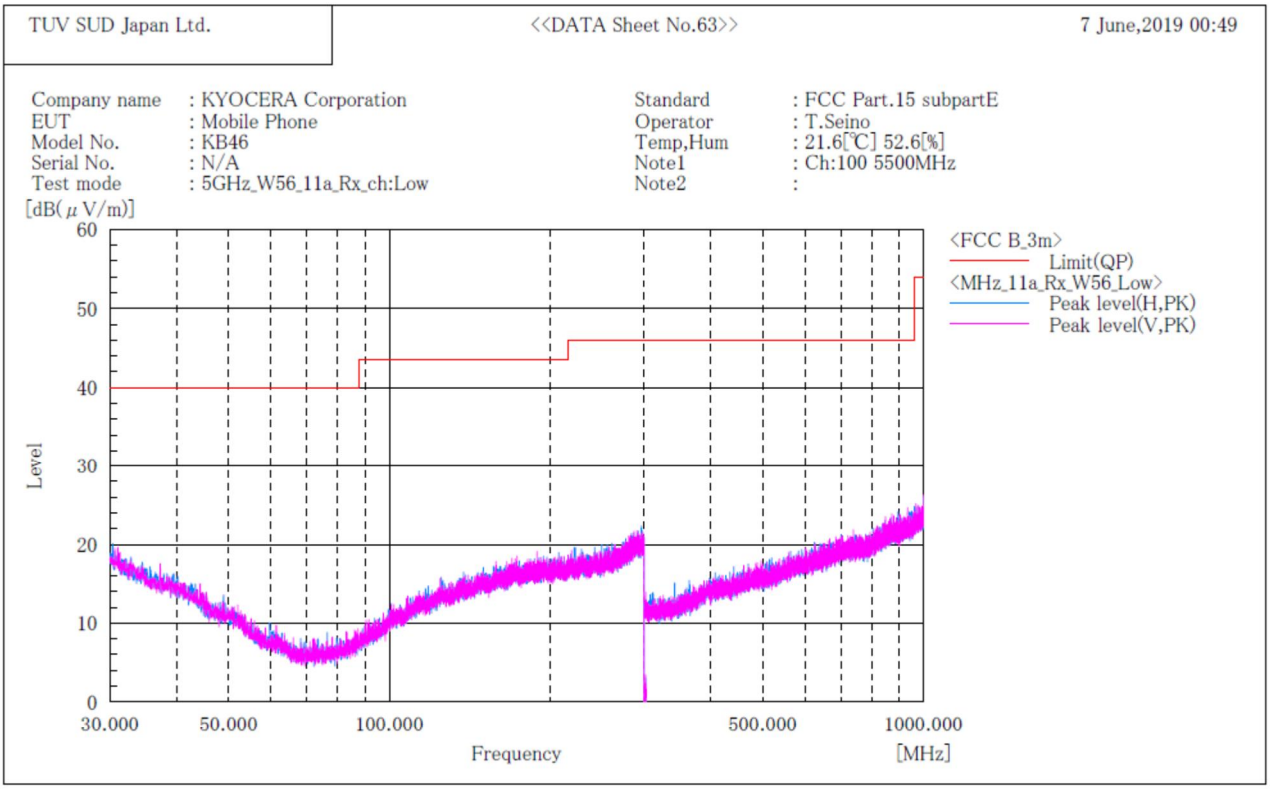
Final Result

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

Note:
1. Emission Level (Margin) = Limit - [Reading + Factor (Antenna + Cable – Amp)]
2. No emission were detected in frequency range 18GHz to 40GHz at the 3 meters distance.

W56 / Channel Low
BELOW 1GHz

******* RADIATED EMISSION *******
[3m Semi-anechoic chamber]



Final Result

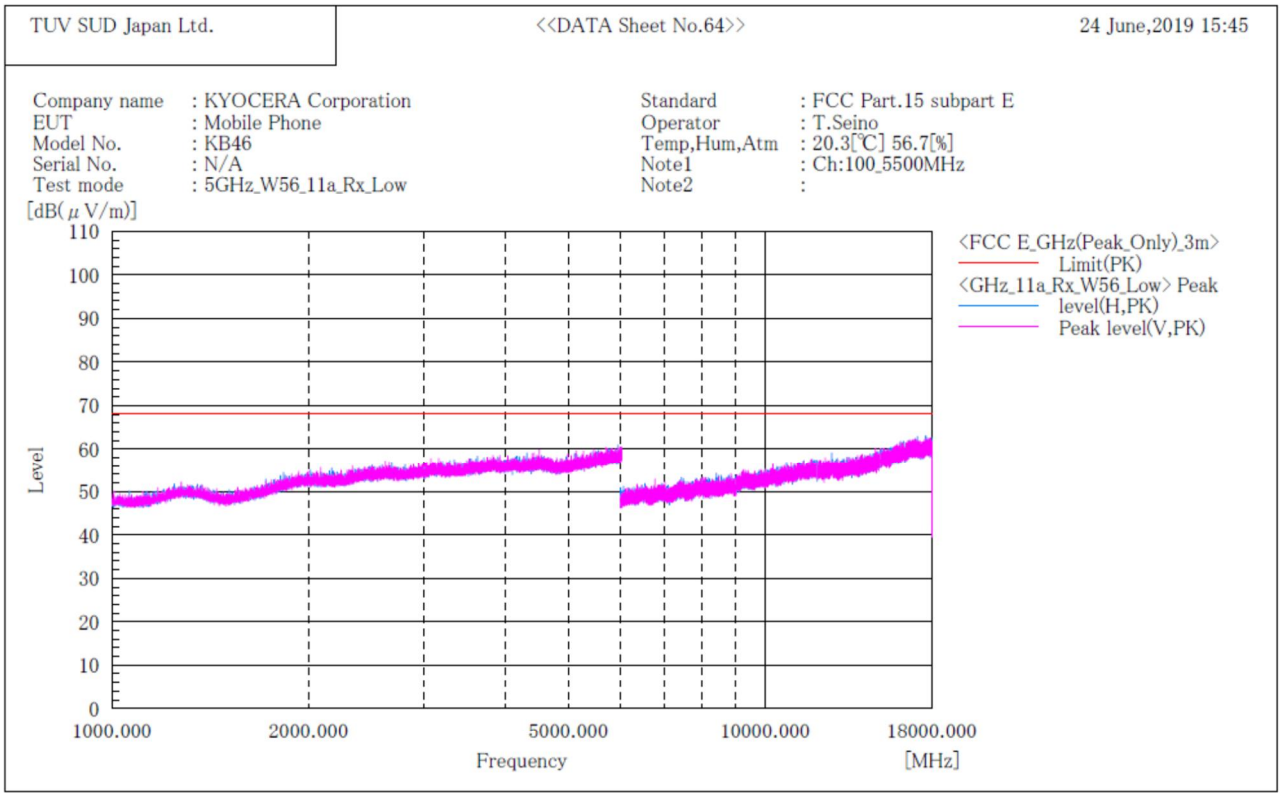
No.	Frequency [MHz]	(P)	c.f [dB(1/m)]	Height [cm]	Angle [°]

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.

Japan

W56 / Channel Low
ABOVE 1GHz

******* RADIATED EMISSION *******
[3m Semi-anechoic chamber]



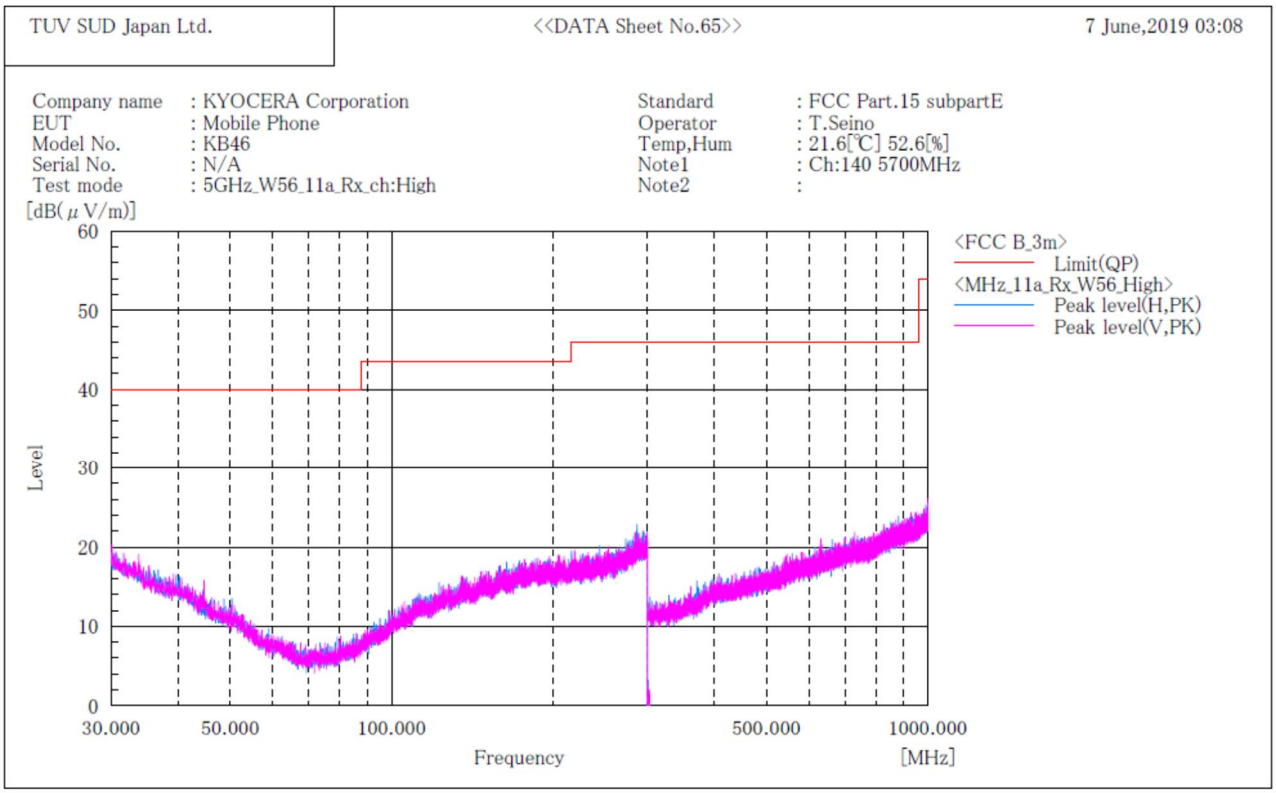
Final Result

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

Note:
1. Emission Level (Margin) = Limit - [Reading + Factor (Antenna + Cable – Amp)]
2. No emission were detected in frequency range 18GHz to 40GHz at the 3 meters distance.

W56 / Channel High
BELOW 1GHz

******* RADIATED EMISSION *******
[3m Semi-anechoic chamber]



Final Result

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

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.

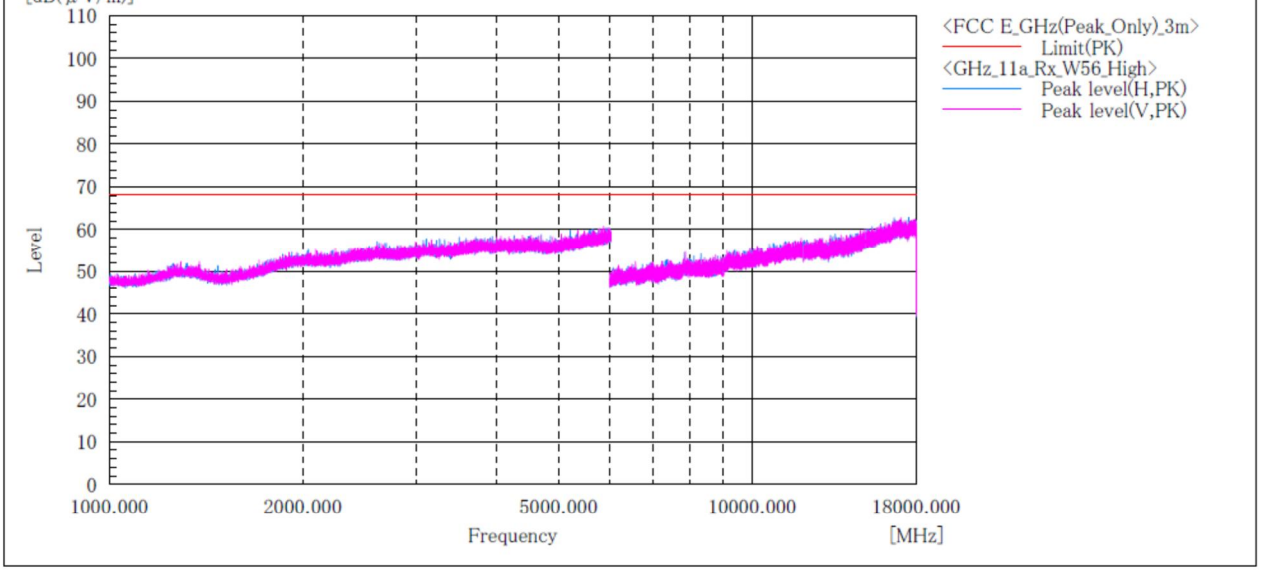
Japan

W56 / Channel High
ABOVE 1GHz

******* RADIATED EMISSION *******
[3m Semi-anechoic chamber]

TUV SUD Japan Ltd. <<DATA Sheet No.66>> 24 June,2019 16:18

Company name	: KYOCERA Corporation	Standard	: FCC Part.15 subpart E
EUT	: Mobile Phone	Operator	: T.Seino
Model No.	: KB46	Temp,Hum,Atm	: 20.3[℃] 56.7[%]
Serial No.	: N/A	Note1	: Ch:140_5700MHz
Test mode	: 5GHz_W56_11a_Rx_High	Note2	:



Final Result

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

Note:
1. Emission Level (Margin) = Limit - [Reading + Factor (Antenna + Cable – Amp)]
2. No emission were detected in frequency range 18GHz to 40GHz at the 3 meters distance.

Japan

4.5 Frequency Stability

4.5.1 Measurement procedure

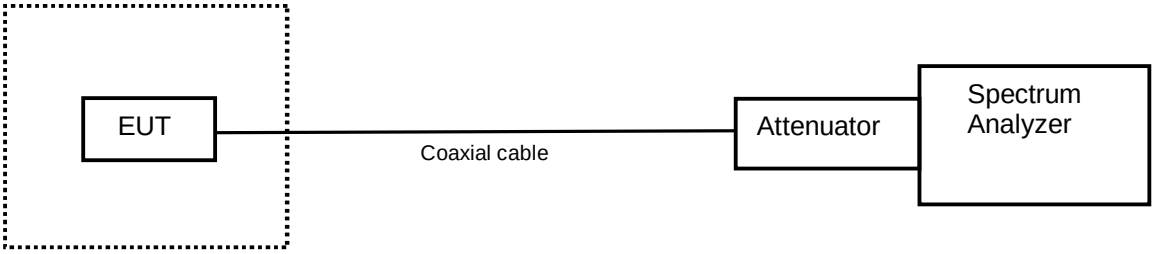
[FCC 15.407(g)]

The EUT was placed of an inside of an constant temperature chamber as the temperature in the chamber was varied between -30˚C and +60˚C. The temperature was incremented by 10˚C intervals and the unit was allowed to stabilize at each measurement. The center frequency of the transmitting channel was evaluated at each temperature and the frequency deviation from the channels center frequency was recorded.

The EUT was set to operate with following conditions.
- 5.2 GHz Band, 5.3 GHz Band, 5.6 GHz Band

The test mode of EUT is as follows.
- Tx mode

- Test configuration



Constant Temperature Chamber

4.5.2 Limit

Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified.

Japan

4.5.3 Measurement result

Date : 3-June-2019
Temperature : 23.8 [˚C]
Humidity : 48.4 [%] Test engineer :
Test place : Shielded room No.4 Chiaki Kanno

Date : 4-June-2019
Temperature : 24.1 [˚C]
Humidity : 46.6 [%] Test engineer :
Test place : Shielded room No.4 Chiaki Kanno

[Channel: 36 (5180 MHz)]

Power Supply [V]	Temperature [ºC]	Measurements Frequency (startup) [Hz]	Frequency Tolerance (startup) [ppm]	Measurements Frequency (2mins) [Hz]	Frequency Tolerance (2mins) [ppm]	Measurements Frequency (5mins) [Hz]	Frequency Tolerance (5mins) [ppm]	Measurements Frequency (10mins) [Hz]	Frequency Tolerance (10mins) [ppm]
3.80	25(Ref.)	5180011238	0.00000000	5180010172	-0.20579106	5180006482	-0.91814473	5180011412	0.03359066
	60	5179979543	-6.11871259	5179999868	-2.19497593	5179994816	-3.17026339	5179995377	-3.06196247
	50	5179969686	-8.02160422	5179986485	-4.77856106	5179990669	-3.97084081	5179997652	-2.62277423
	40	5179991681	-3.77547443	5179999567	-2.25308392	5179996243	-2.89478136	5179996214	-2.90037981
	30	5180003248	-1.54246770	5180004715	-1.25926368	5180007148	-0.78957358	5180004515	-1.29787363
	20	5180017894	1.28493930	5180014310	0.59304891	5180015695	0.86042284	5180019026	1.50347164
	10	5180027326	3.10578477	5180026896	3.02277336	5180032576	4.11929608	5180034347	4.46118723
	0	5180049435	7.37392223	5180042197	5.97662796	5180042960	6.12392494	5180045947	6.70056461
	-10	5180051841	7.83839998	5180040665	5.68087571	5180038356	5.23512378	5180023607	2.38783266
	-20	5179980238	-5.98454300	5180023635	2.39323805	5180030412	3.70153637	5180046640	6.83434811
	-30	5180017425	1.19439895	5179987084	-4.66292425	5179996013	-2.93918281	5180021994	2.07644337
3.42	25	5180005916	-1.02741090	5180006900	-0.83744992	5180019155	1.52837506	5179992160	-3.68300359
4.18	25	5180033930	4.38068548	5179993840	-3.35867997	5180020823	1.85038209	5180009874	-0.26331989

Frequency Tolerance (ppm) = Measurements Frequency (Hz) – Reference Frequency (Hz) / Reference Frequency (Hz) x 1000000

Japan

[Channel: 64 (5320 MHz)]

Power Supply [V]	Temperature [ºC]	Measurements Frequency (startup) [Hz]	Frequency Tolerance (startup) [ppm]	Measurements Frequency (2mins) [Hz]	Frequency Tolerance (2mins) [ppm]	Measurements Frequency (5mins) [Hz]	Frequency Tolerance (5mins) [ppm]	Measurements Frequency (10mins) [Hz]	Frequency Tolerance (10mins) [ppm]
3.80	25(Ref.)	5320008624	0.00000000	5320014228	1.05338175	5320016571	1.49379457	5320013584	0.93232932
	60	5320002084	-1.22932132	5319981588	-5.08194665	5319982861	-4.84266132	5319983658	-4.69284954
	50	5319974499	-6.41446329	5319998537	-1.89604956	5319988183	-3.84228700	5319987958	-3.88458017
	40	5319999192	-1.77292946	5319990484	-3.40976891	5319990479	-3.41070876	5319992095	-3.10694985
	30	5320008740	0.02180448	5320008047	-0.10845847	5320006011	-0.49116462	5320007276	-0.25338305
	20	5320008353	-0.05093977	5320017348	1.63984697	5320010255	0.30657845	5320006949	-0.31484911
	10	5320035155	4.98702199	5320023590	2.81315333	5320028528	3.74134732	5320024486	2.98157411
	0	5320039172	5.74209595	5320045331	6.89980085	5320050303	7.83438580	5320048079	7.41634136
	-10	5320011276	0.49849543	5320026249	3.31296455	5320018755	1.90432022	5320035224	4.99999189
	-20	5319989416	-3.61052046	5320034309	4.82799969	5320052160	8.18344538	5320035535	5.05845045
	-30	5320015161	1.22875741	5320029309	3.88815159	5320039730	5.84698300	5320048124	7.42479999
3.42	25	5320007452	-0.22030039	5320024505	2.98514554	5320008681	0.01071427	5319994729	-2.61183787
4.18	25	5320035307	5.01559337	5320038651	5.64416378	5319984356	-4.56164674	5319991636	-3.19322791

Frequency Tolerance (ppm) = Measurements Frequency (Hz) – Reference Frequency (Hz) / Reference Frequency (Hz) x 1000000

[Channel: 140 (5700 MHz)]

Power Supply [V]	Temperature [ºC]	Measurements Frequency (startup) [Hz]	Frequency Tolerance (startup) [ppm]	Measurements Frequency (2mins) [Hz]	Frequency Tolerance (2mins) [ppm]	Measurements Frequency (5mins) [Hz]	Frequency Tolerance (5mins) [ppm]	Measurements Frequency (10mins) [Hz]	Frequency Tolerance (10mins) [ppm]
3.80	25(Ref.)	5699987697	0.00000000	5699994894	1.26263430	5700005538	3.13000676	5700001033	2.33965417
	60	5699993444	1.00824779	5699972520	-2.66263733	5699980314	-1.29526595	5699979674	-1.40754690
	50	5699989039	0.23543910	5699978457	-1.62105613	5699988800	0.19350919	5699985465	-0.39157979
	40	5699990079	0.41789564	5699982676	-0.88087909	5699983663	-0.70772083	5699984490	-0.56263279
	30	5700001013	2.33614539	5699993711	1.05509000	5699994453	1.18526572	5699994595	1.21017805
	20	5700014430	4.69001012	5700007209	3.42316528	5699998580	1.90930237	5699997020	1.63561757
	10	5700042664	9.64335415	5700031833	7.74317461	5700027178	6.92650618	5700027763	7.02913798
	0	5700043476	9.78581060	5700043760	9.83563526	5700048720	10.70581258	5700046691	10.34984690
	-10	5699985040	-0.46614136	5700027795	7.03475203	5700033413	8.02036819	5700043490	9.78826674
	-20	5700038952	8.99212467	5700009870	3.89000840	5700045599	10.15826754	5699990715	0.52947483
	-30	5699978906	-1.54228403	5700014911	4.77439627	5699988269	0.10035109	5699963844	-4.18474587
3.42	25	5700014149	4.64071177	5700032222	7.81142037	5700026975	6.89089207	5699997742	1.76228451
4.18	25	5700021614	5.95036372	5699996567	1.55614371	5699976982	-1.87982862	5700032159	7.80036771

Frequency Tolerance (ppm) = Measurements Frequency (Hz) – Reference Frequency (Hz) / Reference Frequency (Hz) x 1000000

Japan

4.6 AC Power Line Conducted Emissions

4.6.1 Measurement procedure

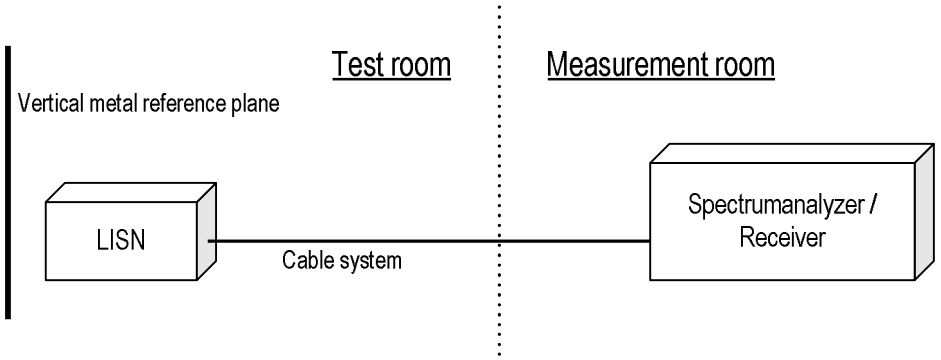
[FCC 15.207]

Test was applied by following conditions.

Test method	:	ANSI C63.10
Frequency range	:	0.15 MHz to 30 MHz
Test place	:	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 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



4.6.2 Calculation method

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

Japan

4.6.3 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 0.15 MHz to 0.5 MHz.

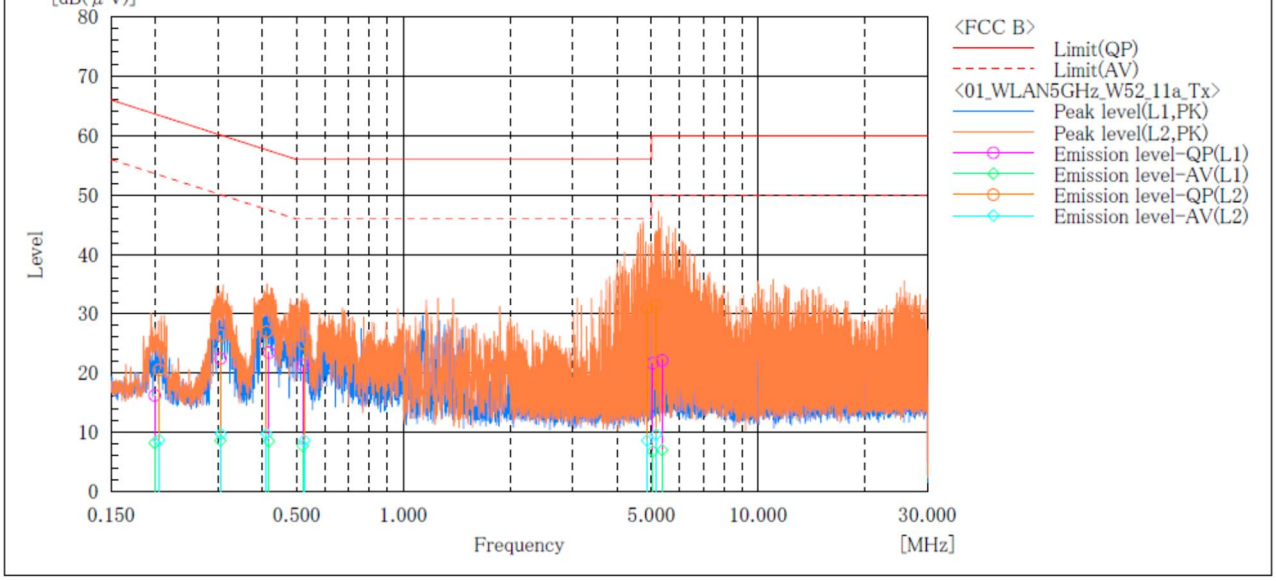
Japan

4.6.4 Test data

***** CONDUCTED EMISSION at MAINS PORT *****
[3m Semi-anechoic chamber]

TUV SUD Japan Ltd. | <<Data Sheet No.1>> | 8 June,2019 03:00

Company Name	: KYOCERA Corporation	Standard	: FCC Part.15 Subpart E
EUT	: Mobile Phone	Operator	: T.Seino
Model No.	: KB46	Temp,Hum,Atm	: 21.0[℃] 61.0[%]
Serial No.	: N/A	Note1	:
Test mode	: 5GHz_W52_11a_Tx	Note2	:



Final Result

--- L1 Phase ---

No.	Frequency [MHz]	Reading QP [dB(μV)]	Reading AV [dB(μV)]	c.f [dB]	Result QP [dB(μV)]	Result AV [dB(μV)]	Limit QP [dB(μV)]	Limit AV [dB(μV)]	Margin QP [dB]	Margin AV [dB]
1	0.199	5.7	-2.3	10.5	16.2	8.2	63.7	53.7	47.5	45.5
2	0.305	12.0	-1.8	10.4	22.4	8.6	60.1	50.1	37.7	41.5
3	0.418	13.0	-1.9	10.4	23.4	8.5	57.5	47.5	34.1	39.0
4	0.520	10.9	-2.7	10.4	21.3	7.7	56.0	46.0	34.7	38.3
5	5.039	10.9	-3.9	10.7	21.6	6.8	60.0	50.0	38.4	43.2
6	5.361	11.4	-3.7	10.7	22.1	7.0	60.0	50.0	37.9	43.0

--- L2 Phase ---

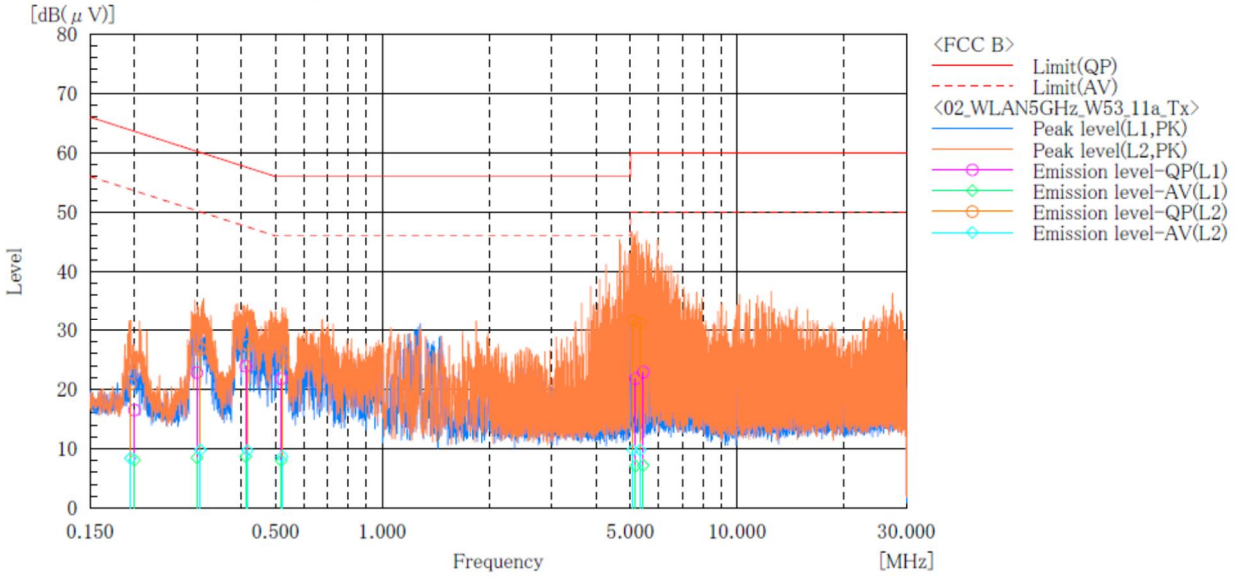
No.	Frequency [MHz]	Reading QP [dB(μV)]	Reading AV [dB(μV)]	c.f [dB]	Result QP [dB(μV)]	Result AV [dB(μV)]	Limit QP [dB(μV)]	Limit AV [dB(μV)]	Margin QP [dB]	Margin AV [dB]
1	0.205	10.1	-1.7	10.4	20.5	8.7	63.4	53.4	42.9	44.7
2	0.306	15.9	-0.7	10.4	26.3	9.7	60.1	50.1	33.8	40.4
3	0.411	16.5	-0.7	10.4	26.9	9.7	57.6	47.6	30.7	37.9
4	0.525	14.5	-1.8	10.4	24.9	8.6	56.0	46.0	31.1	37.4
5	4.857	20.2	-2.1	10.7	30.9	8.6	56.0	46.0	25.1	37.4
6	5.159	20.9	-1.1	10.7	31.6	9.6	60.0	50.0	28.4	40.4

***** CONDUCTED EMISSION at MAINS PORT *****
[3m Semi-anechoic chamber]

TUV SUD Japan Ltd. <<Data Sheet No.2>> 8 June,2019 03:33

Company Name : KYOCERA Corporation
EUT : Mobile Phone
Model No. : KB46
Serial No. : N/A
Test mode : 5GHz_W53_11a_Tx

Standard : FCC Part.15 Subpart E
Operator : T.Seino
Temp,Hum,Atm : 21.0[℃] 61.0[%]
Note1 :
Note2 :



Final Result

--- L1 Phase ---

No.	Frequency [MHz]	Reading QP [dB(μV)]	Reading AV [dB(μV)]	c.f [dB]	Result QP [dB(μV)]	Result AV [dB(μV)]	Limit QP [dB(μV)]	Limit AV [dB(μV)]	Margin QP [dB]	Margin AV [dB]
1	0.200	6.0	-2.4	10.5	16.5	8.1	63.6	53.6	47.1	45.5
2	0.300	12.4	-1.9	10.4	22.8	8.5	60.2	50.2	37.4	41.7
3	0.412	13.5	-1.7	10.4	23.9	8.7	57.6	47.6	33.7	38.9
4	0.519	11.4	-2.4	10.4	21.8	8.0	56.0	46.0	34.2	38.0
5	5.166	11.1	-3.6	10.7	21.8	7.1	60.0	50.0	38.2	42.9
6	5.435	12.2	-3.5	10.7	22.9	7.2	60.0	50.0	37.1	42.8

--- L2 Phase ---

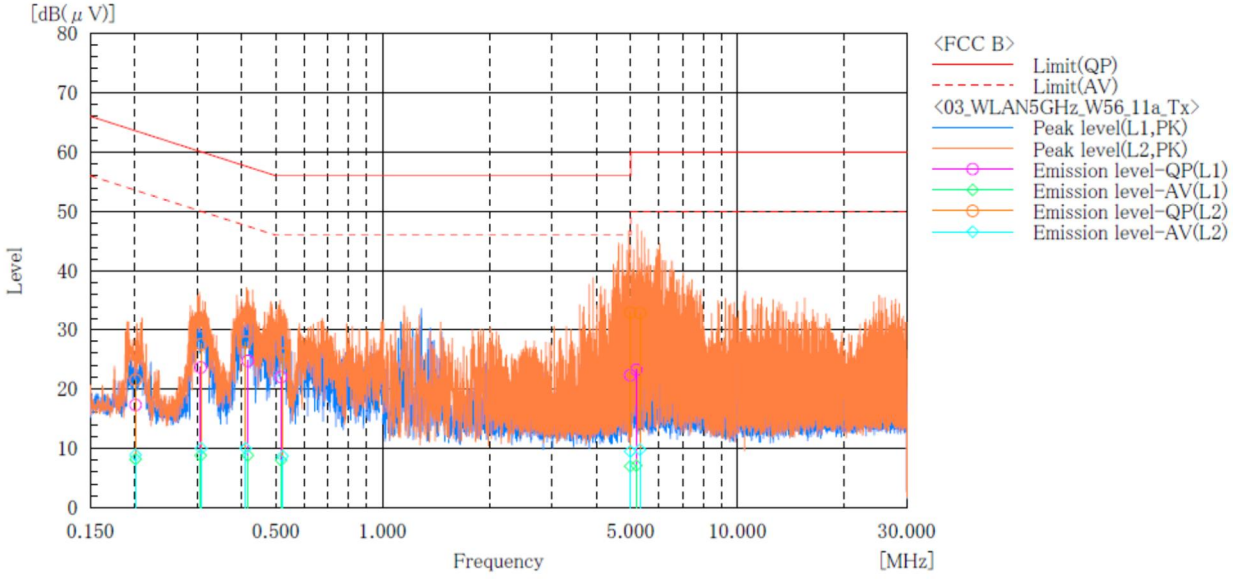
No.	Frequency [MHz]	Reading QP [dB(μV)]	Reading AV [dB(μV)]	c.f [dB]	Result QP [dB(μV)]	Result AV [dB(μV)]	Limit QP [dB(μV)]	Limit AV [dB(μV)]	Margin QP [dB]	Margin AV [dB]
1	0.195	10.4	-2.1	10.5	20.9	8.4	63.8	53.8	42.9	45.4
2	0.307	16.4	-0.6	10.4	26.8	9.8	60.1	50.1	33.3	40.3
3	0.417	17.1	-0.7	10.4	27.5	9.7	57.5	47.5	30.0	37.8
4	0.522	15.0	-1.7	10.4	25.4	8.7	56.0	46.0	30.6	37.3
5	5.075	21.0	-0.9	10.7	31.7	9.8	60.0	50.0	28.3	40.2
6	5.330	20.5	-0.9	10.7	31.2	9.8	60.0	50.0	28.8	40.2

***** CONDUCTED EMISSION at MAINS PORT *****
[3m Semi-anechoic chamber]

TUV SUD Japan Ltd. <<Data Sheet No.3>> 8 June,2019 03:56

Company Name : KYOCERA Corporation
EUT : Mobile Phone
Model No. : KB46
Serial No. : N/A
Test mode : 5GHz_W56_11a_Tx

Standard : FCC Part.15 Subpart E
Operator : T.Seino
Temp,Hum,Atm : 21.0[℃] 61.0[%]
Note1 :
Note2 :



Final Result

--- L1 Phase ---

No.	Frequency [MHz]	Reading QP [dB(μV)]	Reading AV [dB(μV)]	c.f [dB]	Result QP [dB(μV)]	Result AV [dB(μV)]	Limit QP [dB(μV)]	Limit AV [dB(μV)]	Margin QP [dB]	Margin AV [dB]
1	0.201	6.8	-2.3	10.5	17.3	8.2	63.6	53.6	46.3	45.4
2	0.307	13.2	-1.6	10.4	23.6	8.8	60.1	50.1	36.5	41.3
3	0.417	14.3	-1.6	10.4	24.7	8.8	57.5	47.5	32.8	38.7
4	0.517	11.6	-2.4	10.4	22.0	8.0	56.0	46.0	34.0	38.0
5	4.984	11.6	-3.7	10.7	22.3	7.0	56.0	46.0	33.7	39.0
6	5.185	12.5	-3.6	10.7	23.2	7.1	60.0	50.0	36.8	42.9

--- L2 Phase ---

No.	Frequency [MHz]	Reading QP [dB(μV)]	Reading AV [dB(μV)]	c.f [dB]	Result QP [dB(μV)]	Result AV [dB(μV)]	Limit QP [dB(μV)]	Limit AV [dB(μV)]	Margin QP [dB]	Margin AV [dB]
1	0.201	11.1	-1.5	10.4	21.5	8.9	63.6	53.6	42.1	44.7
2	0.308	17.1	-0.4	10.4	27.5	10.0	60.0	50.0	32.5	40.0
3	0.411	17.5	-0.4	10.4	27.9	10.0	57.6	47.6	29.7	37.6
4	0.522	15.5	-1.7	10.4	25.9	8.7	56.0	46.0	30.1	37.3
5	4.988	22.3	-1.2	10.7	33.0	9.5	56.0	46.0	23.0	36.5
6	5.313	22.2	-0.9	10.7	32.9	9.8	60.0	50.0	27.1	40.2

Japan

4.7 Duty Cycle

4.7.1 Measurement procedure

[KDB 789033 D02, Section B, Zero-Span Spectrum Analyzer Method]

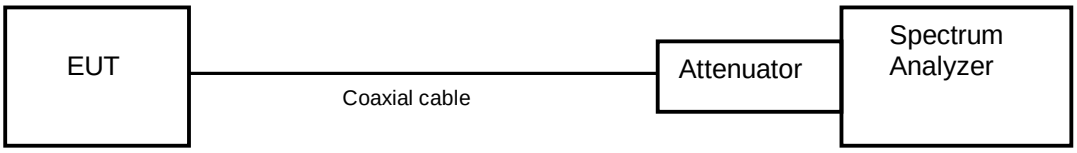
The duty cycle is measured with a spectrum analyzer connected to the antenna terminal, while EUT is operating in transmission mode at the appropriate center frequency.

The spectrum analyzer is set to;
- RBW=8 MHz, VBW=8 MHz, Span=0 Hz, Sweep=Auto, Detector=Peak, Trace mode=Single

The EUT was set to operate with following conditions.
- 5.2 GHz Band, 5.3 GHz Band, 5.6 GHz Band

The test mode of EUT is as follows.
- Tx mode

- Test configuration



4.7.2 Limit

None

4.7.3 Measurement result

Date	:	31-May-2019		
Temperature	:	22.6 [˚C]		
Humidity	:	36.6 [%]	Test engineer	:
Test place	:	Shielded room No.4		Tadahiro Seino

Mode	Channel	Frequency (MHz)	Duty Cycle				DCF (dB) 10log(1/x)	DCF (dB) 20log(1/x)
			On Time(ms)	On+Off Time(ms)	X	1/T		
802.11a	36	5180	1.344	1.430	0.940	744.0	0.269	0.539
	40	5200						
	48	5240						
	52	5260	1.344	1.438	0.935	744.0	0.294	0.587
	56	5280						
	64	5320						
	100	5500	1.342	1.430	0.938	745.2	0.276	0.552
	116	5580						
	140	5700						

Note: X = On time / (On + Off time)

Mode	Channel	Frequency (MHz)	Duty Cycle				DCF (dB) 10log(1/x)	DCF (dB) 20log(1/x)
			On Time(ms)	On+Off Time(ms)	X	1/T		
802.11n (20MHz)	36	5180	1.260	1.348	0.935	793.7	0.293	0.586
	40	5200						
	48	5240						
	52	5260	1.260	1.346	0.936	793.7	0.287	0.573
	56	5280						
	64	5320						
	100	5500	1.260	1.364	0.924	793.7	0.344	0.689
	116	5580						
	140	5700						

Note: X = On time / (On + Off time)

Mode	Channel	Frequency (MHz)	Duty Cycle				DCF (dB) 10log(1/x)	DCF (dB) 20log(1/x)
			On Time(ms)	On+Off Time(ms)	X	1/T		
802.11n (40MHz)	38	5190	0.627	0.715	0.877	1594.9	0.570	1.141
	46	5230						
	54	5270	0.627	0.732	0.857	1594.9	0.672	1.345
	62	5310						
	102	5510	0.627	0.725	0.865	1594.9	0.631	1.261
	110	5550						
	134	5670						

Note: X = On time / (On + Off time)

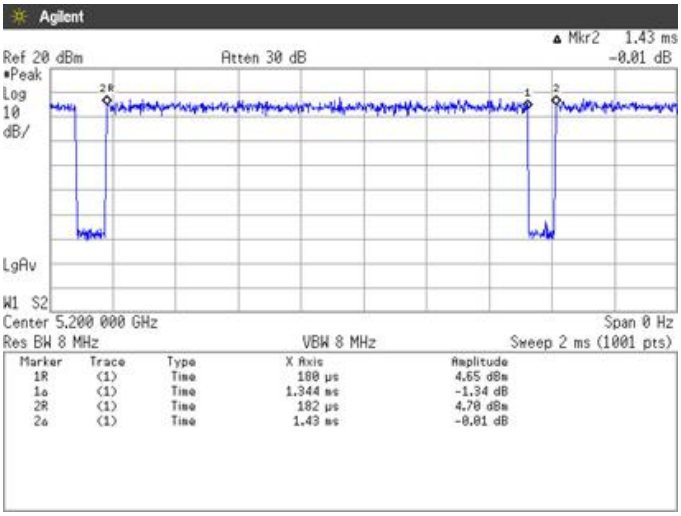
Mode	Channel	Frequency (MHz)	Duty Cycle				DCF (dB) 10log(1/x)	DCF (dB) 20log(1/x)
			On Time(ms)	On+Off Time(ms)	X	1/T		
802.11ac (80MHz)	42	5210	0.315	0.403	0.783	3173.6	1.063	2.126
	58	5290	0.315	0.416	0.757	3173.6	1.206	2.413
	106	5530	0.315	0.402	0.784	3173.6	1.058	2.116
	122	5610	0.314	0.403	0.779	3183.7	1.082	2.165

Note: X = On time / (On + Off time)

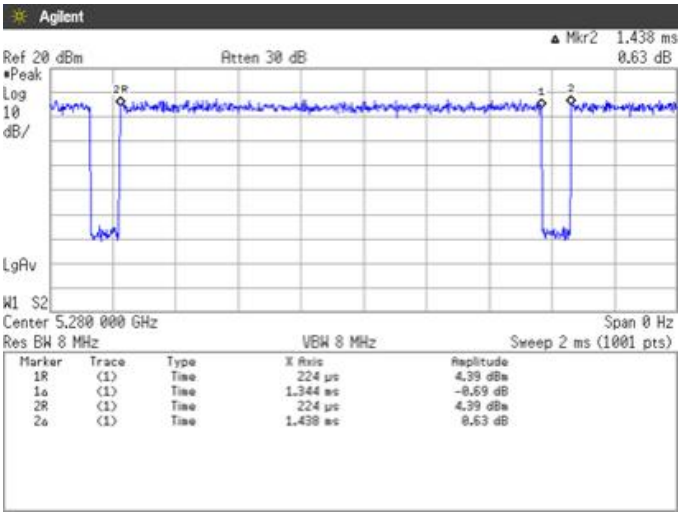
4.7.4 Trace data

[IEEE802.11a]

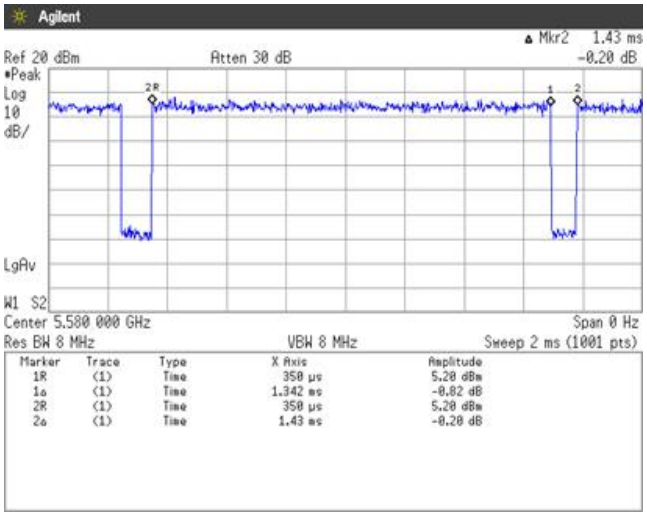
Channel: 40



Channel: 56



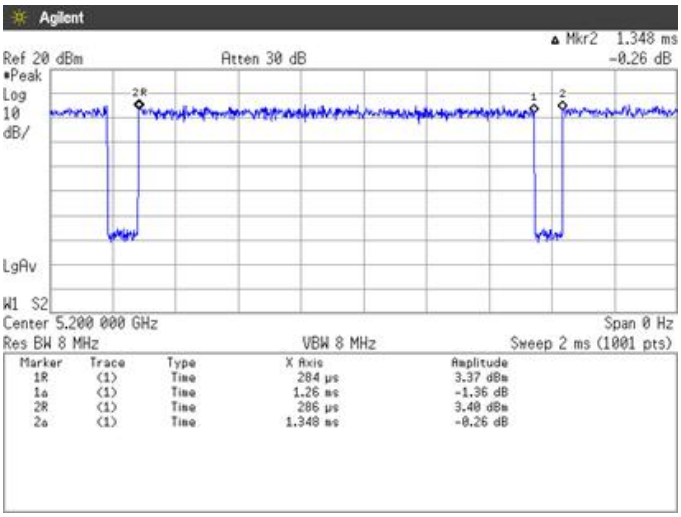
Channel: 116



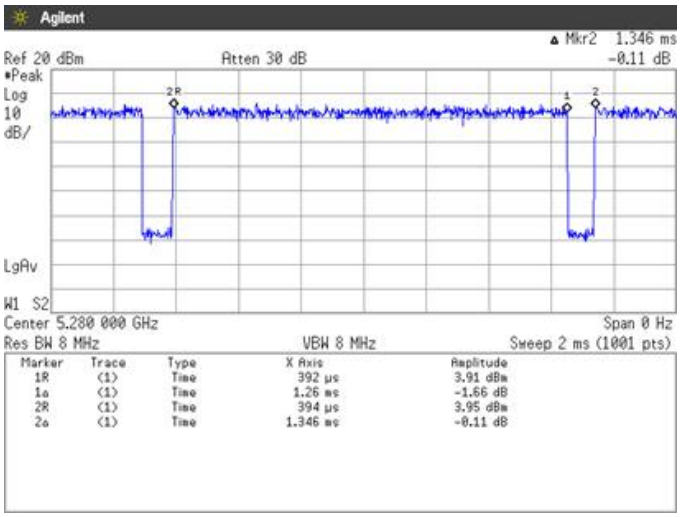
Japan

[IEEE802.11n (HT20)]

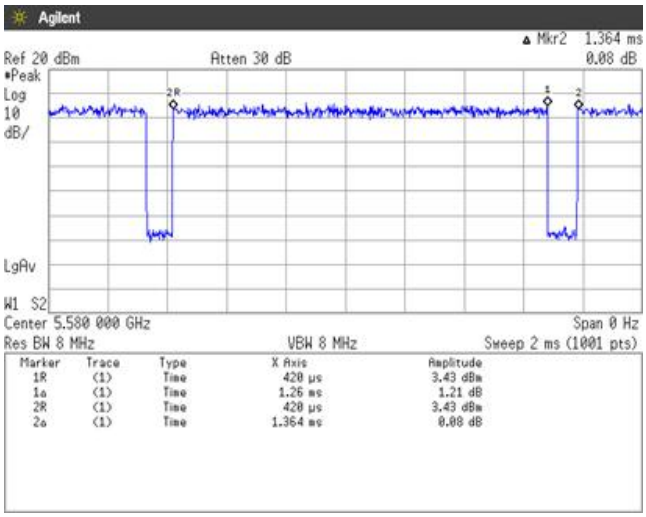
Channel: 40



Channel: 56



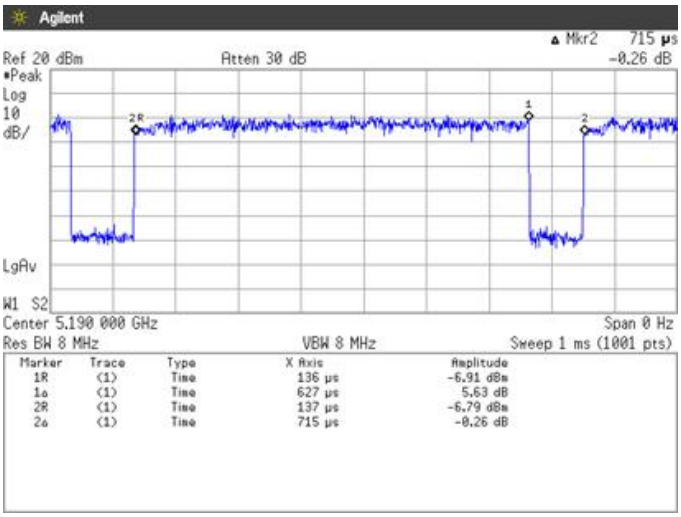
Channel: 116



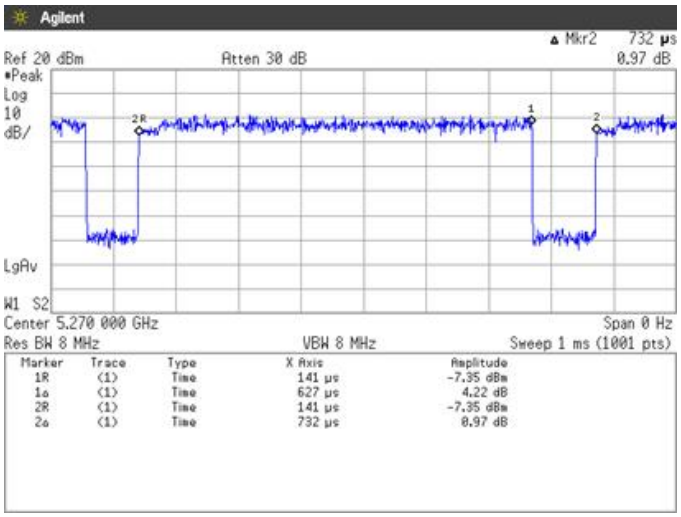
Japan

[IEEE802.11n (HT40)]

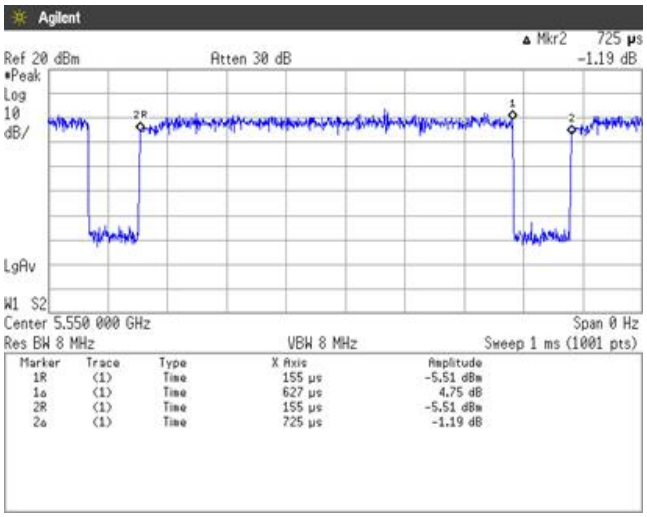
Channel: 38



Channel: 54

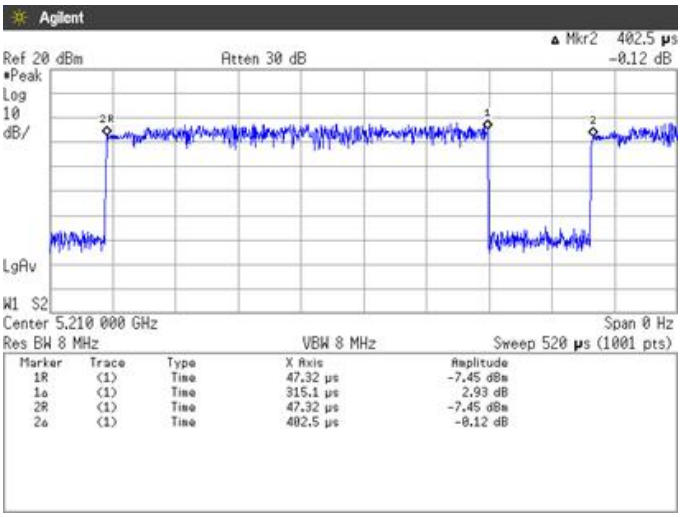


Channel: 110

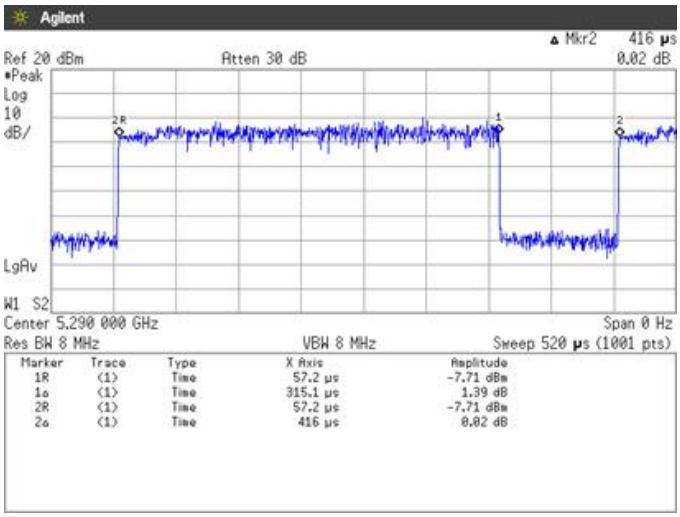


[IEEE802.11ac (HT80)]

Channel: 42



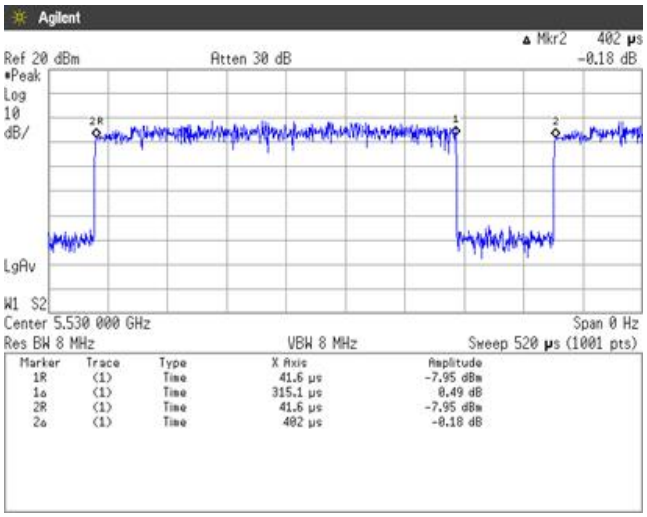
Channel: 58



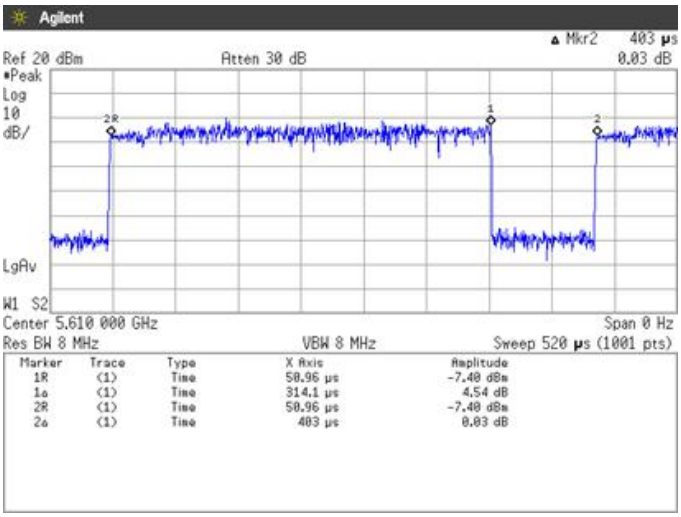
Japan

[IEEE802.11ac (HT80)]

Channel: 106



Channel: 122



Japan

5 Antenna requirement

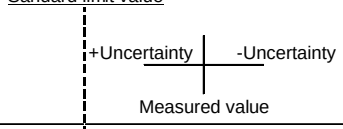
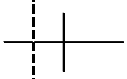
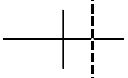
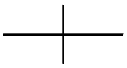
According to FCC section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.
The antenna is a special antenna mounted inside of the EUT. Therefore, the EUT complies with the antenna requirement of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

Japan

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	$\pm 1.4 * 10^{-8}$
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**  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.

Japan

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-Jul-2019	02-Jul-2018
Attenuator	Weinschel	56-10	J4180	31-Jul-2019	12-Jul-2018
Power meter	ROHDE&SCHWARZ	NRP2	103269	31-Aug-2019	01-Aug-2018
Power sensor	ROHDE&SCHWARZ	NRP-Z81	102467	31-Aug-2019	01-Aug-2018
Temperature and humidity chamber	ESPEC	PL1KP	14007261	31-Dec-2019	07-Dec-2018

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	E4447A	MY46180188	30-Apr-2020	16-Apr-2019
Spectrum analyzer	Agilent Technologies	E4440A	US40420937	31-Oct-2019	12-Oct-2018
Spectrum analyzer	Agilent Technologies	E4440A	US44302655	31-Jul-2019	02-Jul-2018
Preamplifier	SONOMA	310	372170	30-Sep-2019	20-Sep-2018
Loop antenna	ROHDE&SCHWARZ	HFH2-Z2	100515	28-Mar-2020	07-Mar-2019
Attenuator	TDC	TAT-43B-06	N/A(S209)	31-Jul-2019	11-Jul-2018
Biconical antenna	Schwarzbeck	VHA9103/BBA9106	VHA91032155	31-Aug-2019	06-Aug-2018
Log periodic antenna	Schwarzbeck	UHALP9108A	0560	31-Aug-2019	06-Aug-2018
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-2019	11-Jul-2018
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
Double ridged guide antenna	A.H.Systems Inc.	SAS-574	469	31-Aug-2019	24-Aug-2018
Preamplifier	TSJ	MLA-1840-B03-35	1240332	31-Aug-2019	24-Aug-2018
Notch filter	Micro-Tronics	BRM50716	006	31-Jul-2019	12-Jul-2018
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
		SUCOFLEX104/1.5m	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 for EUT	Kyoritsu Electrical Works, Ltd.	KNW-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.