Report on the RF Testing of:

KYOCERA Corporation
Mobile Phone, Model: KB46
FCC ID: JOYKB46

In accordance with FCC Part 15 Subpart C (15.249)

TÜV SÜD Japan

Add value.
Inspire trust.

Prepared for: KYOCERA Corporation
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COMMERCIAL-IN-CONFIDENCE

Document Number: JPD-TR-19135-0

SIGNATURE			
Hiroaki Suzuki			
NAME	**JOB TITLE**	**RESPONSIBLE FOR**	**ISSUE DATE**
Hiroaki Suzuki	Deputy Manager of RF Group	Approved Signatory	11 JUL 2019

Signatures in this approval box have checked this document in line with the requirements of TÜV SÜD Japan Ltd. document control rules.

EXECUTIVE SUMMARY
A sample(s) of this product was tested and found to be compliant with FCC Part 15 Subpart C (15.249).

NVLAP® TESTING
NVLAP LAB CODE 200306-0

ilac-MRA

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Japan

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1 Summary of Test

1.1 Modification history of the test report

Document Number	Modification History	Issue Date
JPD-TR-19135-0	First Issue	Refer to the cover page

1.2 Standards

CFR47 FCC Part 15 Subpart C (15.249)

1.3 Test methods

ANSI C63.10-2013

1.4 Deviation from standards

None

1.5 List of applied test(s) of the EUT

Test item section	Test item	Condition	Result	Remark
2.1049 RSS-Gen 6.7	Occupied Bandwidth	Conducted	PASS	-
15.249(a), (b), (c), (d), (e) RSS-210 B.10(a), (b)	Spurious Emissions - Field Strength of Fundamental and Harmonics -	Radiated	PASS	-
15.249(c), (d) RSS-210 B.10(b)	Restricted Bands of Operation	Radiated	PASS	-
15.207 RSS-Gen 8.8	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

24-May-2019 - 10-July-2019

Japan

2 Equipment Under Test

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	KB46
Serial number	N/A
Trade name	Kyocera
Number of sample(s)	1
EUT condition	Pre-Production
Power rating	Battery: DC 3.8 V
Size	(W) 78.2 × (D) 151.5 × (H) 17.4 mm
Environment	Indoor and Outdoor use
Terminal limitation	-20 ˚C to 60 ˚C
Hardware version	DMT2
Software version	V0.030PR
Firmware version	Not applicable
RF Specification	
Protocol	ANT+
Frequency range	2402 MHz-2480 MHz
Number of RF Channels	79 Channels
Modulation method/Data rate	GFSK (20 Kbps)
Channel separation	1 MHz
Output power	Peak: 93.7dBuV/m @ 3m
	Average: 76.4dBuV/m @ 3m
Antenna type	Internal antenna
Antenna gain	1.0 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: KB46, Serial Number: N/A			
0	As supplied by the applicant	Not Applicable	Not Applicable

Japan

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	Frequency [MHz]	Channel	Frequency [MHz]	Channel	Frequency [MHz]
0	2402	27	2429	54	2456
1	2403	28	2430	55	2457
2	2404	29	2431	56	2458
3	2405	30	2432	57	2459
4	2406	31	2433	58	2460
5	2407	32	2434	59	2461
6	2408	33	2435	60	2462
7	2409	34	2436	61	2463
8	2410	35	2437	62	2464
9	2411	36	2438	63	2465
10	2412	37	2439	64	2466
11	2413	38	2440	65	2467
12	2414	39	2441	66	2468
13	2415	40	2442	67	2469
14	2416	41	2443	68	2470
15	2417	42	2444	69	2471
16	2418	43	2445	70	2472
17	2419	44	2446	71	2473
18	2420	45	2447	72	2474
19	2421	46	2448	73	2475
20	2422	47	2449	74	2476
21	2423	48	2450	75	2477
22	2424	49	2451	76	2478
23	2425	50	2452	77	2479
24	2426	51	2453	78	2480
25	2427	52	2454		
26	2428	53	2455		

Japan

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	2441
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	20 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 X-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 DM tool
ii) Select a Test mode
Operating frequency: Channel Low: 2402 MHz, Channel Middle: 2441 MHz, Channel High: 2480 MHz
iii) Start test mode

[Rx mode]
i) Test program setup to the DM tool
ii) Select a Test mode
Operating frequency: Channel Low: 2402 MHz, Channel Middle: 2441 MHz, Channel High: 2480 MHz
iii) Start test mode

Japan

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”.
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	KB46	N/A	JOYKB46	EUT
2	AC Adapter	KDDI	0301PQA	N/A	N/A	*

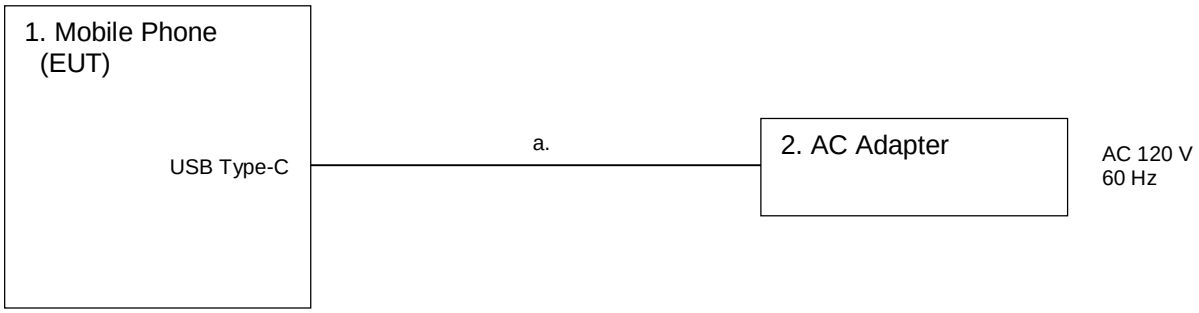
*:AC power line Conducted Emission Test.

3.2 Cable(s) used

No.	Equipment	Length[m]	Shield	Connector	Comment
a	USB cable (for AC Adapter)	1.0	Yes	Metal	*

*:AC power line Conducted Emission Test.

3.3 System configuration



Japan

4 Test Result

4.1 Occupied Bandwidth

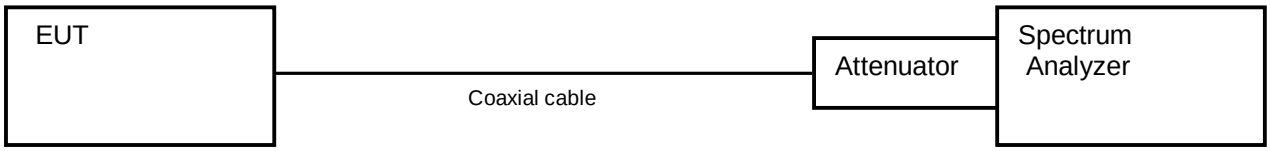
4.1.1 Measurement procedure

[2.1049, RSS-Gen 6.7]

The transmitter output is connected to the spectrum analyzer. The RBW is set to 1% to 3% of the 99% bandwidth. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal 99% bandwidth function is utilized.

The spectrum analyzer is set to;
a) RBW = 20 kHz
b) VBW ≥ 3 x RBW
c) Sweep time = auto-couple
d) Detector = peak
e) Trace mode = max hold

- Test configuration



4.1.2 Limit

None

4.1.3 Measurement result

Date : 10-July-2019
Temperature : 21.9 [˚C]
Humidity : 50.8 [%]
Test place : Shielded room No.4

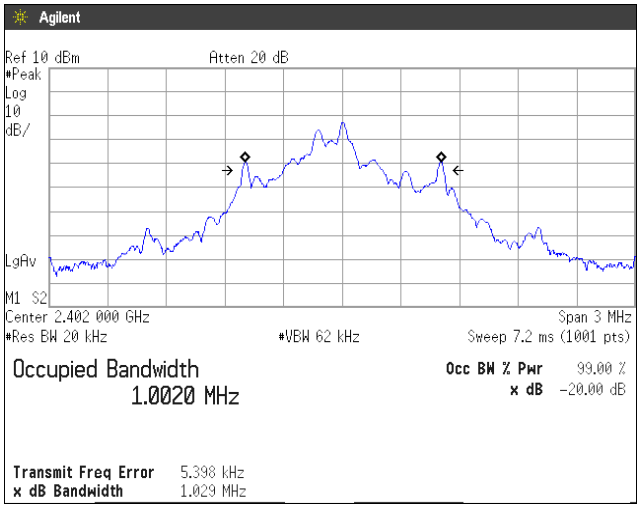
Test engineer : Kazunori Saito

Channel	Frequency [MHz]	Occupied Bandwidth [MHz]
Low	2402	1.0020
Middle	2441	1.0013
High	2480	1.0007

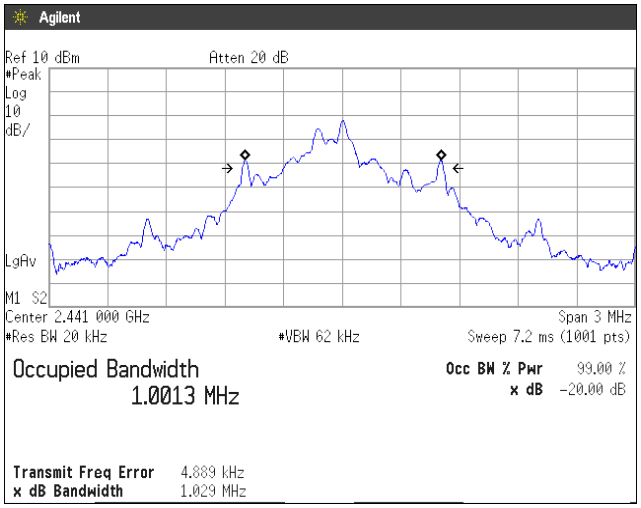
Japan

4.1.4 Trace data

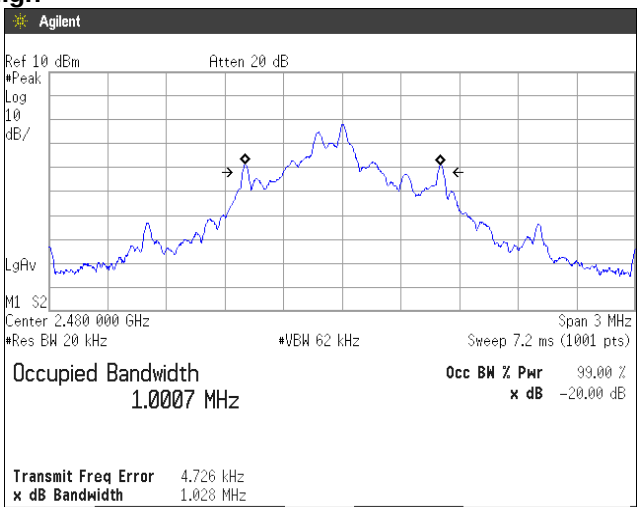
Channel Low



Channel Middle



Channel High



4.2 Spurious Emissions - Radiated -

4.2.1 Measurement procedure

[FCC 15.205, 15.209, 15.249(a), (b), (c), (d), (e), 15.35(b), RSS-210 B.10(a), (b), RSS-Gen 8.9]

Test was applied by following conditions.

Test method	:	ANSI C63.10
Frequency range	:	9kHz to 25GHz
Test place	:	3m Semi-anechoic chamber
EUT was placed on	:	Styrofoam table / (W)1.0m × (D)1.0m × (H)0.8m (below 1GHz) Styrofoam table / (W)0.6m × (D)0.6m ×(H)1.5m (above 1GHz)
Antenna distance	:	3m
Test receiver setting		Below 1GHz
- Detector	:	Average (9kHz-90kHz, 110kHz-490kHz), Quasi-peak
- Bandwidth	:	200Hz, 120kHz
Spectrum analyzer setting		Above 1GHz
- Peak	:	RBW=1MHz, VBW=3MHz, Span=0Hz, Sweep=auto
- Average	:	Peak reading + DCF

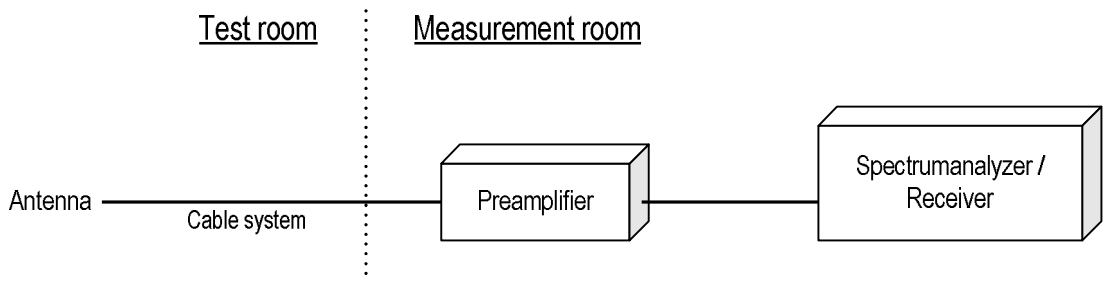
Average Measurement Setting [VBW]

Data rate	Duty Cycle (%)	T_{on} (us)	T_{off} (us)	$1/T_{on}$ (kHz)	100ms Window	Duty cycle factor 20log (Dc %) (dB)
20 Kbps	7.87	156	1827	6.410	87	-17.35

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



4.2.2 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

4.2.3 Limit

Fundamental Frequency [MHz]	Field strength of fundamental		Field strength of harmonics		Distance [m]
	[mV/m]	[dBuV/m]	[mV/m]	[dBuV/m]	
2400-2483.5	50	20logE [uV/m]	500	20logE [uV/m]	3

Frequency [MHz]	Field strength		Distance [m]
	[uV/m]	[dBuV/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.

Japan

4.2.4 Test data

Date	:	24-May-2019			
Temperature	:	20.3 [˚C]			
Humidity	:	37.3 [%]	Test engineer	:	
Test place	:	3m Semi-anechoic chamber			Tadahiro Seino

Date	:	27-May-2019			
Temperature	:	20.7 [˚C]			
Humidity	:	52.7 [%]	Test engineer	:	
Test place	:	3m Semi-anechoic chamber			Tadahiro Seino

Date	:	5-June-2019			
Temperature	:	22.0 [˚C]			
Humidity	:	54.9 [%]	Test engineer	:	
Test place	:	3m Semi-anechoic chamber			Tadahiro Seino

Date	:	14-June-2019			
Temperature	:	20.7 [˚C]			
Humidity	:	54.6 [%]	Test engineer	:	
Test place	:	3m Semi-anechoic chamber			Chiaki Kanno

Channel Low
Peak

(P)	Frequency [MHz]	Reading [dBµV/m]	c.f [dB(1/m)]	Duty cycle factor [dB(1/m)]	Result [dBµV/m]	Limit [dBµV/m]	Margin [dB]
H	2402	86.9	6.1	-	93.0	114	21.0
V	2402	80.8	6.1	-	86.9	114	27.1
H	4804	48.9	10	-	58.9	74	15.1

Average

(P)	Frequency [MHz]	Reading [dBµV/m]	c.f [dB(1/m)]	Duty cycle factor [dB(1/m)]	Result [dBµV/m]	Limit [dBµV/m]	Margin [dB]
H	2402	86.9	6.1	17.35	75.7	94	18.4
V	2402	80.8	6.1	17.35	69.6	94	24.5
H	4804	48.9	10	17.35	41.6	54	12.5

Channel Middle
Peak

(P)	Frequency [MHz]	Reading [dBµV/m]	c.f [dB(1/m)]	Duty cycle factor [dB(1/m)]	Result [dBµV/m]	Limit [dBµV/m]	Margin [dB]
H	2441	87.6	6.1	-	93.7	114	20.3
V	2441	81.6	6.1	-	87.7	114	26.3
H	4882	48.9	10.3	-	59.2	74	14.8

Average

(P)	Frequency [MHz]	Reading [dBµV/m]	c.f [dB(1/m)]	Duty cycle factor [dB(1/m)]	Result [dBµV/m]	Limit [dBµV/m]	Margin [dB]
H	2441	87.6	6.1	17.35	76.4	94	17.7
V	2441	81.6	6.1	17.35	70.4	94	23.7
H	4882	48.9	10.3	17.35	41.9	54	12.2

Channel High
Peak

(P)	Frequency [MHz]	Reading [dBµV/m]	c.f [dB(1/m)]	Duty cycle factor [dB(1/m)]	Result [dBµV/m]	Limit [dBµV/m]	Margin [dB]
H	2480	86.8	6.2	-	93.0	114	21.0
V	2480	80.8	6.2	-	87.0	114	27.0
H	4960	50.1	10.3	-	60.4	74	13.6

Average

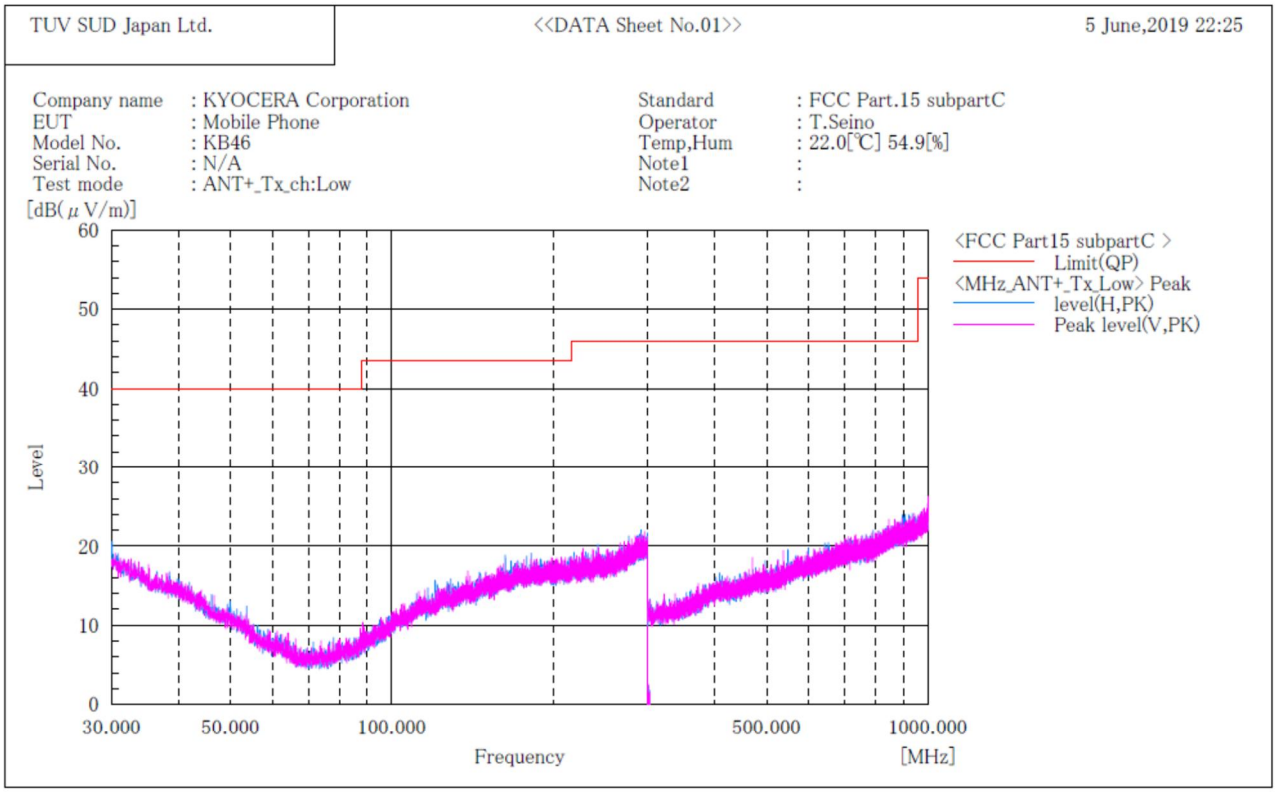
(P)	Frequency [MHz]	Reading [dBµV/m]	c.f [dB(1/m)]	Duty cycle factor [dB(1/m)]	Result [dBµV/m]	Limit [dBµV/m]	Margin [dB]
H	2480	86.8	6.2	17.35	75.7	94	18.4
V	2480	80.8	6.2	17.35	69.7	94	24.4
H	4960	50.1	10.3	17.35	43.1	54	11.0

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.
3. No emission was detected in the receive mode.

Japan

[Transmission mode]
Channel: Low
BELOW 1 GHz

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



Final Result

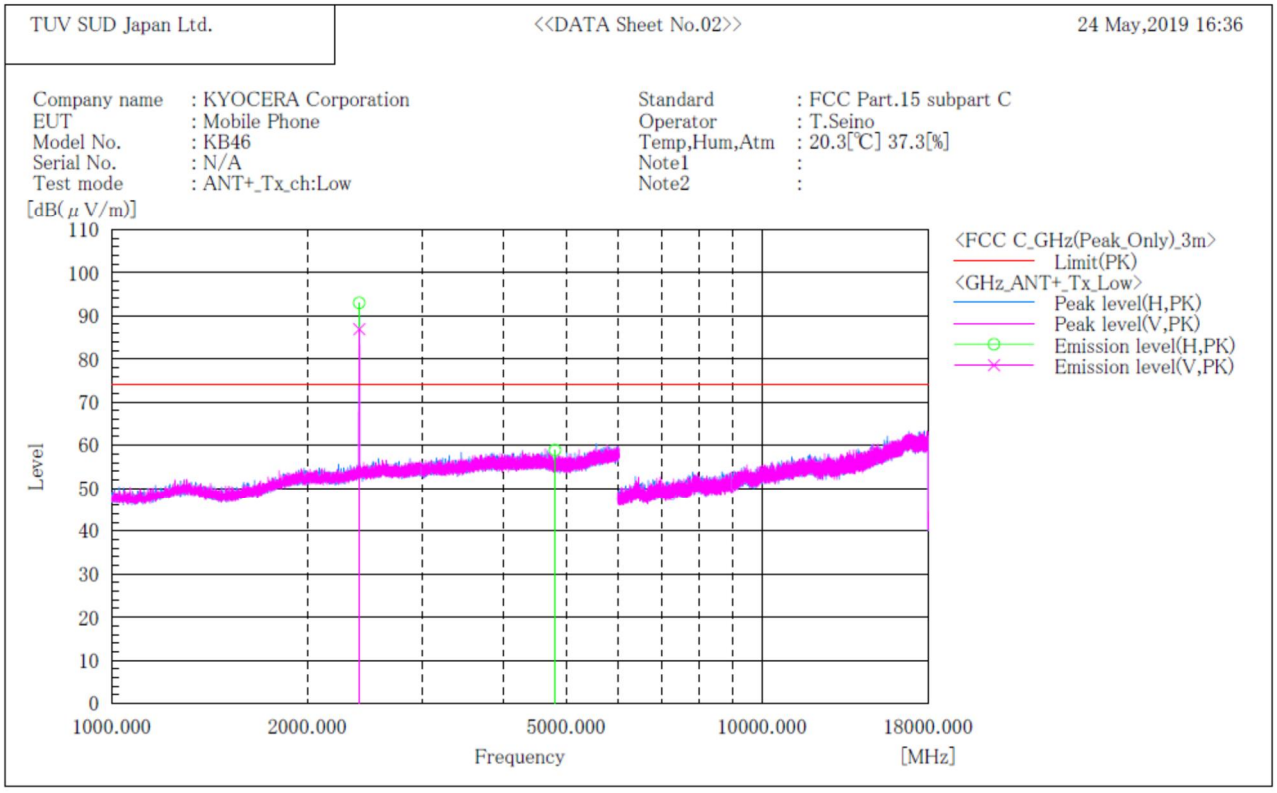
No.	Frequency [MHz]	(P)	c.f [dB(1/m)]	Height [cm]	Angle [°]

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

Japan

Channel: Low
ABOVE 1 GHz

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



Final Result

No.	Frequency [MHz]	(P)	Reading PK [dB(μV)]	c.f [dB(1/m)]	Result PK [dB(μV/m)]	Limit PK [dB(μV/m)]	Margin PK [dB]	Height [cm]	Angle [°]
1	2402.000	H	86.9	6.1	93.0	114.0	21.0	115.0	0.0
2	2402.000	V	80.8	6.1	86.9	114.0	27.1	120.0	33.0
3	4804.000	H	48.9	10.0	58.9	74.0	15.1	130.0	210.0

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.

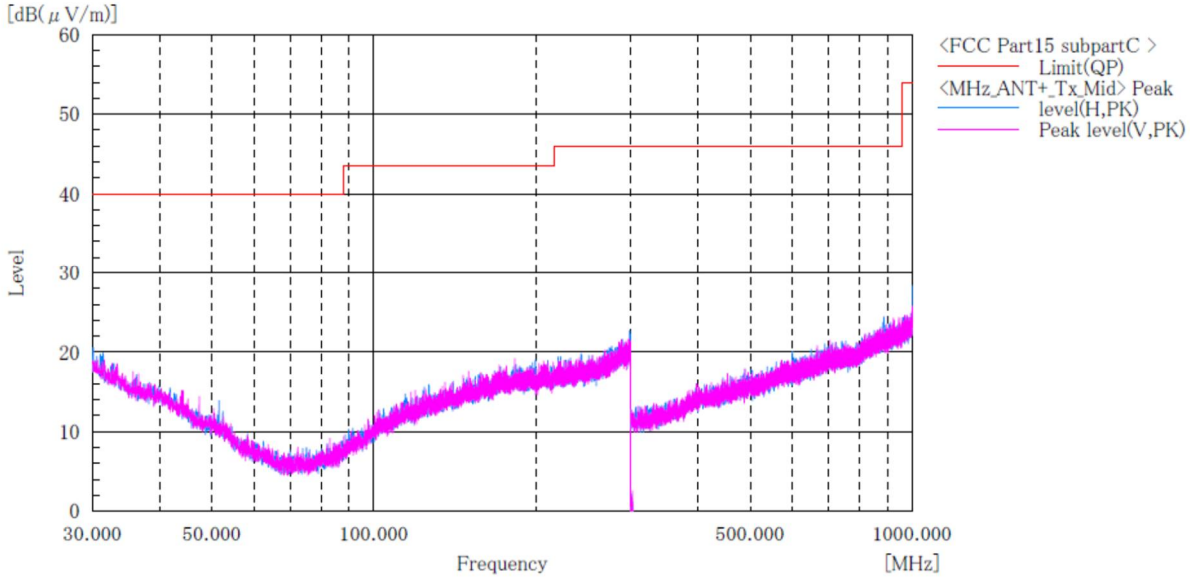
Japan

Channel: Middle
BELOW 1 GHz

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

TUV SUD Japan Ltd. <<DATA Sheet No.03>> 5 June,2019 22:48

Company name	: KYOCERA Corporation	Standard	: FCC Part.15 subpartC
EUT	: Mobile Phone	Operator	: T.Seino
Model No.	: KB46	Temp,Hum	: 22.0[℃] 54.9[%]
Serial No.	: N/A	Note1	:
Test mode	: ANT+_Tx_ch:Mid	Note2	:



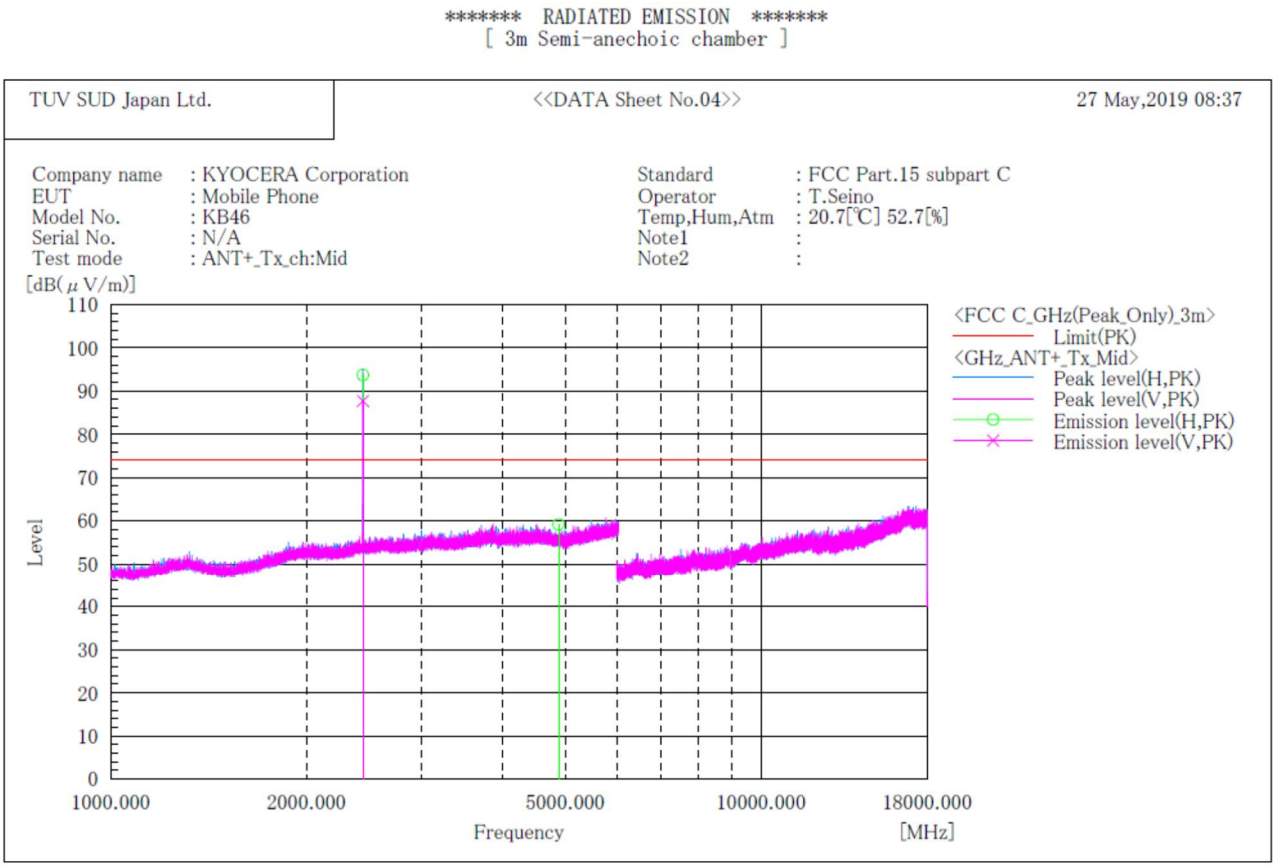
Final Result

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 9kHz to 30MHz at the 3 meters distance.

Japan

Channel: Middle
ABOVE 1 GHz



Final Result

No.	Frequency [MHz]	(P)	Reading PK [dB(μV)]	c.f [dB(1/m)]	Result PK [dB(μV/m)]	Limit PK [dB(μV/m)]	Margin PK [dB]	Height [cm]	Angle [°]
1	2441.000	H	87.6	6.1	93.7	114.0	20.3	104.0	0.0
2	2441.000	V	81.6	6.1	87.7	114.0	26.3	118.0	16.0
3	4882.000	H	48.9	10.3	59.2	74.0	14.8	134.0	355.0

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.

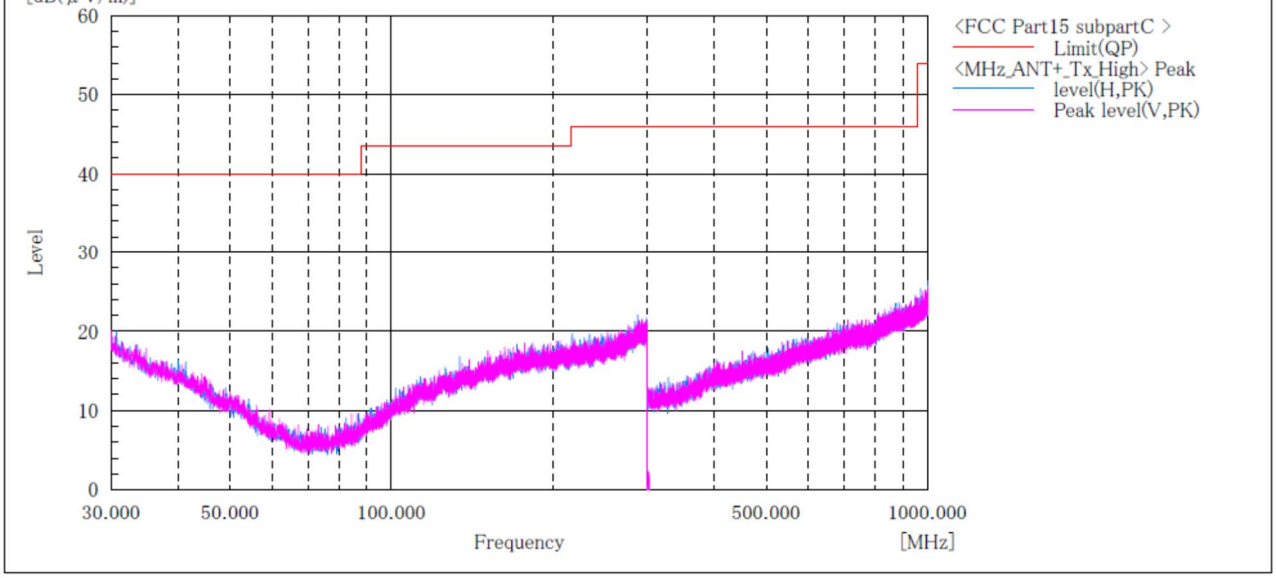
Japan

Channel: High
BELOW 1 GHz

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

TUV SUD Japan Ltd. <<DATA Sheet No.05>> 5 June,2019 23:15

Company name	: KYOCERA Corporation	Standard	: FCC Part.15 subpartC
EUT	: Mobile Phone	Operator	: T.Seino
Model No.	: KB46	Temp,Hum	: 22.0[℃] 54.9[%]
Serial No.	: N/A	Note1	:
Test mode	: ANT+_Tx_ch:High	Note2	:



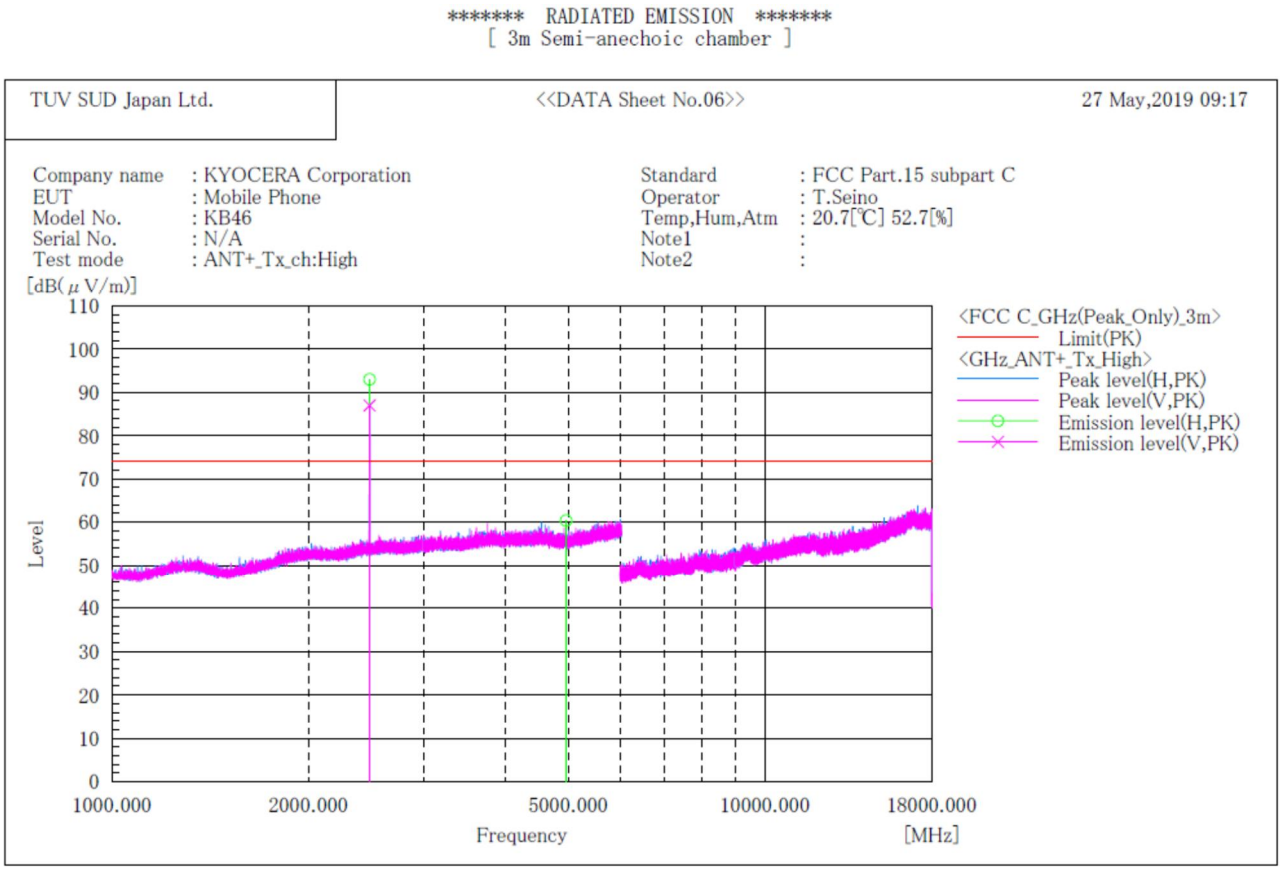
Final Result

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 9kHz to 30MHz at the 3 meters distance.

Japan

Channel: High
ABOVE 1 GHz

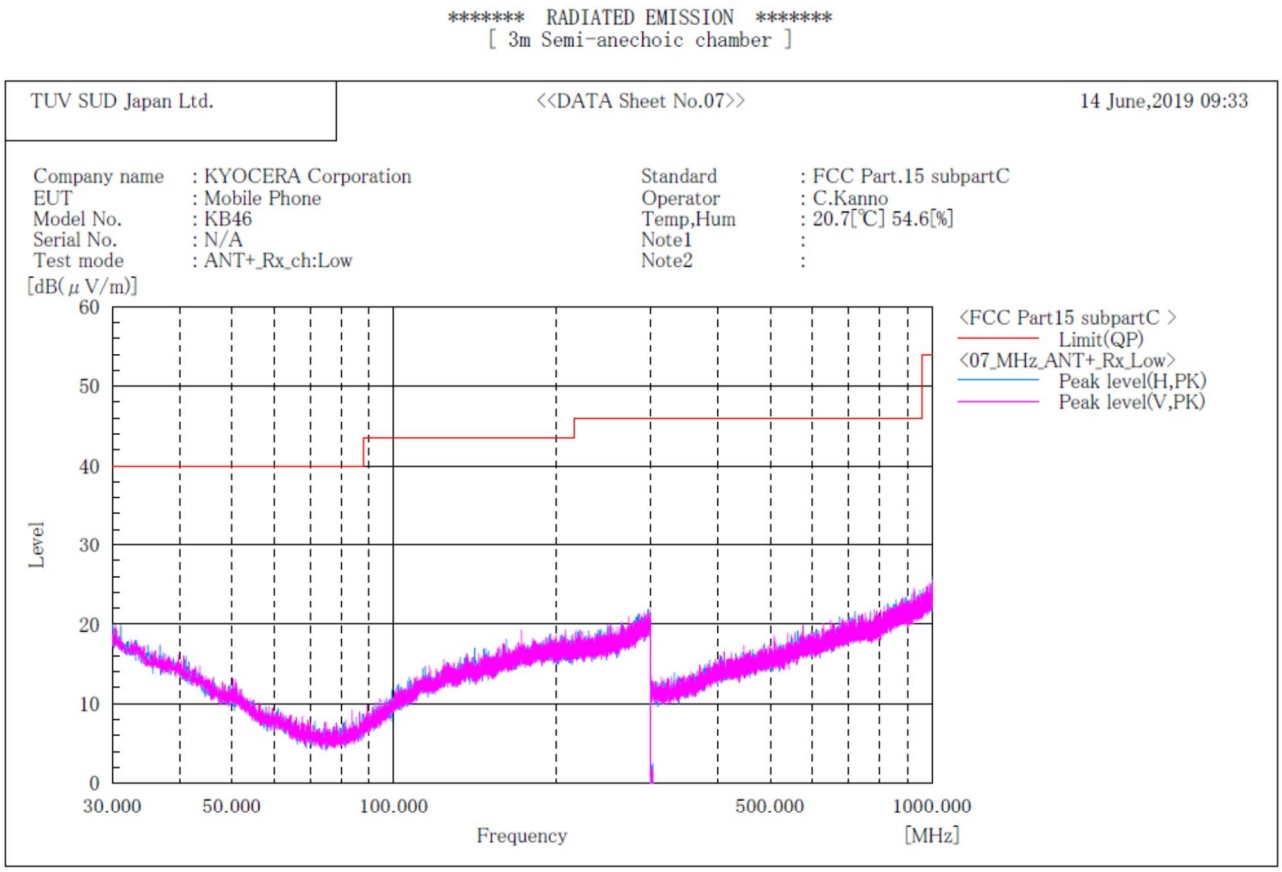


Final Result

No.	Frequency [MHz]	(P)	Reading PK [dB(μV)]	c.f [dB(1/m)]	Result PK [dB(μV/m)]	Limit PK [dB(μV/m)]	Margin PK [dB]	Height [cm]	Angle [°]
1	2480.000	H	86.8	6.2	93.0	114.0	21.0	107.0	0.0
2	2480.000	V	80.8	6.2	87.0	114.0	27.0	230.0	0.0
3	4960.000	H	50.1	10.3	60.4	74.0	13.6	126.0	10.0

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

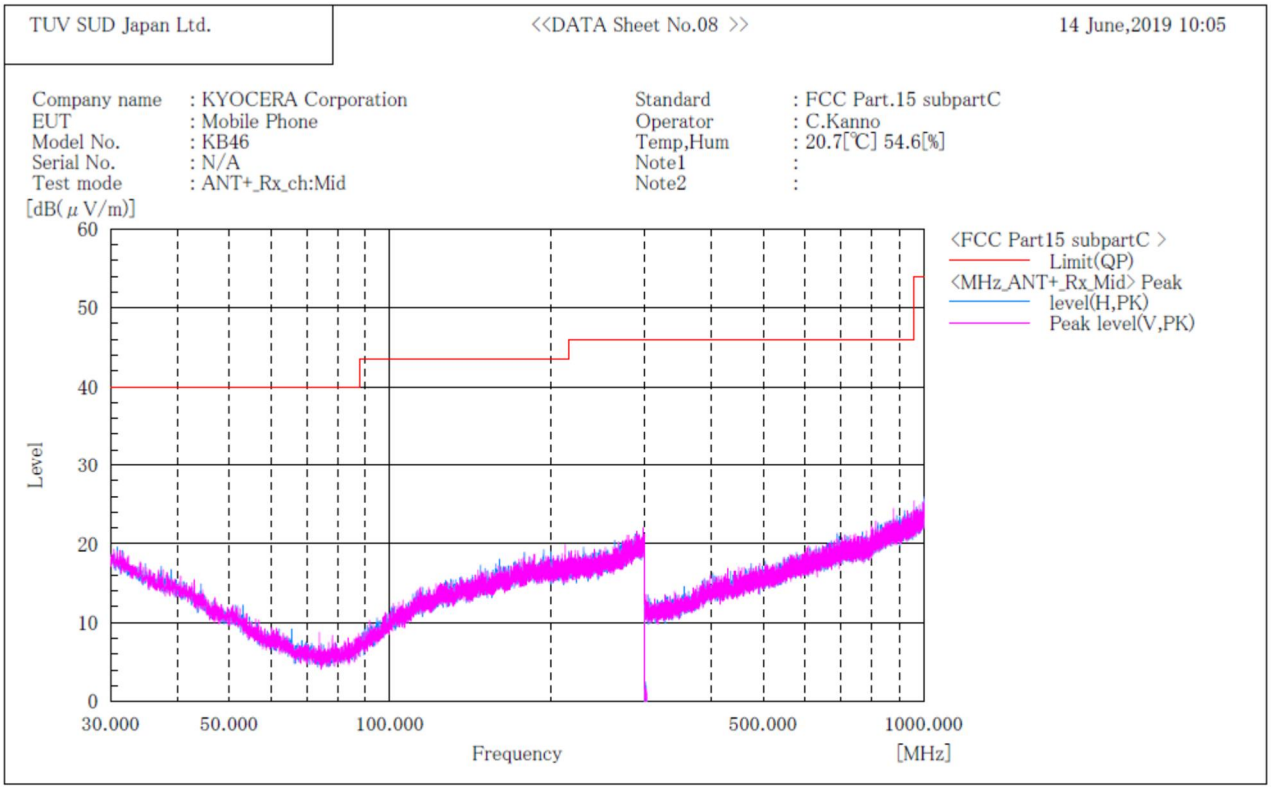
No.	Frequency [MHz]	(P)	c.f [dB(1/m)]	Height [cm]	Angle [°]	Remark

Note:
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.

Japan

Channel: Middle
BELOW 1 GHz

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



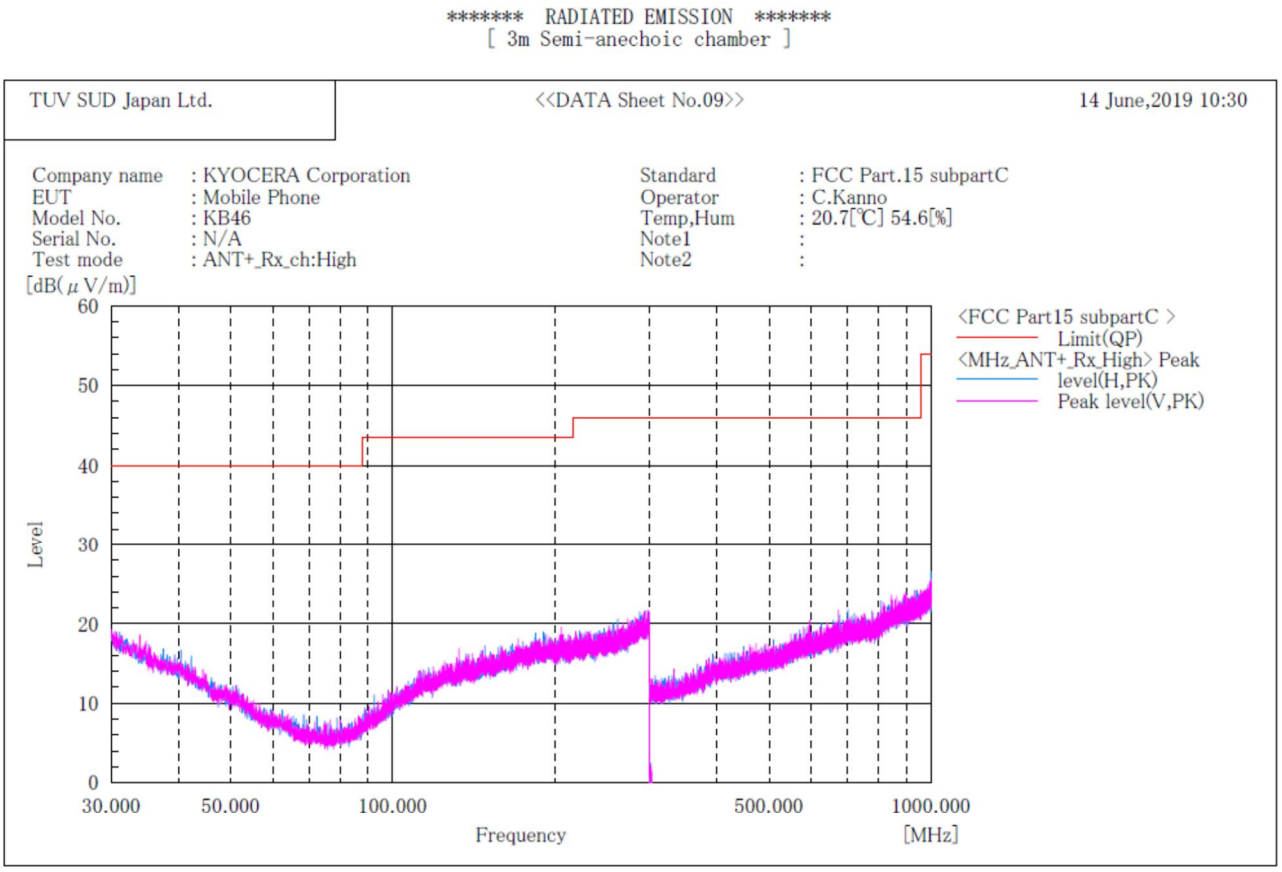
Final Result

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

Note:
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.

Japan

Channel: High
BELOW 1 GHz



Final Result

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

Note:
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.

Japan

4.3 Restricted Band of Operation

4.3.1 Measurement procedure

[FCC 15.205, 15.209, 15.249(c), (d), RSS-210 B.10(b)]

Test was applied by following conditions.

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

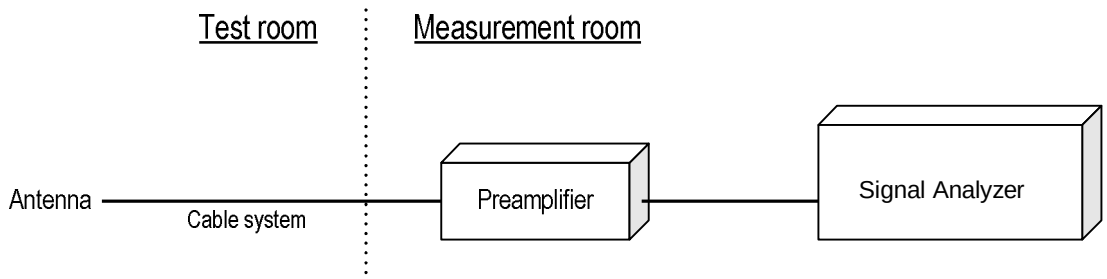
Average Measurement Setting [VBW]

Data rate	Duty Cycle (%)	T_{on} (us)	T_{off} (us)	$1/T_{on}$ (kHz)	Determined VBW Setting
20 Kbps	7.87	156	1827	6.410	10kHz

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 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



Japan

4.3.2 Limit

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

4.3.3 Measurement result

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

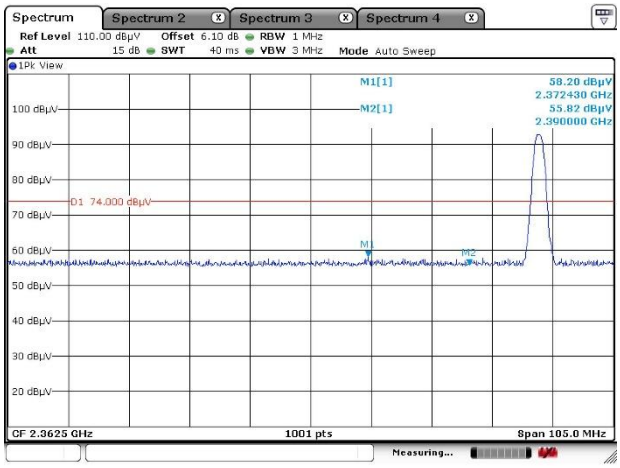
4.3.4 Test data

Date : 11-June-2019
Temperature : 21.4 [˚C]
Humidity : 55.4 [%]
Test place : 3m Semi-anechoic chamber

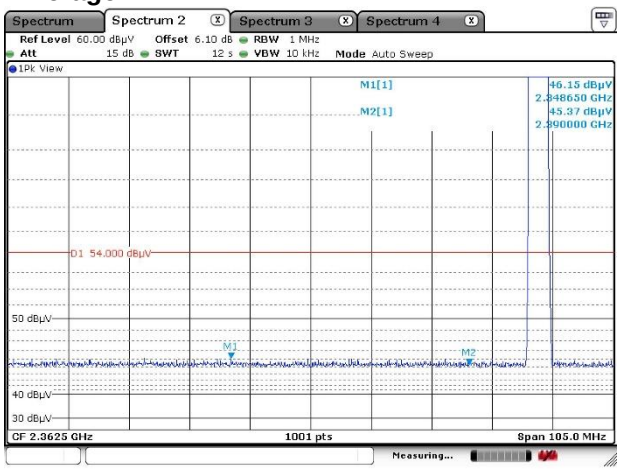
Test engineer : Tadahiro Seino

Japan

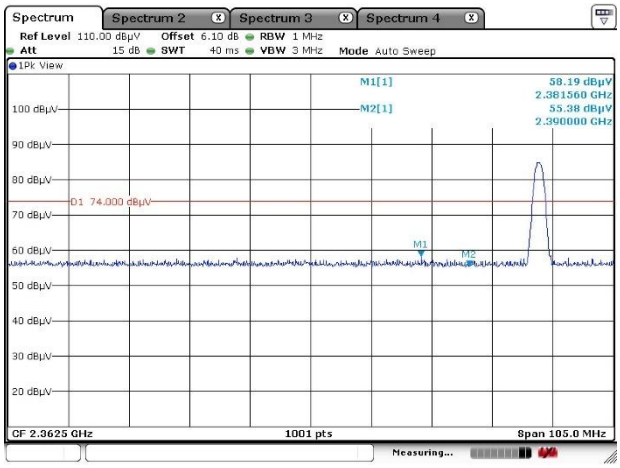
Channel: Low
Horizontal
Peak



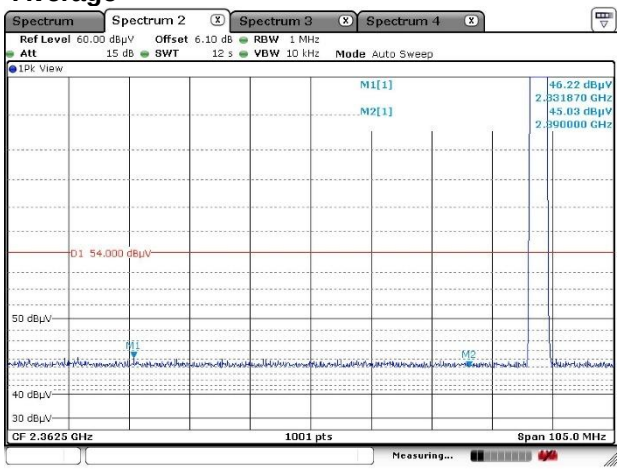
Average



Vertical
Peak

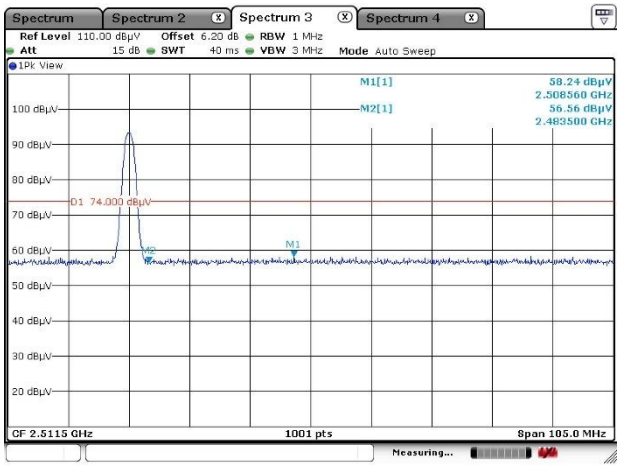


Average

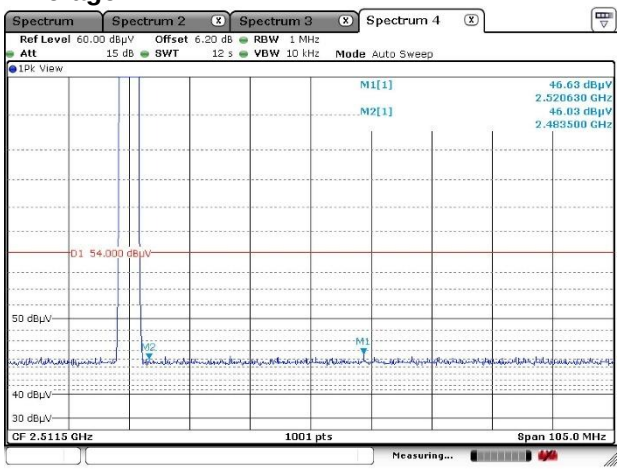


Japan

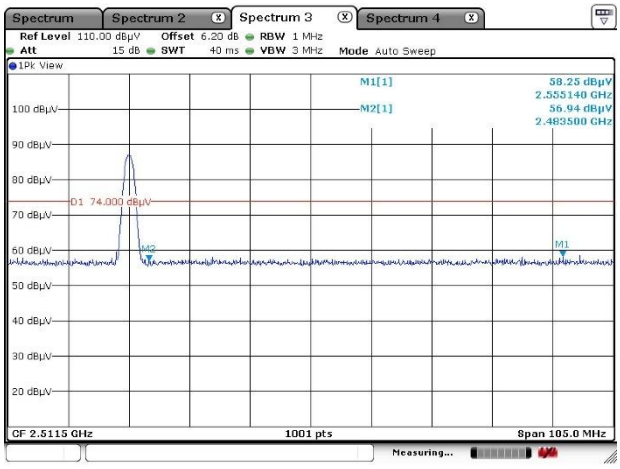
Channel: High
Horizontal
Peak



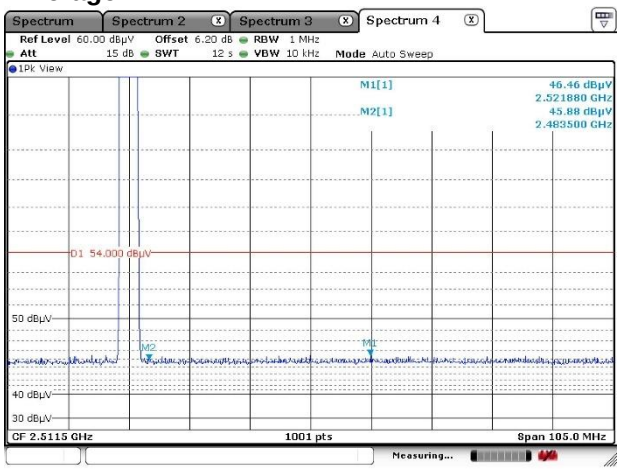
Average



Vertical
Peak



Average



4.4 AC Power Line Conducted Emissions

4.4.1 Measurement procedure

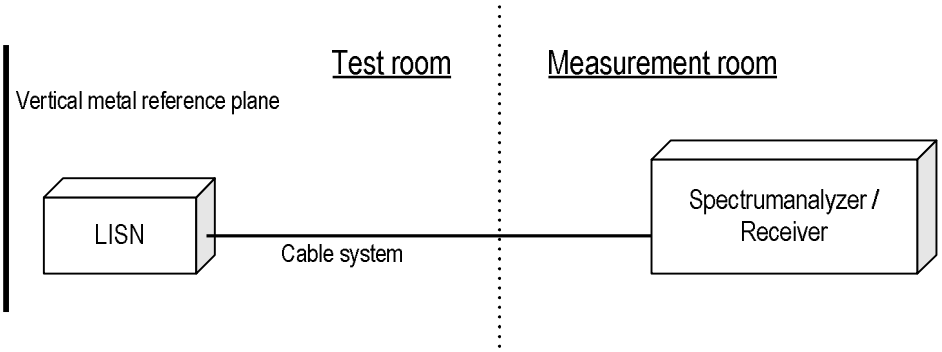
[FCC 15.207, RSS-Gen 8.8]

Test was applied by following conditions.

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

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

- Test configuration



Japan

4.4.2 Calculation method

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

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

4.4.3 Limit

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

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

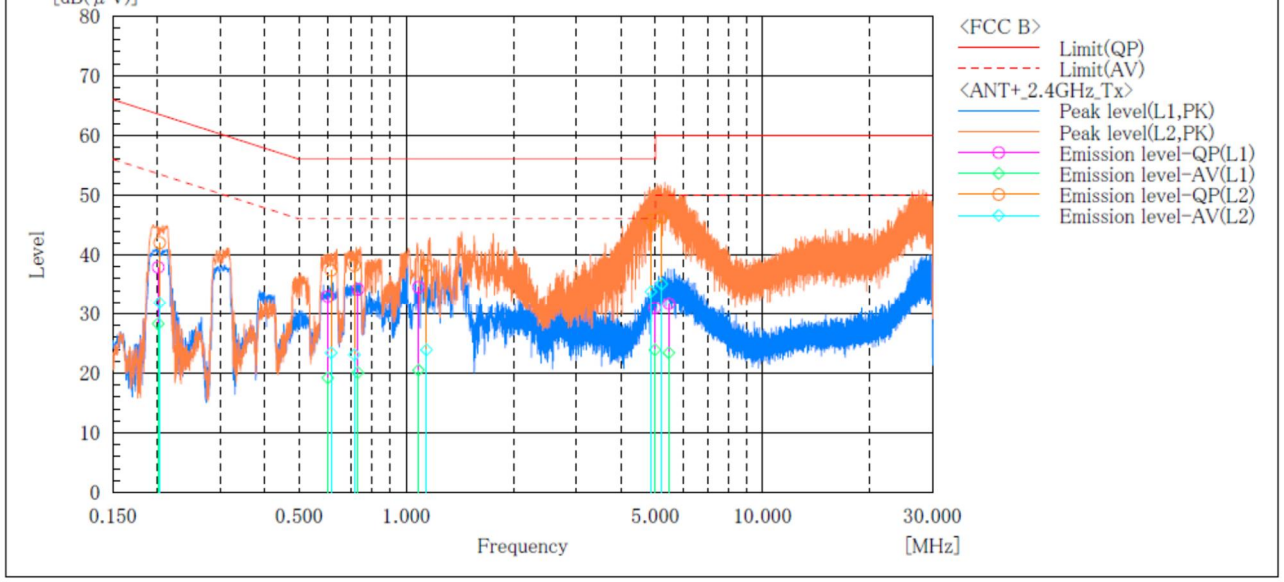
Japan

4.4.4 Test data

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

TUV SUD Japan Ltd. <<Data Sheet No.10>> 8 June,2019 04:21

Company Name	: KYOCERA Corporation	Standard	: FCC Part.15 Subpart C
EUT	: Mobile Phone	Operator	: T.Seino
Model No.	: KB46	Temp,Hum,Atm	: 21.0[℃] 61.0[%]
Serial No.	: N/A	Note1	:
Test mode	: ANT+_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	0.201	27.4	17.8	10.5	37.9	28.3	63.6	53.6	25.7	25.3
2	0.602	22.6	8.8	10.4	33.0	19.2	56.0	46.0	23.0	26.8
3	0.731	23.8	9.7	10.4	34.2	20.1	56.0	46.0	21.8	25.9
4	1.081	24.2	10.1	10.4	34.6	20.5	56.0	46.0	21.4	25.5
5	4.989	20.3	13.2	10.7	31.0	23.9	56.0	46.0	25.0	22.1
6	5.457	21.0	12.7	10.7	31.7	23.4	60.0	50.0	28.3	26.6

--- 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	0.203	31.6	21.5	10.4	42.0	31.9	63.5	53.5	21.5	21.6
2	0.615	27.0	13.0	10.4	37.4	23.4	56.0	46.0	18.6	22.6
3	0.715	27.8	12.7	10.4	38.2	23.1	56.0	46.0	17.8	22.9
4	1.139	27.8	13.5	10.4	38.2	23.9	56.0	46.0	17.8	22.1
5	4.854	35.1	23.1	10.7	45.8	33.8	56.0	46.0	10.2	12.2
6	5.205	35.6	24.4	10.7	46.3	35.1	60.0	50.0	13.7	14.9

Japan

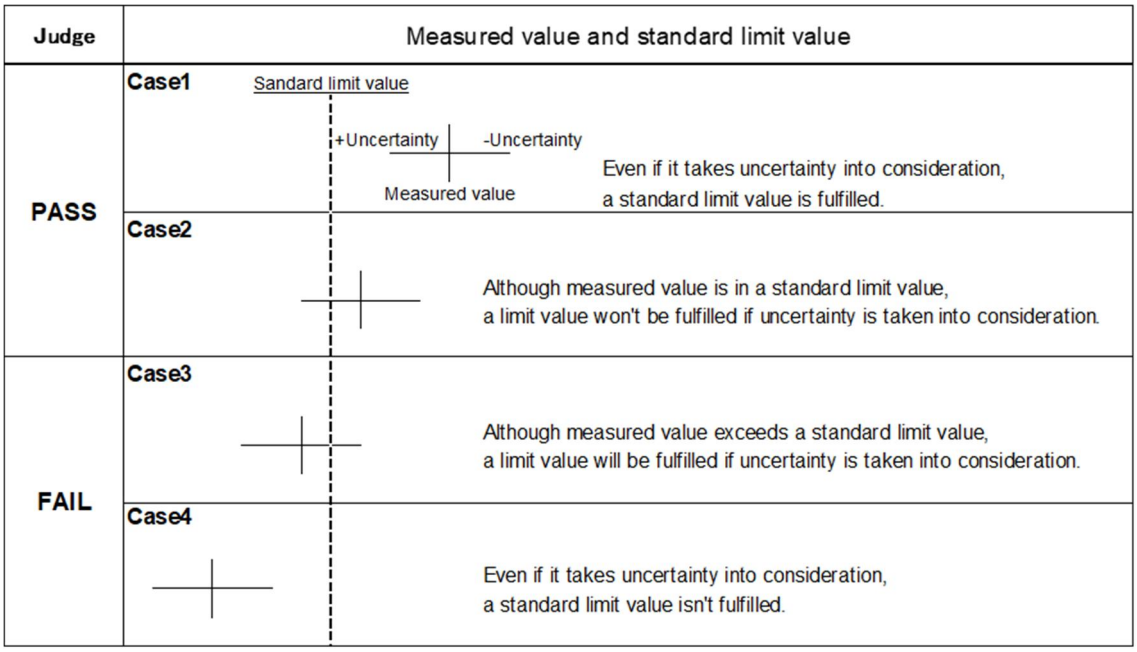
5 Antenna requirement

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

6 Measurement Uncertainty

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

Test item	Measurement uncertainty
Conducted emission, AMN (9 kHz – 150 kHz)	±3.8 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 %



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

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
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	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
DRGH 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	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

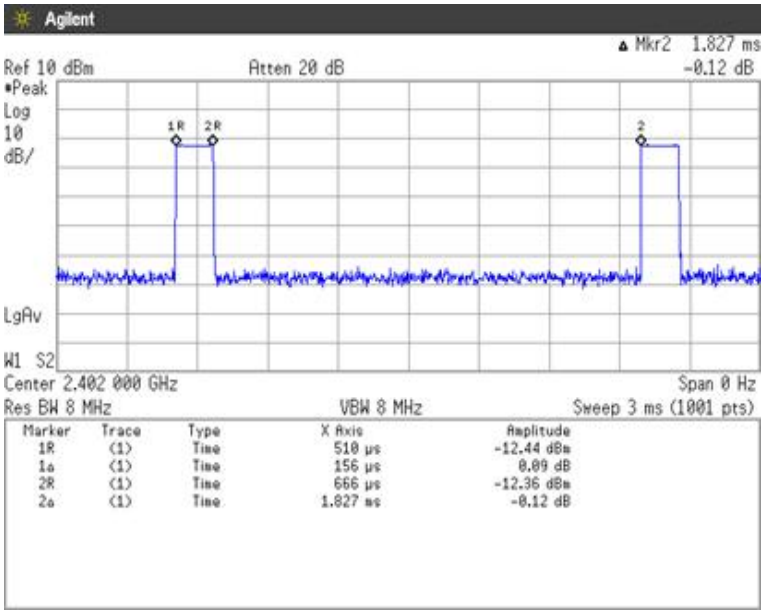
Equipment	Company	Model No.	Serial No.	Cal. Due	Cal. Date
EMI Receiver	ROHDE&SCHWARZ	ESCI	100765	30-Sep-2019	20-Sep-2018
Attenuator	HUBER+SUHNER	6810.01.A	N/A (S411)	31-Jan-2020	17-Jan-2019
Line impedance stabilization network	Kyoritsu Electrical Works, Ltd.	KNW-407F2	12-17-110-2	31-May-2020	16-May-2019
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

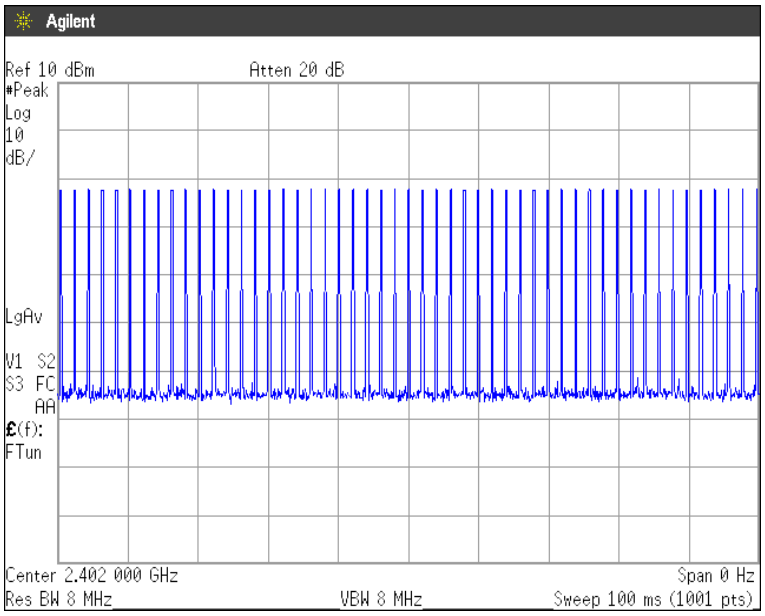
*: The calibrations of the above equipment are traceable to NIST or equivalent standards of the reference organizations.

Japan

Appendix B. Duty Cycle

[Plot & Calculation]





Duty Cycle Factor Calculation
RF duty cycle factor: Calculation according to RF burst Para 15.35 (c)

Pulse width is 0.156ms
There are 87 pulses in 100ms window
0.156ms x 87 = 13.572ms, It is 13.572ms in 100ms
Duty cycle: 13.572/100 = 0.136
Duty cycle factor: 20log (0.136) = -17.35dB

Maximum is used duty cycle according to Para 15.35 (b): 20dB