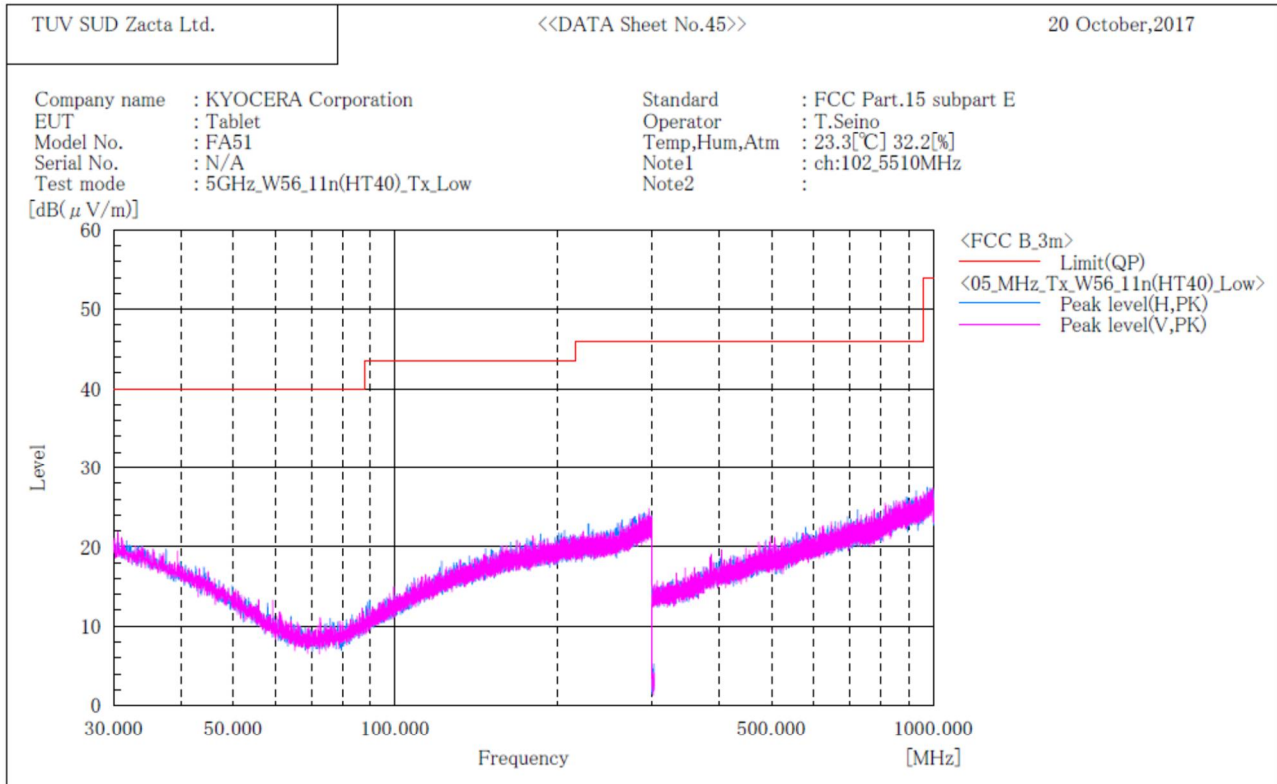


[11n(HT40)]
W56 / Channel Low
BELOW 1GHz

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



Final Result

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

Note:

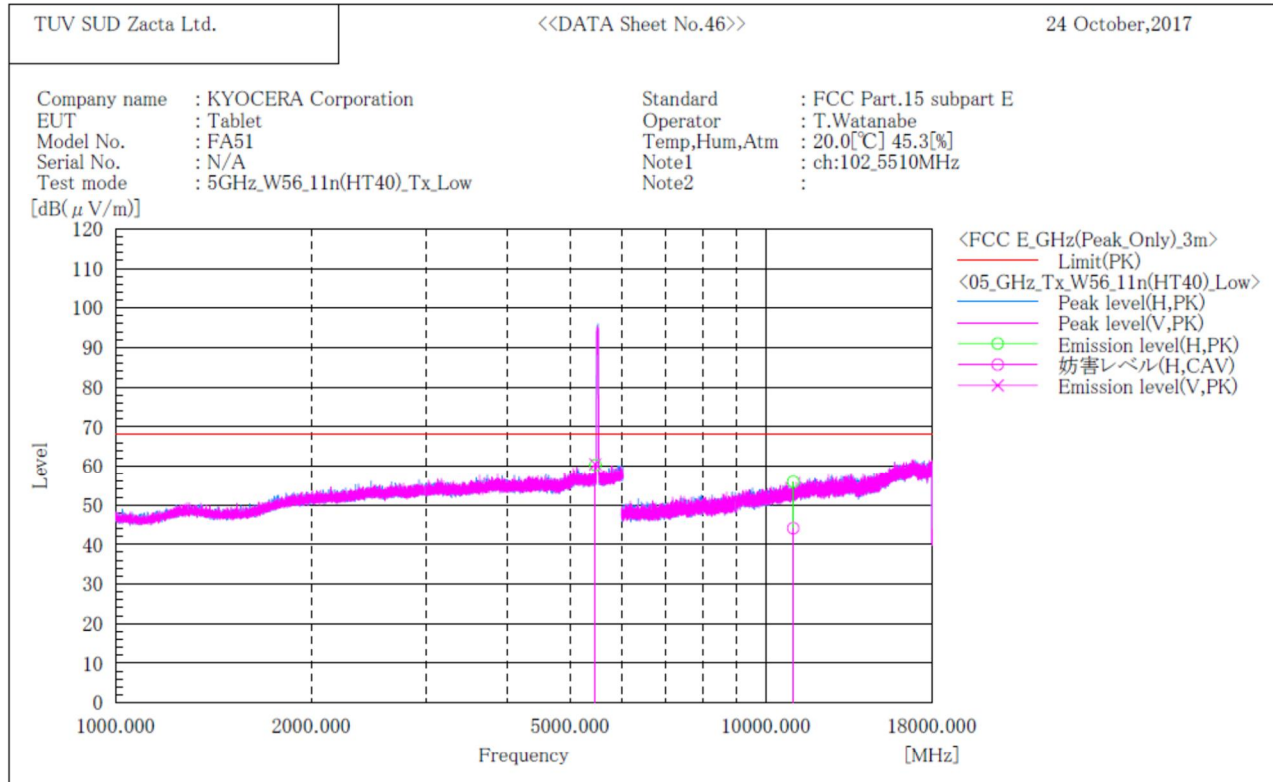
1. Emission Level (Margin) = Limit - [Reading + Factor (Antenna + Cable – Amp)]
2. No emission were detected in frequency range 9kHz to 1000MHz at the 3 meters distance.



Zacta

[11n(HT40)]
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	5469.420	H	50.1	-----	10.2	60.3	-----	68.2	7.9	-----	128.0	203.0
2	5465.380	V	50.3	-----	10.2	60.5	-----	68.2	7.7	-----	170.0	267.0
3	11020.000	H	45.3	33.5	10.6	55.9	44.1	74.0	18.1	9.9	173.0	74.0

Note:

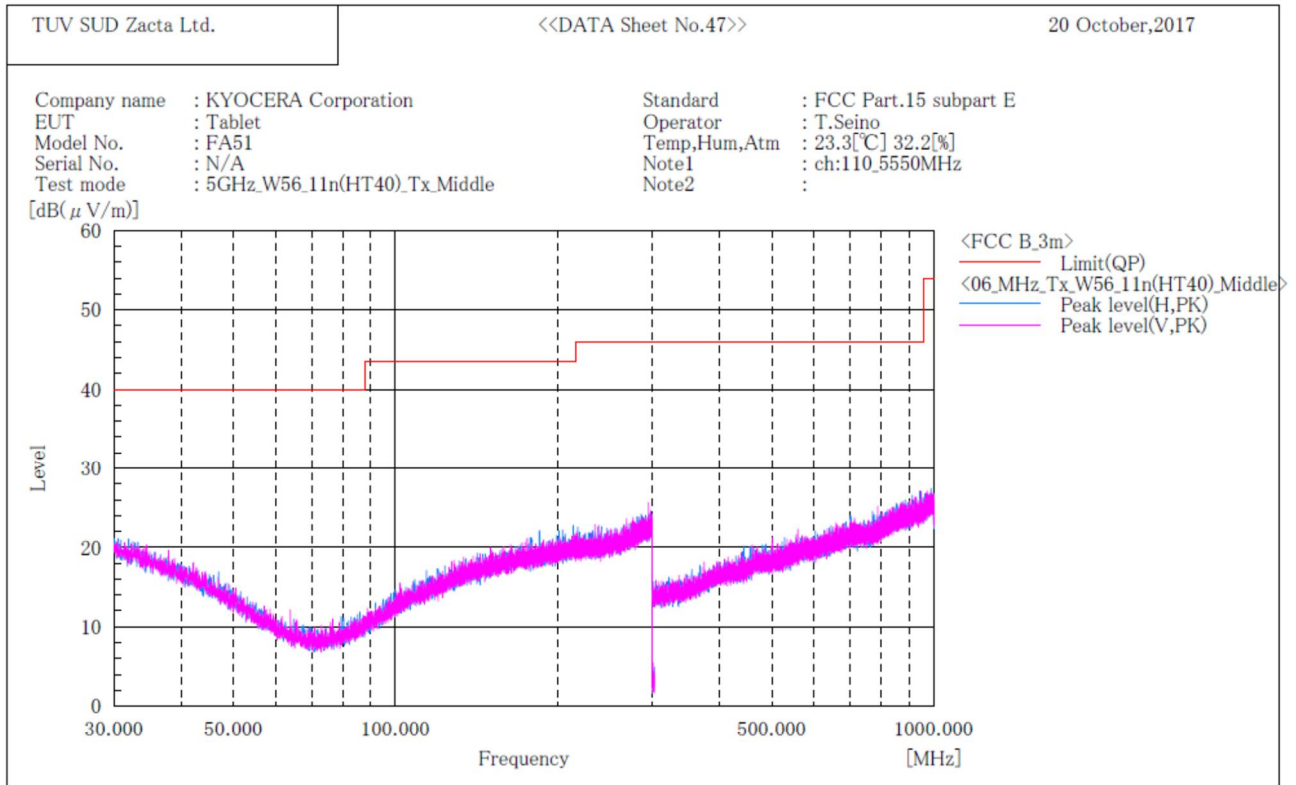
- Emission Level (Margin) = Limit - [Reading + Factor (Antenna + Cable – Amp)]
- No emission were detected in frequency range 18GHz to 40GHz at the 3 meters distance.



Zacta

[11n(HT40)]
W56 / Channel Middle
BELOW 1GHz

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



Final Result

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

Note:

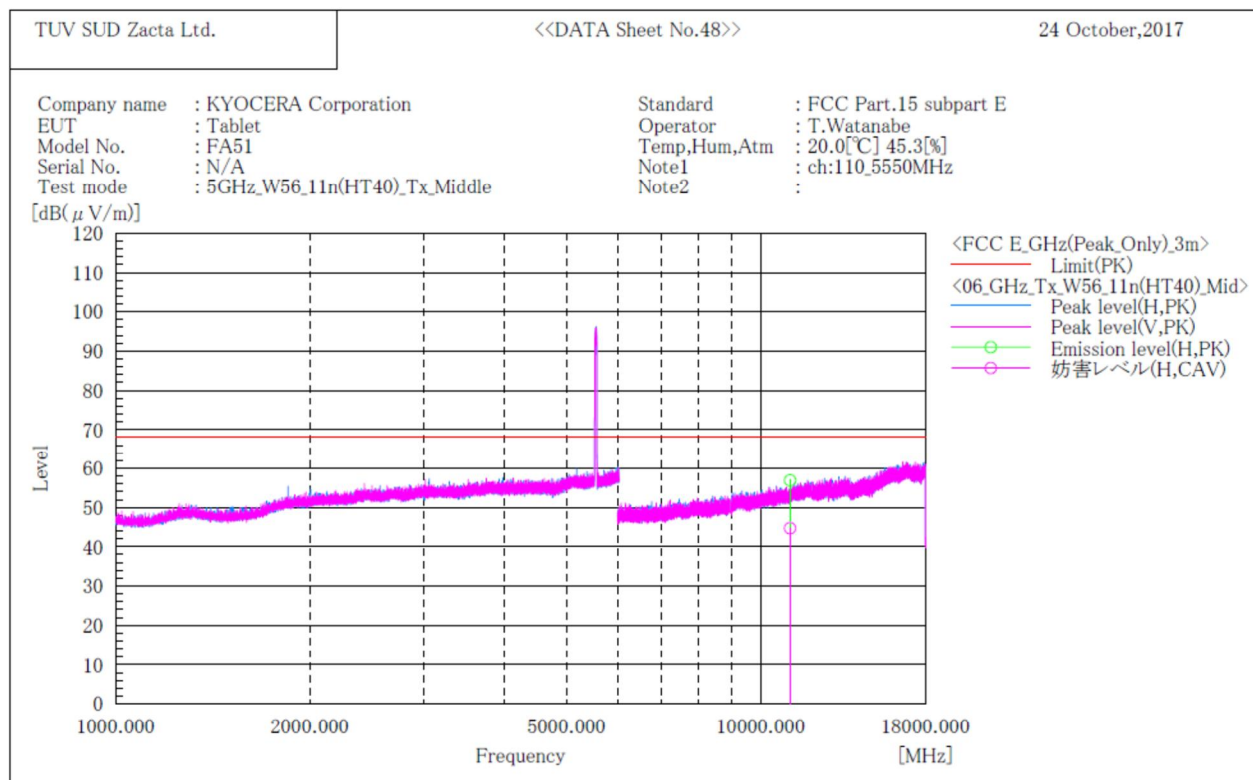
1. Emission Level (Margin) = Limit - [Reading + Factor (Antenna + Cable – Amp)]
2. No emission were detected in frequency range 9kHz to 1000MHz at the 3 meters distance.



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[11n(HT40)]
W56 / Channel Middle
ABOVE 1GHz

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



Final Result

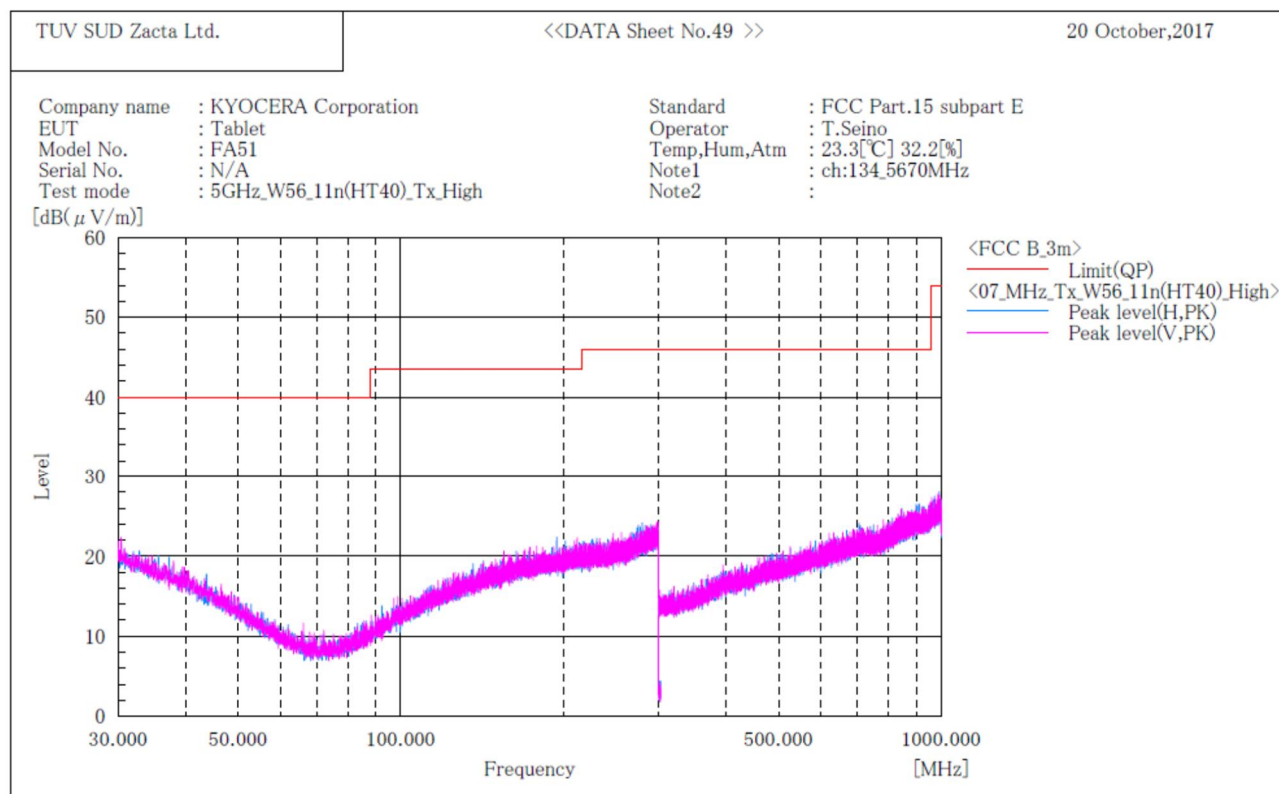
No.	Frequency [MHz]	(P)	Reading PK [dB(μV)]	Reading CAV [dB(μV)]	c. f [dB(1/m)]	Result PK [dB(μV/m)]	Result CAV [dB(μV/m)]	Limit PK [dB(μV/m)]	Margin PK [dB]	Margin CAV [dB]	Height [cm]	Angle [°]
1	11100.000	H	46.1	33.9	10.8	56.9	44.7	74.0	17.1	9.3	155.0	246.0

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(HT40)]
W56 / Channel High
BELOW 1GHz

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



Final Result

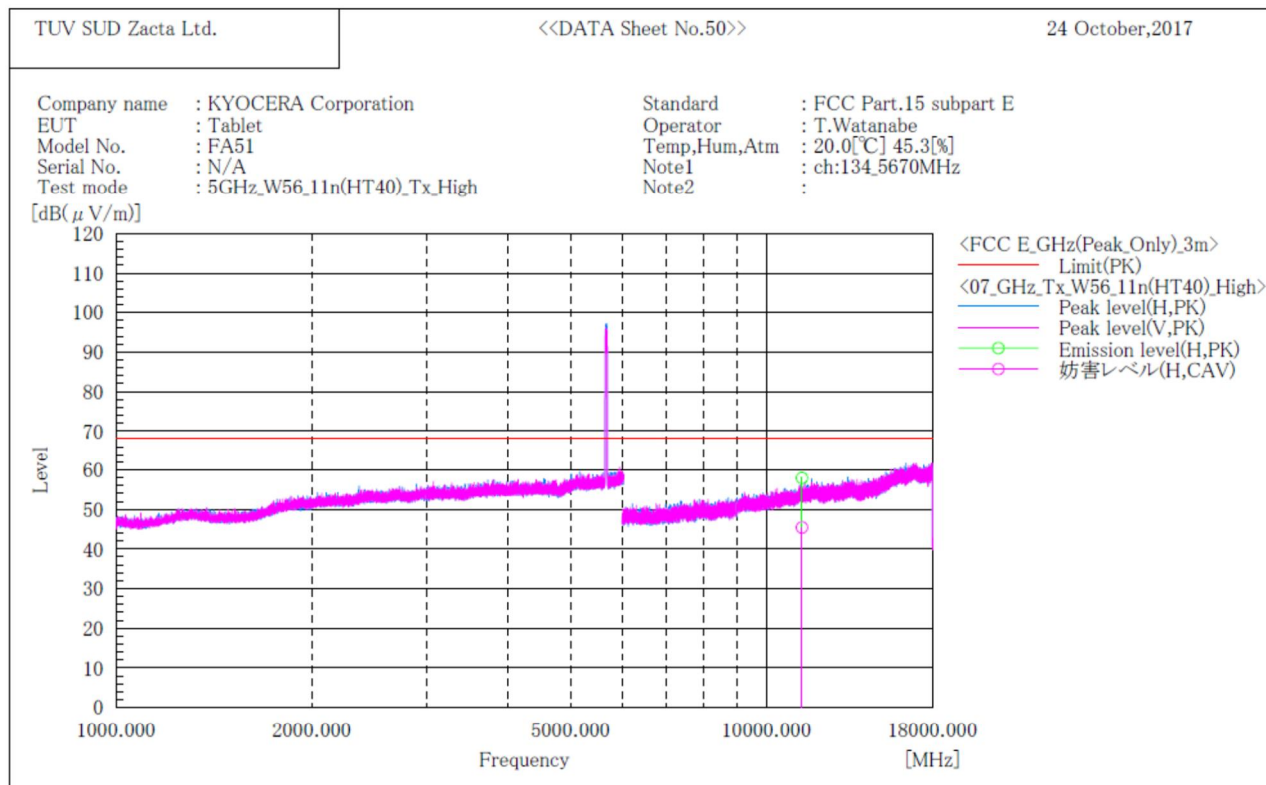
No.	Frequency (P)	c.f	Height	Angle
	[MHz]	[dB(1/m)]	[cm]	[°]

Note:

1. Emission Level (Margin) = Limit - [Reading + Factor (Antenna + Cable – Amp)]
2. No emission were detected in frequency range 9kHz to 1000MHz at the 3 meters distance.

[11n(HT40)]
W56 / Channel High
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	11340.000	H	46.8	34.3	11.1	57.9	45.4	74.0	16.1	8.6	138.0	124.0

Note:

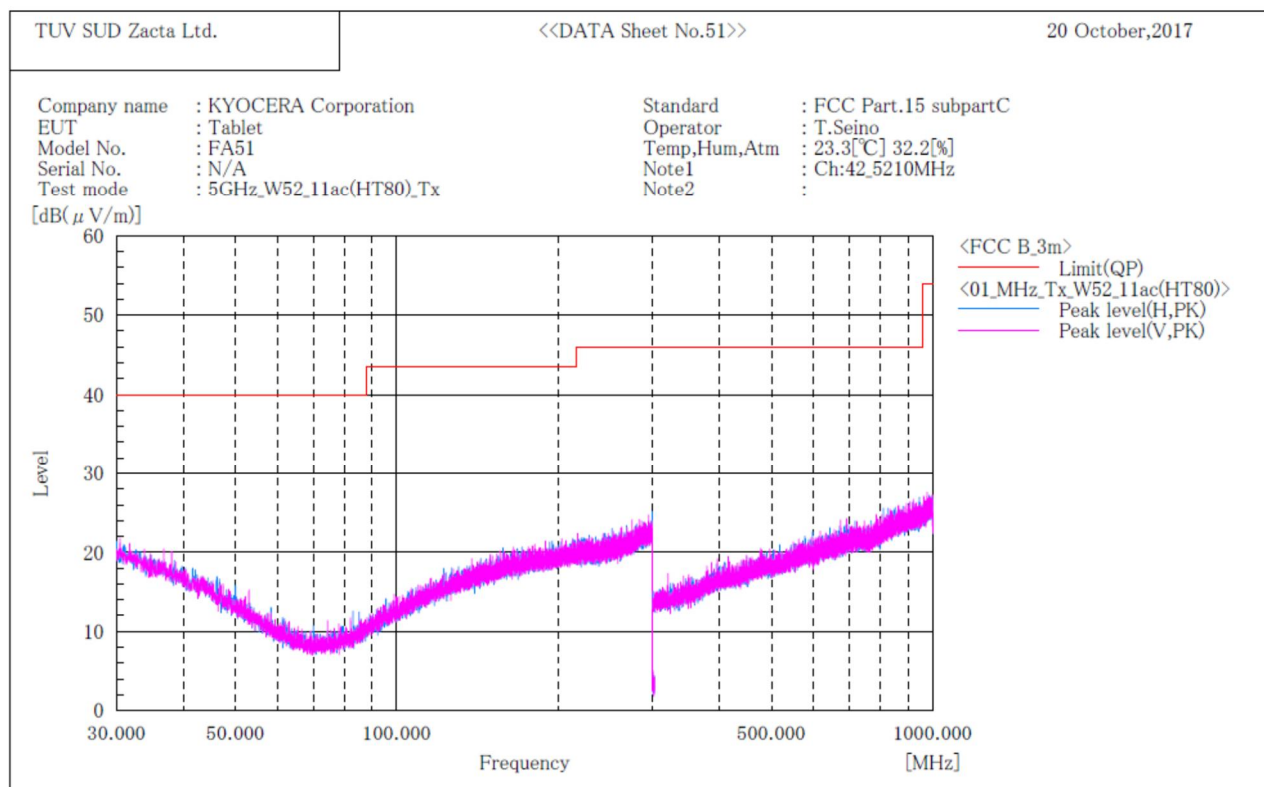
- Emission Level (Margin) = Limit - [Reading + Factor (Antenna + Cable – Amp)]
- No emission were detected in frequency range 18GHz to 40GHz at the 3 meters distance.



Zacta

[11n(HT80)]
W52
BELOW 1GHz

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



Final Result

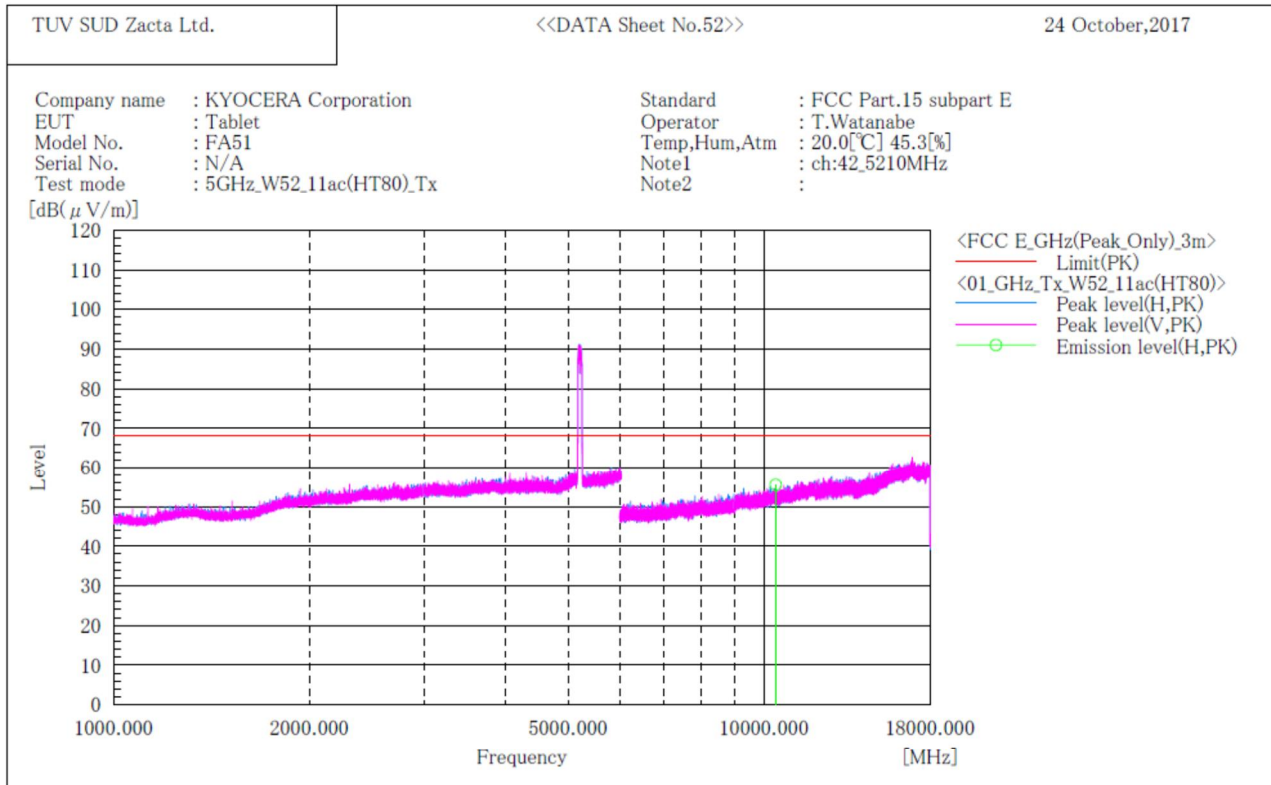
No.	Frequency (P)	c.f	Height	Angle
	[MHz]	[dB(1/m)]	[cm]	[°]

Note:

- Emission Level (Margin) = Limit - [Reading + Factor (Antenna + Cable – Amp)]
- No emission were detected in frequency range 9kHz to 1000MHz at the 3 meters distance.

[11n(HT80)]
W52
ABOVE 1GHz

***** 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	10420.000	H	45.6	9.9	55.5	68.2	12.7	159.0	233.0

Note:

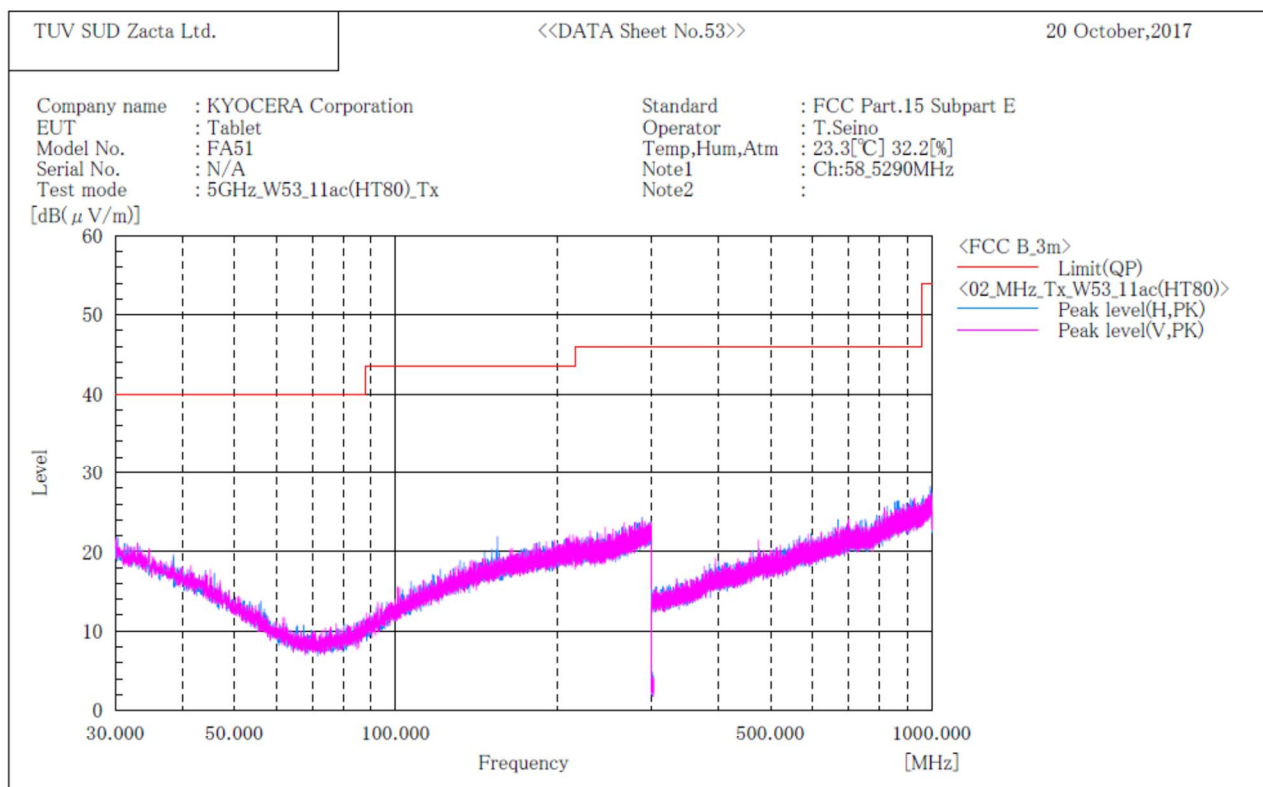
- Emission Level (Margin) = Limit - [Reading + Factor (Antenna + Cable – Amp)]
- No emission were detected in frequency range 18GHz to 40GHz at the 3 meters distance.



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[11n(HT80)]
W53
BELOW 1GHz

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



Final Result

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

Note:

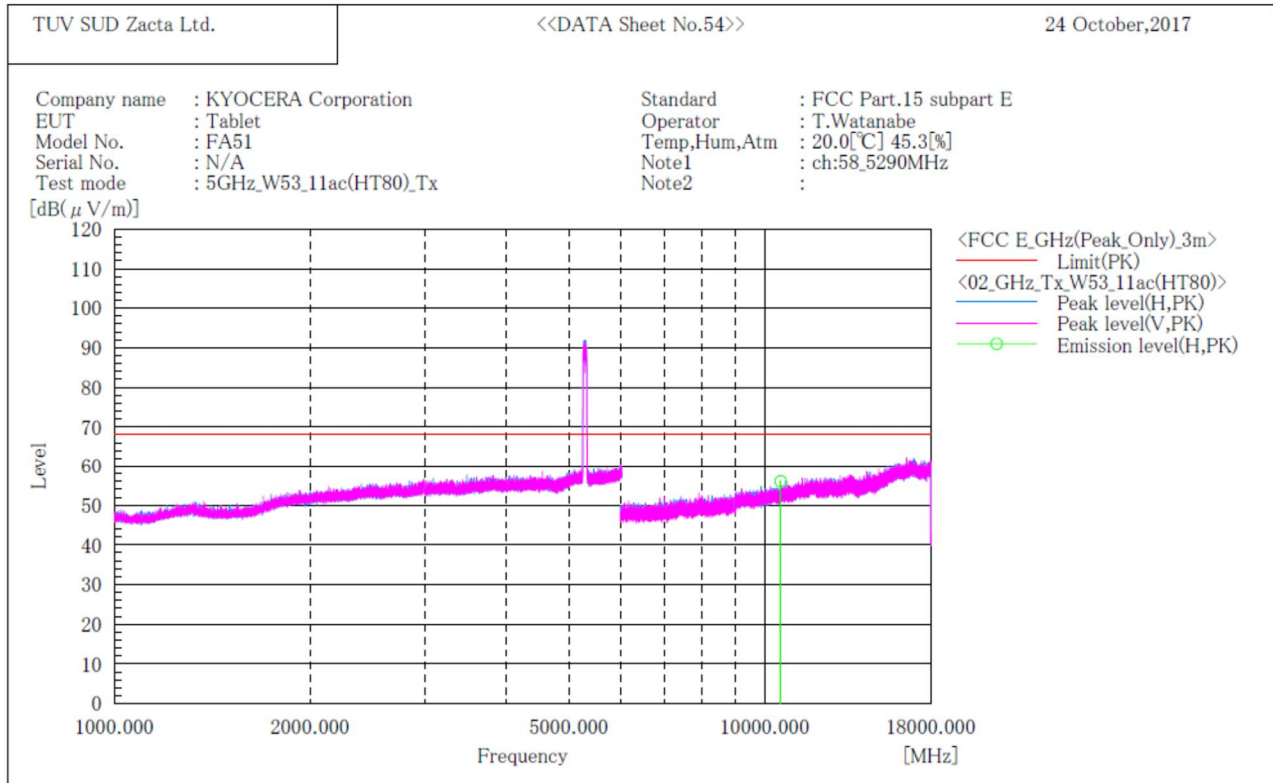
1. Emission Level (Margin) = Limit - [Reading + Factor (Antenna + Cable – Amp)]
2. No emission were detected in frequency range 9kHz to 1000MHz at the 3 meters distance.



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[11n(HT80)]
W53
ABOVE 1GHz

***** 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	10580.000	H	45.9	10.1	56.0	68.2	12.2	151.0	62.0

Note:

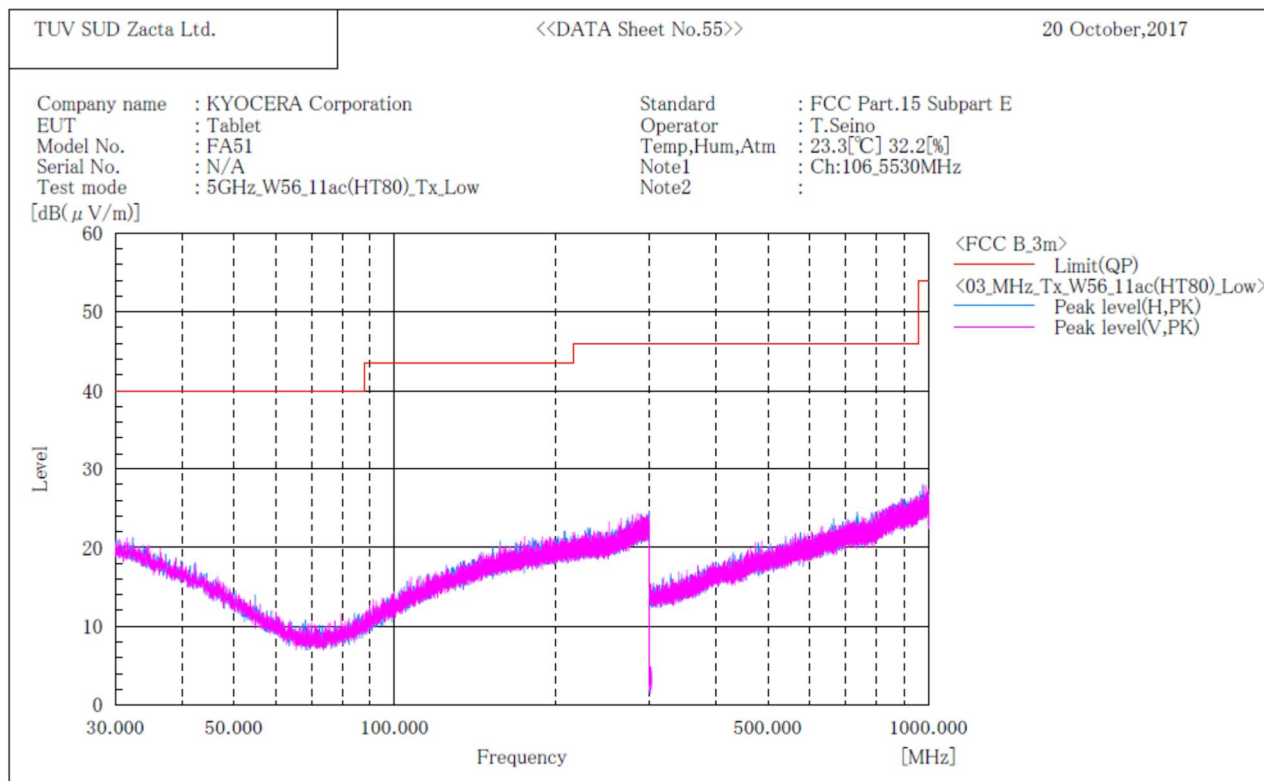
1. Emission Level (Margin) = Limit - [Reading + Factor (Antenna + Cable – Amp)]
2. No emission were detected in frequency range 18GHz to 40GHz at the 3 meters distance.



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

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



Final Result

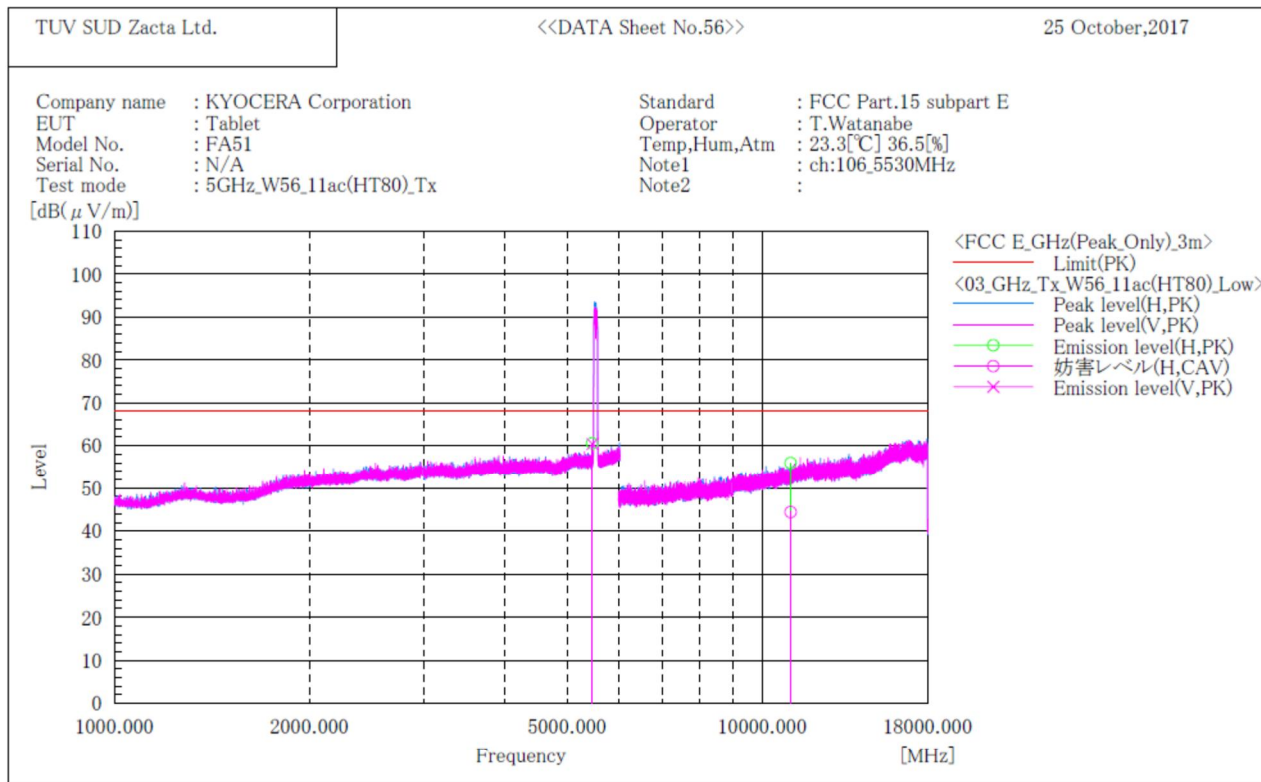
No.	Frequency (P)	c.f	Height	Angle
	[MHz]	[dB(1/m)]	[cm]	[°]

Note:

1. Emission Level (Margin) = Limit - [Reading + Factor (Antenna + Cable – Amp)]
2. No emission were detected in frequency range 9kHz to 1000MHz at the 3 meters distance.

[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	5462.090	H	50.4	-----	10.2	60.6	-----	68.2	7.6	-----	139.0	248.0
2	5467.870	V	50.2	-----	10.2	60.4	-----	68.2	7.8	-----	170.0	268.0
3	11060.000	H	45.3	33.7	10.7	56.0	44.4	74.0	18.0	9.6	168.0	82.0

Note:

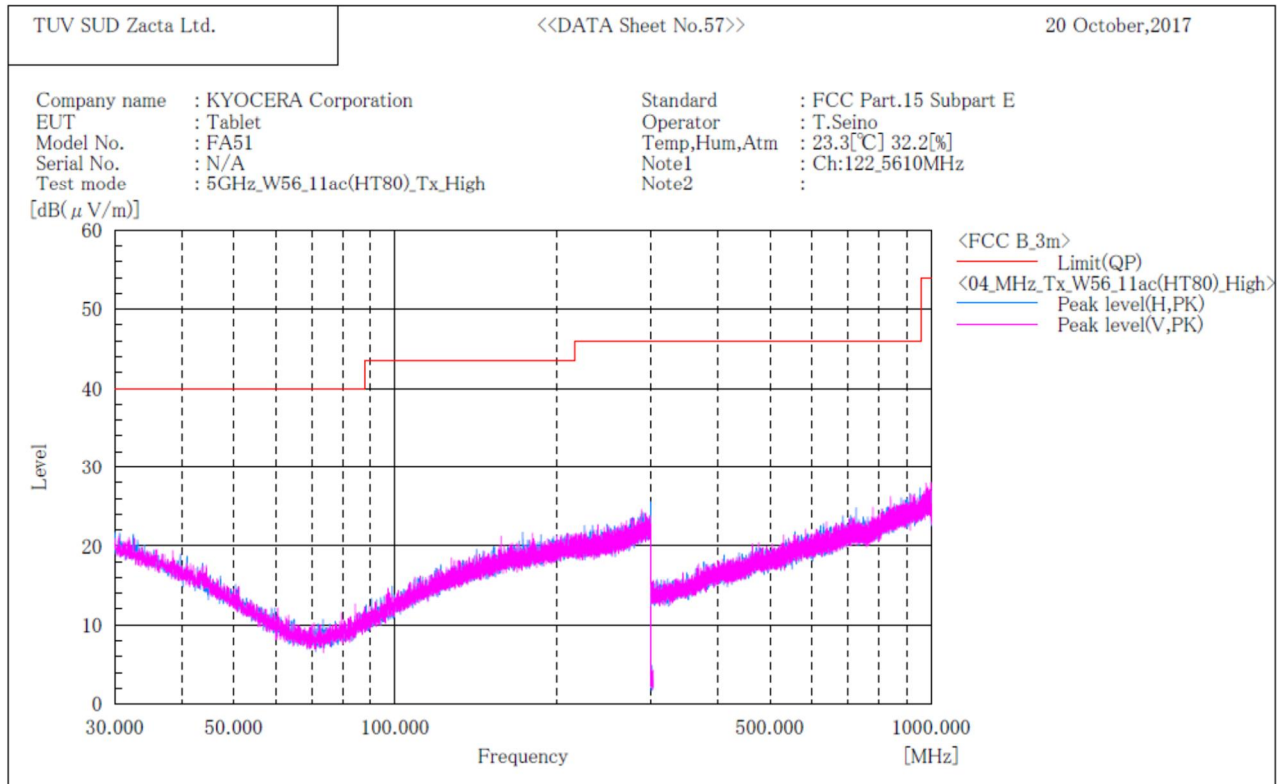
1. Emission Level (Margin) = Limit - [Reading + Factor (Antenna + Cable – Amp)]
2. No emission were detected in frequency range 18GHz to 40GHz at the 3 meters distance.



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

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



Final Result

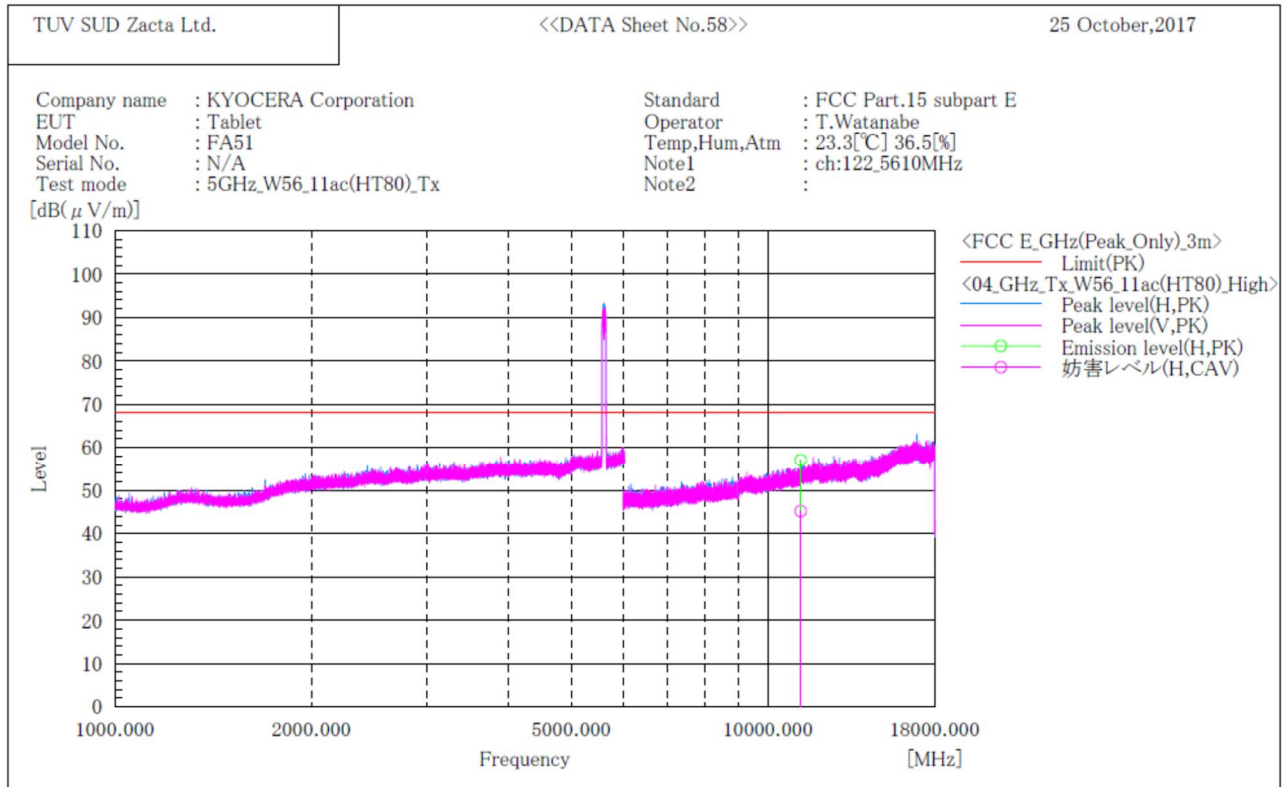
No.	Frequency (P)	c.f	Height	Angle
	[MHz]	[dB(1/m)]	[cm]	[°]

Note:

1. Emission Level (Margin) = Limit - [Reading + Factor (Antenna + Cable – Amp)]
2. No emission were detected in frequency range 9kHz to 1000MHz at the 3 meters distance.

[11n(HT80)]
W56 / Channel High
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	11220.000	H	46.1	34.2	11.0	57.1	45.2	74.0	16.9	8.8	175.0	294.0

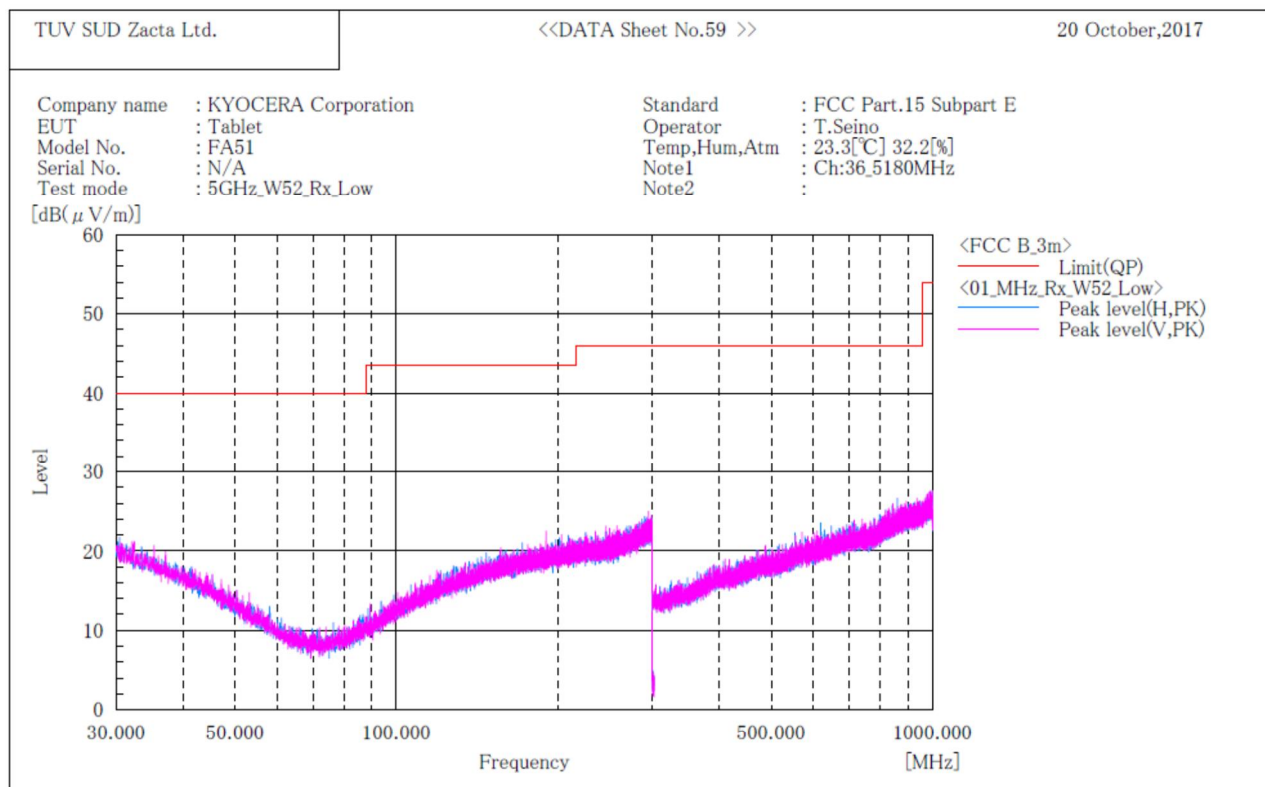
Note:

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.

7.4.4.2 Receive mode

W52 / Channel Low BELOW 1GHz

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



Final Result

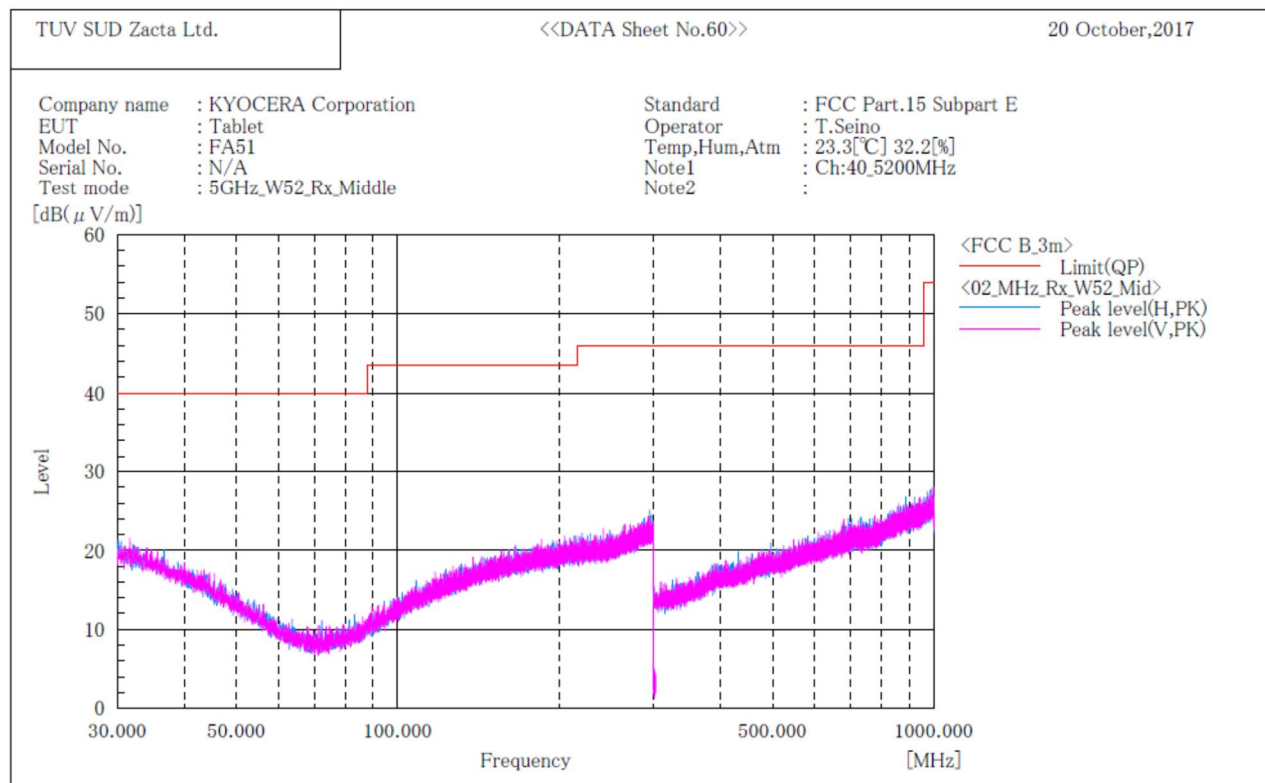
No.	Frequency (P)	c.f	Height	Angle
	[MHz]	[dB(1/m)]	[cm]	[°]

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 40GHz at the 3 meters distance.

W52 / Channel Middle BELOW 1GHz

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



Final Result

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

Note:

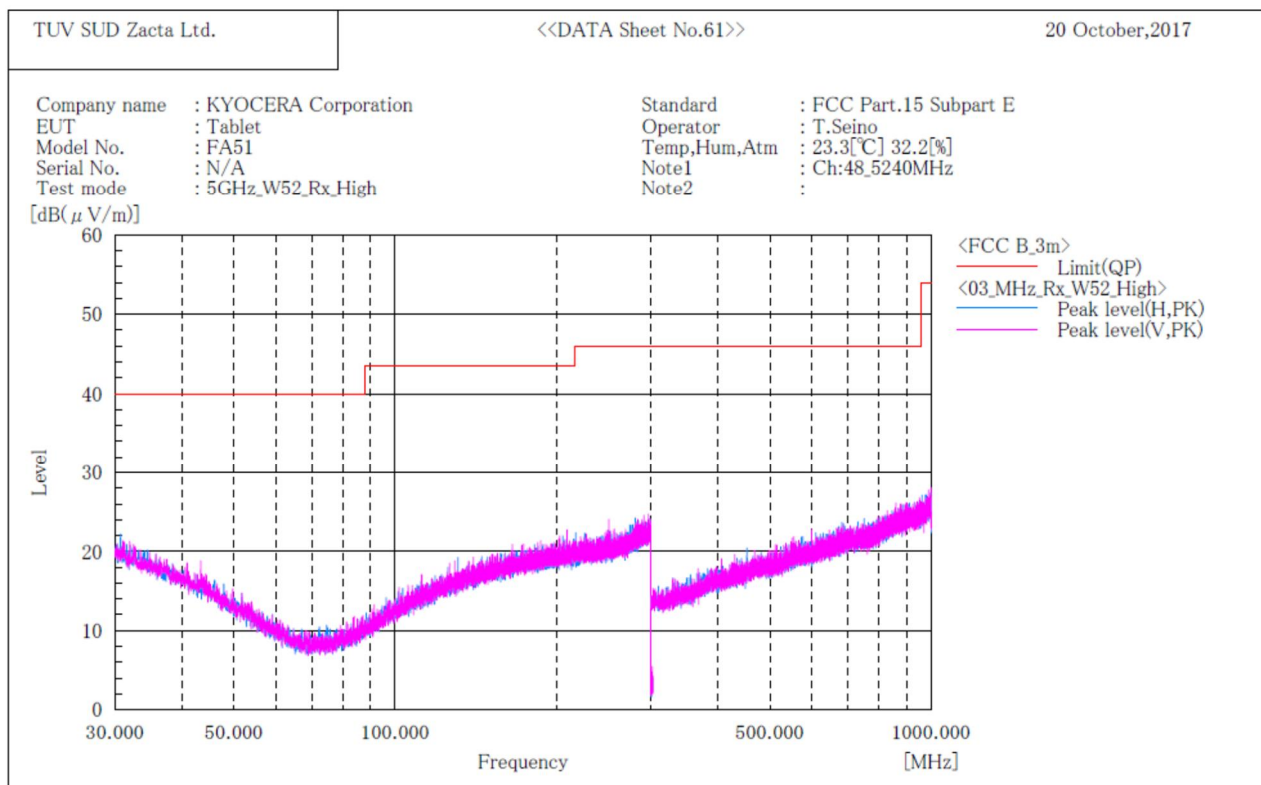
1. Emission Level (Margin) = Limit - [Reading + Factor (Antenna + Cable – Amp)]
2. No emission were detected in frequency range 9kHz to 1000MHz and 1GHz to 40GHz at the 3 meters distance.



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W52 / Channel High BELOW 1GHz

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



Final Result

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

Note:

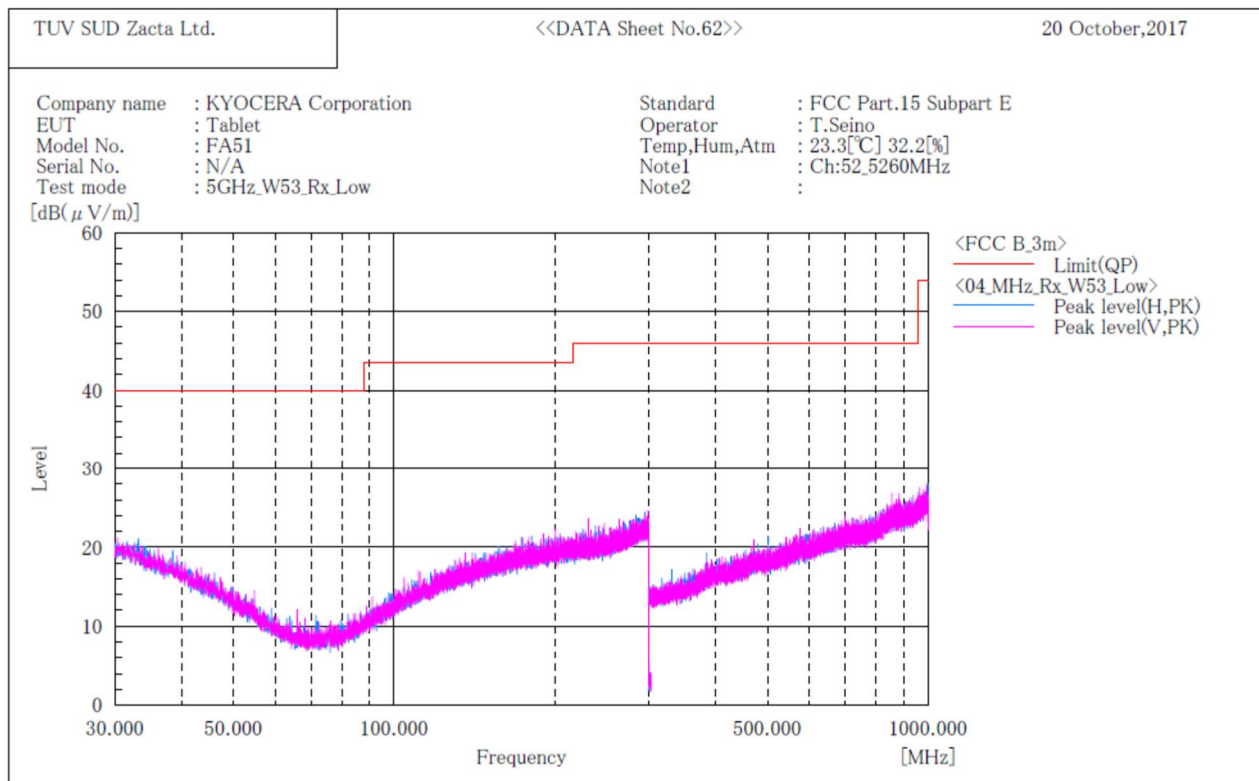
1. Emission Level (Margin) = Limit - [Reading + Factor (Antenna + Cable – Amp)]
2. No emission were detected in frequency range 9kHz to 1000MHz and 1GHz to 40GHz at the 3 meters distance.



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W53 / Channel Low BELOW 1GHz

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



Final Result

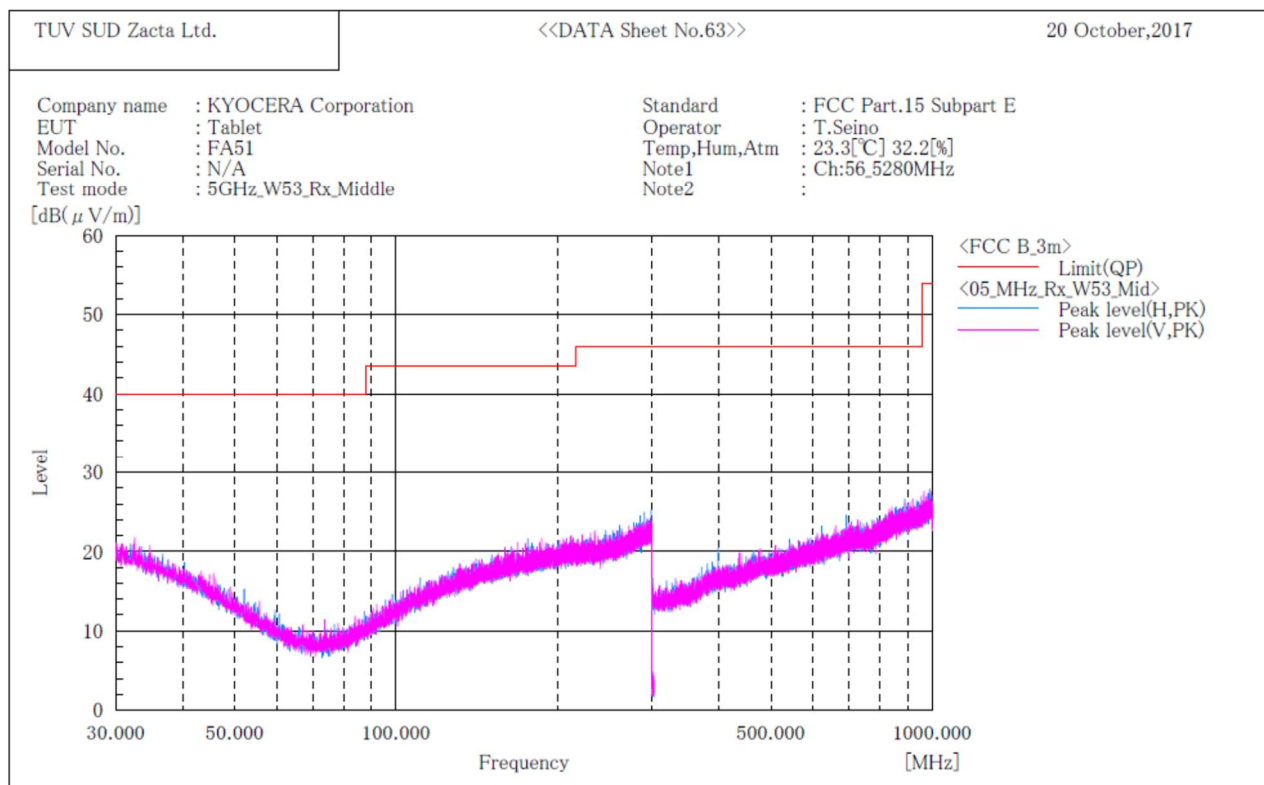
No.	Frequency (P)	c.f	Height	Angle
	[MHz]	[dB(1/m)]	[cm]	[°]

Note:

- Emission Level (Margin) = Limit - [Reading + Factor (Antenna + Cable – Amp)]
- No emission were detected in frequency range 9kHz to 1000MHz and 1GHz to 40GHz at the 3 meters distance.

W53 / Channel Middle BELOW 1GHz

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



Final Result

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

Note:

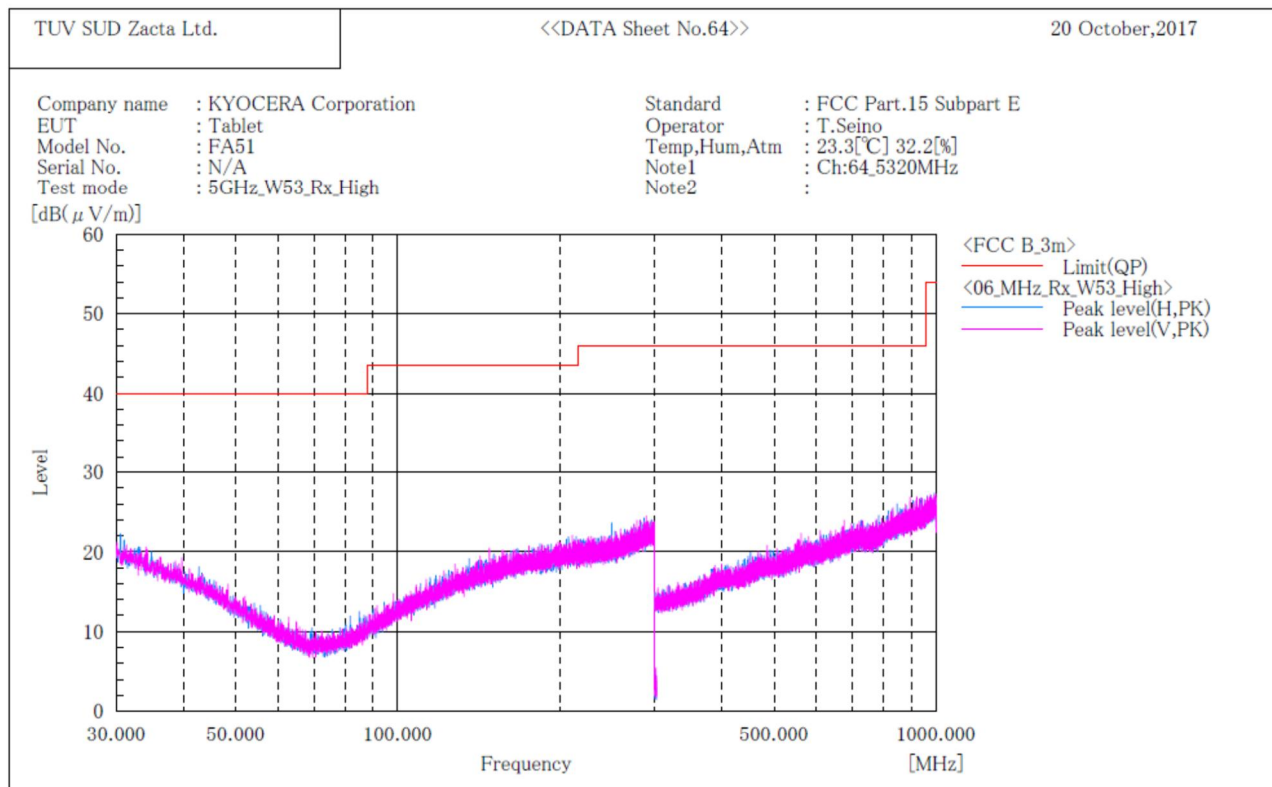
- Emission Level (Margin) = Limit - [Reading + Factor (Antenna + Cable – Amp)]
- No emission were detected in frequency range 9kHz to 1000MHz and 1GHz to 40GHz at the 3 meters distance.



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W53 / Channel High BELOW 1GHz

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



Final Result

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

Note:

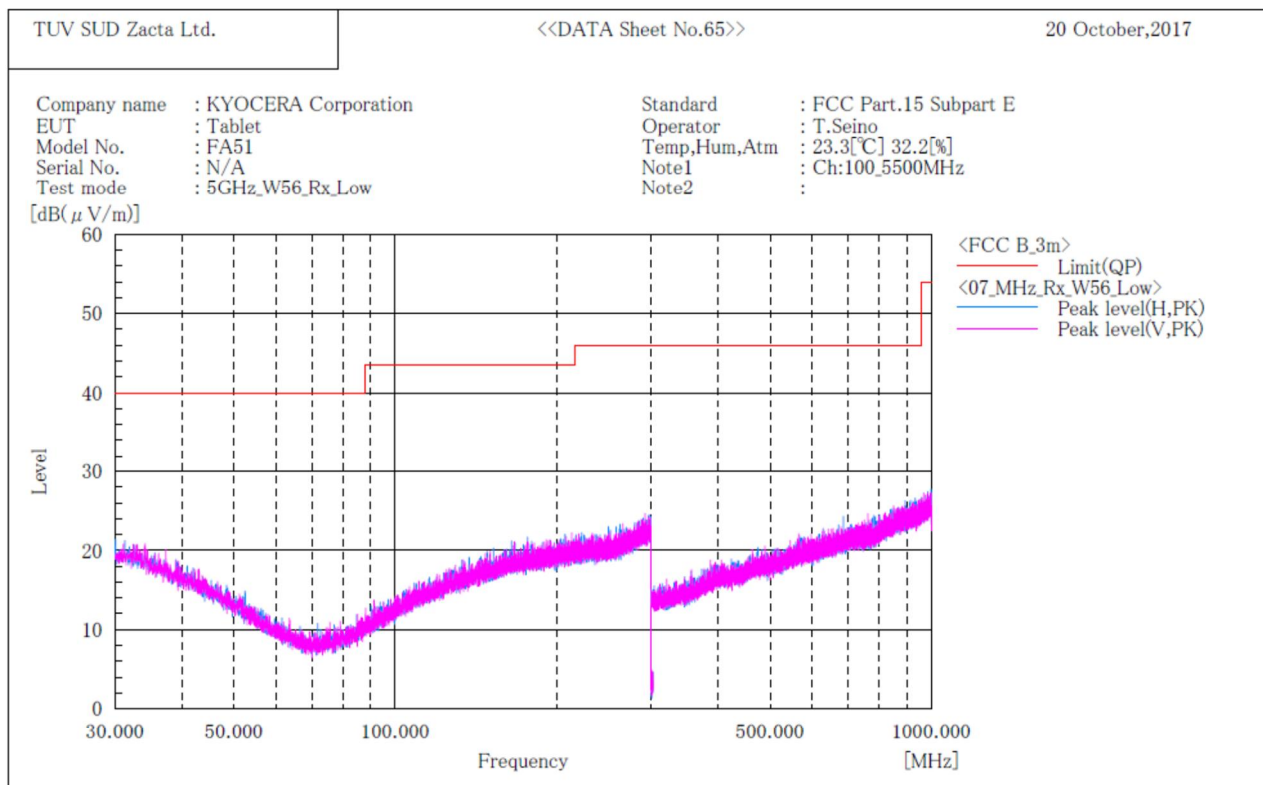
1. Emission Level (Margin) = Limit - [Reading + Factor (Antenna + Cable – Amp)]
2. No emission were detected in frequency range 9kHz to 1000MHz and 1GHz to 40GHz at the 3 meters distance.



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W56 / Channel Low BELOW 1GHz

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



Final Result

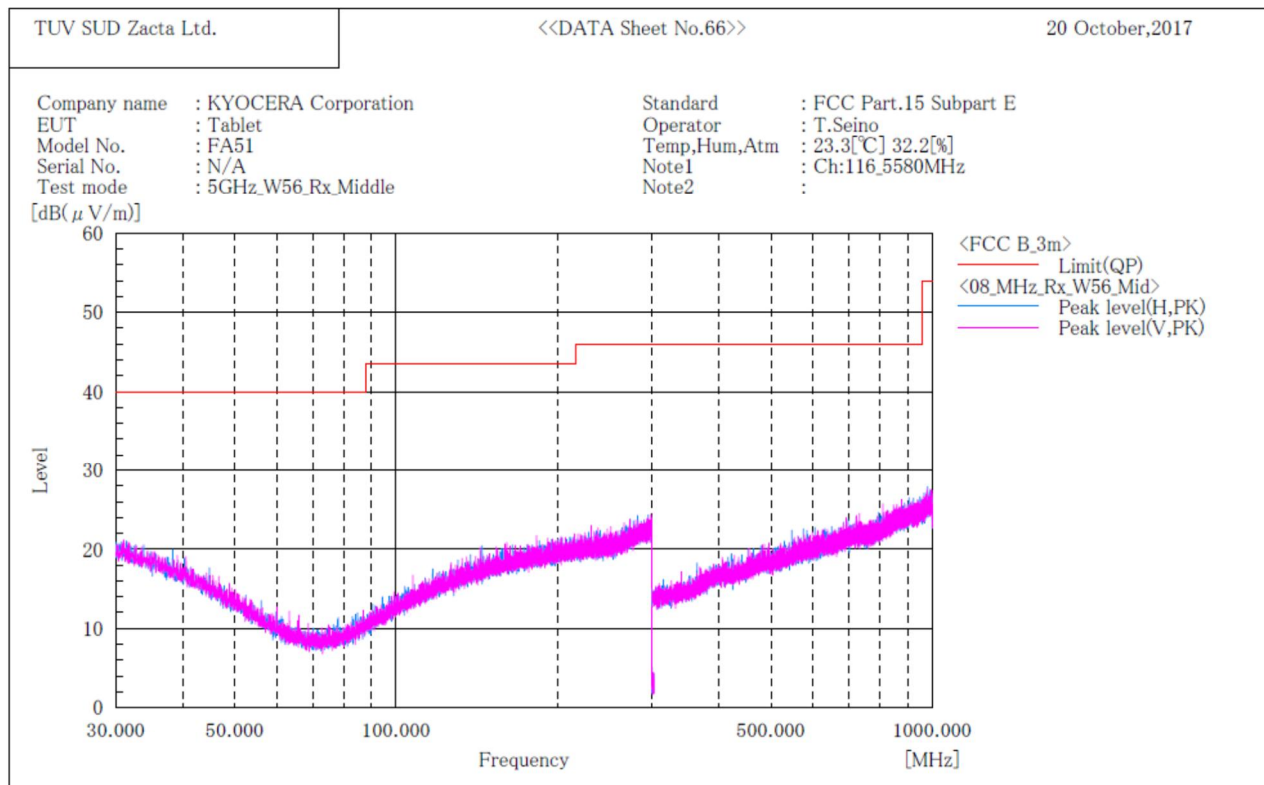
No.	Frequency (P)	c. f	Height	Angle
	[MHz]	[dB(1/m)]	[cm]	[°]

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 40GHz at the 3 meters distance.

W56 / Channel Middle BELOW 1GHz

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



Final Result

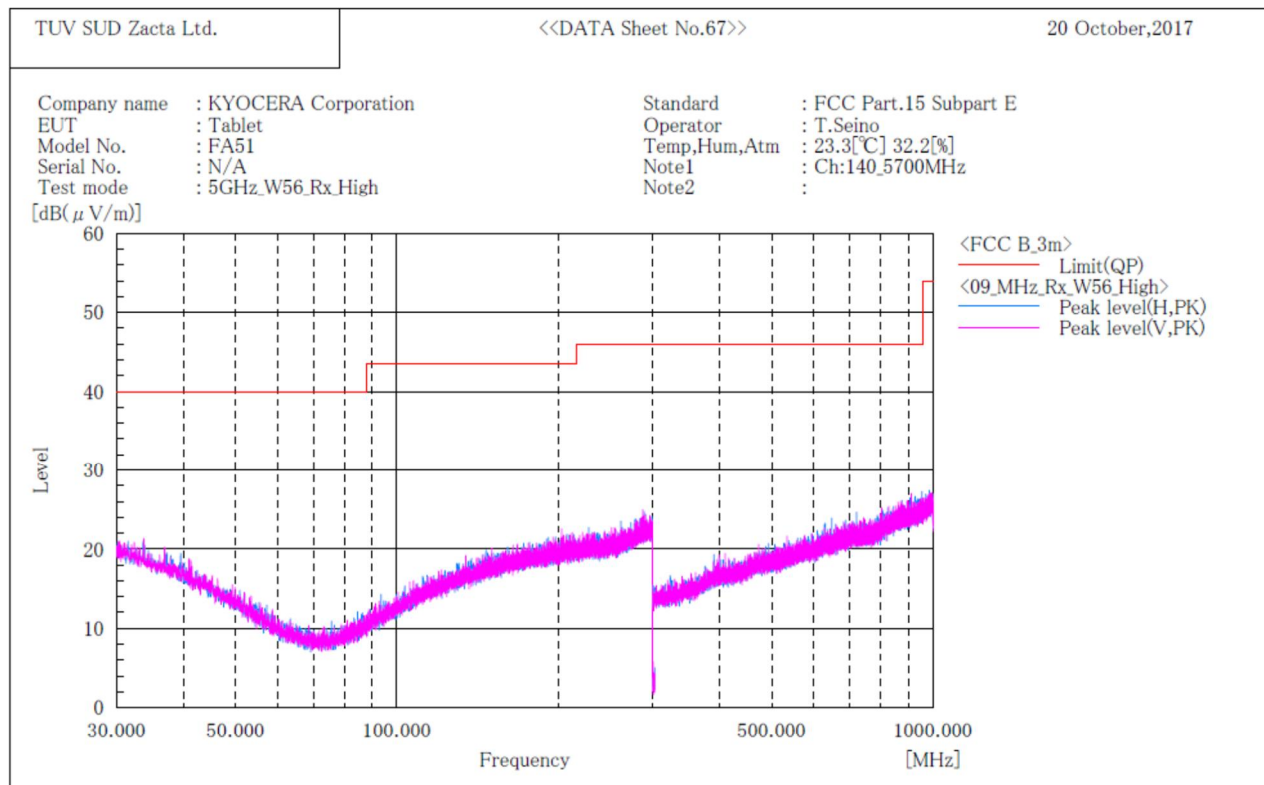
No.	Frequency (P)	c.f	Height	Angle
	[MHz]	[dB(1/m)]	[cm]	[°]

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 40GHz at the 3 meters distance.

W56 / Channel High BELOW 1GHz

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



Final Result

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

Note:

- Emission Level (Margin) = Limit - [Reading + Factor (Antenna + Cable – Amp)]
- No emission were detected in frequency range 9kHz to 1000MHz and 1GHz to 40GHz at the 3 meters distance.

8. Frequency Stability

8.1 Measurement procedure [FCC 15.407(g)]

The EUT was placed inside of a constant temperature chamber as the temperature in the chamber was varied between -30°C and $+60^{\circ}\text{C}$. 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 channel's center frequency was recorded.

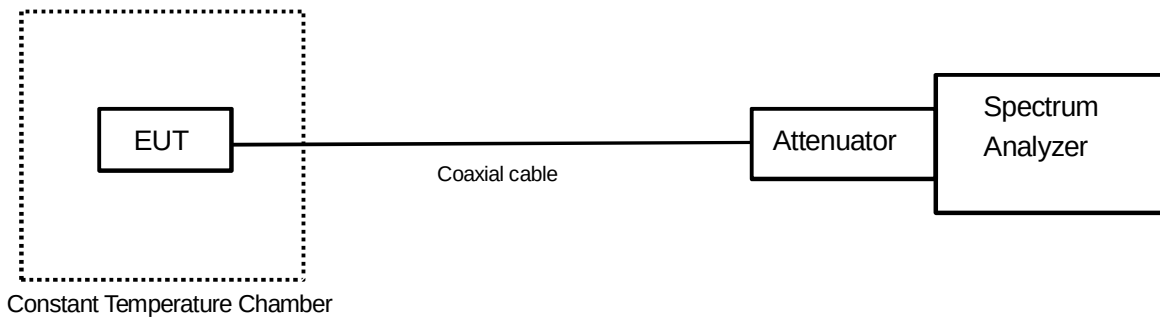
The EUT was set to operate with the following conditions.

- 5.2GHz Band, 5.3GHz Band, 5.6GHz Band

The test mode of EUT is as follows.

- Tx mode

- Test configuration



8.2 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.



Zacta

8.3 Measurement result

Date : October 19, 2017
 Temperature : 21.9 [°C]
 Humidity : 60.1 [%]
 Test place : Shielded room No.4

Test engineer : Chiaki Kanno

Date : October 20, 2017
 Temperature : 20.5 [°C]
 Humidity : 56.2 [%]
 Test place : Shielded room No.4

Test engineer : Chiaki Kanno

[Channel: 36 (5180MHz)]

Power Supply	Temperature	Measurements Frequency (startup)	Frequency Tolerance (startup)	Measurements Frequency (2mins)	Frequency Tolerance (2mins)	Measurements Frequency (5mins)	Frequency Tolerance (5mins)	Measurements Frequency (10mins)	Frequency Tolerance (10mins)
[V]	[°C]	[Hz]	[ppm]	[Hz]	[ppm]	[Hz]	[ppm]	[Hz]	[ppm]
3.80	25(Ref.)	5180018039	0.00000000	5180002185	-3.06060710	5180010021	-1.54787106	5180016843	-0.23088723
	60	5179992249	-4.97874714	5179995717	-4.30925140	5179972502	-8.79089603	5179991721	-5.08067729
	50	5179983405	-6.68607710	5179973110	-8.67352192	5179984869	-6.40345260	5179984810	-6.41484253
	40	5180003603	-2.78686288	5180002128	-3.07161092	5179993160	-4.80287903	5179999923	-3.49728512
	30	5179998190	-3.83183994	5179987062	-5.98009500	5179989684	-5.47391916	5179993013	-4.83125731
	20	5180006954	-2.13995394	5180010370	-1.48049677	5180012204	-1.12644395	5180019205	0.22509574
	10	5180010222	-1.50906810	5179997422	-3.98010197	5180027803	1.88493552	5180019358	0.25463232
	0	5180016183	-0.35829991	5180040785	4.39110440	5180024358	1.21987992	5180037780	3.81099059
	-10	5180016951	-0.21003788	5180036678	3.59825002	5180022600	0.88049886	5180038839	4.01543003
	-20	5180023278	1.01138644	5180025249	1.39188704	5180037478	3.75268963	5180015729	-0.44594439
	-30	5180006988	-2.13339025	5180001921	-3.11157218	5180015187	-0.55057723	5180016460	-0.30482519
3.42	25	5180008419	-1.85713639	5180003873	-2.73473951	5180011838	-1.19710008	5179987067	-5.97912976
4.18	25	5180000807	-3.32662934	5180009353	-1.67682814	5180015902	-0.41254683	5180004629	-2.58879407



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[Channel: 64 (5320MHz)]

Power Supply	Temperature	Measurements Frequency (startup)	Frequency Tolerance (startup)	Measurements Frequency (2mins)	Frequency Tolerance (2mins)	Measurements Frequency (5mins)	Frequency Tolerance (5mins)	Measurements Frequency (10mins)	Frequency Tolerance (10mins)
[V]	[°C]	[Hz]	[ppm]	[Hz]	[ppm]	[Hz]	[ppm]	[Hz]	[ppm]
3.80	25(Ref.)	5320021274	0.00000000	5320008021	-2.49115545	5320025900	0.86954539	5320023345	0.38928416
	60	5319990352	-5.81238277	5319997099	-4.54415476	5320021737	0.08702973	5319976852	-8.34996661
	50	5320008554	-2.39096788	5319993812	-5.16200943	5320002296	-3.56727897	5320006267	-2.82085338
	40	5320000490	-3.90675129	5320000547	-3.89603705	5320005146	-3.03156682	5319993275	-5.26294888
	30	5319997236	-4.51840298	5320008754	-2.35337405	5320000450	-3.91427006	5320005443	-2.97573998
	20	5320012618	-1.62706116	5320014683	-1.23890482	5320037920	3.12893486	5320022703	0.26860795
	10	5320007748	-2.54247104	5320011552	-1.82743630	5320010735	-1.98100712	5320031815	1.98138305
	0	5320007773	-2.53777181	5320027145	1.10356702	5320038497	3.23739307	5320022368	0.20563828
	-10	5320034299	2.44829848	5320027342	1.14059694	5320031198	1.86540607	5320022444	0.21992393
	-20	5320028134	1.28946853	5320021434	0.03007507	5320041323	3.76859395	5320021442	0.03157882
	-30	5320017847	-0.64417036	5320025326	0.76165109	5320021732	0.08608988	5320011215	-1.89078191
3.42	25	5320000011	-3.99678853	5320009046	-2.29848705	5320014677	-1.24003264	5320004876	-3.08231850
4.18	25	5320014653	-1.24454390	5319973594	-8.96237018	5320000234	-3.95487140	5319995248	-4.89208570

[Channel: 140 (5700MHz)]

Power Supply	Temperature	Measurements Frequency (startup)	Frequency Tolerance (startup)	Measurements Frequency (2mins)	Frequency Tolerance (2mins)	Measurements Frequency (5mins)	Frequency Tolerance (5mins)	Measurements Frequency (10mins)	Frequency Tolerance (10mins)
[V]	[°C]	[Hz]	[ppm]	[Hz]	[ppm]	[Hz]	[ppm]	[Hz]	[ppm]
3.80	25(Ref.)	5699994662	0.00000000	5699984245	-1.82754557	5699993936	-0.12736854	5699982892	-2.06491421
	60	5699991490	-0.55649175	5700006703	2.11245812	5699989325	-0.93631667	5699998390	0.65403570
	50	5700003148	1.48877332	5699989493	-0.90684295	5699991867	-0.49035134	5699980289	-2.52158131
	40	5699996413	0.30719327	5699984704	-1.74701918	5700000802	1.07719399	5699981116	-2.37649345
	30	5699989319	-0.93736930	5699971993	-3.97702127	5700003045	1.47070313	5700000696	1.05859748
	20	5699993291	-0.24052654	5700004574	1.73894900	5700004662	1.75438761	5699996964	0.40386003
	10	5700026583	5.60018068	5700001880	1.26631698	5700011763	3.00017825	5700008531	2.43316017
	0	5700012711	3.16649419	5700030188	6.23263742	5700027964	5.84246161	5700033318	6.78176074
	-10	5700029429	6.09947940	5700033928	6.88877838	5700025378	5.38877698	5700025895	5.47947882
	-20	5700031108	6.39404108	5700029256	6.06912849	5700010020	2.69438849	5700037698	7.55018251
	-30	5699985045	-1.68719456	5700012348	3.10280992	5700017427	3.99386339	5700019675	4.38824972
3.42	25	5699989777	-0.85701835	5700000896	1.09368523	5700006610	2.09614231	5700011506	2.95509049
4.18	25	5699985825	-1.55035233	5699999111	0.78052705	5699999646	0.87438678	5699994145	-0.09070184

9. AC Power Line Conducted Emissions

9.1 Measurement procedure [FCC 15.207]

Test was applied by following conditions.

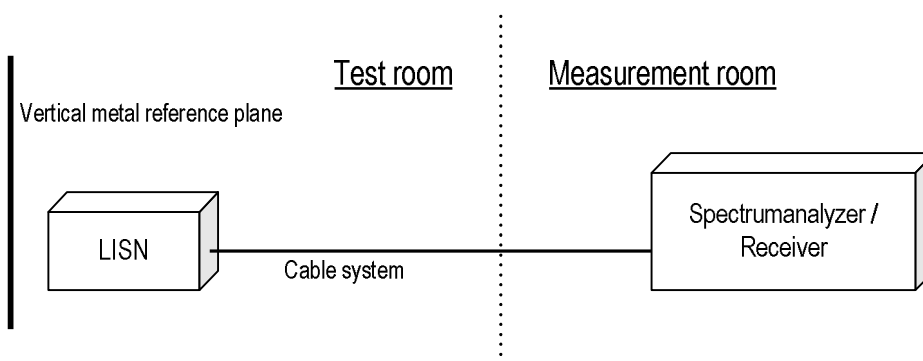
Test method	: ANSI C63.10
Frequency range	: 0.15MHz to 30MHz
Test place	: 3m Semi-anechoic chamber
EUT was placed on	: FRP table / (W)2.0m × (D)1.0m × (H)0.8m
Vertical Metal Reference Plane	: (W)2.0m × (H)2.0m 0.4m away from EUT
Test receiver setting	
- Detector	: Quasi-peak, Average
- Bandwidth	: 9kHz

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



9.2 Calculation method

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

Margin = Limit – Emission level

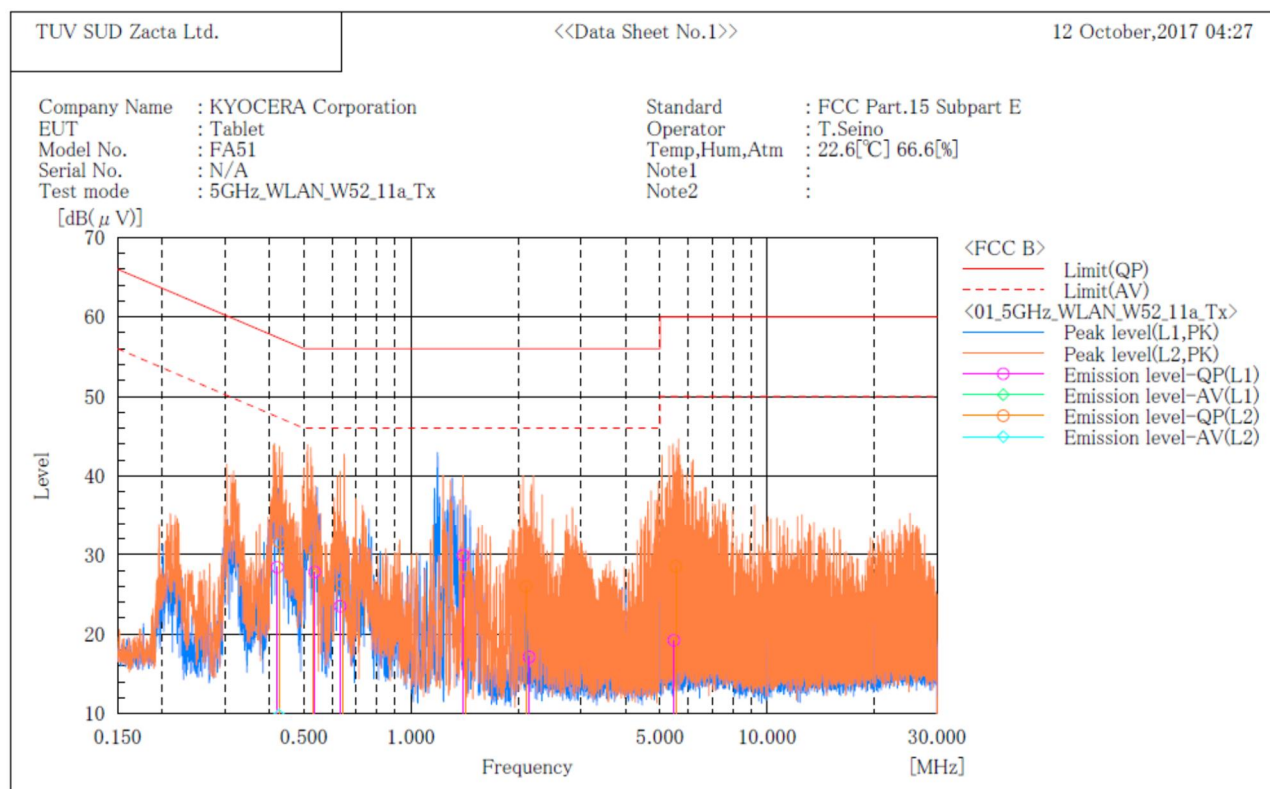
9.3 Limit

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.

9.4 Test data

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



Final Result

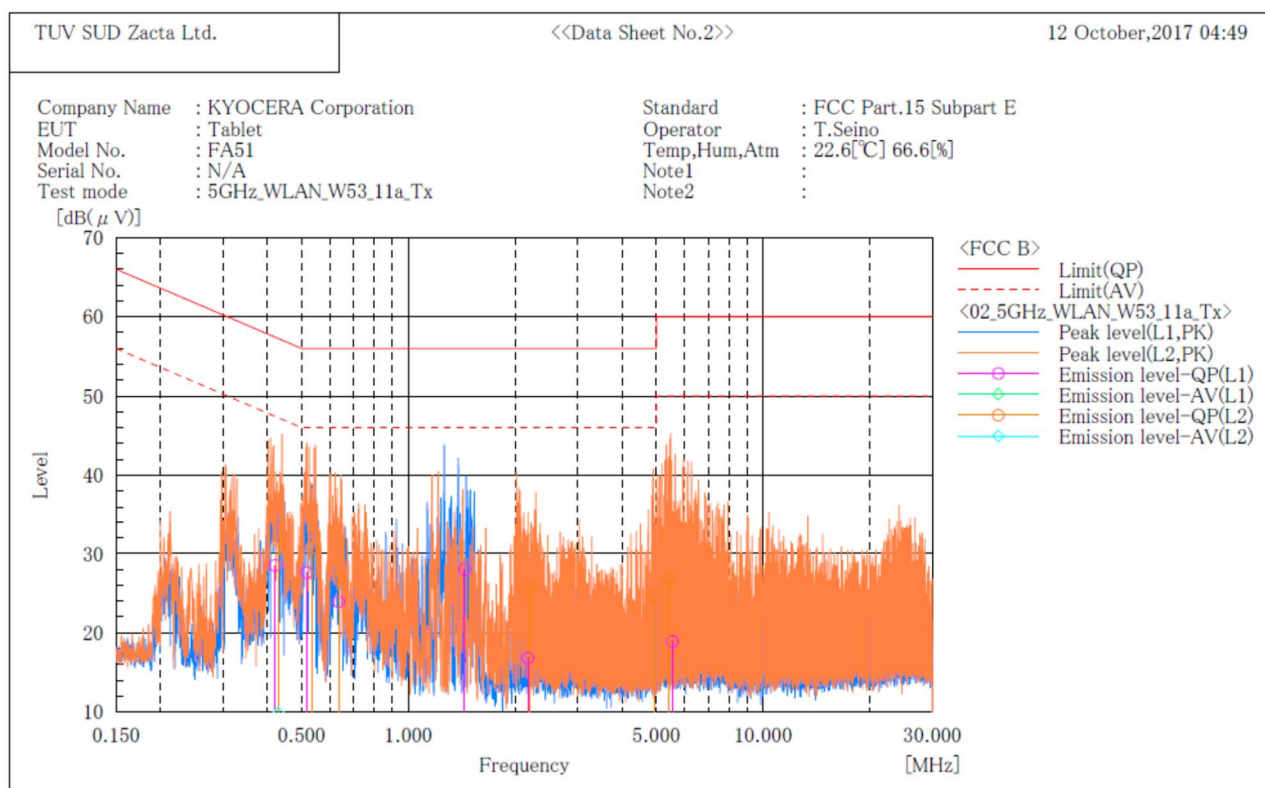
--- L1 Phase ---

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	0.421	18.0	-1.6	10.4	28.4	8.8	57.4	47.4	29.0	38.6
2	0.536	17.4	-2.2	10.4	27.8	8.2	56.0	46.0	28.2	37.8
3	0.632	13.1	-2.8	10.4	23.5	7.6	56.0	46.0	32.5	38.4
4	1.402	19.5	-1.9	10.4	29.9	8.5	56.0	46.0	26.1	37.5
5	2.146	6.6	-4.3	10.5	17.1	6.2	56.0	46.0	38.9	39.8
6	5.467	8.5	-4.4	10.7	19.2	6.3	60.0	50.0	40.8	43.7

--- 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	0.426	21.2	-0.6	10.4	31.6	9.8	57.3	47.3	25.7	37.5
2	0.530	20.3	-1.3	10.4	30.7	9.1	56.0	46.0	25.3	36.9
3	0.641	15.9	-2.2	10.4	26.3	8.2	56.0	46.0	29.7	37.8
4	1.420	16.7	-2.5	10.4	27.1	7.9	56.0	46.0	28.9	38.1
5	2.100	15.5	-3.0	10.5	26.0	7.5	56.0	46.0	30.0	38.5
6	5.541	17.8	-3.1	10.7	28.5	7.6	60.0	50.0	31.5	42.4

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



Final Result

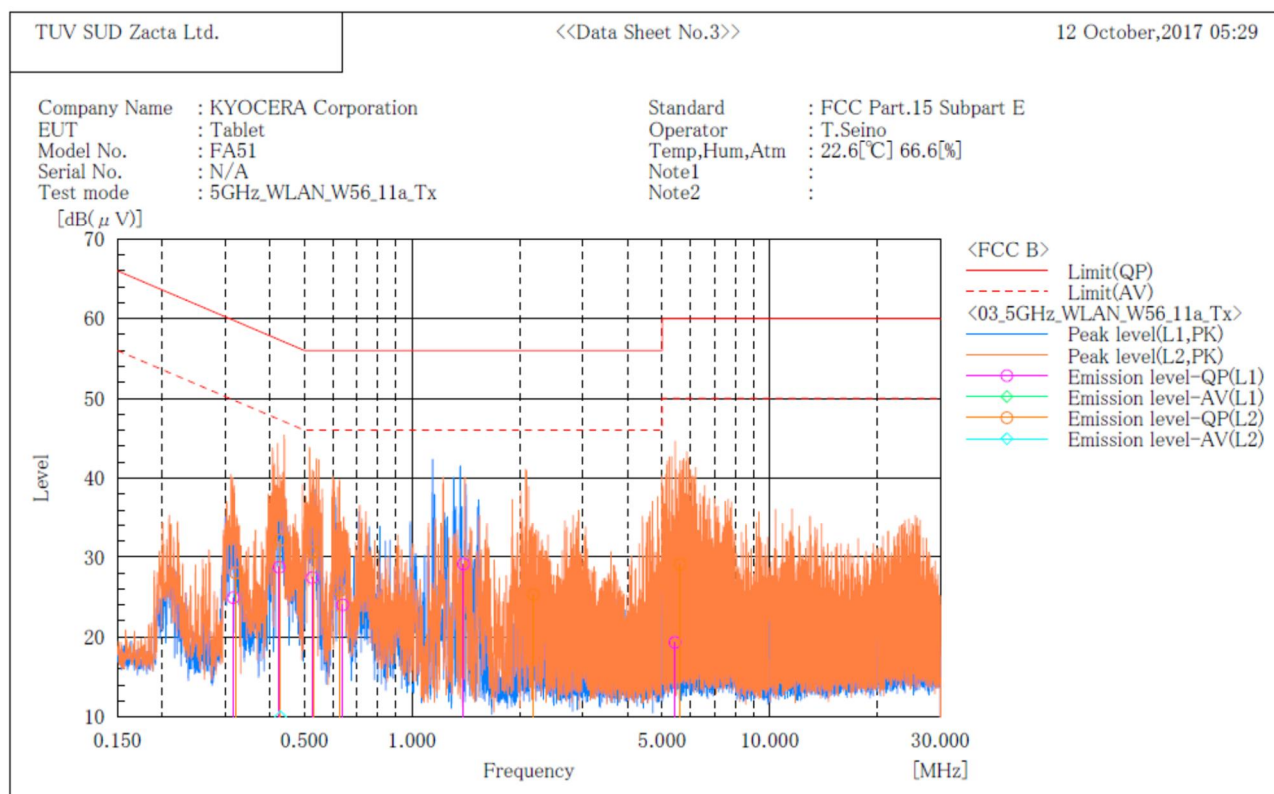
--- L1 Phase ---

No.	Frequency	Reading QP	Reading AV	c. f	Result QP	Result AV	Limit QP	Limit AV	Margin QP	Margin AV
	[MHz]	[dB(μV)]	[dB(μV)]	[dB]	[dB(μV)]	[dB(μV)]	[dB(μV)]	[dB(μV)]	[dB]	[dB]
1	0.420	18.1	-1.5	10.4	28.5	8.9	57.4	47.4	28.9	38.5
2	0.517	17.2	-2.2	10.4	27.6	8.2	56.0	46.0	28.4	37.8
3	0.636	13.5	-2.8	10.4	23.9	7.6	56.0	46.0	32.1	38.4
4	1.439	17.6	-2.2	10.4	28.0	8.2	56.0	46.0	28.0	37.8
5	2.171	6.3	-4.6	10.5	16.8	5.9	56.0	46.0	39.2	40.1
6	5.542	8.2	-4.4	10.7	18.9	6.3	60.0	50.0	41.1	43.7

--- L2 Phase ---

No.	Frequency	Reading QP	Reading AV	c. f	Result QP	Result AV	Limit QP	Limit AV	Margin QP	Margin AV
	[MHz]	[dB(μV)]	[dB(μV)]	[dB]	[dB(μV)]	[dB(μV)]	[dB(μV)]	[dB(μV)]	[dB]	[dB]
1	0.430	21.2	-0.5	10.4	31.6	9.9	57.3	47.3	25.7	37.4
2	0.534	20.3	-1.5	10.4	30.7	8.9	56.0	46.0	25.3	37.1
3	0.637	16.4	-2.2	10.4	26.8	8.2	56.0	46.0	29.2	37.8
4	2.194	15.3	-3.3	10.5	25.8	7.2	56.0	46.0	30.2	38.8
5	4.952	13.9	-3.9	10.7	24.6	6.8	56.0	46.0	31.4	39.2
6	5.412	16.1	-3.3	10.7	26.8	7.4	60.0	50.0	33.2	42.6

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



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	0.316	14.5	-2.0	10.4	24.9	8.4	59.8	49.8	34.9	41.4
2	0.425	18.3	-1.4	10.4	28.7	9.0	57.3	47.3	28.6	38.3
3	0.526	17.0	-2.2	10.4	27.4	8.2	56.0	46.0	28.6	37.8
4	0.639	13.6	-2.8	10.4	24.0	7.6	56.0	46.0	32.0	38.4
5	1.392	18.7	-2.0	10.4	29.1	8.4	56.0	46.0	26.9	37.6
6	5.431	8.6	-4.4	10.7	19.3	6.3	60.0	50.0	40.7	43.7

--- 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	0.321	17.6	-1.3	10.4	28.0	9.1	59.7	49.7	31.7	40.6
2	0.428	21.7	-0.4	10.4	32.1	10.0	57.3	47.3	25.2	37.3
3	0.532	20.2	-1.4	10.4	30.6	9.0	56.0	46.0	25.4	37.0
4	0.628	15.4	-2.3	10.4	25.8	8.1	56.0	46.0	30.2	37.9
5	2.181	14.8	-3.0	10.5	25.3	7.5	56.0	46.0	30.7	38.5
6	5.609	18.4	-3.2	10.7	29.1	7.5	60.0	50.0	30.9	42.5

10. Duty Cycle

10.1 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=8MHz, VBW=8MHz, Span=0Hz, Sweep=Auto, Detector=Peak, Trace mode=Single

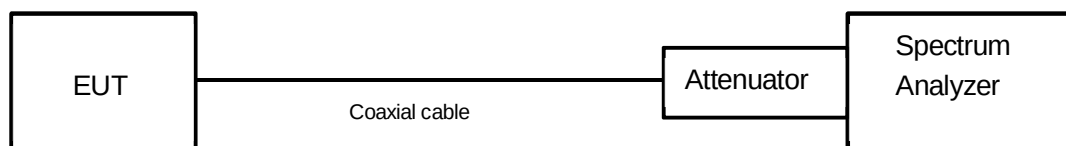
The EUT was set to operate with following conditions.

- 5.2GHz Band, 5.3GHz Band, 5.6GHz Band

The test mode of EUT is as follows.

- Tx mode

- Test configuration



10.2 Limit

None

10.3 Measurement result

Date : October 17, 2017
 Temperature : 22.3 [°C]
 Humidity : 42.4 [%]
 Test place : Shielded room No.4

Test engineer : Chiaki Kanno

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	1.364	1.372	0.994	733.1	0.025	0.051
	40	5200						
	48	5240						
	52	5260	1.364	1.372	0.994	733.1	0.025	0.051
	56	5280						
	64	5320						
	100	5500	1.364	1.372	0.994	733.1	0.025	0.051
	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	1.276	1.284	0.994	783.7	0.027	0.054
	40	5200						
	48	5240						
	52	5260	1.274	1.284	0.992	784.9	0.034	0.068
	56	5280						
	64	5320						
	100	5500	1.276	1.284	0.992	784.9	0.034	0.068
	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	0.636	0.645	0.986	1572.3	0.061	0.122
	46	5230						
	54	5270	0.636	0.646	0.985	1572.3	0.068	0.136
	62	5310						
	102	5510	0.636	0.645	0.986	1572.3	0.061	0.122
	110	5550						
	134	5670						

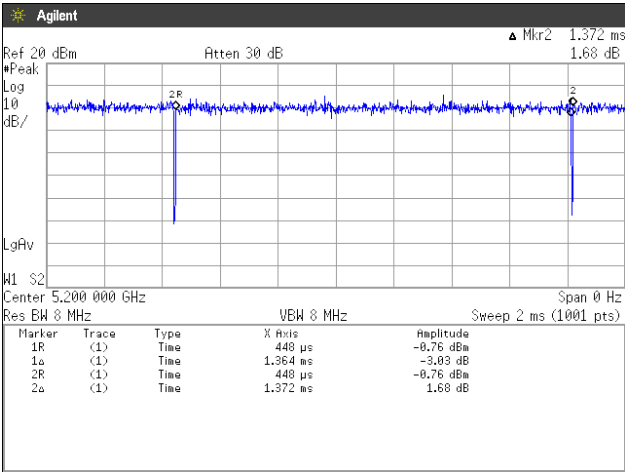
Note: X = On time / (On + Off time)

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	0.2475	0.2579	0.960	4040.4	0.179	0.358
	58	5290	0.2475	0.2579	0.960	4040.4	0.179	0.358
	106	5530	0.2475	0.2579	0.960	4040.4	0.179	0.358
	122	5610	0.2480	0.2579	0.962	4032.3	0.170	0.340

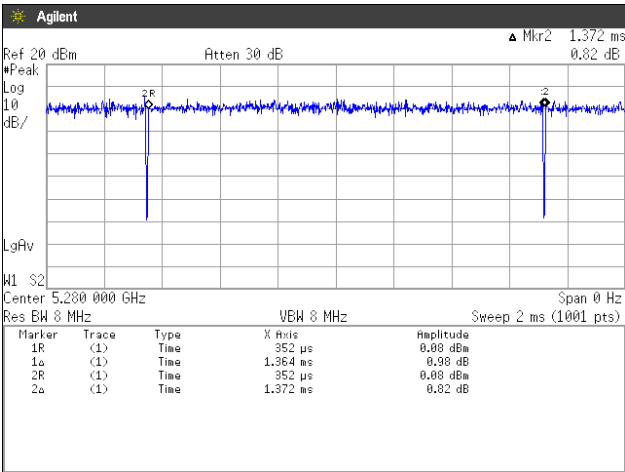
Note: X = On time / (On + Off time)

10.4 Trace data
[IEEE802.11a]

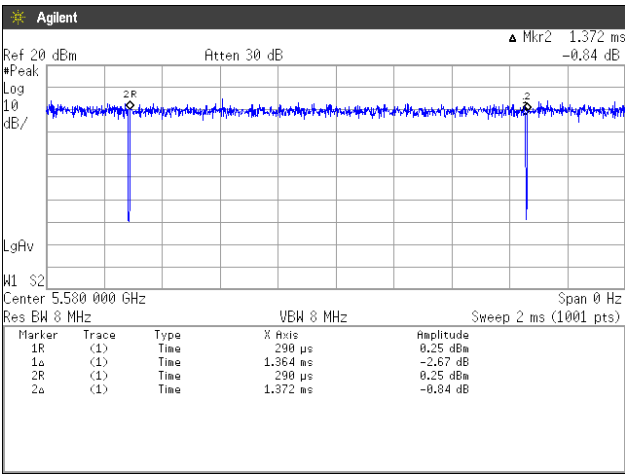
Channel: 40



Channel: 56

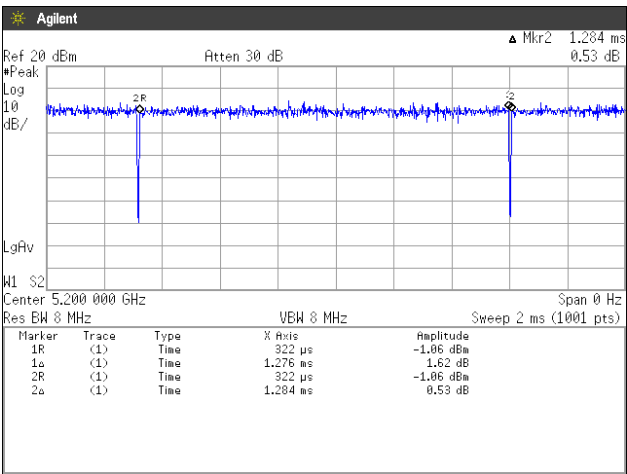


Channel: 116

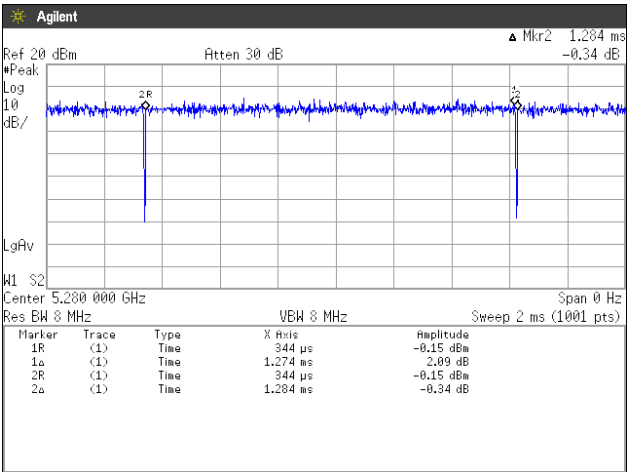


[IEEE802.11n (HT20)]

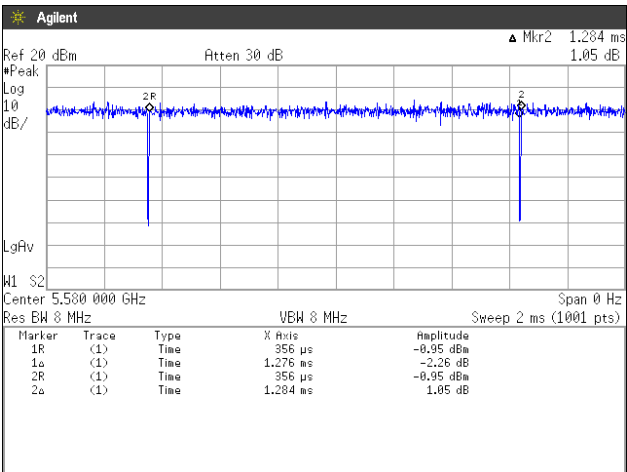
Channel: 40



Channel: 56

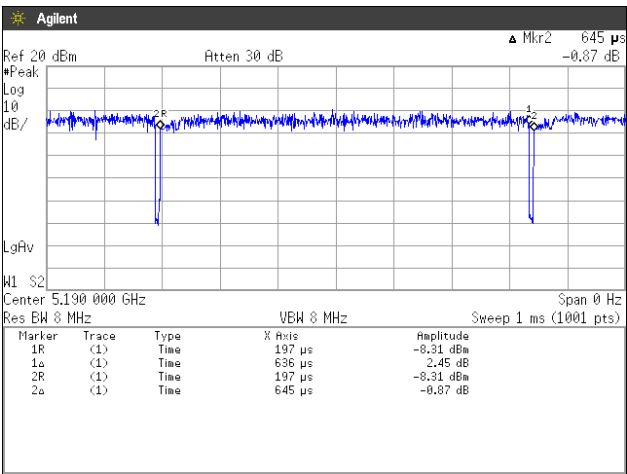


Channel: 116

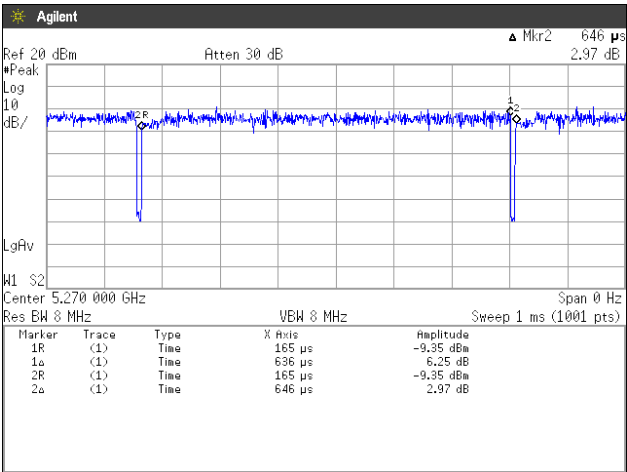


[IEEE802.11n (HT40)]

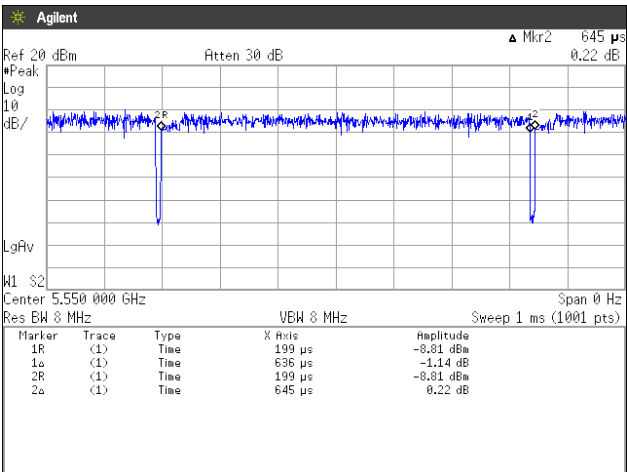
Channel: 38



Channel: 54

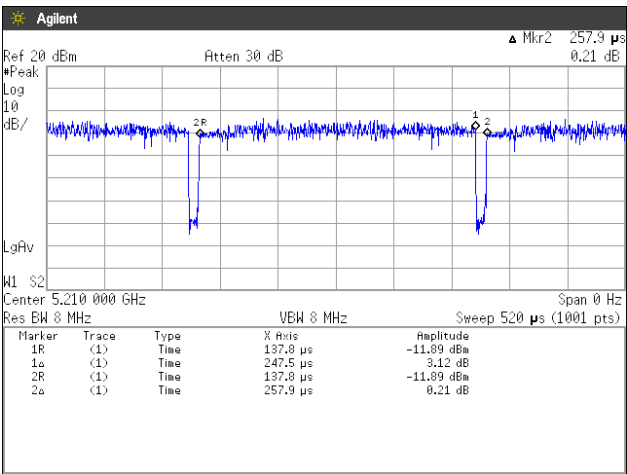


Channel: 110

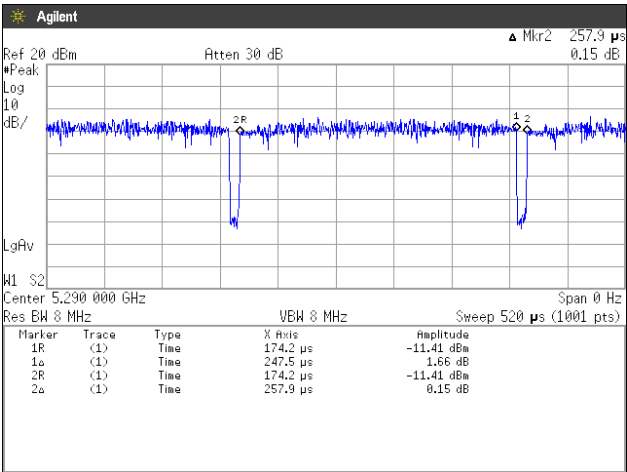


[IEEE802.11ac (HT80)]

Channel: 42

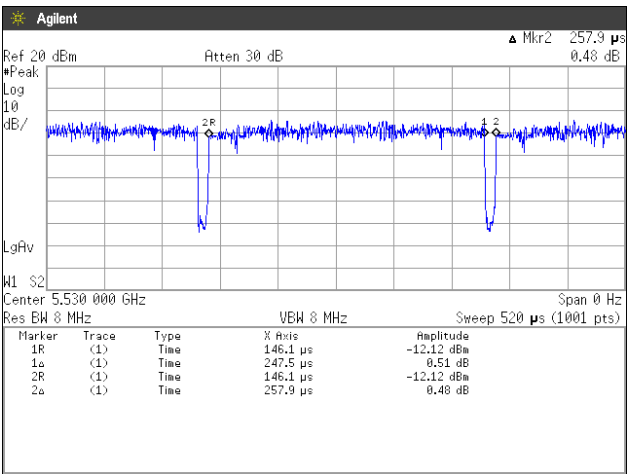


Channel: 58

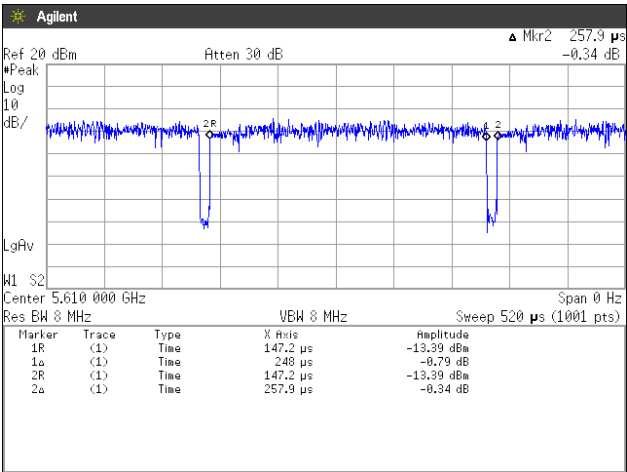


[IEEE802.11ac (HT80)]

Channel: 106



Channel: 122



11. 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.

12. Uncertainty of measurement

Expanded uncertainties stated are calculated with a coverage Factor $k=2$.

Please note that these results are not taken into account when determining compliance or non-compliance with test result.

Test item	Measurement uncertainty
Conducted emission, AMN (9kHz – 150kHz)	$\pm 3.8\text{dB}$
Conducted emission, AMN (150kHz – 30MHz)	$\pm 3.3\text{dB}$
Radiated emission (9kHz – 30MHz)	$\pm 3.0\text{dB}$
Radiated emission (30MHz – 1000MHz)	$\pm 4.7\text{dB}$
Radiated emission (1GHz – 6GHz)	$\pm 4.9\text{dB}$
Radiated emission (6GHz – 26GHz)	$\pm 5.2\text{dB}$



Zacta

13. Laboratory Information

1. Location

Name: Yonezawa Testing Center
 Address: 5-4149-7, Hachimanpara, Yonezawa-shi, Yamagata, 992-1128 Japan
 Phone: +81-238-28-2881
 Fax: +81-238-28-2888

2. Accreditation and Registration

- 1) VLAC
Accreditation No.: VLAC-013
- 2) NVLAP
LAB CODE: 200306-0
- 3) BSMI
Laboratory Code: SL2-IN-E-6018, SL2-A1-E-6018

4) Industry Canada

Site number	Facility	Expiration date
4224A-4	3m Semi-anechoic chamber	2017-12-03
4224A-5	10m Semi-anechoic chamber No.1	2017-12-03
4224A-6	10m Semi-anechoic chamber No.2	2019-12-14

5) VCCI Council

Registration number	Expiration date
A-0166	2019-07-03

Appendix A. Test equipment

Antenna port conducted test

Equipment	Company	Model No.	Serial No.	Cal. Due	Cal. Date
Spectrum analyzer	Agilent Technologies	E4440A	US44302655	Jun. 30, 2018	Jun. 28, 2017
Attenuator	Weinschel	56-10	J4993	Nov. 30, 2017	Nov. 1, 2016
Temperature and humidity chamber	ESPEC	PL1KP	14007261	Jan. 31, 2018	Jan. 20, 2017

Radiated emission

Equipment	Company	Model No.	Serial No.	Cal. Due	Cal. Date
EMI Receiver	ROHDE&SCHWARZ	ESCI	100765	Sep. 30, 2018	Sep. 13, 2017
Spectrum analyzer	Agilent Technologies	E4447A	MY46180188	Mar. 31, 2018	Mar. 15, 2017
Preamplifier	ANRITSU	MH648A	M96057	Feb. 28, 2018	Feb. 1, 2017
Loop antenna	ROHDE&SCHWARZ	HFH2-Z2	100515	Feb. 28, 2018	Feb. 17, 2017
Attenuator	TDC	TAT-43B-06	N/A(S209)	May 31, 2018	May 23, 2017
Biconical antenna	Schwarzbeck	VHA9103/BBA9106	2155	Jul. 31, 2018	Jul. 18, 2017
Log periodic antenna	Schwarzbeck	UHALP9108A	0560	Jul. 31, 2018	Jul. 18, 2017
Attenuator	TME	CFA-01NPJ-6	N/A(S275)	Feb. 28, 2018	Feb. 3, 2017
Attenuator	TME	CFA-01NPJ-3	N/A(S272)	Feb. 28, 2018	Feb. 2, 2017
Preamplifier	TSJ	MLA-100M18-B02-40	1929118	Feb. 28, 2018	Feb. 3, 2017
Attenuator	AEROFLEX	26A-10	081217-08	May 31, 2018	May 24, 2017
Double ridged guide antenna	ETS LINDGREN	3117	00052315	Feb. 28, 2018	Feb. 23, 2017
Attenuator	Agilent Technologies	8491B	MY39268633	Feb. 28, 2018	Feb. 2, 2017
Broad-Band Horn Antenna	Schwarzbeck	BBHA9170	BBHA9170189	Jun. 30, 2018	Jun. 7, 2017
Double ridged guide antenna	A.H.Systems Inc.	SAS-574	469	Aug. 31, 2018	Aug. 8, 2017
Preamplifier	TSJ	MLA-1840-B03-35	1240332	Aug. 31, 2018	Aug. 8, 2017
Notch filter	Micro-Tronics	BRM50716	006	Jul. 31, 2018	Jul. 20, 2017
Microwave cable	HUBER+SUHNER	SUCOFLEX104/9m	MY30037/4	Feb. 28, 2018	Feb. 3, 2017
		SUCOFLEX104/1m	my24610/4	Feb. 28, 2018	Feb. 3, 2017
		SUCOFLEX104/8m	SN MY30031/4	Feb. 28, 2018	Feb. 2, 2017
		SUCOFLEX104/1.5m	MY32976/4	Dec. 31, 2017	Dec. 2, 2016
		SUCOFLEX104/1.5m	MY19309/4	Feb. 28, 2018	Feb. 3, 2017
		SUCOFLEX104/7m	41625/6	Feb. 28, 2018	Feb. 3, 2017
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)	May 31, 2018	May 30, 2017
3m Semi an-echoic Chamber	TOKIN	N/A	N/A(9002-SVSWR)	May 31, 2018	May 31, 2017

Conducted emission at mains port

Equipment	Company	Model No.	Serial No.	Cal. Due	Cal. Date
EMI Receiver	ROHDE&SCHWARZ	ESCI	100765	Sep. 30, 2018	Sep. 13, 2017
Attenuator	HUBER+SUHNER	6810.01.A	N/A (S411)	Feb. 28, 2018	Feb. 2, 2017
Line impedance stabilization network for EUT	Kyoritsu Electrical Works, Ltd.	KNW-407F2	12-17-110-2	Apr. 30, 2018	Apr. 25, 2017
Coaxial cable	FUJIKURA	5D-2W/4m	N/A (S350)	Feb. 28, 2018	Feb. 2, 2017
Coaxial cable	FUJIKURA	5D-2W/1m	N/A (S193)	Feb. 28, 2018	Feb. 3, 2017
Coaxial cable	HUBER+SUHNER	RG214/U/10m	N/A (S194)	Feb. 28, 2018	Feb. 3, 2017
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.