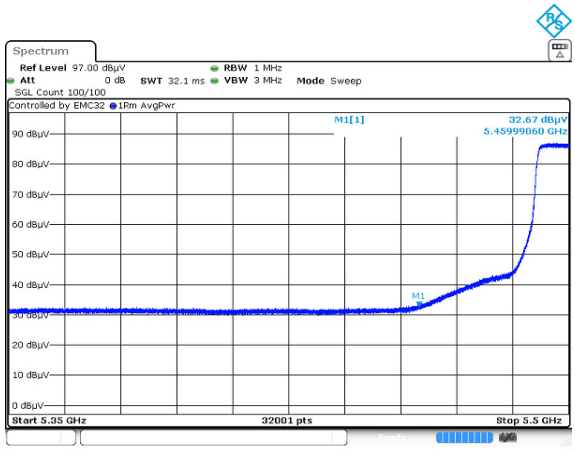
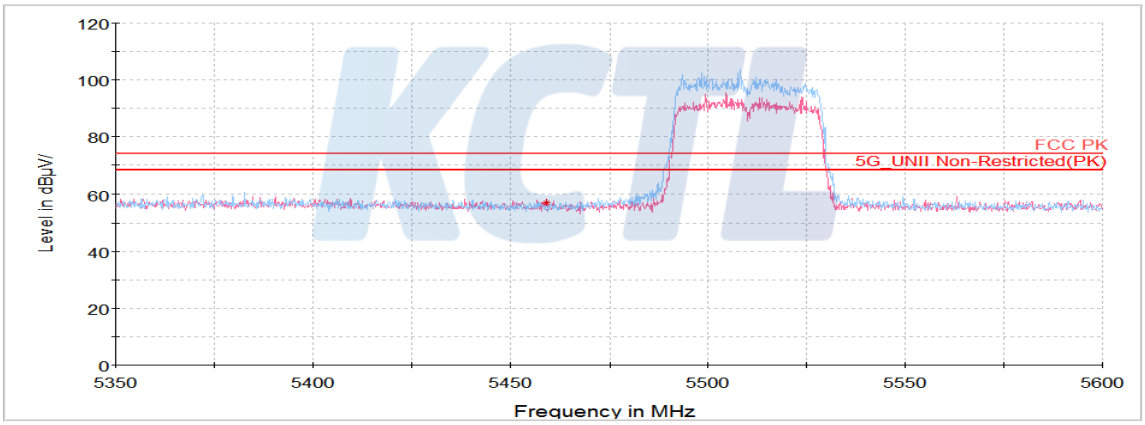
802.11ac VHT40_UNII-2C_ANT1

Lowest Channel (5 510 ㎒)

Average data	
	Blank

Horizontal/Vertical for Band-edge


802.11ac VHT40_UNII-2C_ANT2

Lowest Channel (5 510 ㎒)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(㎒)	(V/H)	(dB(㎶))	(dB)	(dB)	(dB)	(dB(㎶/m))	(dB(㎶/m))	(dB)
Peak data								
5 459.97[1)]	H	49.78	34.74	-27.35	-	57.17	74.00	16.83
11 027.77[1)]	V	58.53	37.72	-51.77	-	44.48	74.00	29.52
16 547.05	V	57.93	41.55	-45.31	-	54.17	68.20	14.03
Average Data								
5 459.97[1)]	H	33.45	34.74	-27.35	-	40.84	54.00	13.16

Middle Channel (5 590 ㎒)

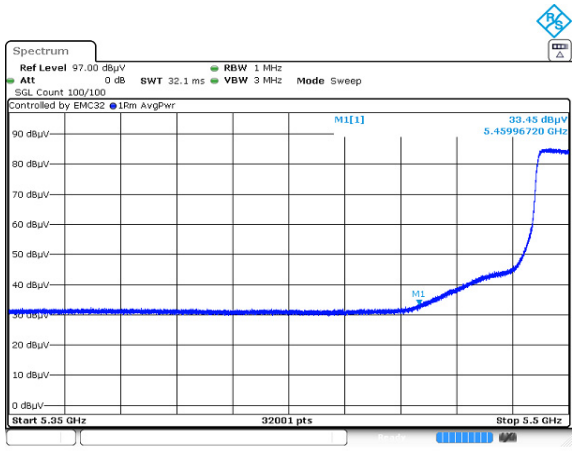
Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(㎒)	(V/H)	(dB(㎶))	(dB)	(dB)	(dB)	(dB(㎶/m))	(dB(㎶/m))	(dB)
Peak data								
11 194.88[1)]	V	58.71	37.82	-51.03	-	45.50	74.00	28.50
16 855.39	H	57.61	41.86	-46.44	-	53.03	68.20	15.17
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

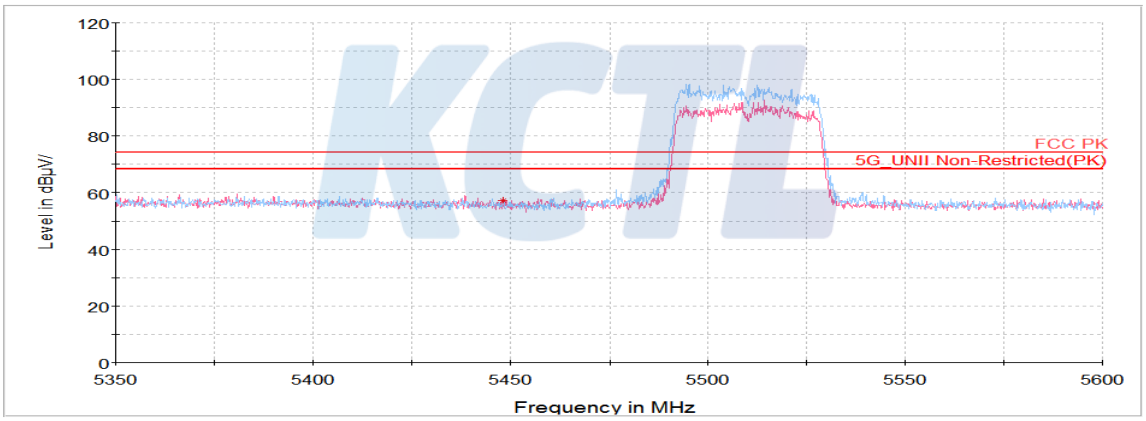
Highest Channel (5 670 ㎒)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(㎒)	(V/H)	(dB(㎶))	(dB)	(dB)	(dB)	(dB(㎶/m))	(dB(㎶/m))	(dB)
Peak data								
5 732.06	V	50.74	35.08	-26.02	-	59.80	68.20	8.40
11 342.58[1)]	H	59.87	37.91	-50.36	-	47.42	74.00	26.58
11 859.72[1)]	V	61.50	38.43	-50.29	-	49.64	74.00	24.36
16 557.11	V	57.75	41.56	-45.35	-	53.96	68.20	14.24
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

802.11ac VHT40_UNII-2C_ANT2

Lowest Channel (5 510 ㎒)

Average data	
	Blank

Horizontal/Vertical for Band-edge


802.11ac VHT40_UNII-2C_2TX MIMO

Lowest Channel (5 510 ㎒)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(㎒)	(V/H)	(dB(㎶))	(dB)	(dB)	(dB)	(dB(㎶/m))	(dB(㎶/m))	(dB)
Peak data								
5 459.99[1)]	H	51.87	34.74	-27.35	-	59.26	74.00	14.74
12 393.39[1)]	V	60.76	39.07	-50.40	-	49.43	74.00	24.57
16 556.75	H	56.55	41.56	-45.35	-	52.76	68.20	15.44
Average Data								
5 459.99[1)]	H	33.08	34.74	-27.35	-	40.47	54.00	13.53

Middle Channel (5 590 ㎒)

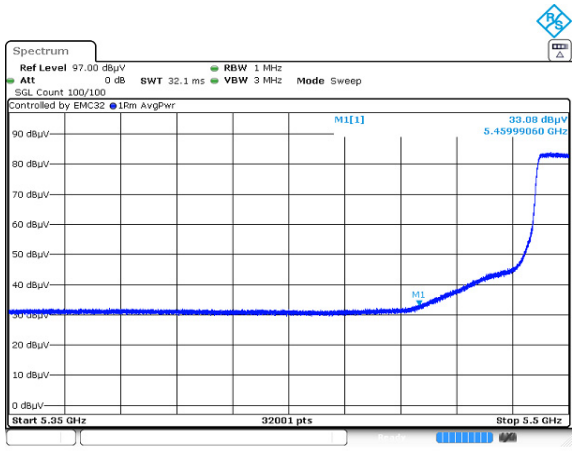
Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(㎒)	(V/H)	(dB(㎶))	(dB)	(dB)	(dB)	(dB(㎶/m))	(dB(㎶/m))	(dB)
Peak data								
11 179.42[1)]	H	55.77	37.81	-51.09	-	42.49	68.20	25.71
16 562.50	V	57.34	41.56	-45.37	-	53.53	74.00	20.47
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

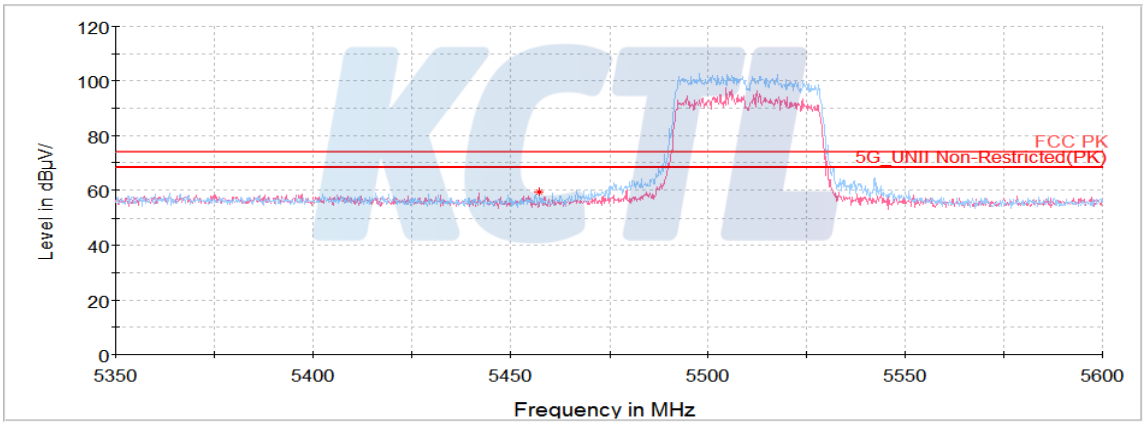
Highest Channel (5 670 ㎒)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(㎒)	(V/H)	(dB(㎶))	(dB)	(dB)	(dB)	(dB(㎶/m))	(dB(㎶/m))	(dB)
Peak data								
5 730.17	H	52.55	35.08	-25.99	-	61.64	68.20	6.56
11 339.34[1)]	V	60.59	37.90	-50.38	-	48.11	74.00	25.89
16 553.88	H	57.17	41.55	-45.33	-	53.39	74.00	20.61
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

802.11ac VHT40_UNII-2C_2TX MIMO

Lowest Channel (5 510 ㎒)

Average data	
	Blank

Horizontal/Vertical for Band-edge


802.11ac VHT80_UNII-2C_ANT1

Lowest Channel (5 530 ㎒)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(㎒)	(V/H)	(dB(㎶))	(dB)	(dB)	(dB)	(dB(㎶/m))	(dB(㎶/m))	(dB)
Peak data								
5 459.98[1)]	H	51.91	34.74	-27.35	-	59.30	74.00	14.70
11 054.00[1)]	H	58.96	37.73	-51.66	-	45.03	74.00	28.97
16 556.39	V	56.56	41.56	-45.34	-	52.78	68.20	15.42
Average Data								
5 459.98[1)]	H	36.23	34.74	-27.35	-	43.62	54.00	10.38

Highest Channel (5 610 ㎒)

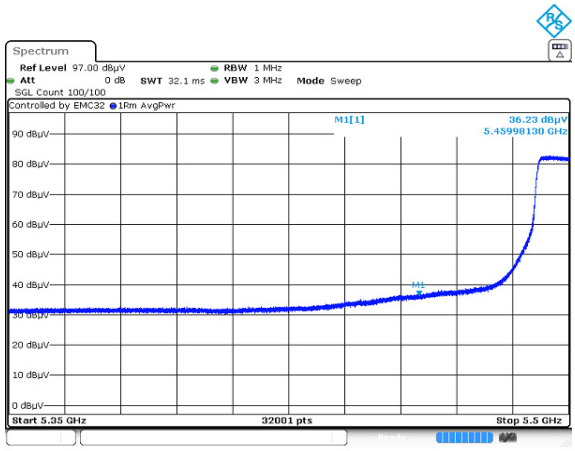
Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(㎒)	(V/H)	(dB(㎶))	(dB)	(dB)	(dB)	(dB(㎶/m))	(dB(㎶/m))	(dB)
Peak data								
5 726.22	H	50.37	35.07	-25.93	-	59.51	68.20	8.69
11 231.17[1)]	V	59.04	37.84	-50.86	-	46.02	74.00	27.98
16 557.83	H	57.34	41.56	-45.35	-	53.55	68.20	14.65
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

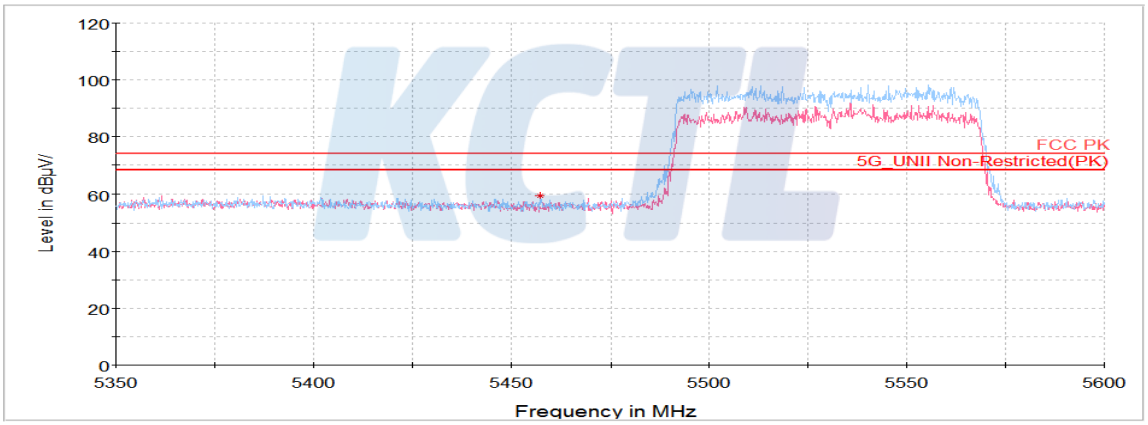
Highest Channel (5 610 ㎒)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(㎒)	(V/H)	(dB(㎶))	(dB)	(dB)	(dB)	(dB(㎶/m))	(dB(㎶/m))	(dB)
Peak data								
5 726.22	H	50.37	35.07	-25.93	-	59.51	68.20	8.69
11 231.17[1)]	V	59.04	37.84	-50.86	-	46.02	74.00	27.98
16 557.83	H	57.34	41.56	-45.35	-	53.55	68.20	14.65
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

802.11ac VHT80_UNII-2C_ANT1

Lowest Channel (5 530 ㎒)

Average data	
	Blank

Horizontal/Vertical for Band-edge


802.11ac VHT80_UNII-2C_ANT2

Lowest Channel (5 530 ㎒)

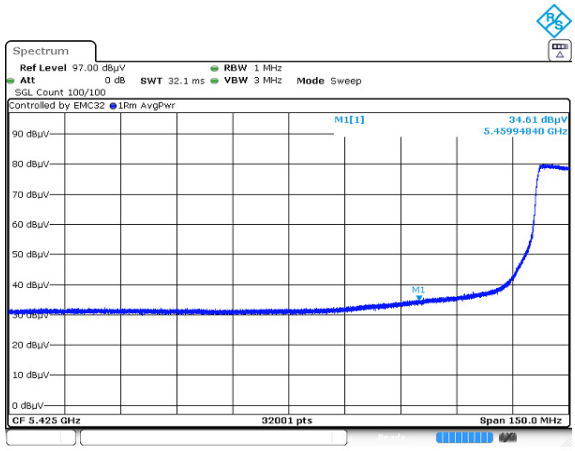
Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(㎒)	(V/H)	(dB(㎶))	(dB)	(dB)	(dB)	(dB(㎶/m))	(dB(㎶/m))	(dB)
Peak data								
5 459.95[1)]	H	50.38	34.74	-27.35	-	57.77	74.00	16.23
11 041.42[1)]	V	59.12	37.72	-51.71	-	45.13	74.00	28.87
16 542.73	H	56.07	41.54	-45.29	-	52.32	68.20	15.88
Average Data								
5 459.95[1)]	H	34.61	34.74	-27.35	-	42.00	54.00	12.00

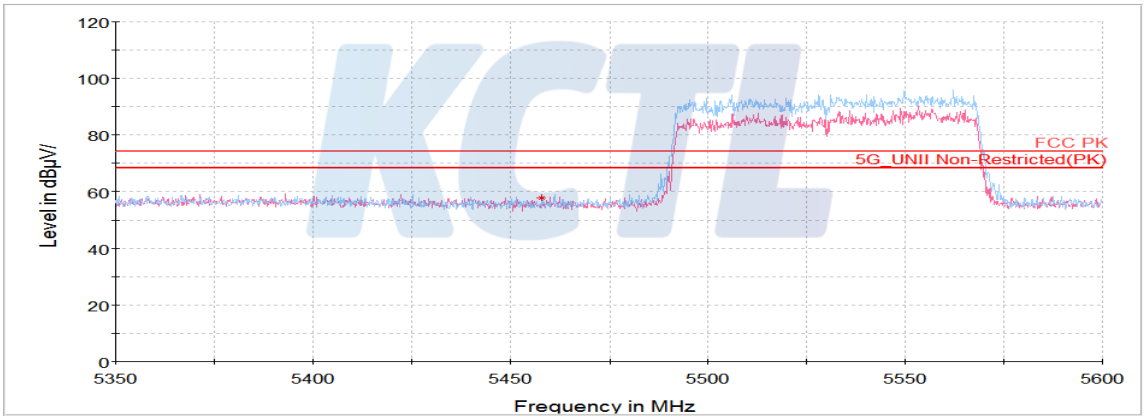
Highest Channel (5 610 ㎒)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(㎒)	(V/H)	(dB(㎶))	(dB)	(dB)	(dB)	(dB(㎶/m))	(dB(㎶/m))	(dB)
Peak data								
5 725.88	V	50.52	35.07	-25.93	-	59.66	68.20	8.54
11 202.78[1)]	H	59.65	37.82	-50.99	-	46.48	74.00	27.52
16 537.34	H	57.06	41.54	-45.27	-	53.33	68.20	14.87
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

802.11ac VHT80_UNII-2C_ANT2

Lowest Channel (5 530 ㎒)

Average data	
	Blank

Horizontal/Vertical for Band-edge


802.11ac VHT80_UNII-2C_2TX MIMO

Lowest Channel (5 530 ㎒)

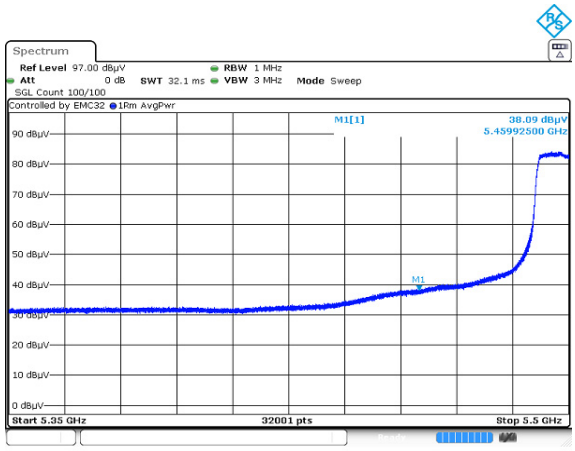
Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(㎒)	(V/H)	(dB(㎶))	(dB)	(dB)	(dB)	(dB(㎶/m))	(dB(㎶/m))	(dB)
Peak data								
5 459.93[1)]	H	50.69	34.74	-27.35	-	58.08	74.00	15.92
11 087.78[1)]	V	59.18	37.75	-51.50	-	45.43	74.00	28.57
16 366.64	H	56.76	41.73	-45.97	-	52.52	68.20	15.68
Average Data								
5 459.93[1)]	H	38.09	34.74	-27.35	-	45.48	54.00	8.52

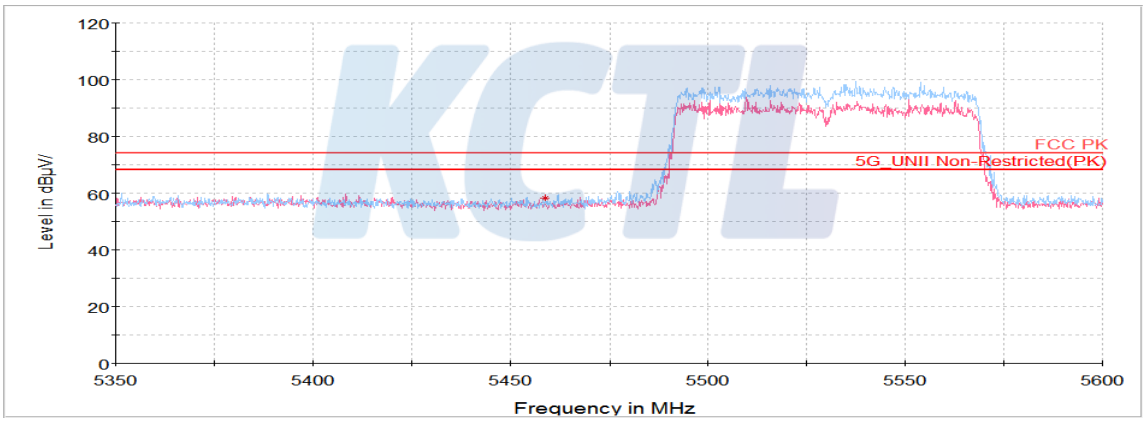
Highest Channel (5 610 ㎒)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(㎒)	(V/H)	(dB(㎶))	(dB)	(dB)	(dB)	(dB(㎶/m))	(dB(㎶/m))	(dB)
Peak data								
5 728.11	V	50.34	35.07	-25.96	-	59.45	68.20	8.75
11 207.45[1)]	V	60.00	37.82	-50.97	-	46.85	74.00	27.15
16 573.64	H	57.06	41.57	-45.41	-	53.22	68.20	14.98
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

802.11ac VHT80_UNII-2C_2TX MIMO

Lowest Channel (5 530 ㎒)

Average data	
	Blank

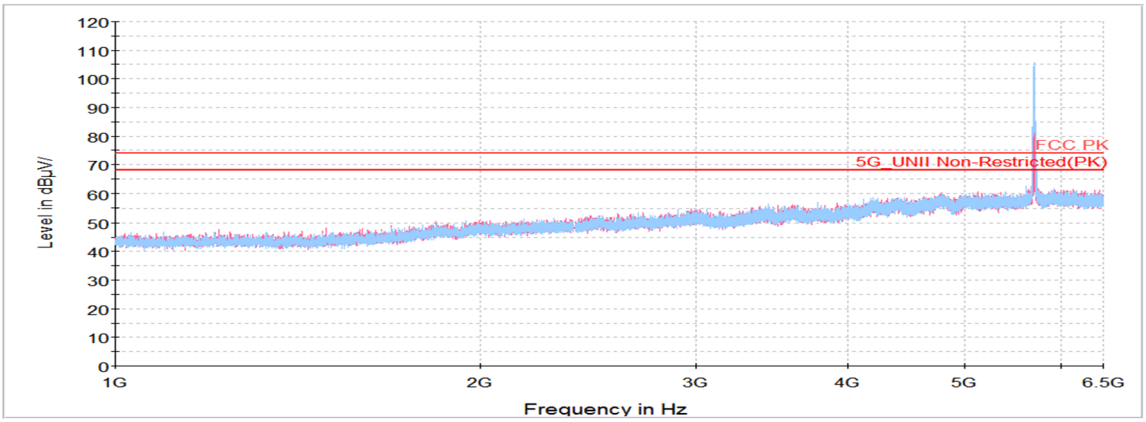
Horizontal/Vertical for Band-edge


Plot of Harmonics and Spurious Emissions

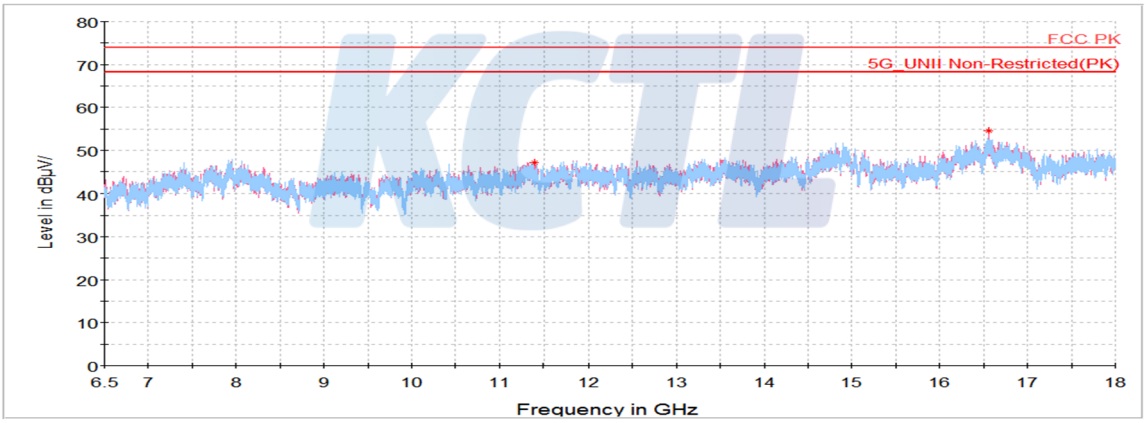
In order to simplify the report, attached plots were only the lowest margin condition

802.11a_UNII-2C_ANT2_ Highest Channel (5 700 ㎒)

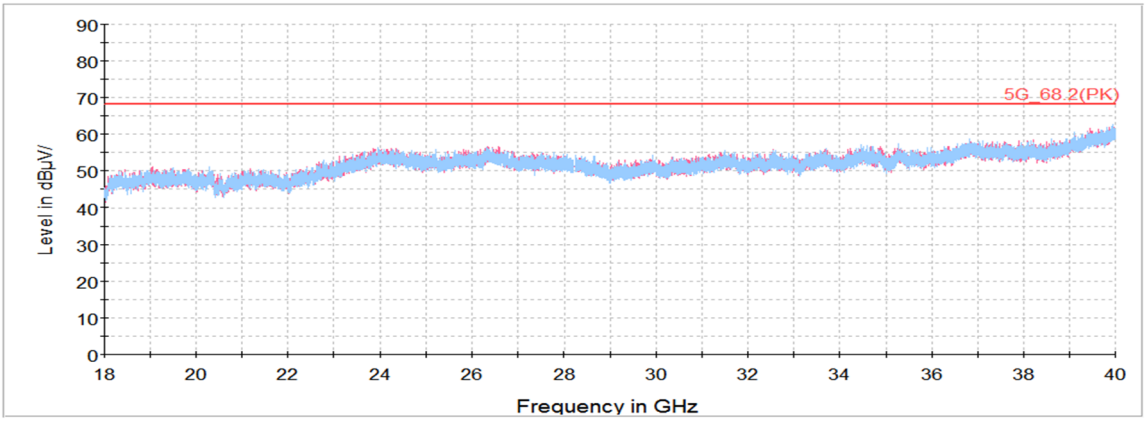
Horizontal/Vertical for 1 ㎓ ~ 6.5 ㎓



Horizontal/Vertical for 6.5 ㎓ ~ 18 ㎓



Horizontal/Vertical for 18 ㎓ ~ 40 ㎓



802.11a_UNII-3_ANT1

Lowest Channel (5 745 ㎒)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(㎒)	(V/H)	(dB(㎶))	(dB)	(dB)	(dB)	(dB(㎶/m))	(dB(㎶/m))	(dB)
Peak data								
5 724.84	H	49.23	35.07	-25.91	-	58.39	121.84	63.45
11 494.95[1)]	V	57.79	38.00	-49.68	-	46.11	74.00	27.89
16 548.13	V	57.37	41.55	-45.31	-	53.61	68.20	14.59
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

Middle Channel (5 785 ㎒)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(㎒)	(V/H)	(dB(㎶))	(dB)	(dB)	(dB)	(dB(㎶/m))	(dB(㎶/m))	(dB)
Peak data								
11 575.09[1)]	V	57.12	38.09	-49.79	-	45.42	74.00	28.58
16 579.03	H	57.75	41.58	-45.43	-	53.90	68.20	14.30
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

Highest Channel (5 825 ㎒)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(㎒)	(V/H)	(dB(㎶))	(dB)	(dB)	(dB)	(dB(㎶/m))	(dB(㎶/m))	(dB)
Peak data								
5 853.92	H	49.88	35.22	-26.66	-	58.44	113.26	54.82
11 634.75[1)]	H	58.73	38.16	-49.90	-	46.99	74.00	27.01
16 584.42	H	58.70	41.58	-45.45	-	54.83	68.20	13.37
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

802.11a_UNII-3_ANT2

Lowest Channel (5 745 ㎒)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(㎒)	(V/H)	(dB(㎶))	(dB)	(dB)	(dB)	(dB(㎶/m))	(dB(㎶/m))	(dB)
Peak data								
5 724.50	H	53.10	35.07	-25.91	-	62.26	121.06	58.80
11 485.25[1)]	V	62.22	37.99	-49.73	-	50.48	74.00	23.52
16 567.17	V	56.59	41.57	-45.38	-	52.78	68.20	15.42
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

Middle Channel (5 785 ㎒)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(㎒)	(V/H)	(dB(㎶))	(dB)	(dB)	(dB)	(dB(㎶/m))	(dB(㎶/m))	(dB)
Peak data								
11 570.06[1)]	V	61.37	38.08	-49.78	-	49.67	74.00	24.33
16 835.63	H	57.51	41.84	-46.37	-	52.98	68.20	15.22
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

Highest Channel (5 825 ㎒)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(㎒)	(V/H)	(dB(㎶))	(dB)	(dB)	(dB)	(dB(㎶/m))	(dB(㎶/m))	(dB)
Peak data								
5 852.20	H	50.75	35.22	-26.67	-	59.30	117.18	57.88
11 650.56[1)]	V	62.65	38.18	-49.92	-	50.91	74.00	23.09
16 536.98	H	56.85	41.54	-45.27	-	53.12	74.00	20.88
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

802.11a_UNII-3_2TX MIIMO

Lowest Channel (5 745 ㎒)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(㎒)	(V/H)	(dB(㎶))	(dB)	(dB)	(dB)	(dB(㎶/m))	(dB(㎶/m))	(dB)
Peak data								
5 722.78	H	57.34	35.07	-25.89	-	66.52	117.53	51.01
11 484.17[1)]	V	61.78	37.99	-49.73	-	50.04	74.00	23.96
16 577.95	H	57.18	41.58	-45.42	-	53.34	74.00	20.66
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

Middle Channel (5 785 ㎒)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(㎒)	(V/H)	(dB(㎶))	(dB)	(dB)	(dB)	(dB(㎶/m))	(dB(㎶/m))	(dB)
Peak data								
11 573.66[1)]	V	62.01	38.09	-49.79	-	50.31	74.00	23.69
16 557.83	V	57.36	41.56	-45.35	-	53.57	74.00	20.43
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

Highest Channel (5 825 ㎒)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(㎒)	(V/H)	(dB(㎶))	(dB)	(dB)	(dB)	(dB(㎶/m))	(dB(㎶/m))	(dB)
Peak data								
5 851.34	H	54.14	35.22	-26.67	-	62.69	119.14	56.45
11 648.77[1)]	V	62.26	38.18	-49.92	-	50.52	74.00	23.48
16 528.00	V	56.71	41.53	-45.24	-	53.00	68.20	15.20
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

802.11 HT20_UNII-3_ANT1

Lowest Channel (5 745 ㎒)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(㎒)	(V/H)	(dB(㎶))	(dB)	(dB)	(dB)	(dB(㎶/m))	(dB(㎶/m))	(dB)
Peak data								
5 724.50	H	50.54	35.07	-25.91	-	59.70	121.06	61.36
11 499.27[1)]	V	57.16	38.00	-49.66	-	45.50	74.00	28.50
16 405.81	V	56.64	41.81	-45.72	-	52.73	68.20	15.47
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

Middle Channel (5 785 ㎒)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(㎒)	(V/H)	(dB(㎶))	(dB)	(dB)	(dB)	(dB(㎶/m))	(dB(㎶/m))	(dB)
Peak data								
11 584.08[1)]	V	57.93	38.10	-49.81	-	46.22	74.00	27.78
16 582.63	H	58.48	41.58	-45.44	-	54.62	68.20	13.58
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

Highest Channel (5 825 ㎒)

Frequency	Pol.	Reading	Amp. + Cable	Antenna Factor	DCF	Result	Limit	Margin
(㎒)	(V/H)	(dB(㎶))	(dB)	(dB)	(dB)	(dB(㎶/m))	(dB(㎶/m))	(dB)
Peak data								
5 850.83	V	50.03	35.22	-26.68	-	58.57	120.31	61.74
11 641.22[1)]	V	57.87	38.17	-49.91	-	46.13	74.00	27.87
16 565.73	H	56.89	41.57	-45.38	-	53.08	68.20	15.12
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

802.11 HT20_UNII-3_ANT2

Lowest Channel (5 745 ㎒)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(㎒)	(V/H)	(dB(㎶))	(dB)	(dB)	(dB)	(dB(㎶/m))	(dB(㎶/m))	(dB)
Peak data								
5 724.33	H	50.92	35.07	-25.91	-	60.08	120.67	60.59
11 489.56[1)]	V	59.58	37.99	-49.71	-	47.86	74.00	26.14
16 556.03	V	56.56	41.56	-45.34	-	52.78	68.20	15.42
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

Middle Channel (5 785 ㎒)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(㎒)	(V/H)	(dB(㎶))	(dB)	(dB)	(dB)	(dB(㎶/m))	(dB(㎶/m))	(dB)
Peak data								
11 563.59[1)]	V	60.28	38.08	-49.77	-	48.59	74.00	25.41
16 563.58	H	56.52	41.56	-45.37	-	52.71	68.20	15.49
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

Highest Channel (5 825 ㎒)

Frequency	Pol.	Reading	Amp. + Cable	Antenna Factor	DCF	Result	Limit	Margin
(㎒)	(V/H)	(dB(㎶))	(dB)	(dB)	(dB)	(dB(㎶/m))	(dB(㎶/m))	(dB)
Peak data								
5 853.06	H	51.69	35.22	-26.66	-	60.25	115.22	54.97
11 642.66[1)]	V	61.43	38.17	-49.91	-	49.69	74.00	24.31
16 570.05	V	57.62	41.57	-45.39	-	53.80	68.20	14.40
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

802.11 HT20_UNII-3_2TX MIMO

Lowest Channel (5 745 ㎒)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(㎒)	(V/H)	(dB(㎶))	(dB)	(dB)	(dB)	(dB(㎶/m))	(dB(㎶/m))	(dB)
Peak data								
5 722.78	H	61.54	35.07	-25.89	-	70.72	117.14	46.42
11 498.91[1)]	V	60.98	38.00	-49.66	-	49.32	74.00	24.68
16 569.33	V	56.52	41.57	-45.39	-	52.70	74.00	21.30
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

Middle Channel (5 785 ㎒)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(㎒)	(V/H)	(dB(㎶))	(dB)	(dB)	(dB)	(dB(㎶/m))	(dB(㎶/m))	(dB)
Peak data								
11 571.86[1)]	V	61.67	38.09	-49.79	-	49.97	74.00	24.03
16 539.86	V	57.28	41.54	-45.28	-	53.54	74.00	20.46
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

Highest Channel (5 825 ㎒)

Frequency	Pol.	Reading	Amp. + Cable	Antenna Factor	DCF	Result	Limit	Margin
(㎒)	(V/H)	(dB(㎶))	(dB)	(dB)	(dB)	(dB(㎶/m))	(dB(㎶/m))	(dB)
Peak data								
5 853.58	H	50.81	35.22	-26.66	-	59.37	114.04	54.68
11 646.25	V	61.75	38.18	-49.92	-	50.01	74.00	23.99
16 564.30	V	57.47	41.56	-45.37	-	53.66	74.00	20.34
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

802.11 HT40_UNII-3_ANT1

Lowest Channel (5 755 ㎒)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(㎒)	(V/H)	(dB(㎶))	(dB)	(dB)	(dB)	(dB(㎶/m))	(dB(㎶/m))	(dB)
Peak data								
5 723.30	H	56.03	35.07	-25.89	-	65.21	118.32	53.10
11 508.97[1)]	V	56.94	38.01	-49.68	-	45.27	74.00	28.73
16 557.11	H	57.15	41.56	-45.35	-	53.36	68.20	14.84
Average Data								
No spurious emissions were detected within 20 ㏈ of the limit.								

Highest Channel (5 795 ㎒)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(㎒)	(V/H)	(dB(㎶))	(dB)	(dB)	(dB)	(dB(㎶/m))	(dB(㎶/m))	(dB)
Peak data								
5 850.83	V	49.02	35.22	-26.68	-	57.56	120.31	62.75
11 589.83[1)]	H	58.83	38.11	-49.82	-	47.12	74.00	26.88
16 562.50	H	56.53	41.56	-45.37	-	52.72	68.20	15.48
Average Data								
No spurious emissions were detected within 20 ㏈ of the limit.								

802.11 HT40_UNII-3_ANT2

Lowest Channel (5 755 ㎒)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(㎒)	(V/H)	(dB(㎶))	(dB)	(dB)	(dB)	(dB(㎶/m))	(dB(㎶/m))	(dB)
Peak data								
5 722.78	V	51.92	35.07	-25.89	-	61.10	117.14	56.04
11 515.08[1)]	V	58.54	38.02	-49.69	-	46.87	74.00	27.13
16 568.61	V	57.01	41.57	-45.39	-	53.19	68.20	15.01
Average Data								
No spurious emissions were detected within 20 ㏈ of the limit.								

Highest Channel (5 795 ㎒)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(㎒)	(V/H)	(dB(㎶))	(dB)	(dB)	(dB)	(dB(㎶/m))	(dB(㎶/m))	(dB)
Peak data								
5 851.00	V	50.03	35.22	-26.67	-	58.58	119.92	61.34
11 602.41[1)]	V	59.91	38.12	-49.84	-	48.19	74.00	25.81
16 725.66	H	57.32	41.73	-45.97	-	53.08	68.20	15.12
Average Data								
No spurious emissions were detected within 20 ㏈ of the limit.								

802.11 HT40_UNII-3_2TX MIMO

Lowest Channel (5 755 ㎒)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(㎒)	(V/H)	(dB(㎶))	(dB)	(dB)	(dB)	(dB(㎶/m))	(dB(㎶/m))	(dB)
Peak data								
5 720.20	H	67.29	35.06	-25.85	-	76.50	111.26	34.77
11 514.72[1)]	V	58.73	38.02	-49.69	-	47.06	74.00	26.94
16 553.52	H	56.59	41.55	-45.33	-	52.81	68.20	15.39
Average Data								
No spurious emissions were detected within 20 ㏈ of the limit.								

Highest Channel (5 795 ㎒)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(㎒)	(V/H)	(dB(㎶))	(dB)	(dB)	(dB)	(dB(㎶/m))	(dB(㎶/m))	(dB)
Peak data								
5 851.52	V	44.06	35.22	-26.67	-	52.61	118.74	66.13
11 588.97[1)]	V	66.68	38.11	-49.82	-	54.97	74.00	19.03
Average Data								
No spurious emissions were detected within 20 ㏈ of the limit.								

802.11ac VHT20_UNII-3_ANT1

Lowest Channel (5 745 ㎒)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(㎒)	(V/H)	(dB(㎶))	(dB)	(dB)	(dB)	(dB(㎶/m))	(dB(㎶/m))	(dB)
Peak data								
5 724.84	H	50.19	35.07	-25.91	-	59.35	74.00	14.65
11 494.59[1)]	H	57.30	38.00	-49.68	-	45.62	74.00	28.38
16 545.97	V	57.60	41.55	-45.31	-	53.84	68.20	14.36
Average Data								
No spurious emissions were detected within 20 ㏈ of the limit.								

Middle Channel (5 785 ㎒)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(㎒)	(V/H)	(dB(㎶))	(dB)	(dB)	(dB)	(dB(㎶/m))	(dB(㎶/m))	(dB)
Peak data								
11 564.31[1)]	H	57.23	38.08	-49.77	-	45.54	74.00	28.46
16 551.72	H	56.88	41.55	-45.33	-	53.10	68.20	15.10
Average Data								
No spurious emissions were detected within 20 ㏈ of the limit.								

Highest Channel (5 825 ㎒)

Frequency	Pol.	Reading	Amp. + Cable	Antenna Factor	DCF	Result	Limit	Margin
(㎒)	(V/H)	(dB(㎶))	(dB)	(dB)	(dB)	(dB(㎶/m))	(dB(㎶/m))	(dB)
Peak data								
5 851.34	V	50.99	35.22	-26.67	-	59.54	119.14	59.60
11 648.41[1)]	H	57.60	38.18	-49.92	-	45.86	74.00	28.14
16 541.30	V	56.84	41.54	-45.29	-	53.09	68.20	15.11
Average Data								
No spurious emissions were detected within 20 ㏈ of the limit.								

802.11ac VHT20_UNII-3_ANT2

Lowest Channel (5 745 ㎒)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(㎒)	(V/H)	(dB(㎶))	(dB)	(dB)	(dB)	(dB(㎶/m))	(dB(㎶/m))	(dB)
Peak data								
5 724.33	V	49.78	35.07	-25.91	-	58.94	120.67	61.73
11 498.91[1)]	V	60.29	38.00	-49.66	-	48.63	74.00	25.37
16 561.78	V	56.86	41.56	-45.36	-	53.06	68.20	15.14
Average Data								
No spurious emissions were detected within 20 ㏈ of the limit.								

Middle Channel (5 785 ㎒)

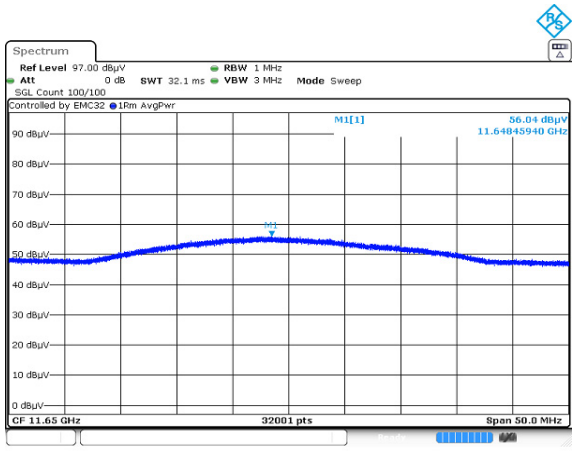
Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(㎒)	(V/H)	(dB(㎶))	(dB)	(dB)	(dB)	(dB(㎶/m))	(dB(㎶/m))	(dB)
Peak data								
11 573.30[1)]	V	60.76	38.09	-49.79	-	49.06	74.00	24.94
16 562.50	H	57.01	41.56	-45.37	-	53.20	68.20	15.00
Average Data								
No spurious emissions were detected within 20 ㏈ of the limit.								

Highest Channel (5 825 ㎒)

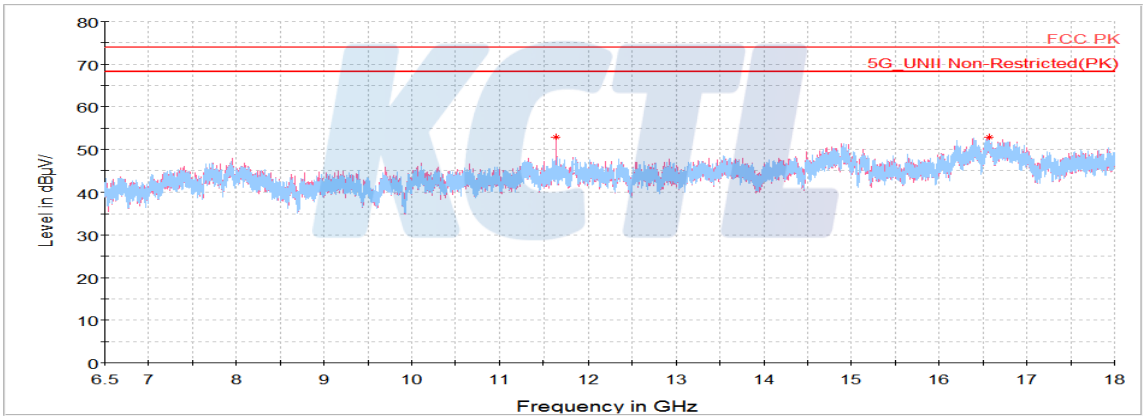
Frequency	Pol.	Reading	Amp. + Cable	Antenna Factor	DCF	Result	Limit	Margin
(㎒)	(V/H)	(dB(㎶))	(dB)	(dB)	(dB)	(dB(㎶/m))	(dB(㎶/m))	(dB)
Peak data								
5 854.61	V	50.89	35.23	-26.65	-	59.47	111.69	52.22
11 648.46[1)]	V	64.59	38.18	-49.92	-	52.85	74.00	21.15
16 572.20	H	56.61	41.57	-45.40	-	52.78	68.20	15.42
Average Data								
11 648.46[1)]	V	56.04	38.18	-49.92	-	44.30	54.00	9.70

802.11ac VHT20_UNII-3_ANT2

Highest Channel (5 825 ㎒)

Average data	
	Blank

Horizontal/Vertical for 6.5 ㎓ ~ 18 ㎓



802.11ac VHT20_UNII-3_2TX MIMO

Lowest Channel (5 745 ㎒)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(㎒)	(V/H)	(dB(㎶))	(dB)	(dB)	(dB)	(dB(㎶/m))	(dB(㎶/m))	(dB)
Peak data								
5 724.50	H	51.84	35.07	-25.91	-	61.00	121.06	60.06
11 486.33[1)]	V	62.34	37.99	-49.72	-	50.61	74.00	23.39
16 567.53	H	56.92	41.57	-45.39	-	53.10	74.00	20.90
Average Data								
No spurious emissions were detected within 20 ㏈ of the limit.								

Middle Channel (5 785 ㎒)

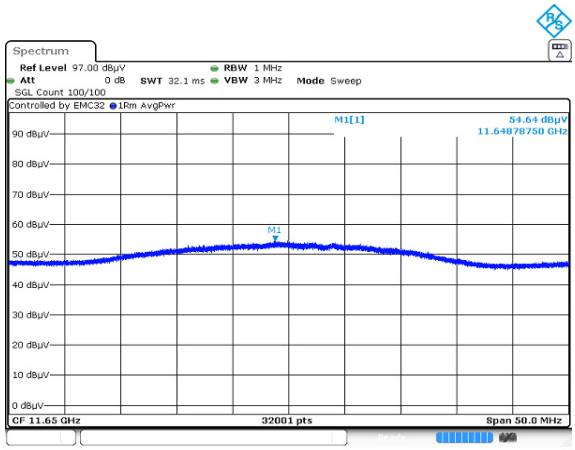
Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(㎒)	(V/H)	(dB(㎶))	(dB)	(dB)	(dB)	(dB(㎶/m))	(dB(㎶/m))	(dB)
Peak data								
11 569.70[1)]	V	61.37	38.08	-49.78	-	49.67	74.00	24.33
16 554.95	H	57.28	41.55	-45.34	-	53.49	74.00	20.51
Average Data								
No spurious emissions were detected within 20 ㏈ of the limit.								

Highest Channel (5 825 ㎒)

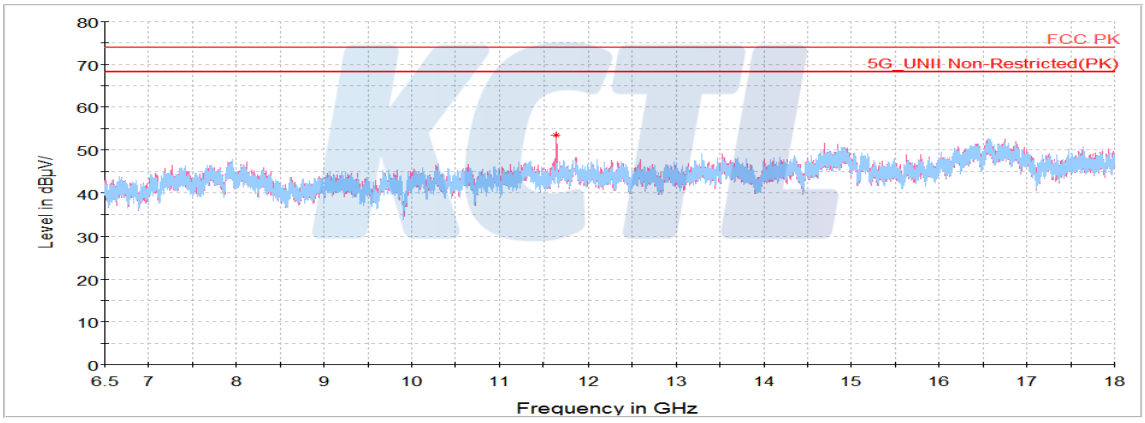
Frequency	Pol.	Reading	Amp. + Cable	Antenna Factor	DCF	Result	Limit	Margin
(㎒)	(V/H)	(dB(㎶))	(dB)	(dB)	(dB)	(dB(㎶/m))	(dB(㎶/m))	(dB)
Peak data								
5 855.81	V	49.83	35.23	-26.65	-	58.41	110.57	52.16
11 648.79[1)]	V	65.25	38.18	-49.92	-	53.51	74.00	20.49
Average Data								
11 648.79[1)]	V	54.64	38.18	-49.92	-	42.90	54.00	11.10

802.11ac VHT20_UNII-3_2TX MIMO

Highest Channel (5 825 ㎒)

Average data	
	Blank

Horizontal/Vertical for 6.5 ㎓ ~ 18 ㎓



802.11ac VHT40_UNII-3_ANT1

Lowest Channel (5 755 ㎒)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(㎒)	(V/H)	(dB(㎶))	(dB)	(dB)	(dB)	(dB(㎶/m))	(dB(㎶/m))	(dB)
Peak data								
5 724.50	V	49.61	35.07	-25.91	-	58.77	121.06	62.29
11 503.94[1)]	H	56.56	38.00	-49.67	-	44.89	74.00	29.11
16 565.38	V	57.26	41.57	-45.38	-	53.45	68.20	14.75
Average Data								
No spurious emissions were detected within 20 ㏈ of the limit.								

Highest Channel (5 795 ㎒)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(㎒)	(V/H)	(dB(㎶))	(dB)	(dB)	(dB)	(dB(㎶/m))	(dB(㎶/m))	(dB)
Peak data								
5 851.17	V	49.07	35.22	-26.67	-	57.62	119.53	61.91
11 589.11[1)]	H	57.88	38.11	-49.82	-	46.17	74.00	27.83
16 557.11	V	56.52	41.56	-45.35	-	52.73	68.20	15.47
Average Data								
No spurious emissions were detected within 20 ㏈ of the limit.								

802.11ac VHT40_UNII-3_ANT2

Lowest Channel (5 755 ㎒)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(㎒)	(V/H)	(dB(㎶))	(dB)	(dB)	(dB)	(dB(㎶/m))	(dB(㎶/m))	(dB)
Peak data								
5 716.59	H	51.74	35.06	-25.80	-	61.00	109.85	48.85
11 499.27[1)]	H	58.08	38.00	-49.66	-	46.42	74.00	27.58
16 531.23	H	56.44	41.53	-45.25	-	52.72	68.20	15.48
Average Data								
No spurious emissions were detected within 20 ㏈ of the limit.								

Highest Channel (5 795 ㎒)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(㎒)	(V/H)	(dB(㎶))	(dB)	(dB)	(dB)	(dB(㎶/m))	(dB(㎶/m))	(dB)
Peak data								
5 864.06	H	51.21	35.24	-26.60	-	59.85	108.26	48.41
11 589.83[1)]	V	57.23	38.11	-49.82	-	45.52	74.00	28.48
16 365.20	H	57.47	41.73	-45.98	-	53.22	68.20	14.98
Average Data								
No spurious emissions were detected within 20 ㏈ of the limit.								

802.11ac VHT40_UNII-3_2TX MIMO

Lowest Channel (5 755 ㎒)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(㎒)	(V/H)	(dB(㎶))	(dB)	(dB)	(dB)	(dB(㎶/m))	(dB(㎶/m))	(dB)
Peak data								
5 723.64	H	54.66	35.07	-25.90	-	63.83	119.10	55.27
7 941.09	H	63.49	35.75	-50.02	-	49.22	68.20	18.98
11 505.73[1)]	V	58.56	38.01	-49.67	-	46.90	74.00	27.10
16 544.53	V	56.43	41.54	-45.30	-	52.67	68.20	15.53
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

Highest Channel (5 795 ㎒)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(㎒)	(V/H)	(dB(㎶))	(dB)	(dB)	(dB)	(dB(㎶/m))	(dB(㎶/m))	(dB)
Peak data								
5 851.52	H	50.86	35.22	-26.67	-	59.41	118.74	59.33
16 545.97	H	57.06	41.55	-45.31	-	53.30	68.20	14.90
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

802.11ac VHT80_UNII-3_ANT1

Lowest Channel (5 775 ㎒)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(㎒)	(V/H)	(dB(㎶))	(dB)	(dB)	(dB)	(dB(㎶/m))	(dB(㎶/m))	(dB)
Peak data								
5 710.23	V	51.68	35.05	-25.71	-	61.02	108.07	47.05
5 857.36	V	50.53	35.23	-26.64	-	59.12	110.14	51.02
11 552.09[1)]	V	56.64	38.06	-49.75	-	44.95	74.00	29.05
16 564.66	V	56.23	41.56	-45.37	-	52.42	68.20	15.78
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

802.11ac VHT80_UNII-3_ANT2

Lowest Channel (5 775 ㎒)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(㎒)	(V/H)	(dB(㎶))	(dB)	(dB)	(dB)	(dB(㎶/m))	(dB(㎶/m))	(dB)
Peak data								
5 724.33	V	50.11	35.07	-25.91	-	59.27	120.67	61.40
5 851.17	H	49.37	35.22	-26.67	-	57.92	119.53	61.61
11 533.77[1)]	V	58.59	38.04	-49.72	-	46.91	74.00	27.09
16 542.73	V	56.03	41.54	-45.29	-	52.28	68.20	15.92
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

802.11ac VHT80_UNII-3_2TX MIMO

Lowest Channel (5 775 ㎒)

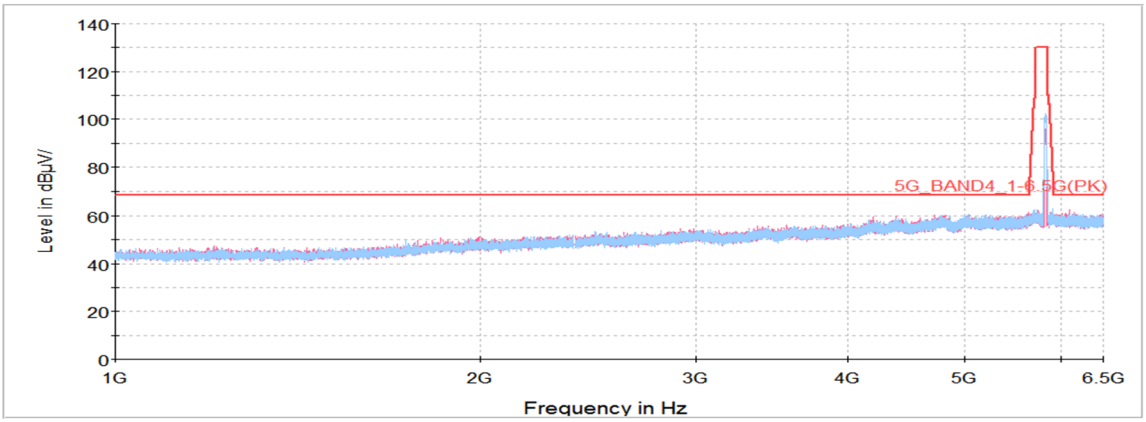
Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(㎒)	(V/H)	(dB(㎶))	(dB)	(dB)	(dB)	(dB(㎶/m))	(dB(㎶/m))	(dB)
Peak data								
5 723.98	H	50.18	35.07	-25.90	-	59.35	119.88	60.53
5 851.86	H	49.51	35.22	-26.67	-	58.06	117.96	59.90
11 536.64[1)]	H	58.81	38.04	-49.72	-	47.13	74.00	26.87
16 570.05	H	56.87	41.57	-45.39	-	53.05	68.20	15.15
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

Plot of Harmonics and Spurious Emissions

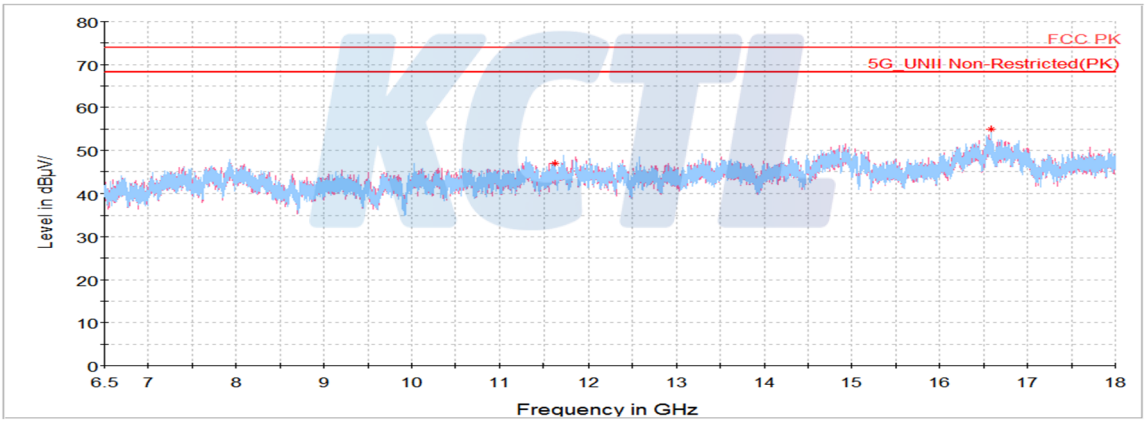
In order to simplify the report, attached plots were only the lowest margin condition

802.11a_UNII-3_ANT1_ Highest Channel (5 825 ㎒)

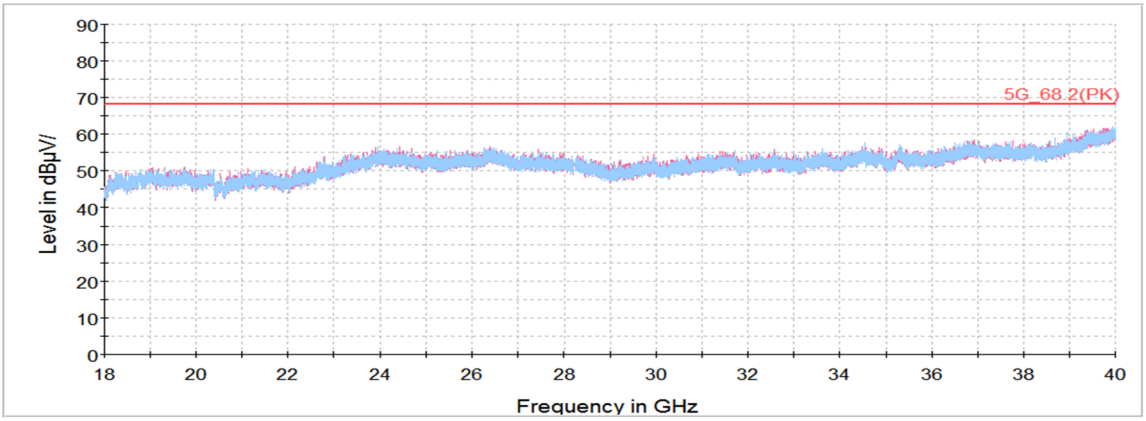
Horizontal/Vertical for 1 ㎓ ~ 6.5 ㎓



Horizontal/Vertical for 6.5 ㎓ ~ 18 ㎓

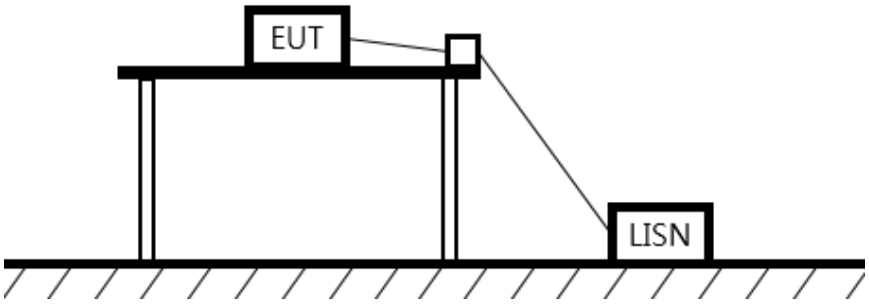


Horizontal/Vertical for 18 ㎓ ~ 40 ㎓



7.7. AC Conducted emission

Test setup



Limit

§15.407

According to 15.207(a), for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 ㎑ to 30 ㎒, shall not exceed the limits in the following table, as measured using a 50uH/50 ohm line impedance stabilization network (LISN). Compliance with the provision of this paragraph shall on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower applies at the boundary between the frequencies ranges.

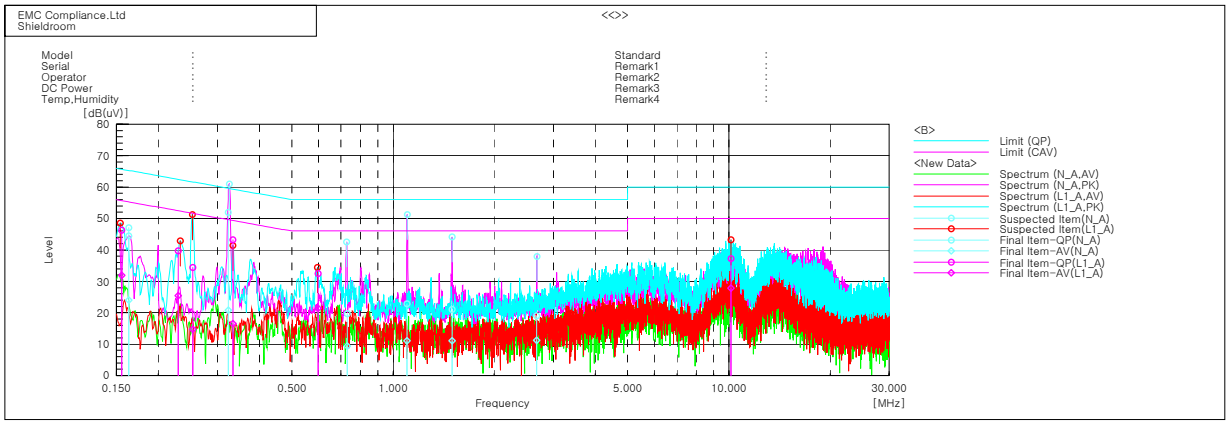
Frequency of Emission (㎒)	Conducted limit (dB㎶/m)	
	Quasi-peak	Average
0.15 – 0.50	66 - 56*	56 - 46*
0.50 – 5.00	56	46
5.00 – 30.0	60	50

Measurement procedure

1. The EUT was placed on a wooden table of size, 1 m by 1.5 m, raised 80 ㎝ in which is located 40 ㎝ away from the vertical wall and 1.5m away from the side wall of the shielded room.
2. Each current-carrying conductor of the EUT power cord was individually connected through a 50Ω/50μH LISN, which is an input transducer to a spectrum analyzer or an EMI/Field Intensity ㅡ Meter, to the input power source.
3. Exploratory measurements were made to identify the frequency of the emission that had the highest amplitude relative to the limit by operating the EUT in a range of typical modes of operation, cable position, and with a typical system equipment configuration and arrangement. Based on the exploratory tests of the EUT, the one EUT cable configuration and arrangement and mode of operation that had produced the emission with the highest amplitude relative to the limit was selected for the final measurement.
4. The final test on all current-carrying conductors of all of the power cords to the equipment that comprises the EUT (but not the cords associated with other non-EUT equipment is the system) was then performed over the frequency range of 0.15 ㎒ to 30 ㎒.
5. The measurements were made with the detector set to peak amplitude within a bandwidth of 10 ㎑ or to quasi-peak and average within a bandwidth of 9 ㎑. The EUT was in transmitting mode during the measurements.

Test results

Worst case: 802.11a 2TX MIMO / UNII-2A Middle frequency



Final Result

--- L2 Phase ---

No.	Frequency [MHz]	Reading QP [dB(uV)]	Reading CAV [dB(uV)]	c.f [dB]	Result QP [dB(uV)]	Result CAV [dB(uV)]	Limit QP [dB(uV)]	Limit AV [dB(uV)]	Margin QP [dB]	Margin CAV [dB]
1	0.16319	36.9	13.8	10.2	47.1	24.0	65.3	55.3	18.2	31.3
2	0.32327	41.9	10.9	10.0	51.9	20.9	59.6	49.6	7.7	28.7
3	0.72986	9.6	-0.7	10.1	19.7	9.4	56.0	46.0	36.3	36.6
4	1.0992	12.8	1.0	10.1	22.9	11.1	56.0	46.0	33.1	34.9
5	1.49739	10.9	1.0	10.1	21.0	11.1	56.0	46.0	35.0	34.9
6	2.67606	8.9	1.1	10.1	19.0	11.2	56.0	46.0	37.0	34.8

--- L3 Phase ---

No.	Frequency [MHz]	Reading QP [dB(uV)]	Reading CAV [dB(uV)]	c.f [dB]	Result QP [dB(uV)]	Result CAV [dB(uV)]	Limit QP [dB(uV)]	Limit AV [dB(uV)]	Margin QP [dB]	Margin CAV [dB]
1	0.15574	36.3	22.0	9.9	46.2	31.9	65.7	55.7	19.5	23.8
2	0.22913	29.9	15.7	9.8	39.7	25.5	62.5	52.5	22.8	27.0
3	0.25339	24.7	5.0	9.7	34.4	14.7	61.6	51.6	27.2	36.9
4	0.33311	33.4	6.8	9.8	43.2	16.6	59.4	49.4	16.2	32.8
5	0.59802	22.6	11.5	9.9	32.5	21.4	56.0	46.0	23.5	24.6
6	10.14384	27.0	17.7	10.2	37.2	27.9	60.0	50.0	22.8	22.1

8. Measurement equipment

Equipment Name	Manufacturer	Model No.	Serial No.	Next Cal. Date
Spectrum Analyzer	R&S	FSV30	100810	20.08.08
Spectrum Analyzer	R&S	FSV40	100989	21.01.03
Temp & Humid Chamber	Temp & Humid Chamber	Myeongseong R&P	CTHC-50P-DT	20.07.30
DC Power Supply	AGILENT	E3632A	MY40004791	21.05.11*
ATTENUATOR	R&S	DNF Dämpfungsglied 10 dB in N-50 Ohm	31212	21.05.11*
Attenuator	API Inmet	40AH2W-10	17	21.05.12*
EMI TEST RECEIVER	R&S	ESCI7	100732	20.08.22
Bi-Log Antenna	TESEQ	CBL 6112D	37876	20.07.20
Amplifier	SONOMA INSTRUMENT	310N	284608	20.08.22
ATTENUATOR	Agilent	8491B	MY39270292	20.07.20
Horn antenna	ETS.lindgren	3117	155787	20.10.24
Horn antenna	ETS.lindgren	3116	00086632	21.02.17
Attenuator	API Inmet	40AH2W-10	12	21.05.12*
Broadband PreAmplifier	SCHWARZBECK	BBV9718	216	20.07.30
AMPLIFIER	L-3 Narda-MITEQ	AMF-7D-01001800 -22-10P	2031196	21.02.12
AMPLIFIER	L-3 Narda-MITEQ	JS44-18004000-33-8P	2000996	21.01.22
LOOP Antenna	R&S	HFH2-Z2	100355	20.08.24
Antenna Mast	Innco Systems	MA4640-XP-ET	-	-
Turn Table	Innco Systems	DT2000	79	-
Antenna Mast	Innco Systems	MA4000-EP	303	-
Turn Table	Innco Systems	DT2000	79	-
High pass Filter	WT	WT-A1699-HS	WT160411002	21.05.11*
TWO-LINE V - NETWORK	R&S	ENV216	101358	20.10.02
EMI TEST RECEIVER	R&S	ESCI	100001	20.08.22
Vector Signal Generator	R&S	SMBV100A	257566	20.07.16
Signal Generator	R&S	SMR40	100007	21.04.08
Cable Assembly	RadiAll	2301761768000PJ	1724.659	-
Cable Assembly	gigalane	RG-400	-	-
Cable Assembly	HUER+SUHNER	SUCOFLEX 104	MY4342/4	-

* Tests related to this equipment were progressed after the calibration was completed.

End of test report