



### Duty cycle

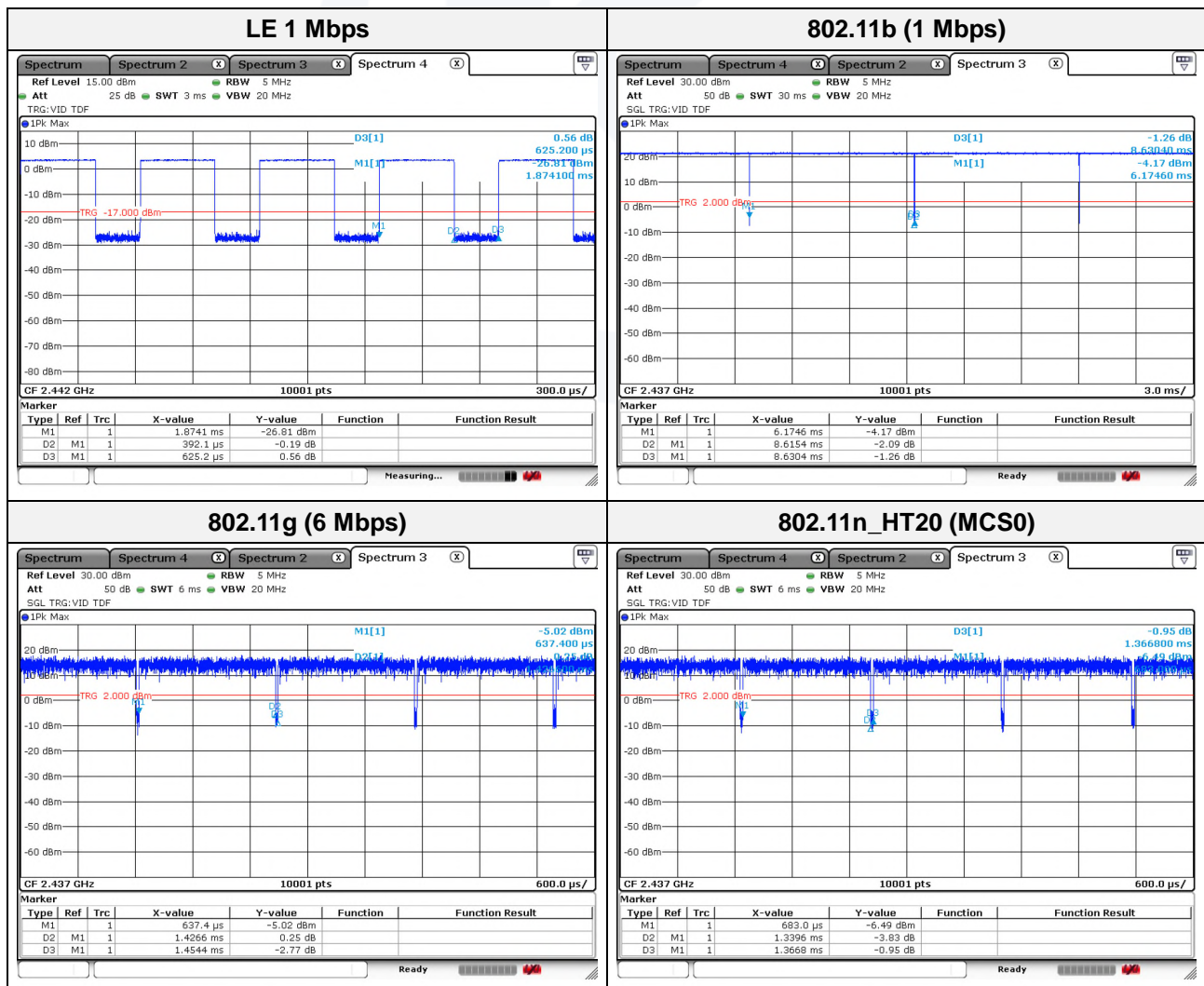
Regarding to KDB 558074 D01\_v05 r02, 6. Measurements of duty cycle and transmission duration shall be performed using one of the following techniques:

- A diode detector and an oscilloscope that together have sufficiently short response time to permit accurate measurements of the on- and off-times of the transmitted signal.
- The zero-span mode on a spectrum analyzer or EMI receiver if the response time and spacing between bins on the sweep are sufficient to permit accurate measurements of the on- and off-times of the transmitted signal.

Mode	T <sub>on</sub> time (ms)	Period (ms)	Duty cycle (Linear)	Duty cycle (%)	Duty cycle correction factor (dB)
LE 1 Mbps	0.392	0.625	0.63	62.72	2.01
802.11b (1 Mbps)	8.615	8.630	1.00	99.83	-
802.11g (6 Mbps)	1.427	1.454	0.98	98.14	-
802.11n_HT20 (MCS0)	1.340	1.367	0.98	98.02	-

Duty cycle (Linear) = T<sub>on</sub> time/Period

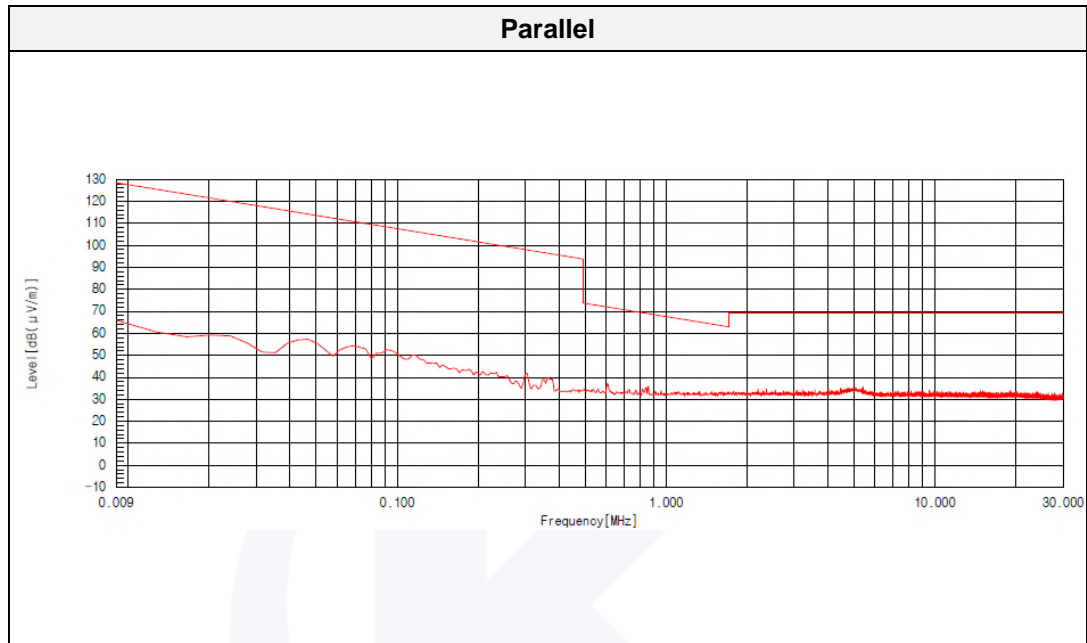
DCF(Duty cycle correction factor (dB)) = 10log(1/duty cycle)





**Test results (Below 30 MHz)**

Mode: LE 1 Mbps  
Distance of measurement: 3 meter  
Channel: 00 (Worst case)

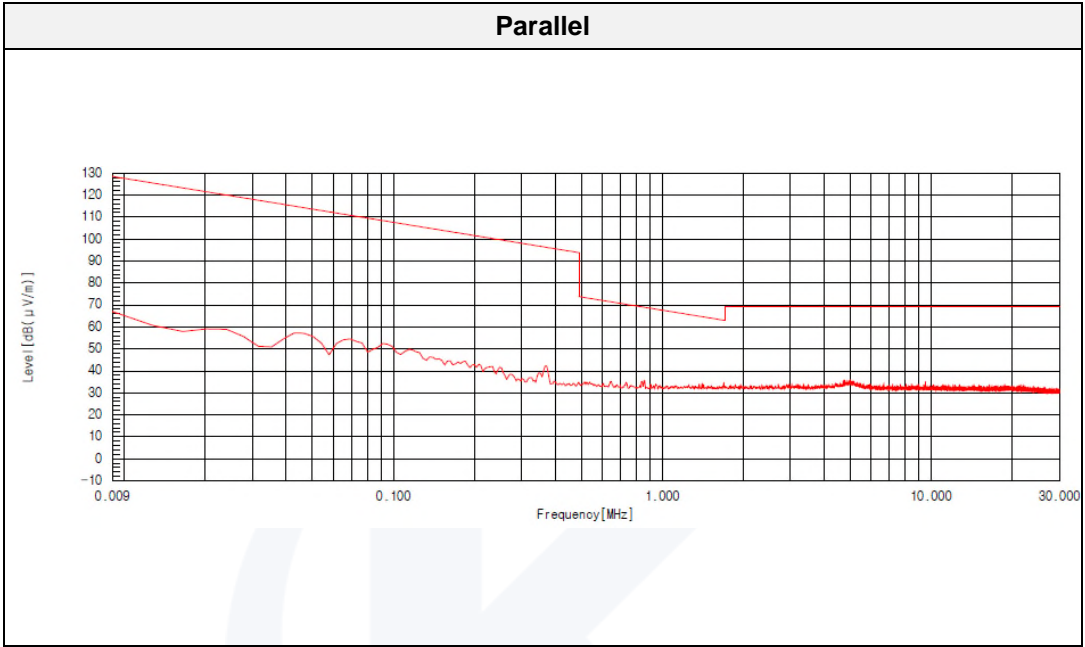


Note.

1. No spurious emission were detected under 30 MHz.



Mode:	802.11g (6 Mbps) (Worst case)
Distance of measurement:	3 meter
Channel:	6 (Worst case)

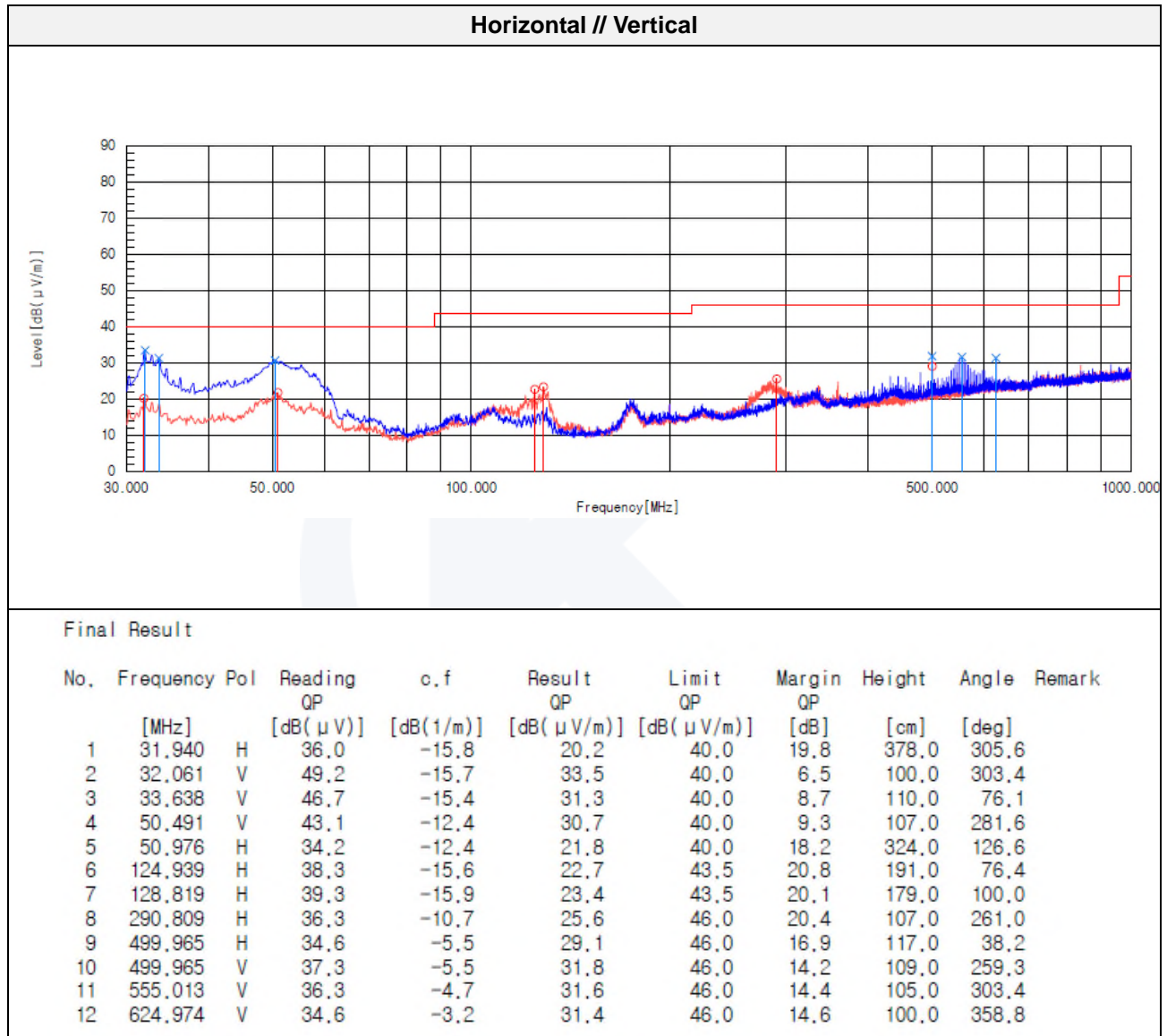


Note.

1. No spurious emission were detected under 30 MHz.

**Test results (Below 1 000 MHz)**

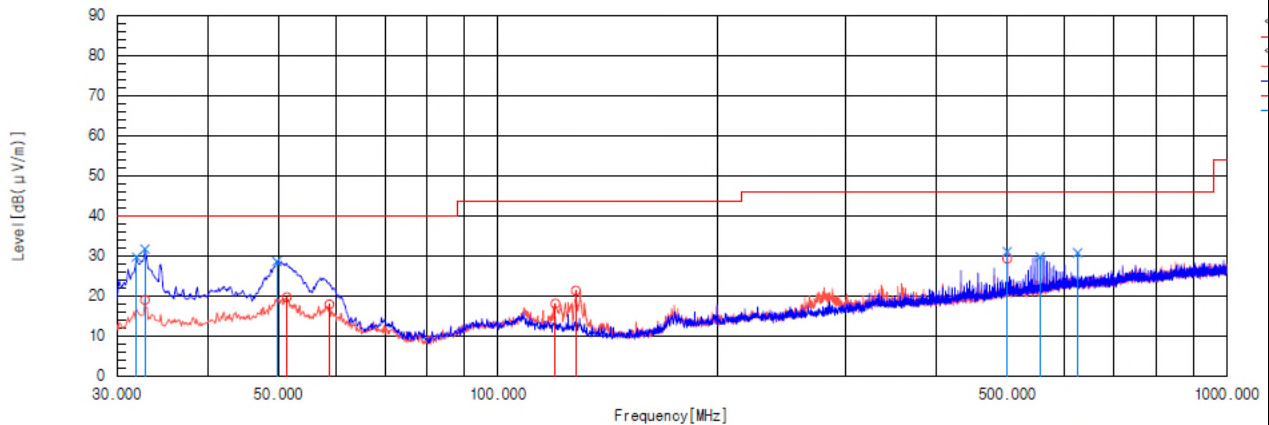
Mode: LE 1 Mbps  
Distance of measurement: 3 meter  
Channel: 00 (Worst case)





Mode: 802.11g (6 Mbps) (Worst case)  
Distance of measurement: 3 meter  
Channel: 6 (Worst case)

## Horizontal // Vertical



## Final Result

No.	Frequency [MHz]	Pol	Reading QP [dB(μV)]	c.f [dB(1/m)]	Result QP [dB(μV/m)]	Limit QP [dB(μV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]	Remark
1	31,940	V	45.5	-15.8	29.7	40.0	10.3	100.0	342.6	
2	32,789	H	34.7	-15.6	19.1	40.0	20.9	378.0	283.1	
3	32,789	V	47.3	-15.6	31.7	40.0	8.3	104.0	299.2	
4	49,764	V	40.9	-12.3	28.6	40.0	11.4	101.0	276.7	
5	51,340	H	32.2	-12.5	19.7	40.0	20.3	356.0	105.4	
6	58,736	H	31.3	-13.4	17.9	40.0	22.1	347.0	105.4	
7	119,968	H	33.4	-15.3	18.1	43.5	25.4	178.0	77.1	
8	127,970	H	37.2	-15.8	21.4	43.5	22.1	177.0	77.1	
9	499,965	H	34.8	-5.5	29.3	46.0	16.7	187.0	236.0	
10	499,965	V	36.6	-5.5	31.1	46.0	14.9	129.0	276.7	
11	555,013	V	34.5	-4.7	29.8	46.0	16.2	101.0	342.6	
12	624,974	V	34.0	-3.2	30.8	46.0	15.2	100.0	0.0	



Report No. : KES-RF250562

**Test results (Above 1 000 MHz)**

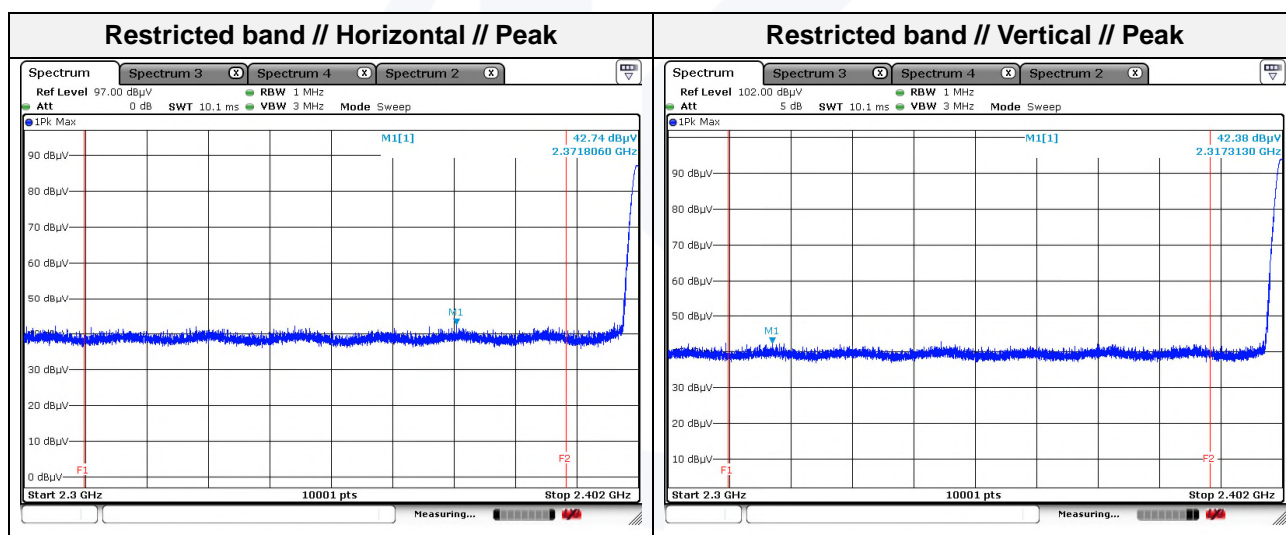
Mode: LE 1 Mbps  
Distance of measurement: 3 meter  
Channel: 00

**- Spurious**

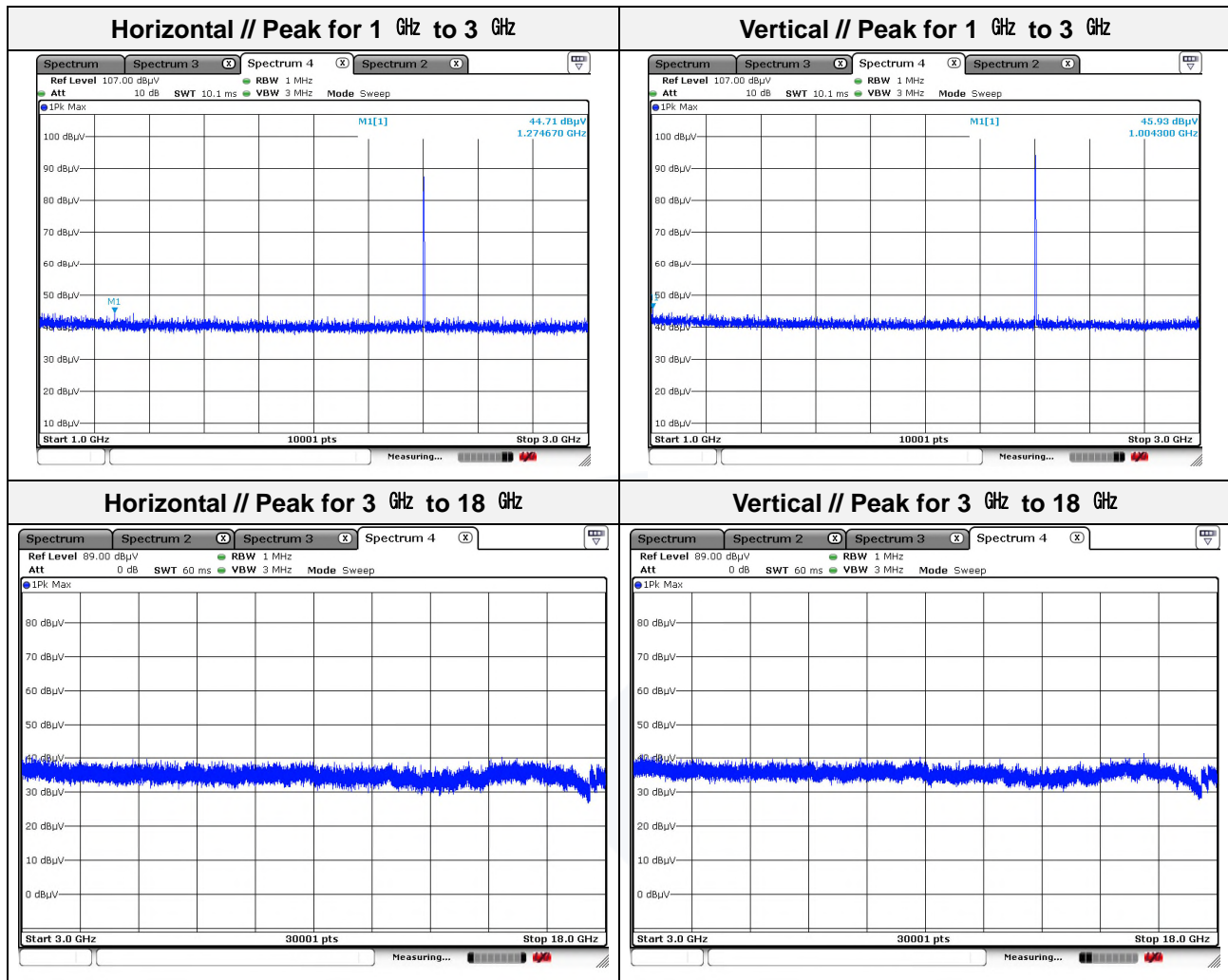
Frequency (MHz)	Level (dB $\mu$ V)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)
1 004.30	45.93	Peak	V	-6.86	-	39.07	74.00	34.93
1 274.67	44.71	Peak	H	-5.45	-	39.26	74.00	34.74

**- Band edge**

Frequency (MHz)	Level (dB $\mu$ V)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)
2 317.31	42.38	Peak	V	-1.68	-	40.70	74.00	33.30
2 371.81	42.74	Peak	H	-1.47	-	41.27	74.00	32.73







Note.

1. Average test would be performed if the peak result were greater than the average limit.

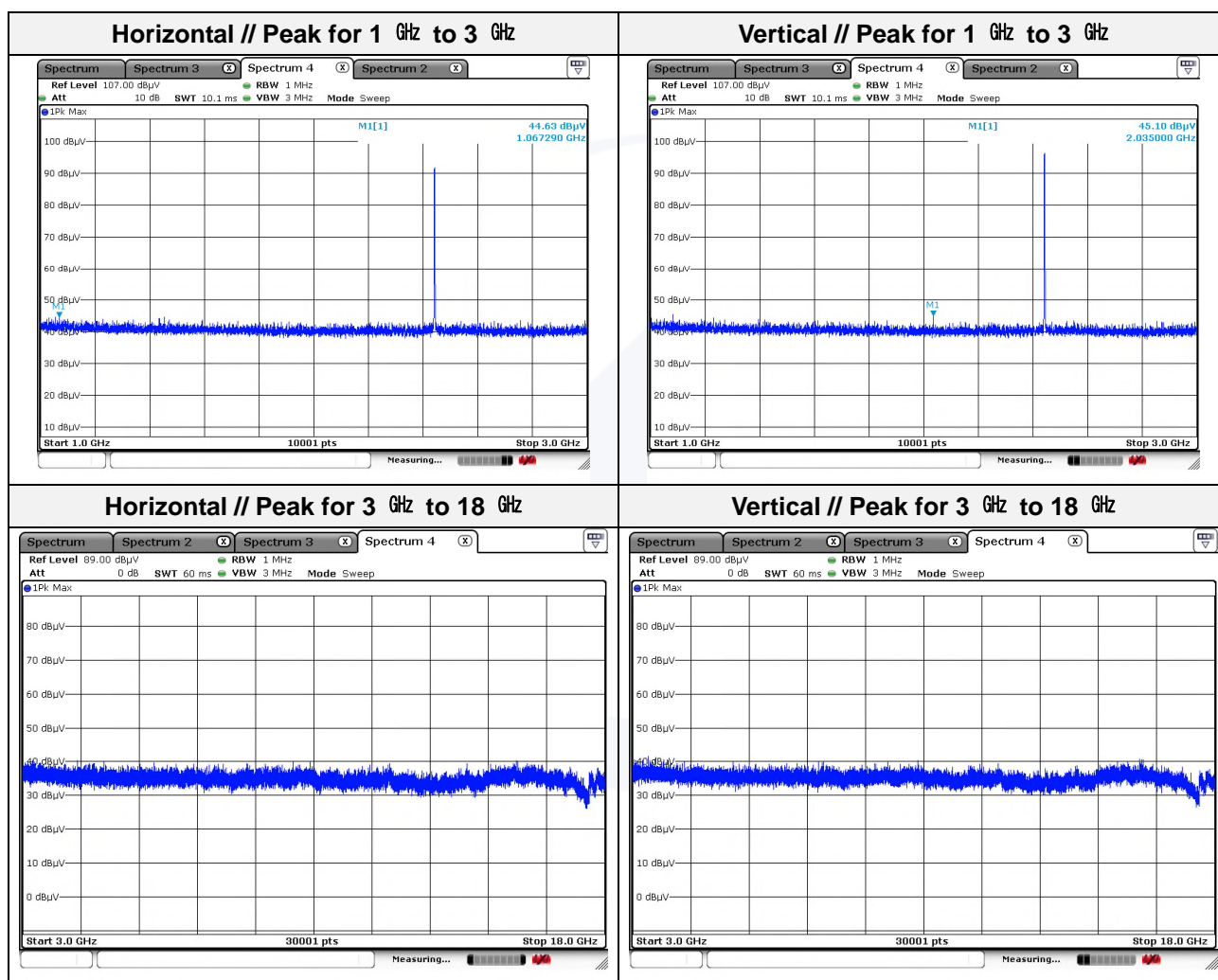


Report No. : KES-RF250562

Mode: LE 1 Mbps  
Distance of measurement: 3 meter  
Channel: 20

## - Spurious

Frequency (MHz)	Level (dBμV)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dBμV/m)	Limit (dBμV/m)	Margin (dB)
1 067.29	44.63	Peak	H	-6.54	-	38.09	74.00	35.91
2 035.00	45.10	Peak	V	-2.81	-	42.29	74.00	31.71



## Note.

1. No spurious emission were detected above 3 GHz.
2. Average test would be performed if the peak result were greater than the average limit.





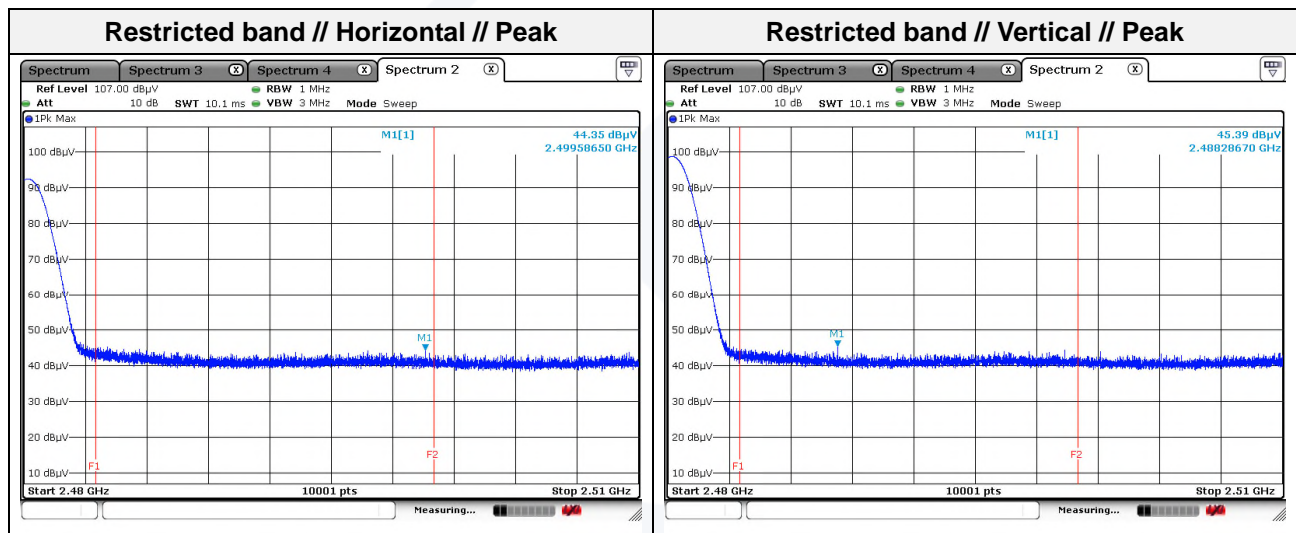
Mode: LE 1 Mbps  
Distance of measurement: 3 meter  
Channel: 39

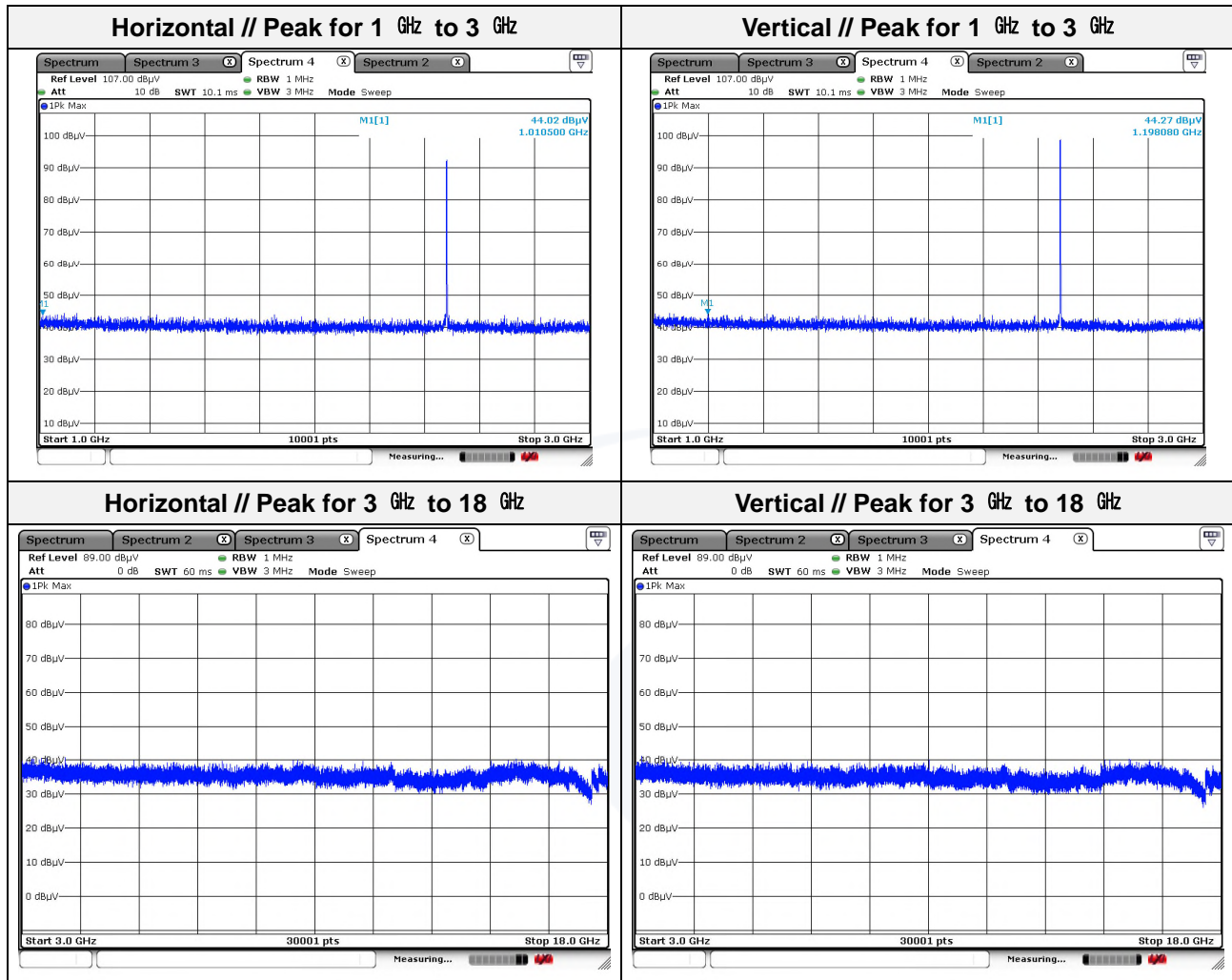
**- Spurious**

Frequency (MHz)	Level (dB $\mu$ V)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)
1 010.50	44.02	Peak	H	-6.82	-	37.20	74.00	36.80
1 198.08	44.27	Peak	V	-5.88	-	38.39	74.00	35.61

**- Band edge**

Frequency (MHz)	Level (dB $\mu$ V)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)
2 488.29	45.39	Peak	V	-1.04	-	44.35	74.00	29.65
2 499.59	44.35	Peak	H	-1.01	-	43.34	74.00	30.66





Note.

1. No spurious emission were detected above 3 GHz.
2. Average test would be performed if the peak result were greater than the average limit.



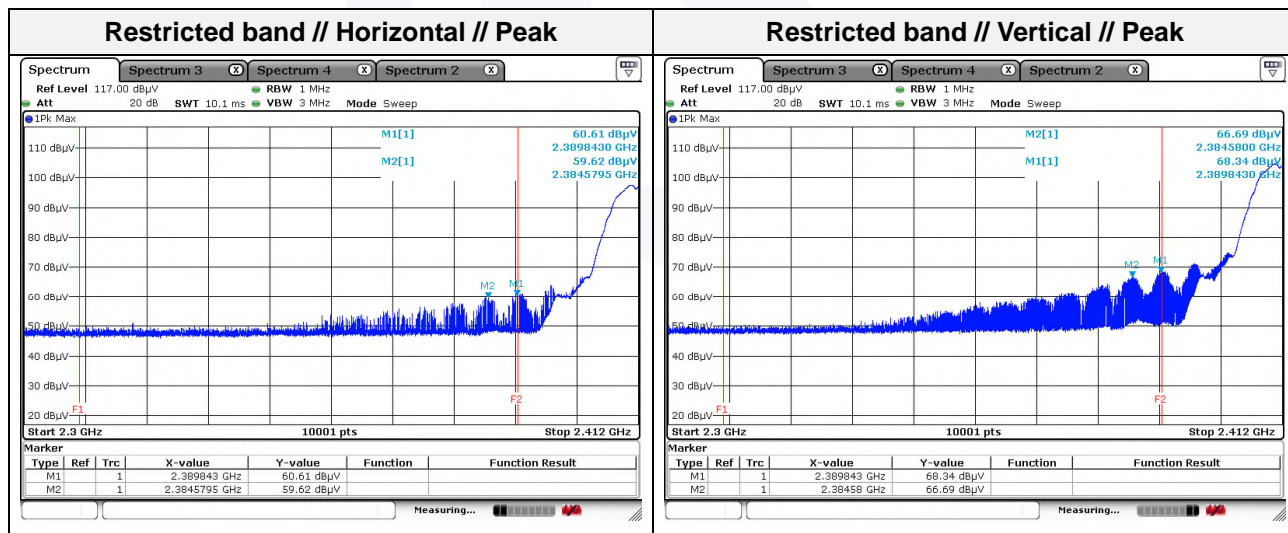
Mode: 802.11b (1 Mbps)  
Distance of measurement: 3 meter  
Channel: 1

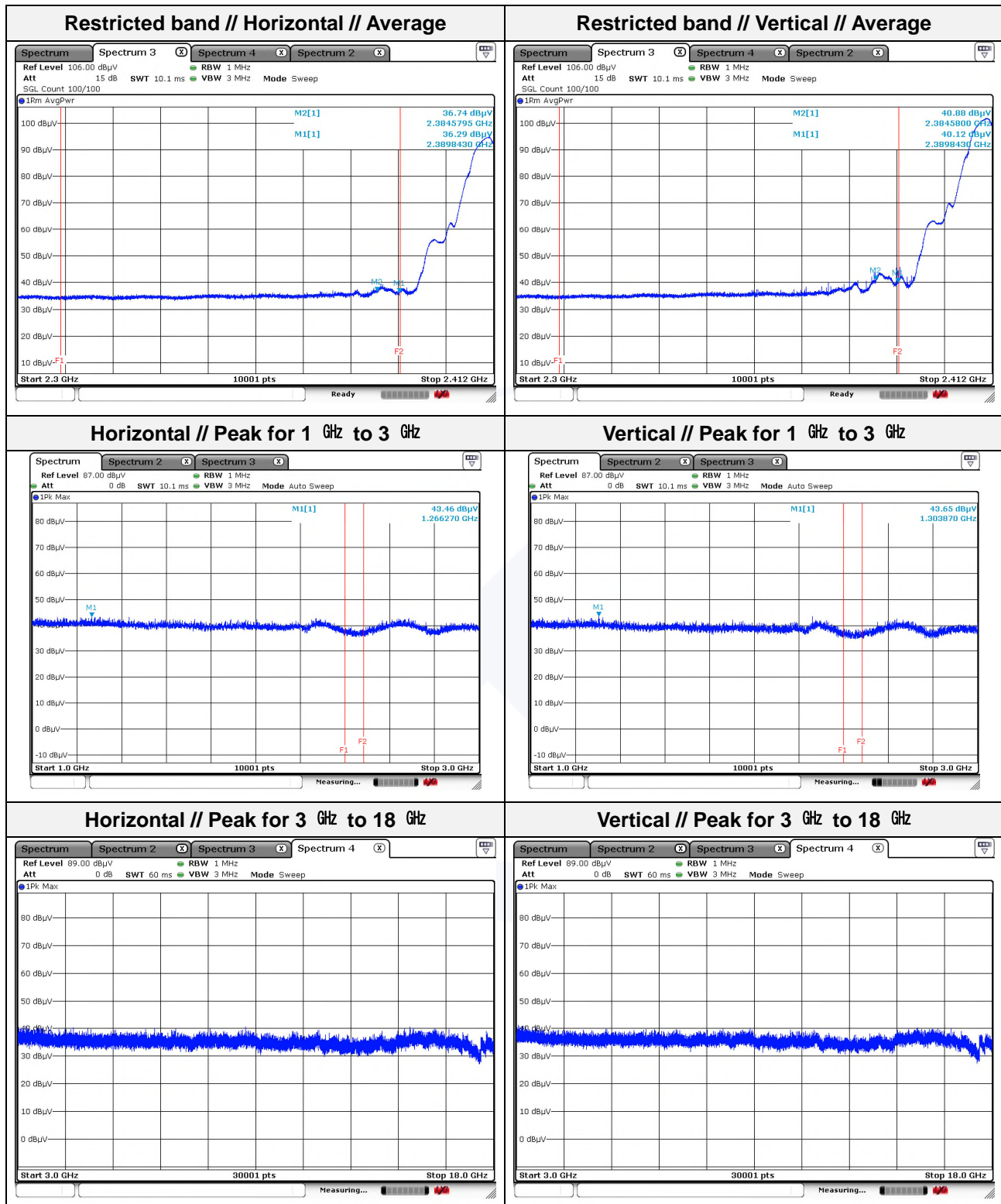
**- Spurious**

Frequency (MHz)	Level (dBμV)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dBμV/m)	Limit (dBμV/m)	Margin (dB)
1 266.27	43.46	Peak	H	-5.50	-	37.96	74.00	36.04
1 303.87	43.65	Peak	V	-5.29	-	38.36	74.00	35.64

**- Band edge**

Frequency (MHz)	Level (dBμV)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dBμV/m)	Limit (dBμV/m)	Margin (dB)
2 384.58	59.62	Peak	H	-1.42	-	58.20	74.00	15.80
2 384.58	36.74	Average	H	-1.42	-	35.32	54.00	18.68
2 384.58	66.69	Peak	V	-1.42	-	65.27	74.00	8.73
2 384.58	40.88	Average	V	-1.42	-	39.46	54.00	14.54
2 389.84	60.61	Peak	H	-1.39	-	59.22	74.00	14.78
2 389.84	36.29	Average	H	-1.39	-	34.90	54.00	19.10
2 389.84	68.34	Peak	V	-1.39	-	66.95	74.00	7.05
2 389.84	40.12	Average	V	-1.39	-	38.73	54.00	15.27





Note.

1. No spurious emission were detected above 3 GHz.
2. Average test would be performed if the peak result were greater than the average limit.

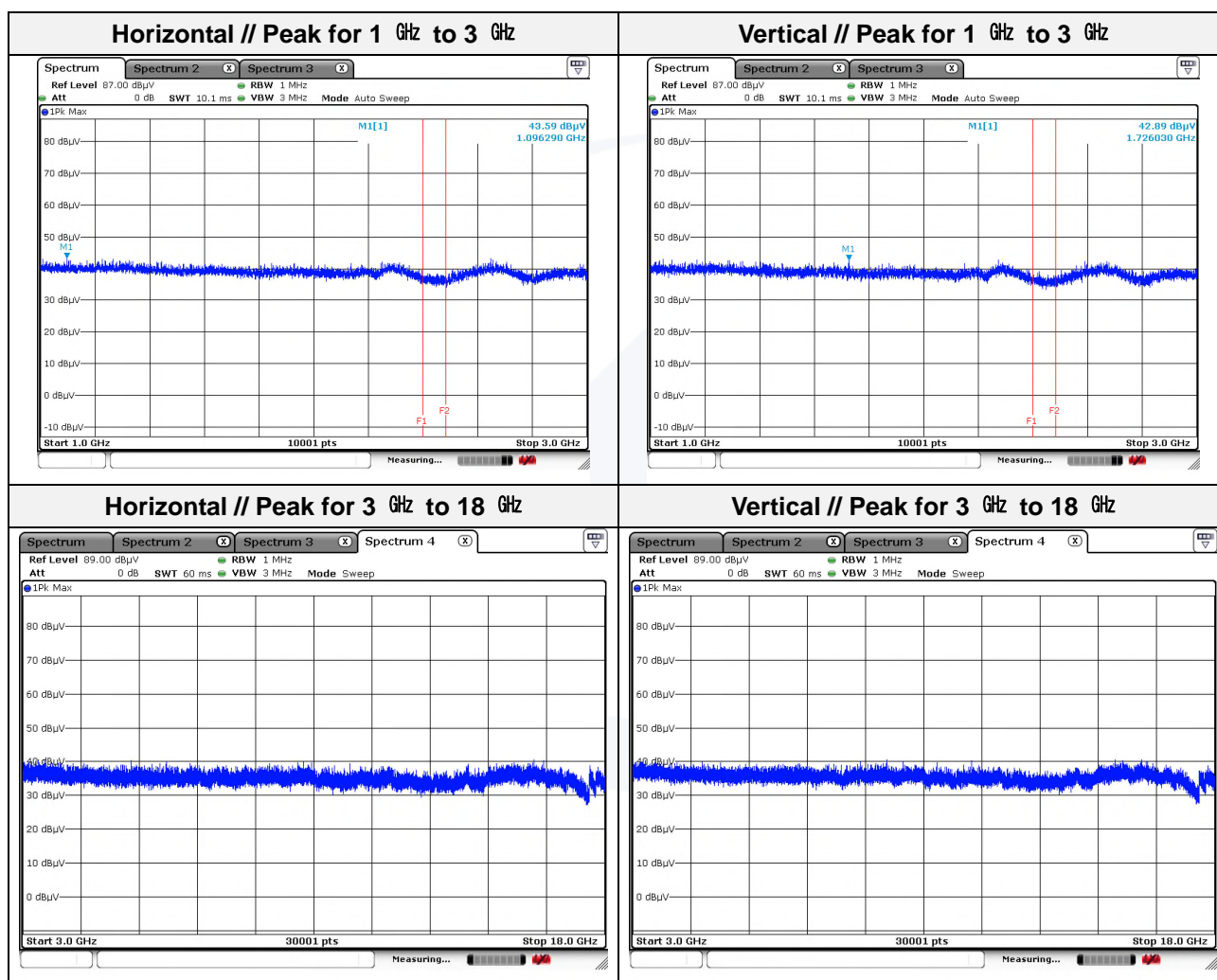


Report No. : KES-RF250562

Mode: 802.11b (1 Mbps)  
Distance of measurement: 3 meter  
Channel: 6

**- Spurious**

Frequency (MHz)	Level (dBμV)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dBμV/m)	Limit (dBμV/m)	Margin (dB)
1 096.29	43.59	Peak	H	-6.39	-	37.20	74.00	36.80
1 726.03	42.89	Peak	V	-3.66	-	39.23	74.00	34.77

**Note.**

1. No spurious emission were detected above 3 GHz.
2. Average test would be performed if the peak result were greater than the average limit.





Report No. : KES-RF250562

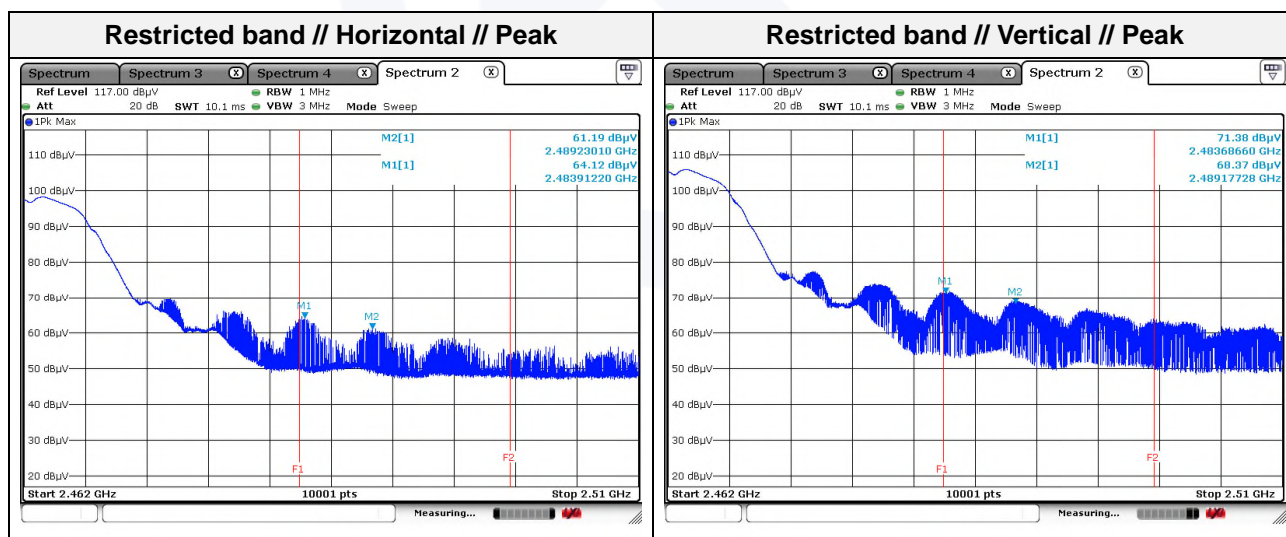
Mode: 802.11b (1 Mbps)  
Distance of measurement: 3 meter  
Channel: 11

**- Spurious**

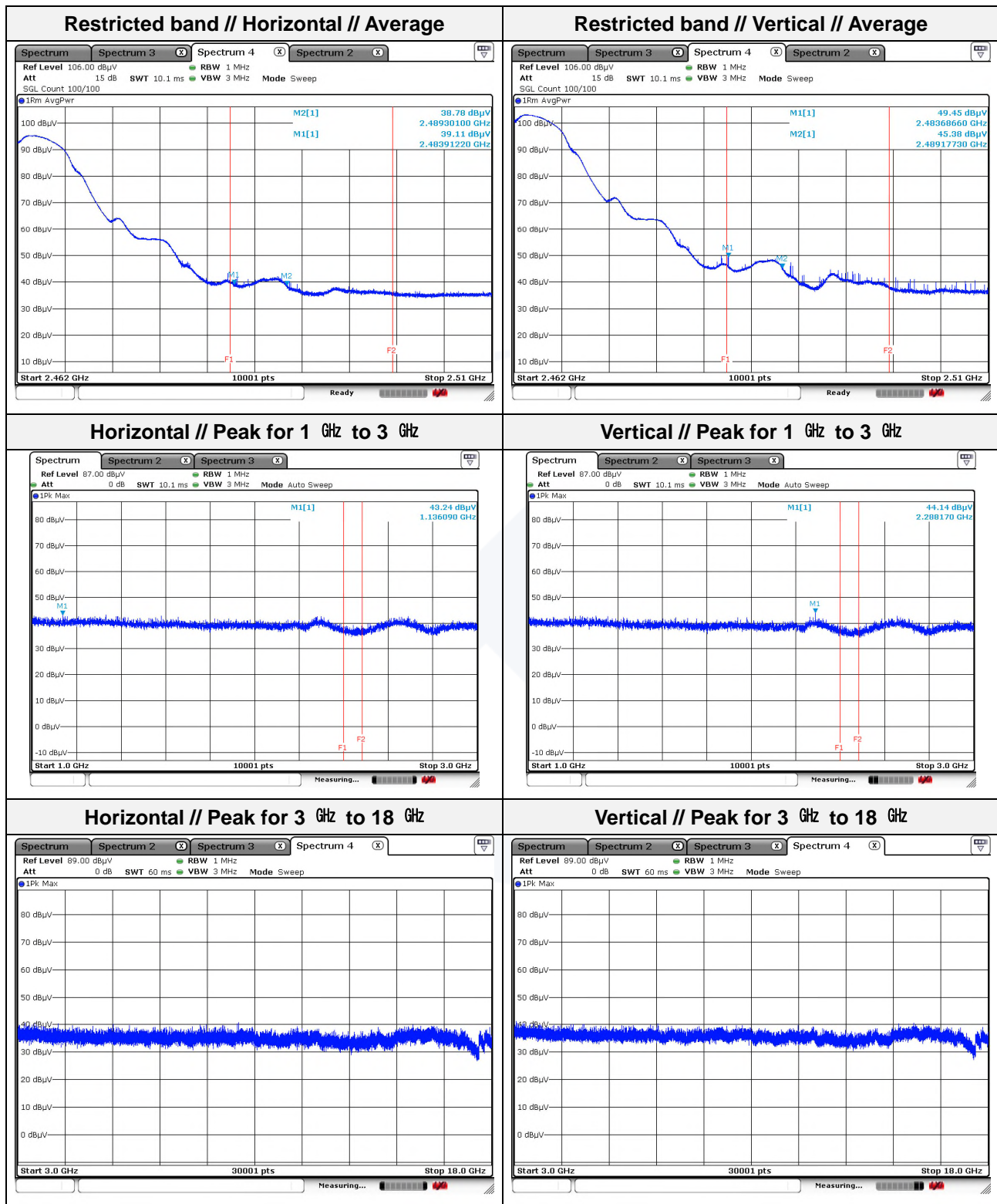
Frequency (MHz)	Level (dBμV)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dBμV/m)	Limit (dBμV/m)	Margin (dB)
1 136.09	43.26	Peak	H	-6.19	-	37.07	74.00	36.93
2 288.17	44.14	Peak	V	-1.80	-	42.34	74.00	31.66

**- Band edge**

Frequency (MHz)	Level (dBμV)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dBμV/m)	Limit (dBμV/m)	Margin (dB)
2 483.69	71.38	Peak	V	-1.06	-	70.32	74.00	3.68
2 483.69	49.45	Average	V	-1.06	-	48.39	54.00	5.61
2 483.91	64.12	Peak	H	-1.06	-	63.06	74.00	10.94
2 483.91	39.11	Average	H	-1.06	-	38.05	54.00	15.95
2 489.18	68.37	Peak	V	-1.04	-	67.33	74.00	6.67
2 489.18	45.38	Average	V	-1.04	-	44.34	54.00	9.66
2 489.23	61.19	Peak	H	-1.04	-	60.15	74.00	13.85
2 489.23	38.78	Average	H	-1.04	-	37.74	54.00	16.26







Note.

1. No spurious emission were detected above 3 GHz.
2. Average test would be performed if the peak result were greater than the average limit.



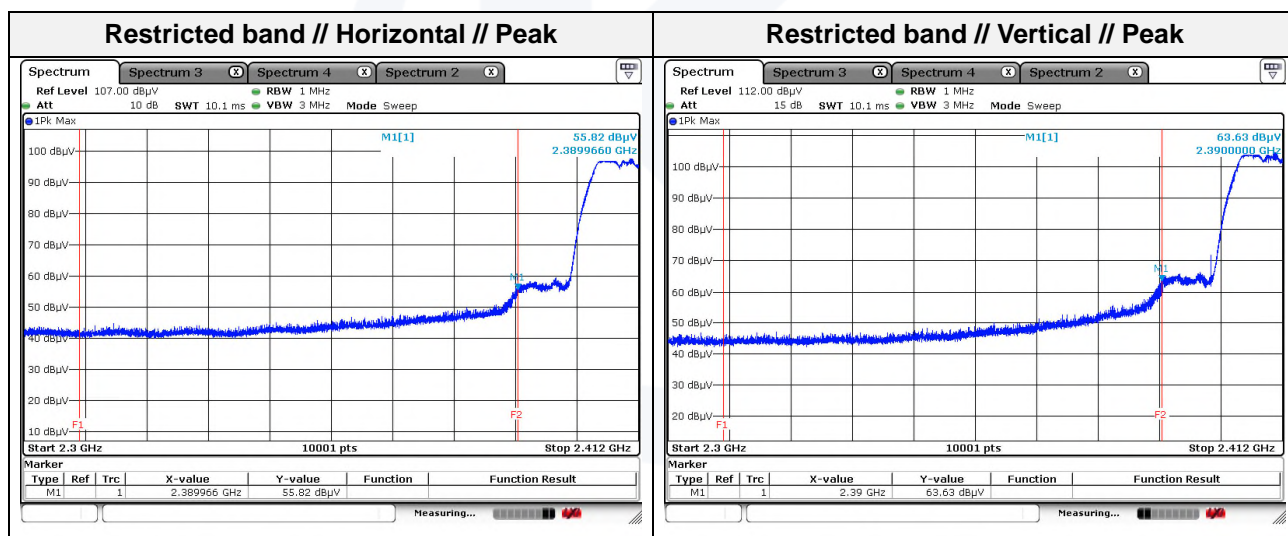
Mode: 802.11g (6 Mbps)  
Distance of measurement: 3 meter  
Channel: 1

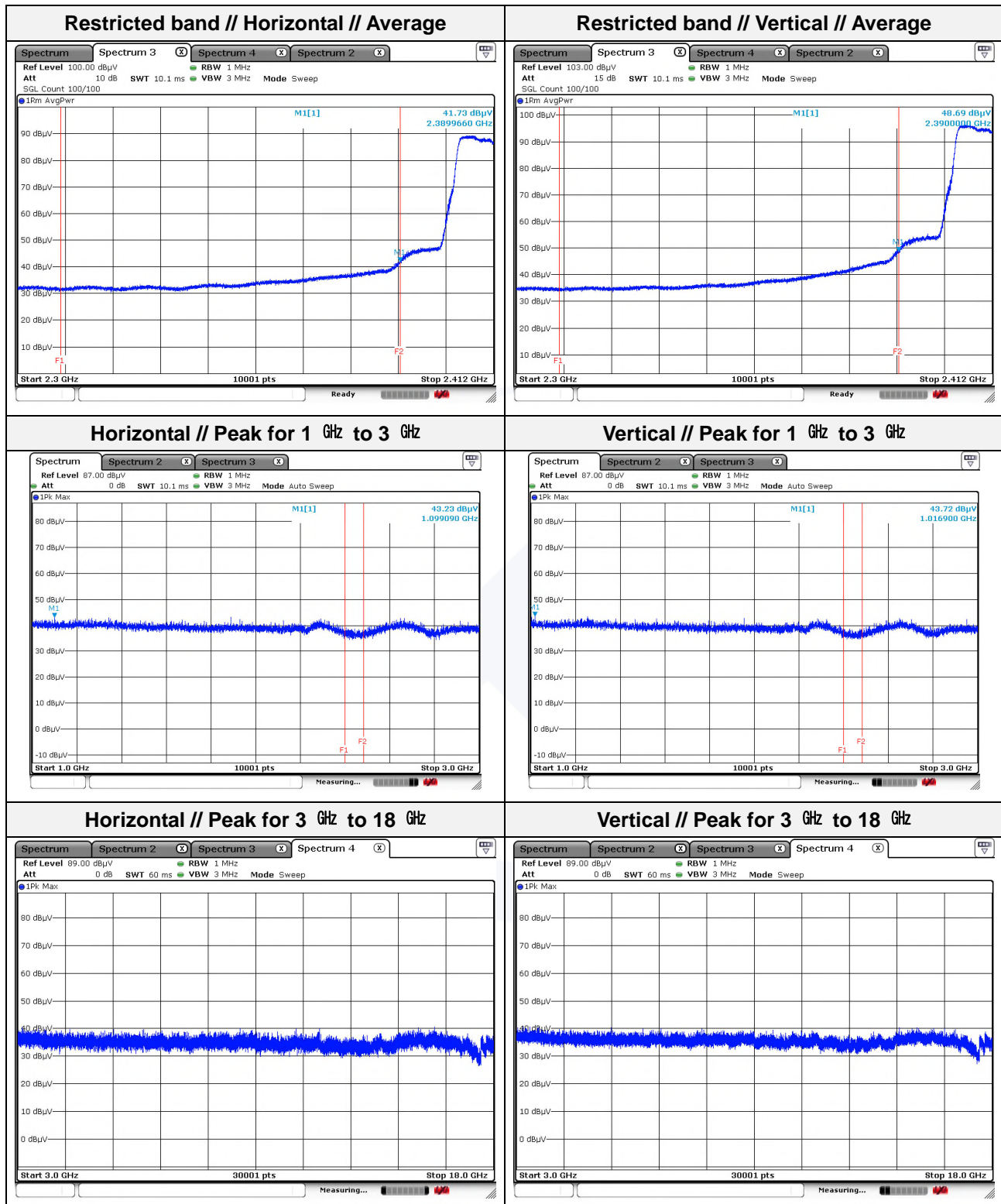
**- Spurious**

Frequency (MHz)	Level (dB $\mu$ V)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)
1 016.90	43.72	Peak	V	-6.79	-	36.93	74.00	37.07
1 099.09	43.23	Peak	H	-6.38	-	36.85	74.00	37.15

**- Band edge**

Frequency (MHz)	Level (dB $\mu$ V)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)
2 389.97	55.82	Peak	H	-1.39	-	54.43	74.00	19.57
2 389.97	41.73	Average	H	-1.39	-	40.34	54.00	13.66
2 390.00	63.63	Peak	V	-1.39	-	62.24	74.00	11.76
2 390.00	48.69	Average	V	-1.39	-	47.30	54.00	6.70





Note.

1. No spurious emission were detected above 3 GHz.
2. Average test would be performed if the peak result were greater than the average limit.

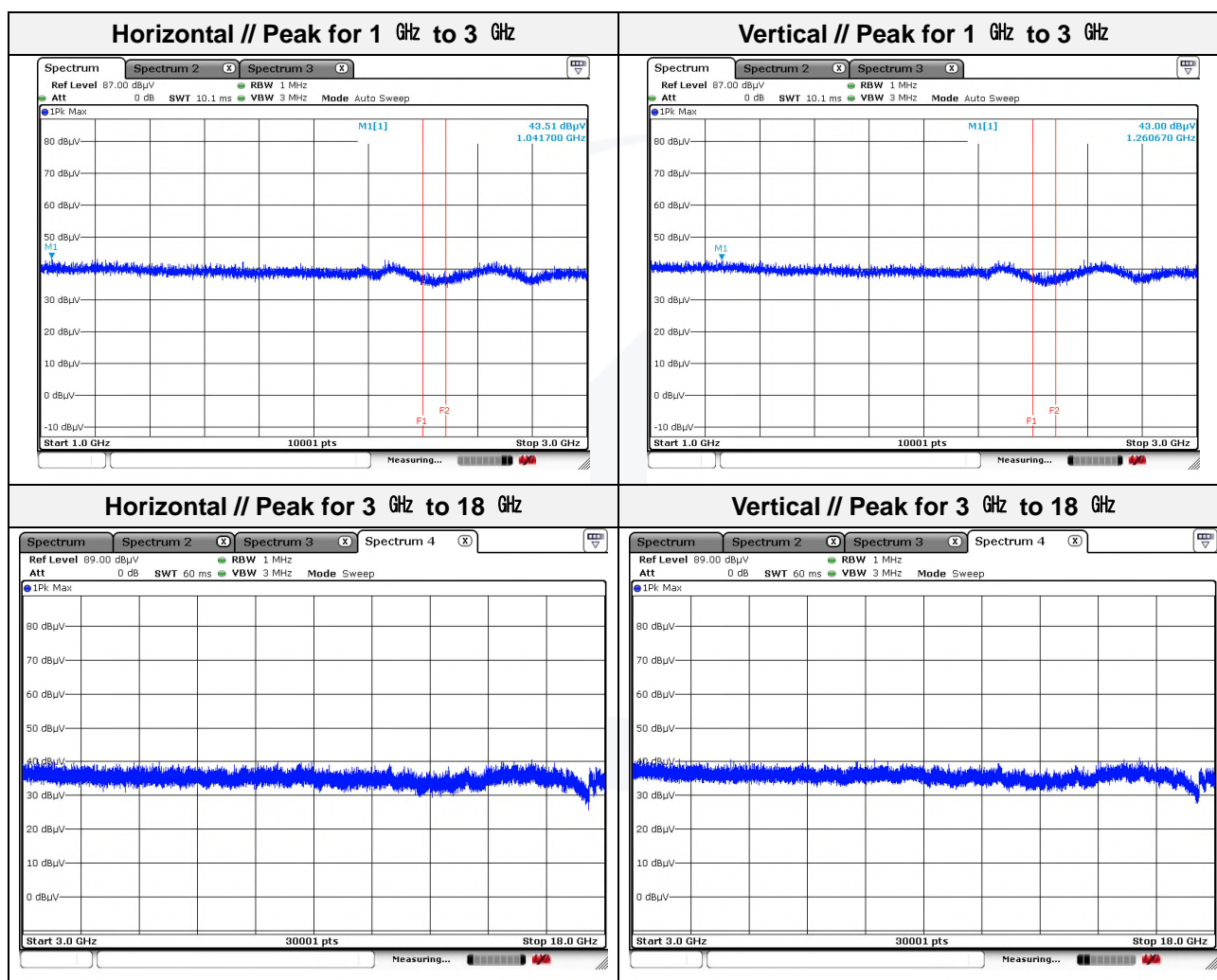


Report No. : KES-RF250562

Mode: 802.11g (6 Mbps)  
Distance of measurement: 3 meter  
Channel: 6

## - Spurious

Frequency (MHz)	Level (dBμV)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dBμV/m)	Limit (dBμV/m)	Margin (dB)
1 041.70	43.51	Peak	H	-6.67	-	36.84	74.00	37.16
1 260.67	43.00	Peak	V	-5.53	-	37.47	74.00	36.53



## Note.

1. No spurious emission were detected above 3 GHz.
2. Average test would be performed if the peak result were greater than the average limit.



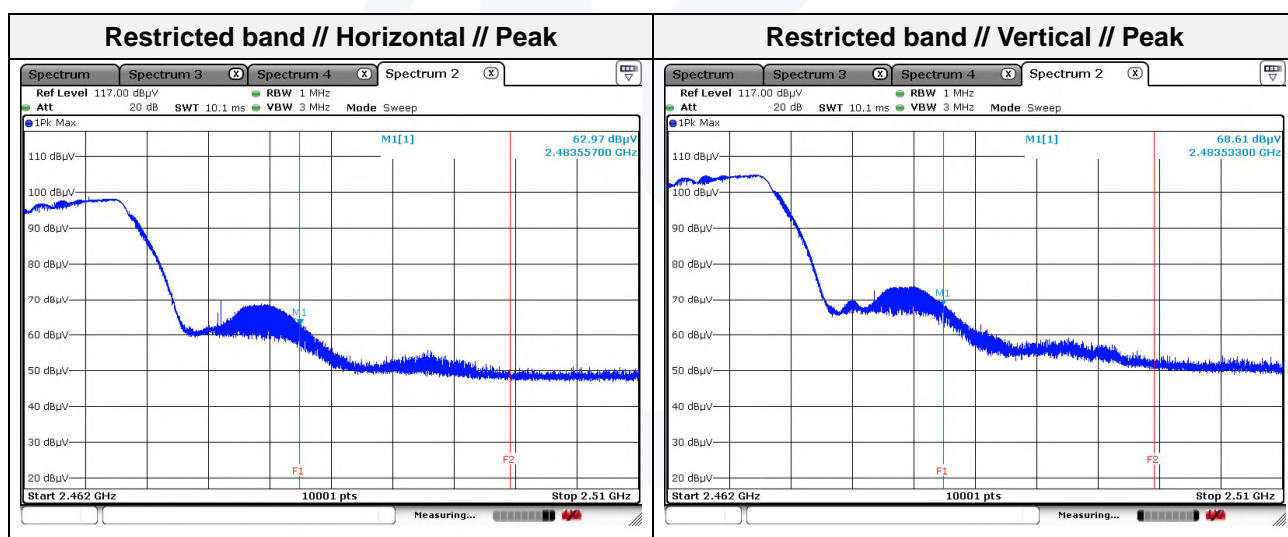
Mode: 802.11g (6 Mbps)  
Distance of measurement: 3 meter  
Channel: 11

**- Spurious**

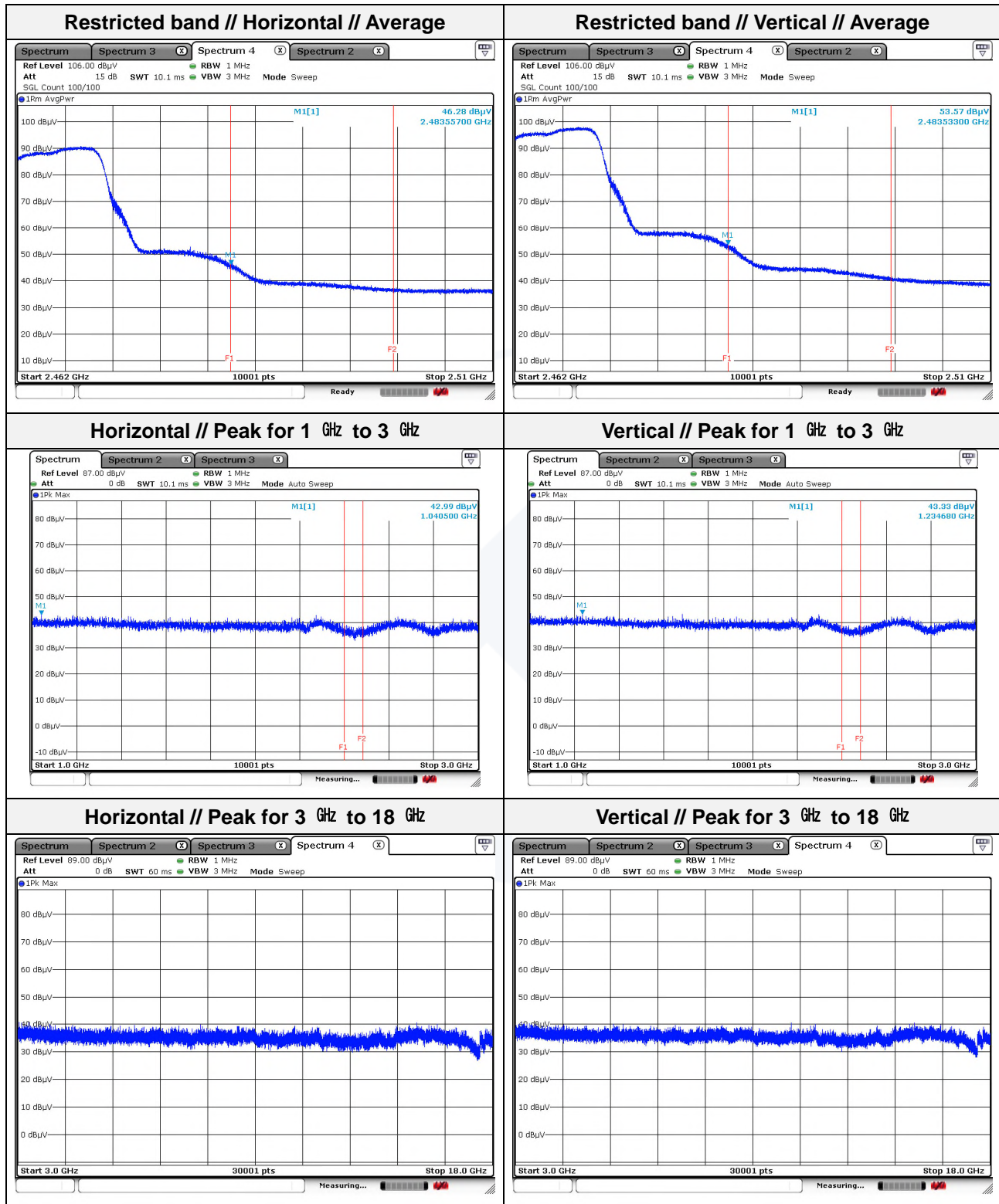
Frequency (MHz)	Level (dBμV)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dBμV/m)	Limit (dBμV/m)	Margin (dB)
1 040.50	42.99	Peak	H	-6.67	-	36.32	74.00	37.68
1 234.68	43.33	Peak	V	-5.67	-	37.66	74.00	36.34

**- Band edge**

Frequency (MHz)	Level (dBμV)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dBμV/m)	Limit (dBμV/m)	Margin (dB)
2 483.53	68.61	Peak	V	-1.06	-	67.55	74.00	6.45
2 483.53	53.57	Average	V	-1.06	-	52.51	54.00	1.49
2 483.56	62.97	Peak	H	-1.06	-	61.91	74.00	12.09
2 483.56	46.28	Average	H	-1.06	-	45.22	54.00	8.78







Note.

1. No spurious emission were detected above 3 GHz.
2. Average test would be performed if the peak result were greater than the average limit.





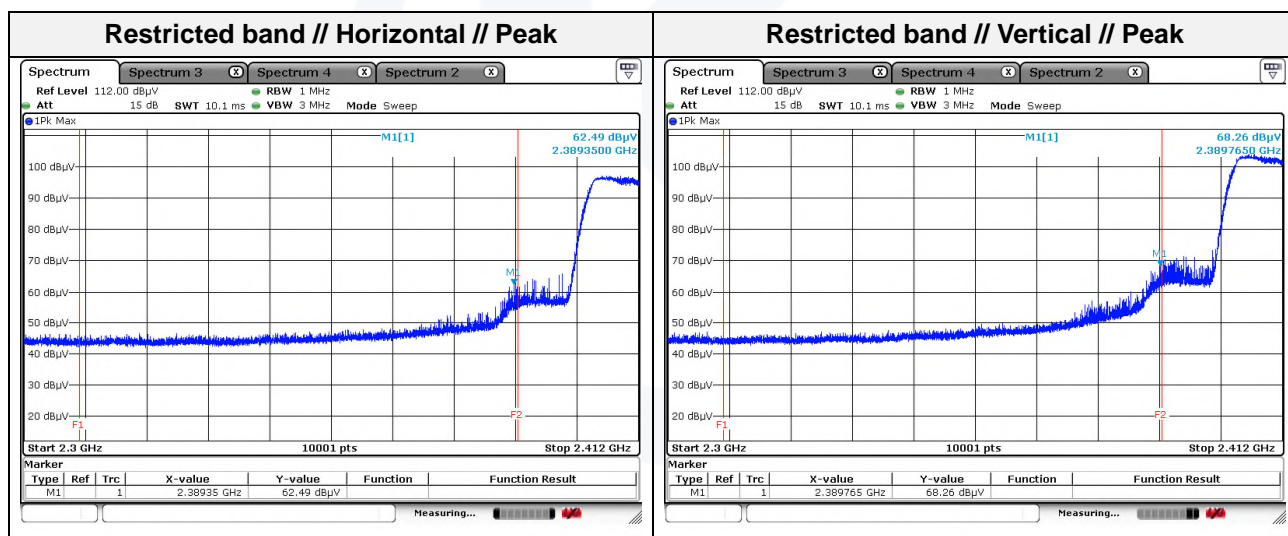
Mode: 802.11n\_HT20 (MCS0)  
Distance of measurement: 3 meter  
Channel: 1

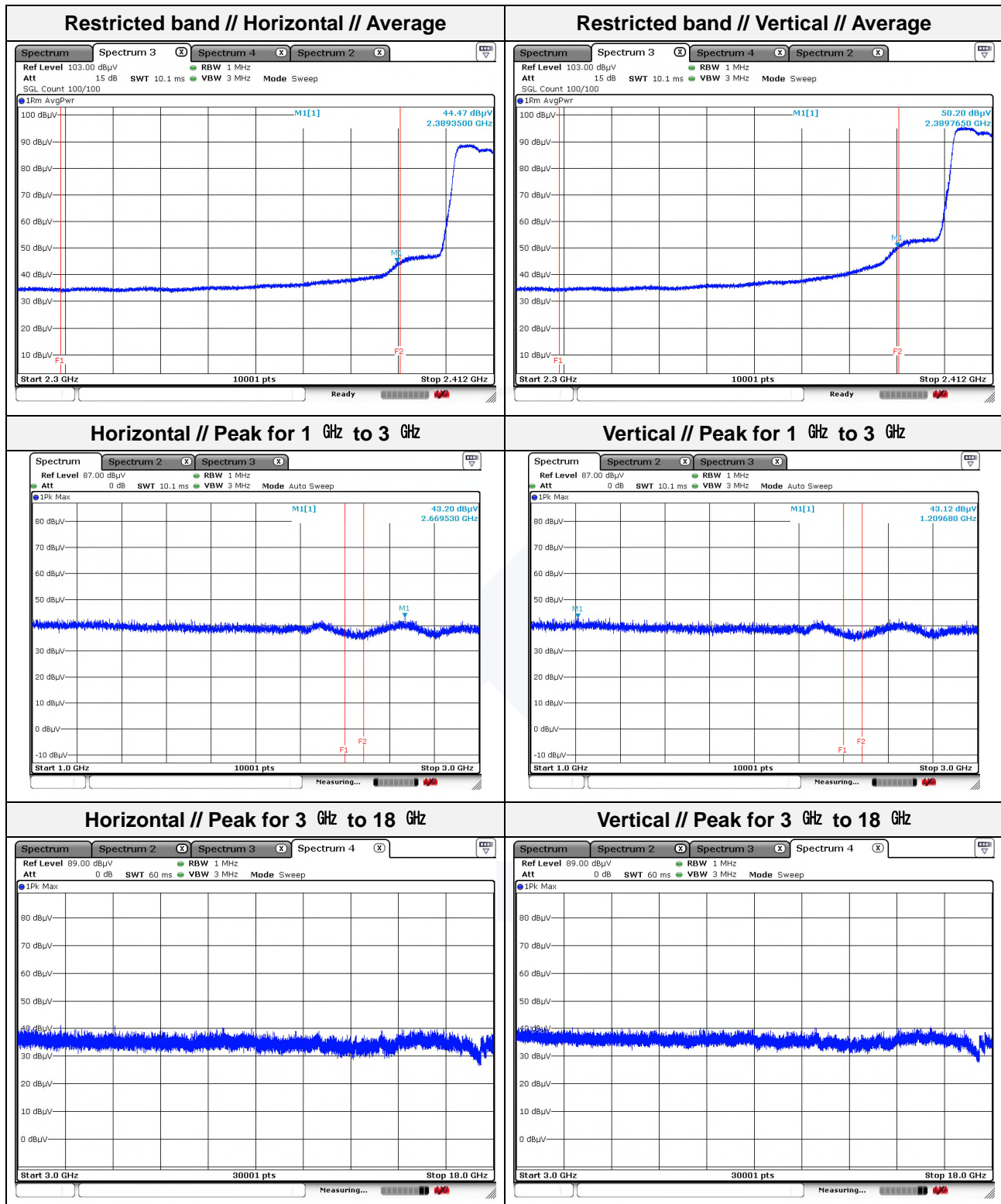
**- Spurious**

Frequency (MHz)	Level (dB $\mu$ V)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)
1 209.68	43.12	Peak	V	-5.81	-	37.31	74.00	36.69
2 669.53	43.20	Peak	H	-0.65	-	42.55	74.00	31.45

**- Band edge**

Frequency (MHz)	Level (dB $\mu$ V)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)
2 389.35	62.49	Peak	H	-1.40	-	61.09	74.00	12.91
2 389.35	44.47	Average	H	-1.40	-	43.07	54.00	10.93
2 389.77	68.26	Peak	V	-1.39	-	66.87	74.00	7.13
2 389.77	50.20	Average	V	-1.39	-	48.81	54.00	5.19





Note.

1. No spurious emission were detected above 3 GHz.
2. Average test would be performed if the peak result were greater than the average limit.

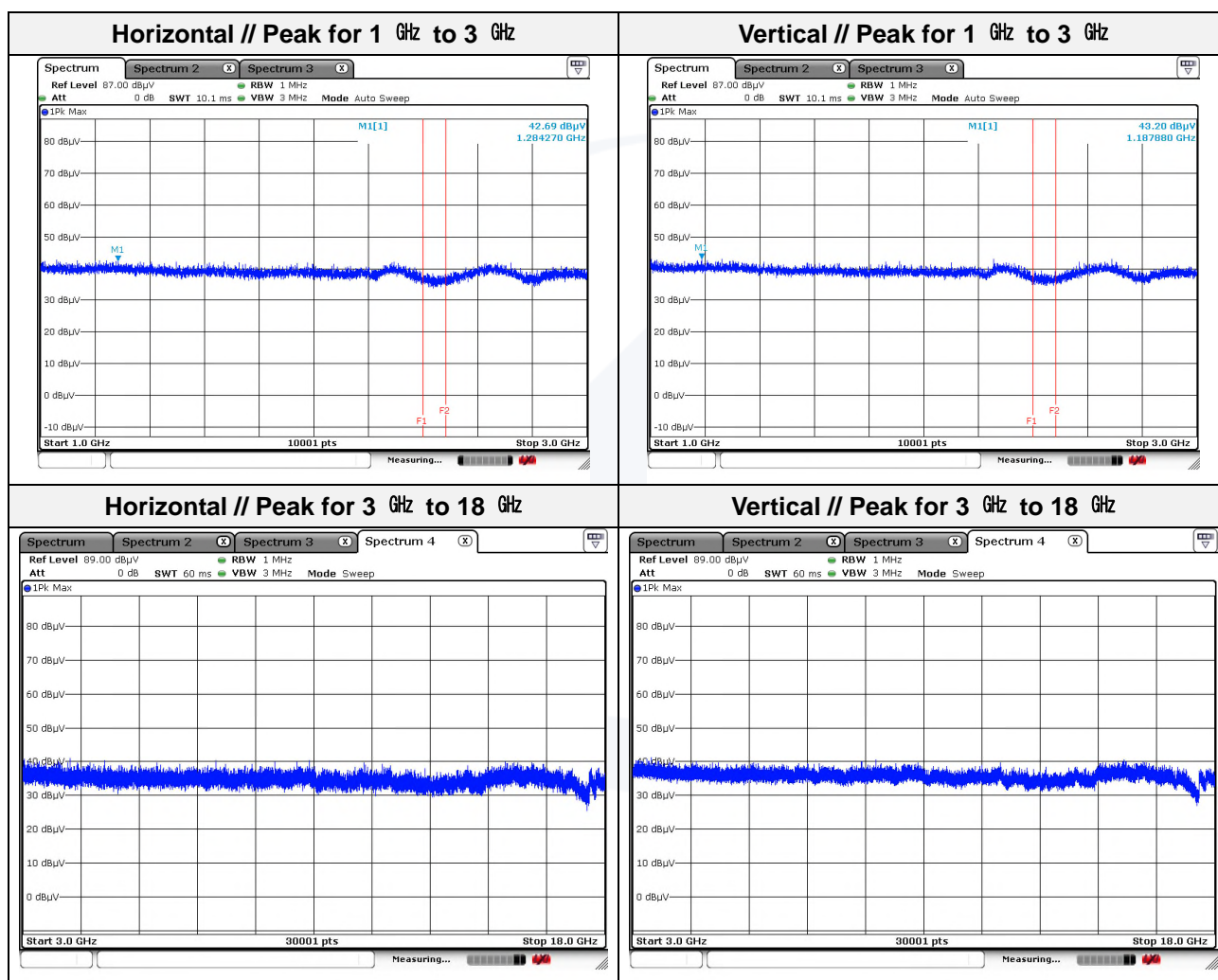


Report No. : KES-RF250562

Mode: 802.11n\_HT20 (MCS0)  
Distance of measurement: 3 meter  
Channel: 6

## - Spurious

Frequency (MHz)	Level (dBμV)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dBμV/m)	Limit (dBμV/m)	Margin (dB)
1 187.88	43.20	Peak	V	-5.93	-	37.27	74.00	36.73
1 284.27	42.69	Peak	H	-5.40	-	37.29	74.00	36.71



## Note.

1. No spurious emission were detected above 3 GHz.
2. Average test would be performed if the peak result were greater than the average limit.



Mode: 802.11n\_HT20 (MCS0)  
Distance of measurement: 3 meter  
Channel: 11

**- Spurious**

Frequency (MHz)	Level (dB $\mu$ V)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)
1 088.49	42.98	Peak	V	-6.43	-	36.55	74.00	37.45
1 179.08	42.60	Peak	H	-5.97	-	36.63	74.00	37.37

**- Band edge**

Frequency (MHz)	Level (dB $\mu$ V)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)
2 483.93	62.83	Peak	H	-1.06	-	61.77	74.00	12.23
2 483.93	39.67	Average	H	-1.06	-	38.61	54.00	15.39
2 484.00	69.14	Peak	V	-1.06	-	68.08	74.00	5.92
2 484.00	44.76	Average	V	-1.06	-	43.70	54.00	10.30

