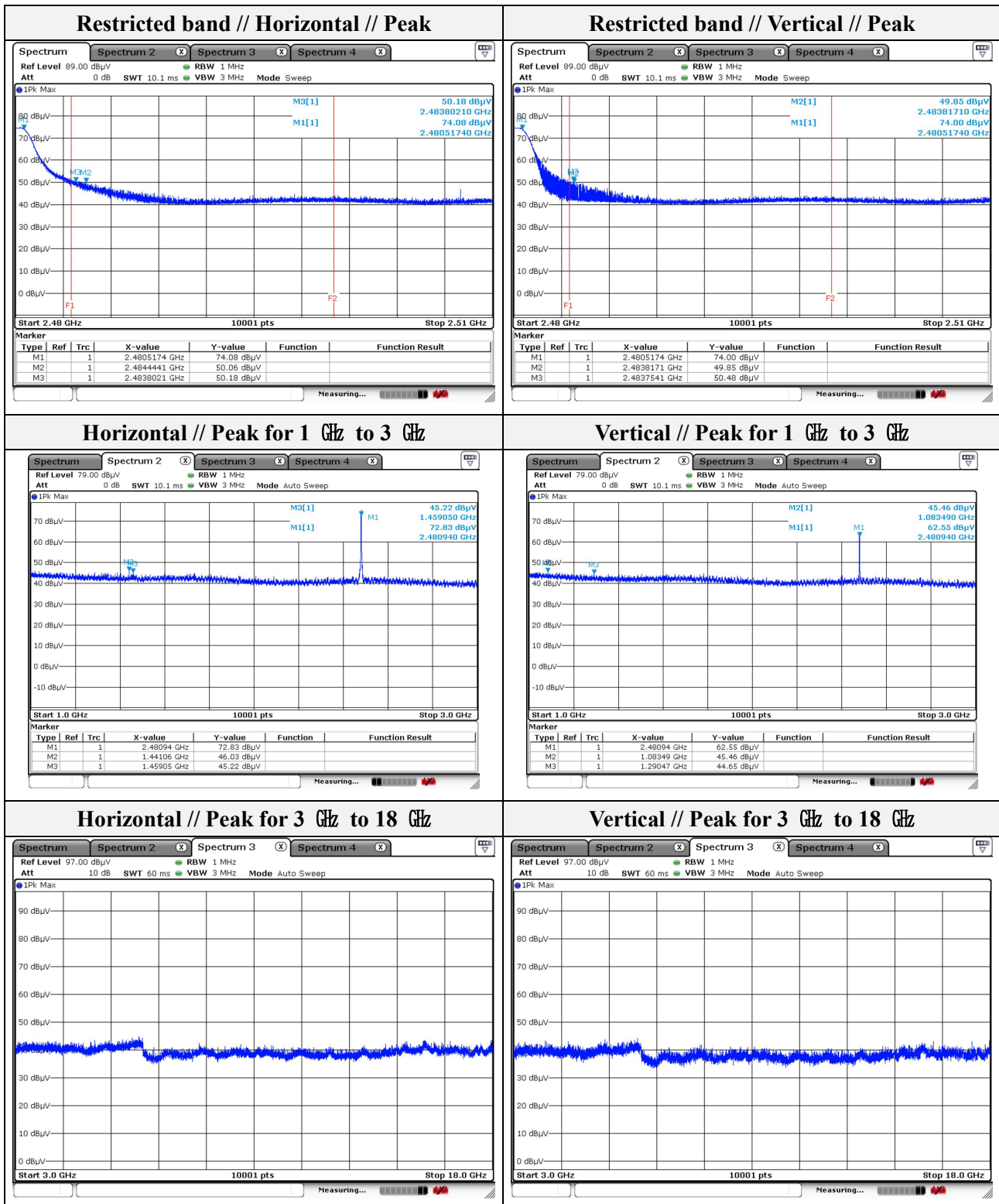




Note.

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.

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The authenticity of the test report, contact shchoi@kes.co.kr



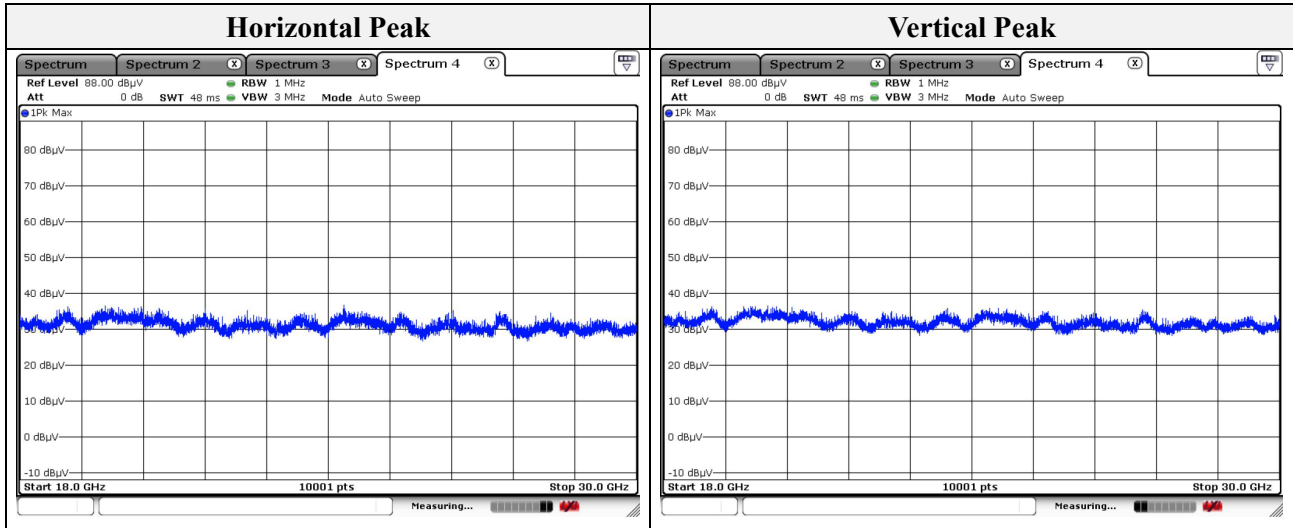
KES Co., Ltd.

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Dongan-gu, Anyang-si, Gyeonggi-do, 14057, Korea
Tel: +82-31-425-6200 / Fax: +82-31-424-0450
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Report No.:
KES-RF1-21T0189
Page (27) of (36)

Test results (18 GHz to 30 GHz) – Worst case

Mode: LE 1 Mbps
Distance of measurement: 3 meter
Channel: 39 (Worst case)



Note.

No spurious emission were detected above 18 GHz.

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Report No.:
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Mode: ZigBee
Distance of measurement: 3 meter

- Spurious

Frequency (MHz)	Level (dBμV)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dBμV/m)	Limit (dBμV/m)	Margin (dB)
1 717.63	47.88	Peak	V	-6.73	-	41.15	74.00	32.85
1 718.23	47.35	Peak	H	-6.73	-	40.62	74.00	33.38
1 733.03	48.08	Peak	V	-6.61	-	41.47	74.00	32.53
2 733.13	43.47	Peak	H	-1.63	-	41.84	74.00	32.16

- 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)
2 483.73	50.40	Peak	H	-2.40	-	48.00	74.00	26.00
2 483.97	49.90	Peak	H	-2.40	-	47.50	74.00	26.50
2 484.23	43.68	Peak	V	-2.40	-	41.28	74.00	32.72
2 484.90	43.96	Peak	V	-2.39	-	41.57	74.00	32.43

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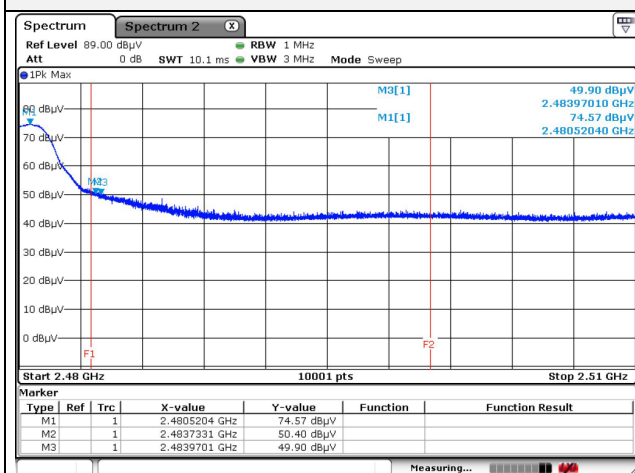
3701, 40, Simin-daero 365beon-gil,
Dongan-gu, Anyang-si, Gyeonggi-do, 14057, Korea
Tel: +82-31-425-6200 / Fax: +82-31-424-0450
www.kes.co.kr

Report No.:

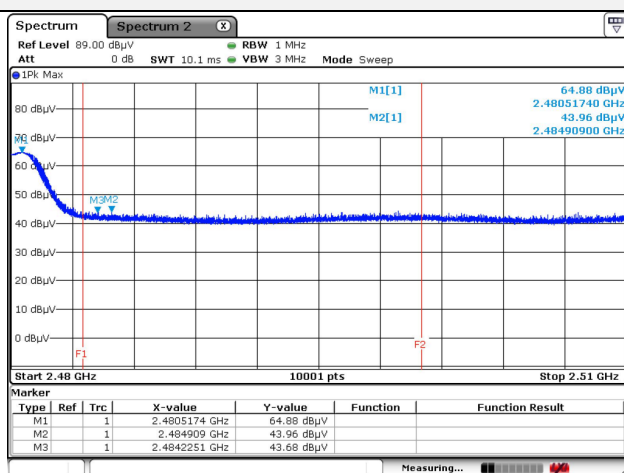
KES-RF1-21T0189

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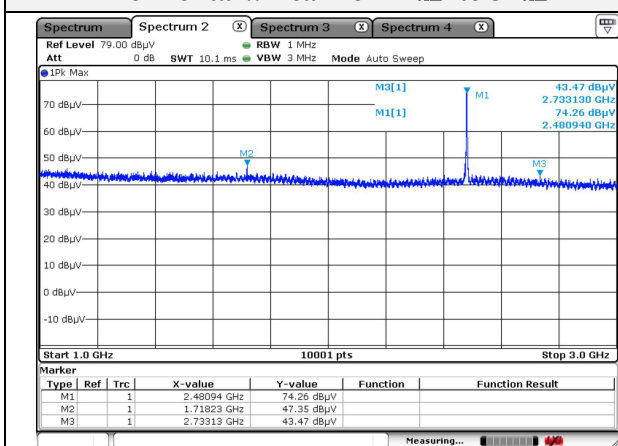
Restricted band // Horizontal // Peak



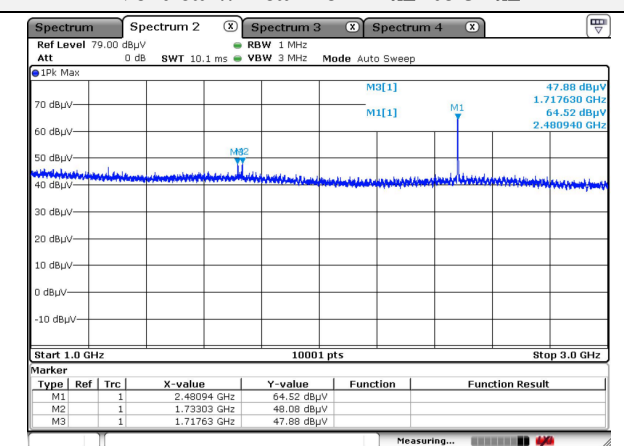
Restricted band // Vertical // Peak



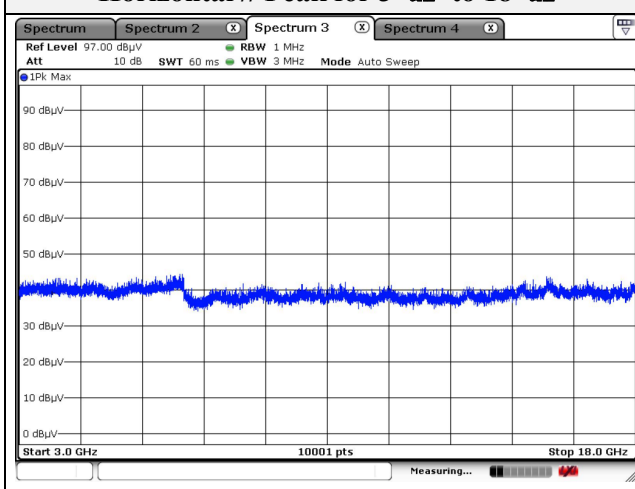
Horizontal // Peak for 1 GHz to 3 GHz



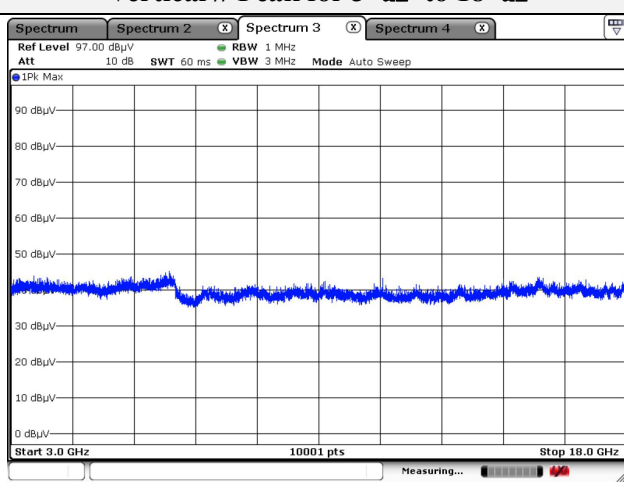
Vertical // Peak for 1 GHz to 3 GHz



Horizontal // Peak for 3 GHz to 18 GHz



Vertical // Peak for 3 GHz to 18 GHz



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.

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Report No.:

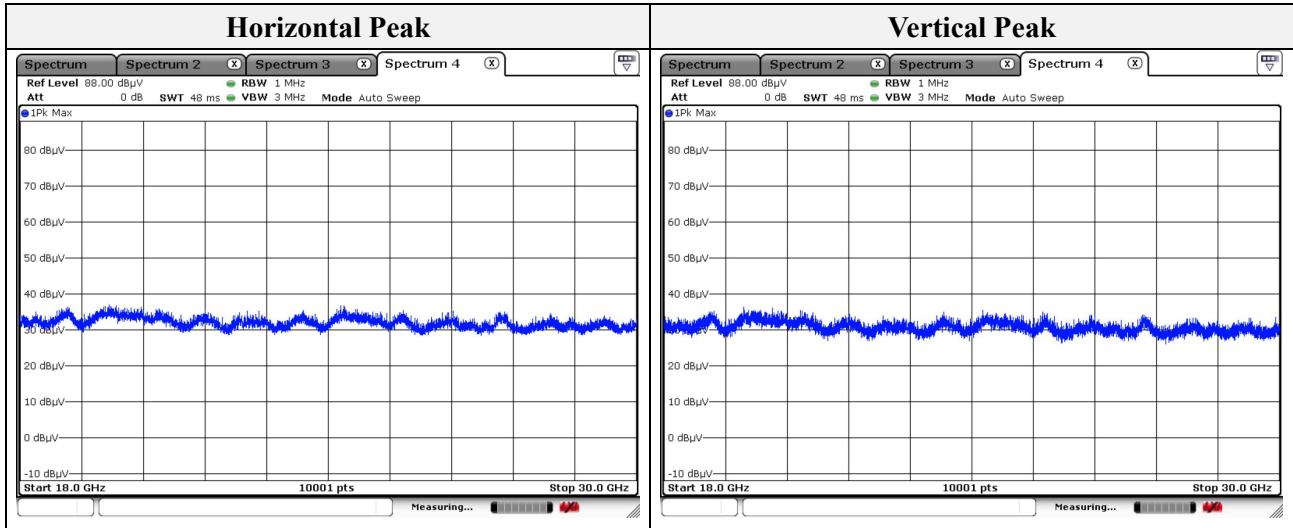
KES-RF1-21T0189

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Test results (18 GHz to 30 GHz) – Worst case

Mode: ZigBee

Distance of measurement: 3 meter



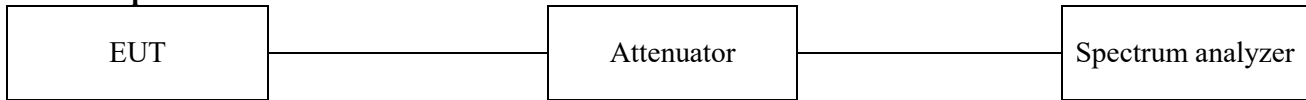
Note.

No spurious emission were detected above 18 GHz.

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3.5. Conducted spurious emissions & band edge

Test setup



Test procedure

Band edge

ANSI C63.10-2013 - Section 11.11

1. Start and stop frequency were set such that the band edge would be placed in the center of the plot
2. Span was set large enough so as to capture all out of band emissions near the band edge
3. Set the RBW = 100 kHz
4. Set the VBW = $[3 \times \text{RBW}]$.
5. Detector = Peak
6. Sweep time = auto
7. Trace mode = max hold
8. Allow trace to fully stabilize.

Out of band emissions

ANSI C63.10-2013 - Section 11.11

1. Start frequency was set to 30 MHz and stop frequency was set to 25 GHz for 2.4 GHz frequencies and 40 GHz for 5 GHz frequencies
2. Set the RBW = 100 kHz
3. Set the VBW = $[3 \times \text{RBW}]$.
4. Detector = Peak
5. Sweep time = auto
6. Trace mode = max hold
7. Allow trace to fully stabilize.

Limit

According to 15.247(d), in any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph(b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in section 15.209(a) is not required. In addition, radiated emission which in the restricted band, as define in section 15.205(a), must also comply the radiated emission limits specified in section 15.209(a) (see section 15.205(c))