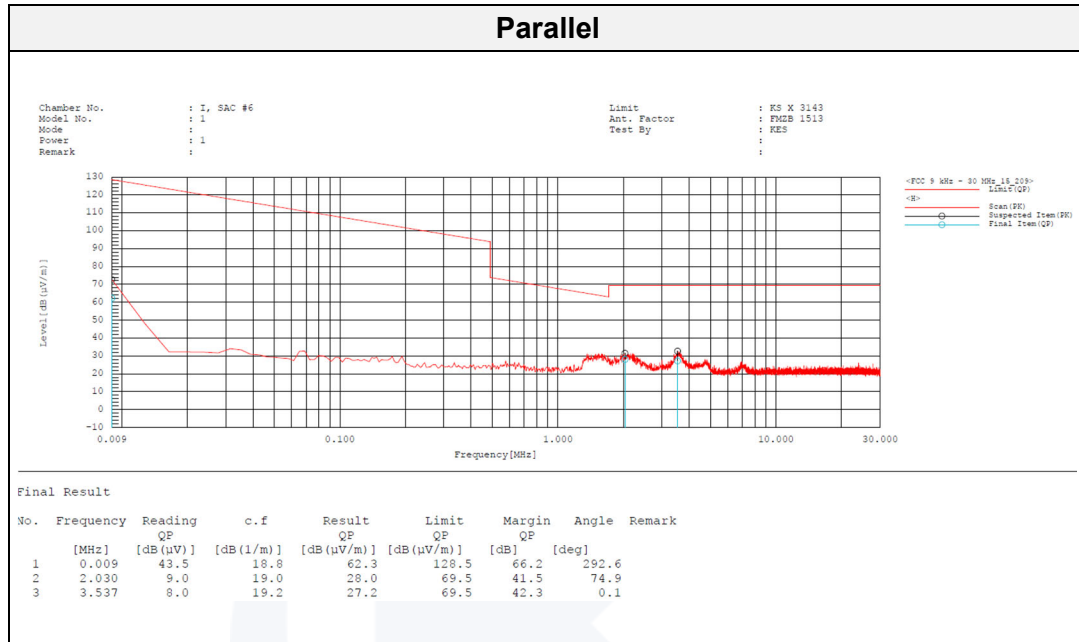




Report No. : KES-RF240308

**Test results (Below 30 MHz)**

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

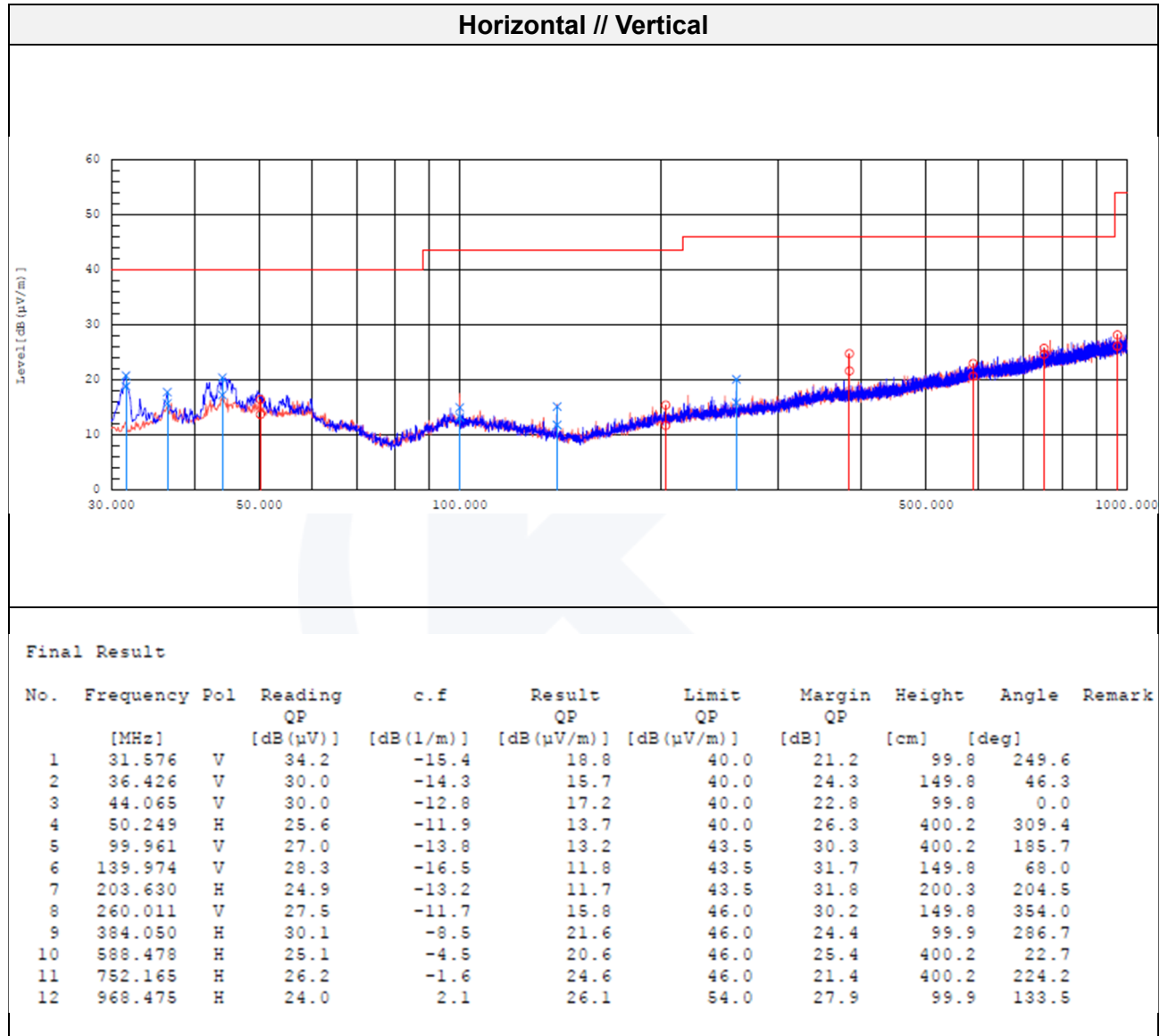


**Test results (Below 1 000 MHz)**

Mode: LE 1 Mbps

Distance of measurement: 3 meter

Channel: 39 (Worst case)



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

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

**- Spurious**

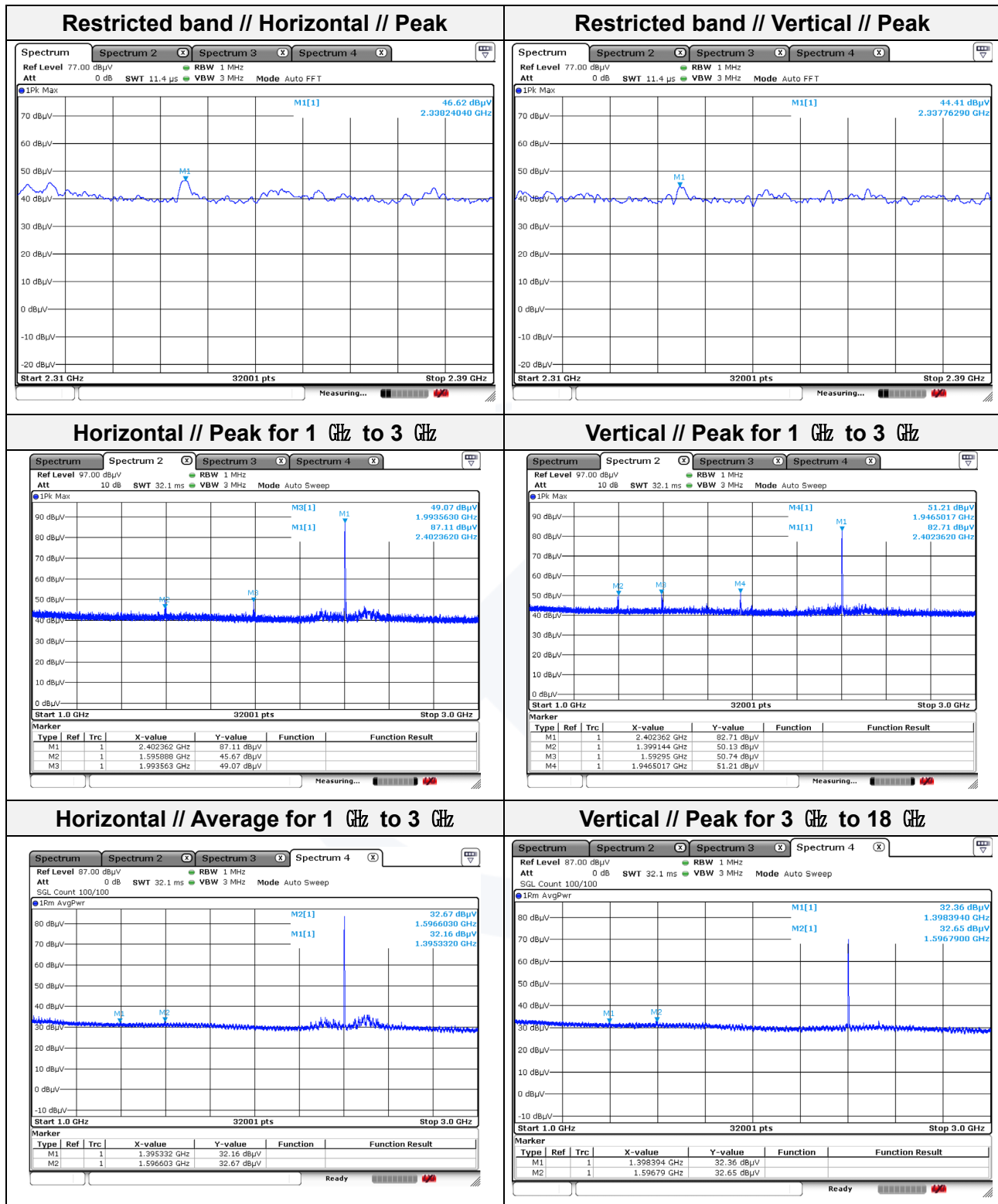
Frequency (MHz)	Level (dBμV)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dBμV/m)	Limit (dBμV/m)	Margin (dB)
1 399.14	50.13	Peak	V	-6.91	-	43.22	74.00	30.78
1 592.95	50.74	Peak	V	-5.41	-	45.33	74.00	28.67
1 595.89	45.67	Peak	H	-5.38	-	40.29	74.00	33.71
1 946.50	51.21	Peak	V	-1.85	-	49.36	74.00	24.64
1 993.56	49.07	Peak	H	-1.35	-	47.72	74.00	26.28
4 803.93	48.21	Peak	V	6.31	-	54.52	74.00	19.48
4 804.40	42.88	Average	V	6.31	2.02	51.21	54.00	2.79
4 804.87	52.00	Peak	H	6.32	-	58.32	74.00	15.68
4 804.40	44.45	Average	H	6.31	2.02	52.78	54.00	1.22
7 205.73	35.04	Average	H	12.42	2.02	49.48	54.00	4.52
7 206.20	40.70	Peak	V	12.42	-	53.12	74.00	20.88
7 207.13	43.94	Peak	H	12.42	-	56.36	74.00	17.64

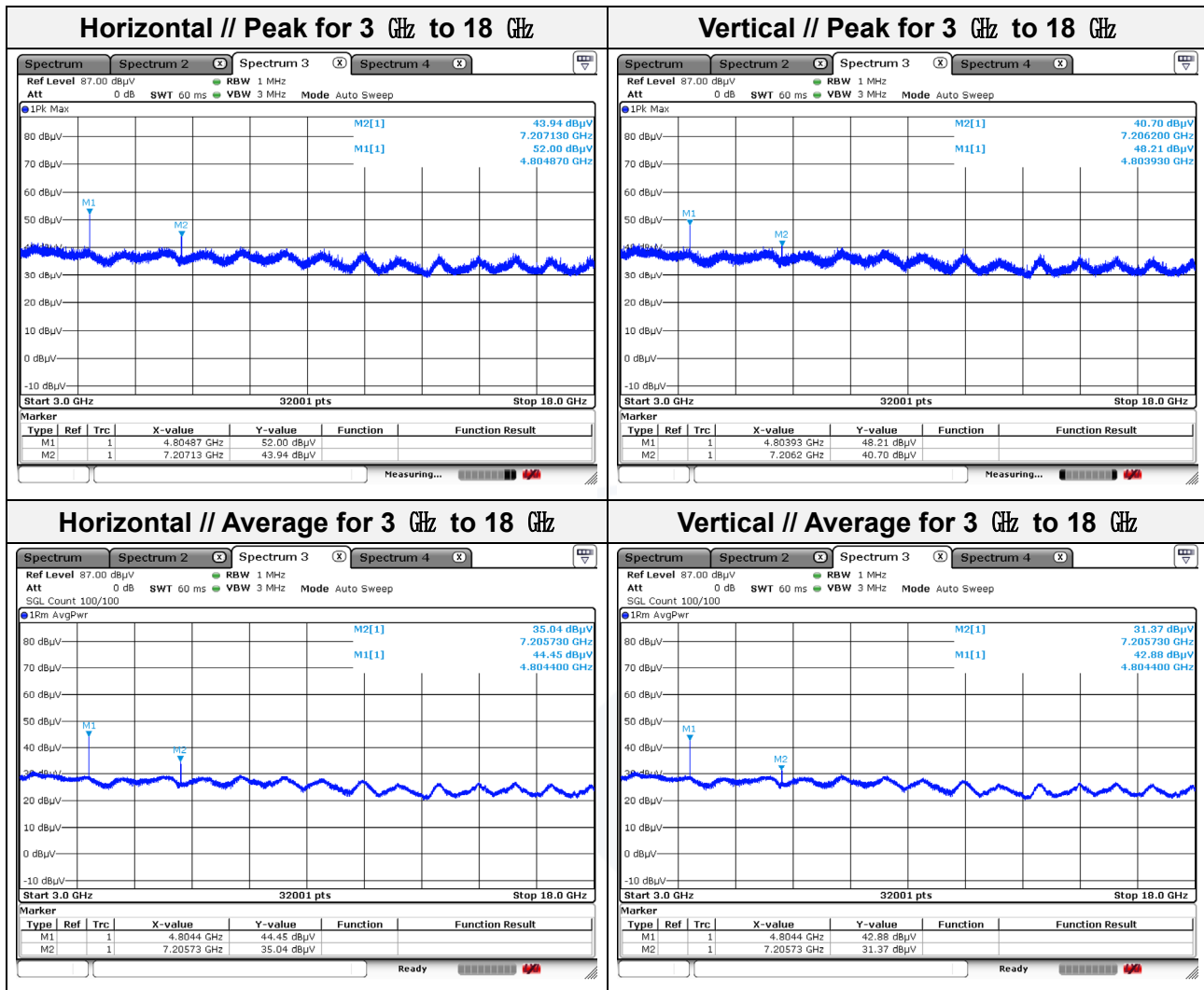
**- Band edge**

Frequency (MHz)	Level (dBμV)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dBμV/m)	Limit (dBμV/m)	Margin (dB)
2 337.76	44.41	Peak	V	-0.52	-	43.89	74.00	30.11
2 338.24	46.62	Peak	H	-0.51	-	46.11	74.00	27.89



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Note.

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



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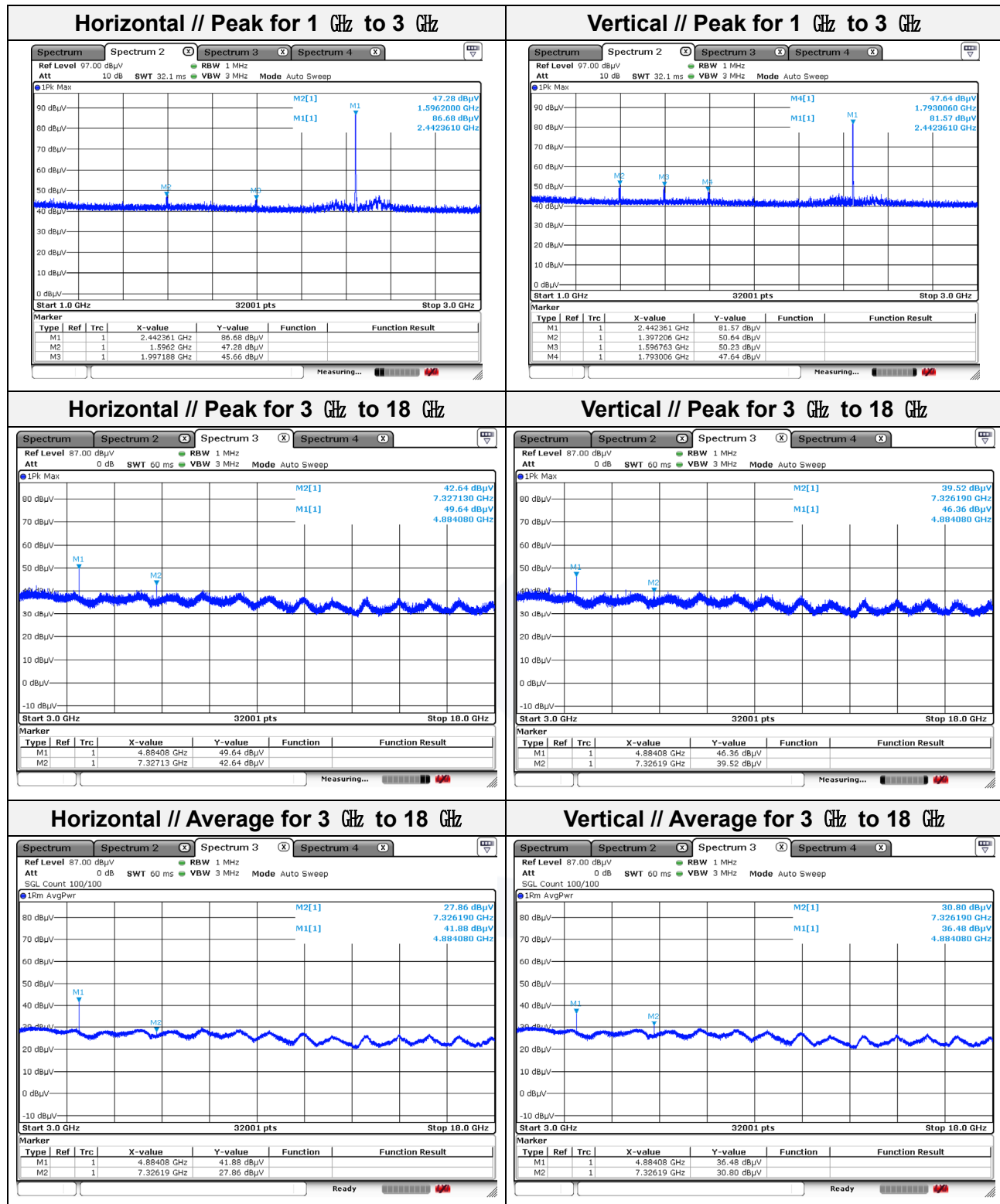
Mode: LE 1 Mbps  
Distance of measurement: 3 meter  
Channel: 20

**- 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)
1 397.21	50.64	Peak	V	-6.92	-	43.72	74.00	30.28
1 596.20	47.28	Peak	H	-5.38	-	41.90	74.00	32.10
1 596.76	50.23	Peak	V	-5.37	-	44.86	74.00	29.14
1 793.01	47.64	Peak	V	-3.49	-	44.15	74.00	29.85
1 997.19	45.66	Peak	H	-1.31	-	44.35	74.00	29.65
4 884.08	49.64	Peak	H	6.90	-	56.54	74.00	17.46
4 884.08	41.88	Average	H	6.90	2.02	50.80	54.00	3.20
4 884.08	46.36	Peak	V	6.90	-	53.26	74.00	20.74
4 884.08	36.48	Average	V	6.90	2.02	45.40	54.00	8.60
7 326.19	39.52	Peak	V	12.85	-	52.37	74.00	21.63
7 326.19	27.86	Average	H	12.85	2.02	42.73	54.00	11.27
7 327.13	42.64	Peak	H	12.86	-	55.50	74.00	18.50



Report No. : KES-RF240308



Note.

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



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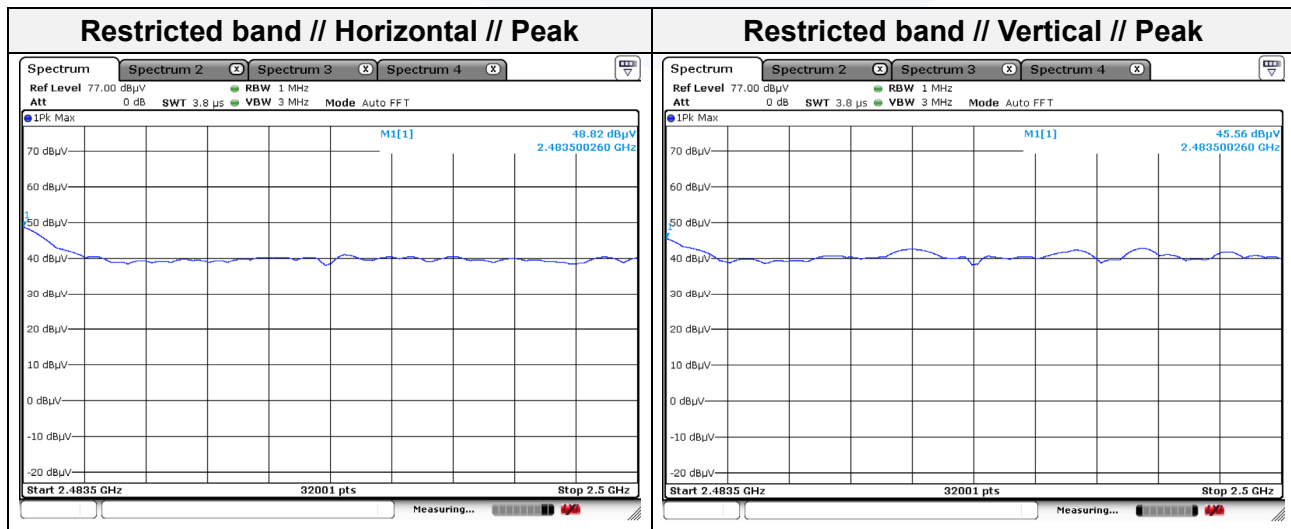
Mode: LE 1 Mbps  
Distance of measurement: 3 meter  
Channel: 39

**- Spurious**

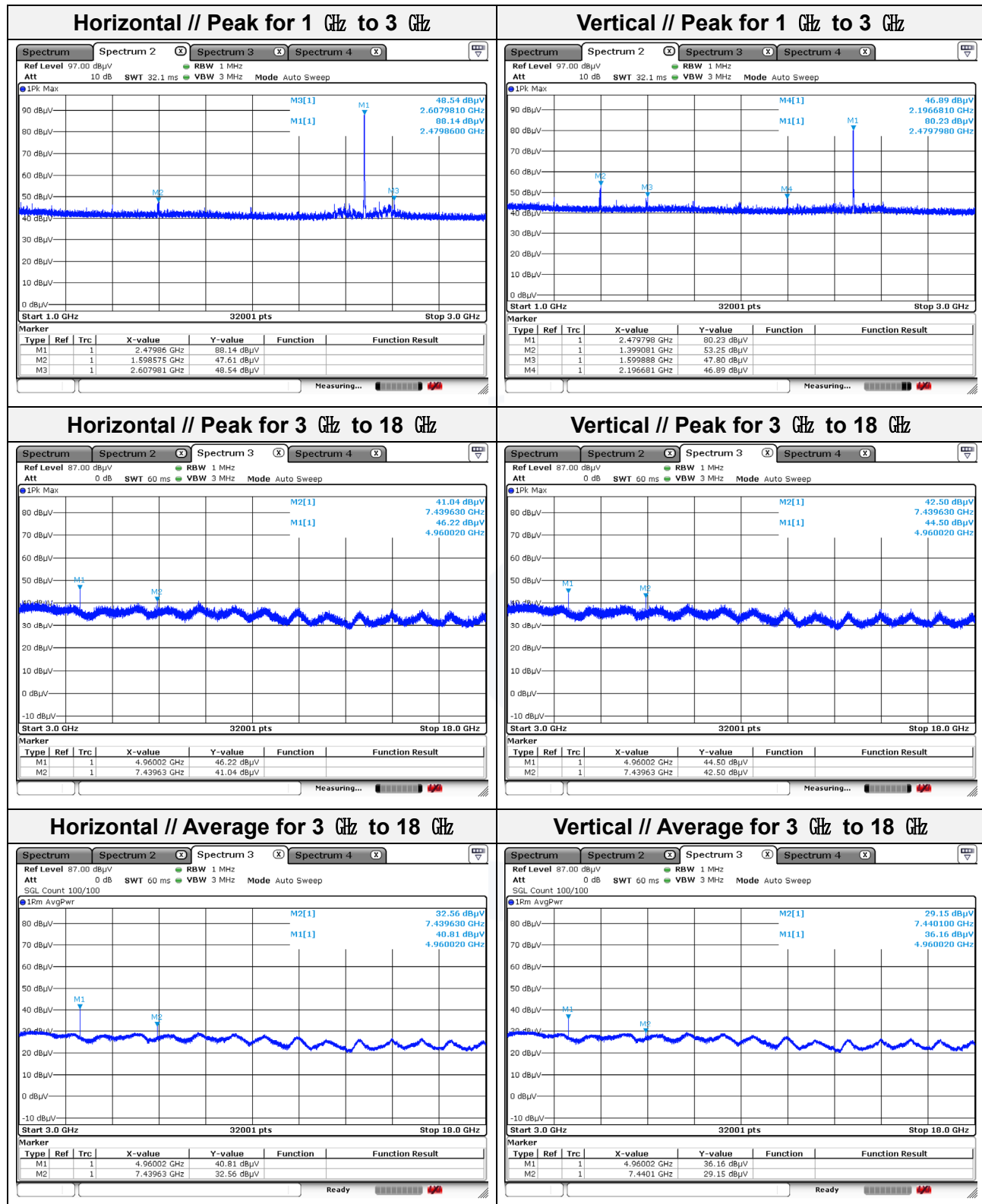
Frequency (MHz)	Level (dB $\mu$ V)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)
1 399.08	53.25	Peak	V	-6.91	-	46.34	74.00	27.66
1 598.58	47.61	Peak	H	-5.36	-	42.25	74.00	31.75
1 599.89	47.80	Peak	V	-5.34	-	42.46	74.00	31.54
2 196.68	46.89	Peak	V	-0.97	-	45.92	74.00	28.08
2 607.98	48.54	Peak	H	-0.02	-	48.52	74.00	25.48
4 960.02	46.22	Peak	H	7.46	-	53.68	74.00	20.32
4 960.02	44.50	Peak	V	7.46	-	51.96	74.00	22.04
7 439.63	41.04	Peak	H	13.41	-	54.45	74.00	19.55
7 439.63	32.56	Average	H	13.41	2.02	47.99	54.00	6.01
7 439.63	42.50	Peak	V	13.41	-	55.91	74.00	18.09
7 440.10	29.15	Average	V	13.41	2.02	44.58	54.00	9.42

**- 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)
2 483.50	45.56	Peak	V	-0.27	-	45.29	74.00	28.71
2 483.50	48.82	Peak	H	-0.27	-	48.55	74.00	25.45







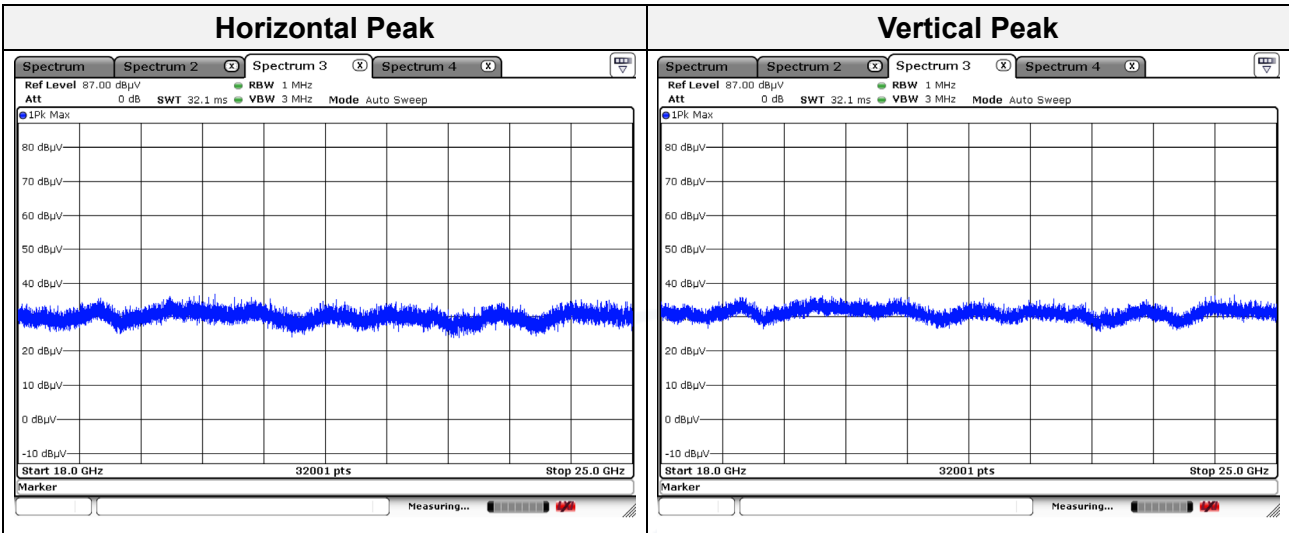
Note.

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



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

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

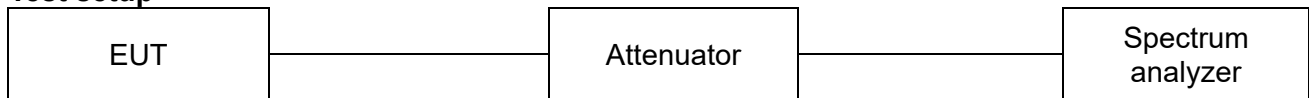


Note.  
No spurious emission were detected above 18 GHz.



### 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.

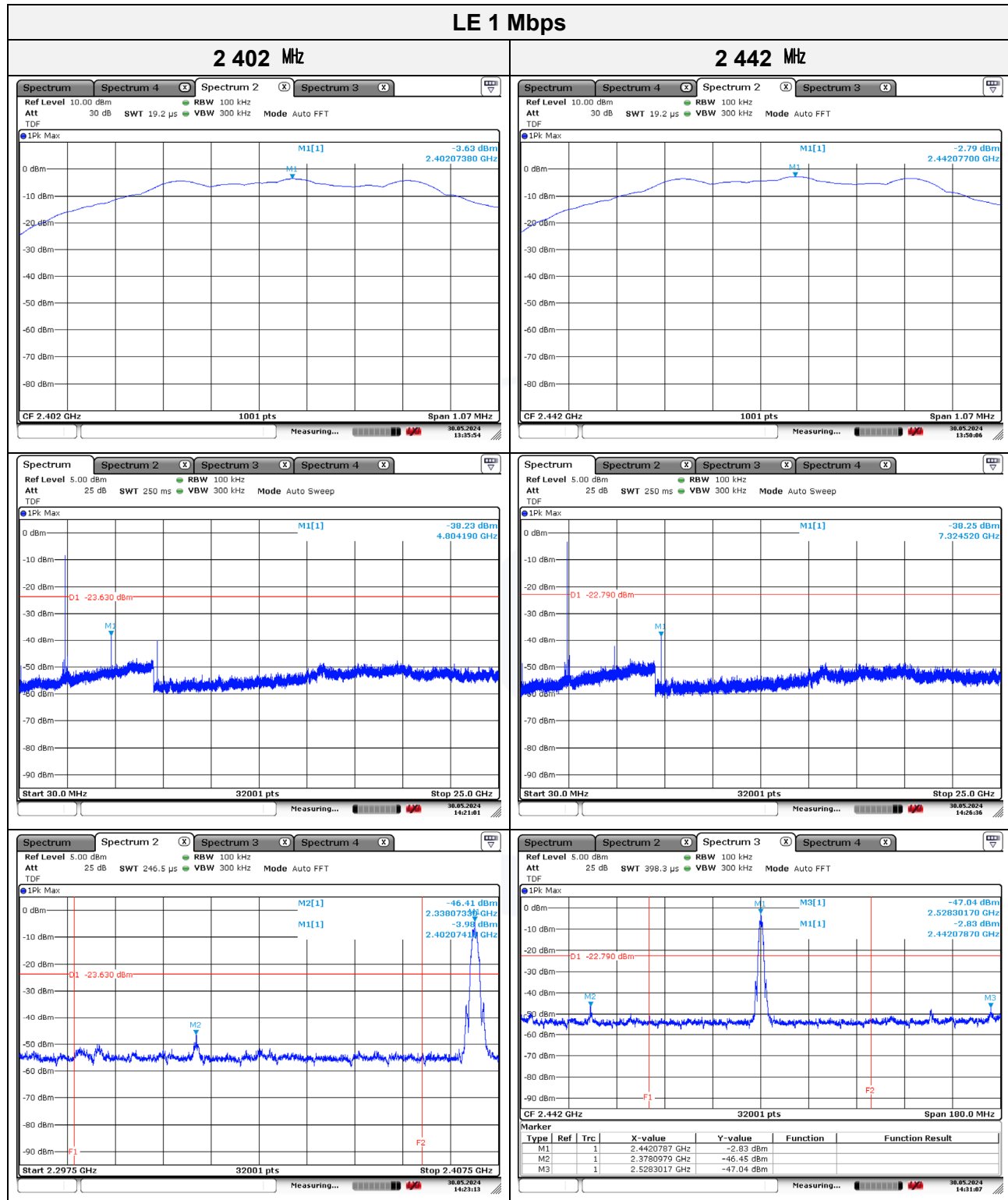
**Limit**

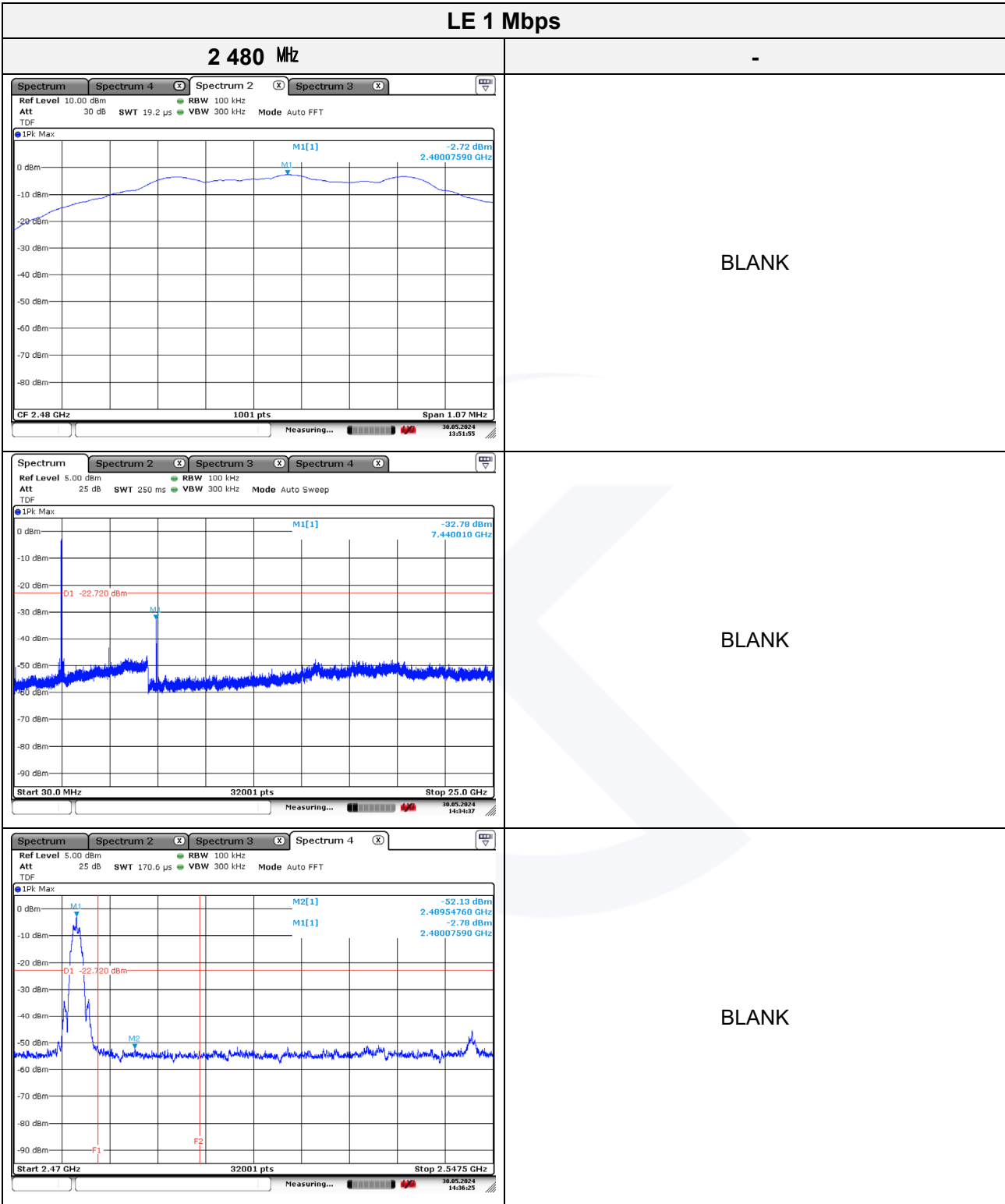
According to 15.247(d), in any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within 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))





## Test results







### 3.6. Antenna Requirement

According to 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 use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of Sections 15.211, 15.213, 15.217, 15.219, or 15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with Section 15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this Part are not exceeded.

**Appendix A. Measurement equipment**

Equipment	Manufacturer	Model	Serial No.	Calibration interval	Calibration due.
SPECTRUM ANALYZER	R&S	FSV40	101002	1 year	2025.12.06
SIGNAL GENERATOR	KEYSIGHT	N5182B	MY59100115	1 year	2025.04.15
SIGNAL GENERATOR	Anritsu	68369B	992113	1 year	2025.01.11
Power Meter	Anritsu	ML2495A	1438001	1 year	2025.01.11
Pulse Power Sensor	Anritsu	MA2411B	1339205	1 year	2025.01.11
Attenuator	KEYSIGHT	8493C	82506	1 year	2025.01.15
Loop Antenna	Schwarzbeck	FMZB1513	1513-257	2 years	2025.03.22
BILOG ANTENNA	Schwarzbeck	VULB 9163	714	2 years	2026.04.19
DC POWER SUPPLY	EXTENDED	EX-1500H2	405410100030	1 year	2025.01.11
Attenuator	KEYSIGHT	NONE	NONE	1 year	2025.02.13
Horn Antenna	A.H.	SAS-571	414	1 year	2025.01.16
Horn Antenna	SCHWARZBECK	BBHA9170	BBHA 9170550	1 year	2025.01.16
Amplifier	SONOMA INSTRUMENT	310N	401123	1 year	2025.02.13
PREAMPLIFIER	HP	8449B	3008A00538	1 year	2025.04.30
BROADBAND AMPLIFIER	SCHWARZBECK	BBV9721	PS9721-003	1 year	2025.01.15

\* Statement of Traceability: KES Co., Ltd. attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

**Peripheral devices**

Device	Manufacturer	Model No.	Serial No.
Notebook computer	LG Electronics Inc.,	15U480	901QCCV558723

**The end of test report**