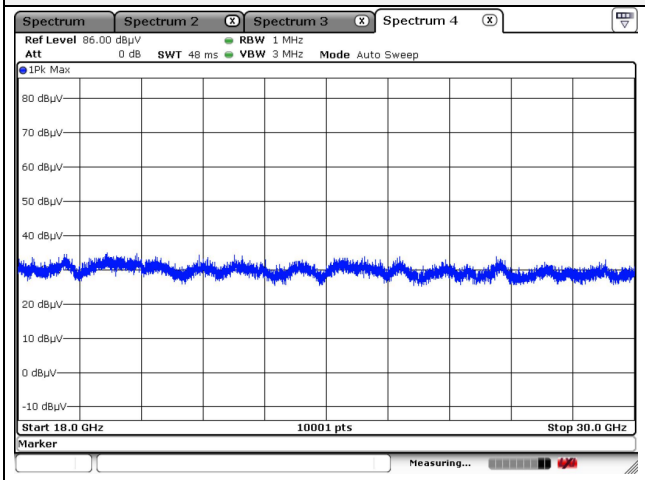
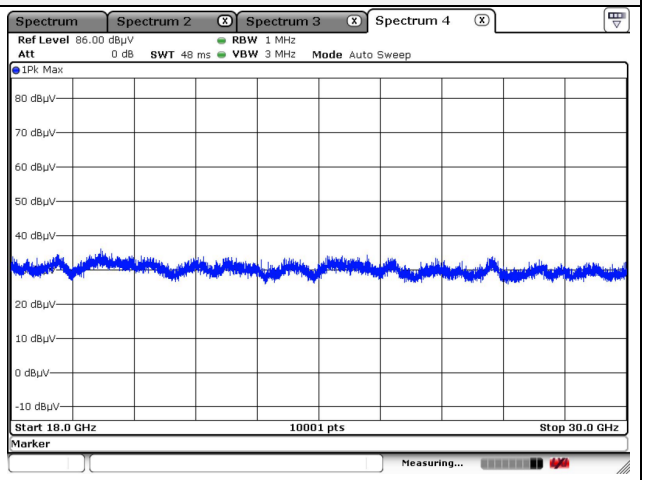
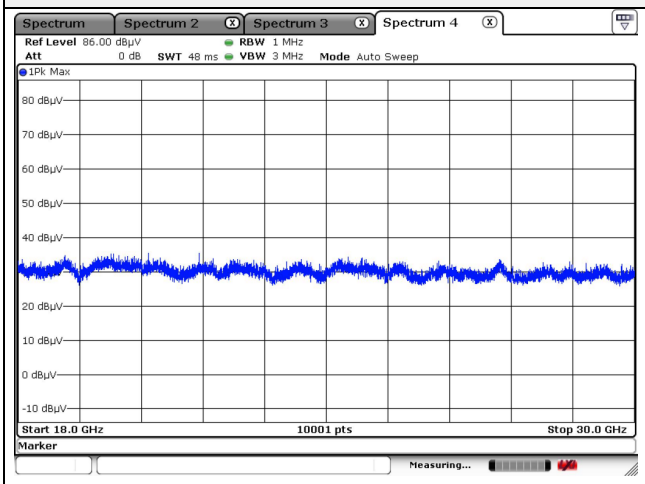
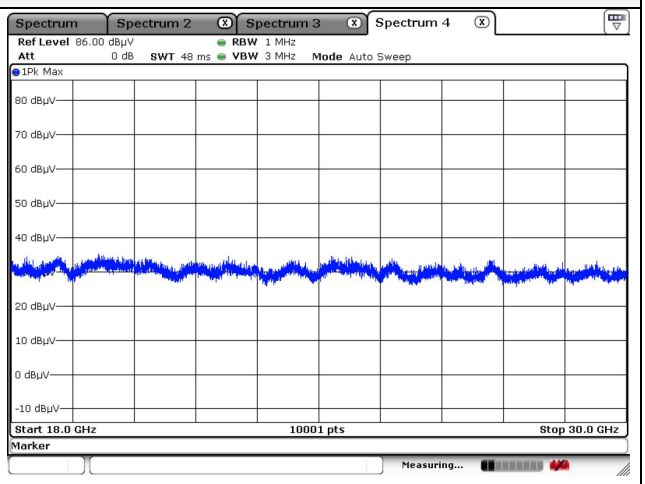
Test results (18 ㎓ to 30 ㎓) – Worst case

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

Horizontal Peak	Vertical Peak
	

Note.
No spurious emission were detected above 18 ㎓.

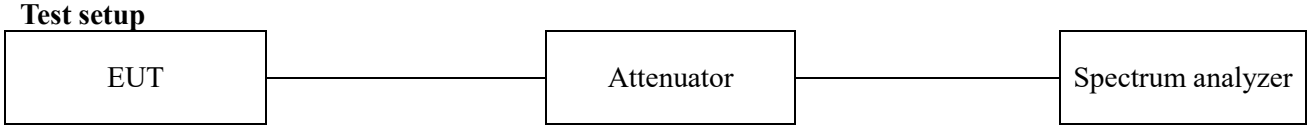
Mode:	ANT+
Distance of measurement:	3 meter
Channel:	00

Horizontal Peak	Vertical Peak
	

Note.
No spurious emission were detected above 18 ㎓.

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 ㎑
4. Set the VBW = [3 × RBW].
5. Detector = Peak
6. Sweep time = auto
7. Trace mode = max hold
8. Allow trace to fully stabilize.

Out of band emissions

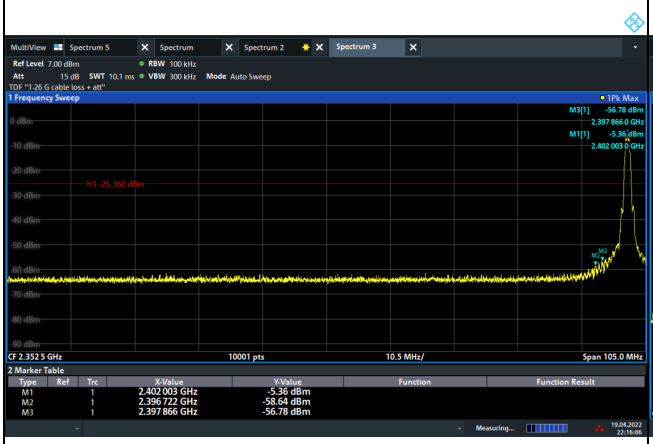
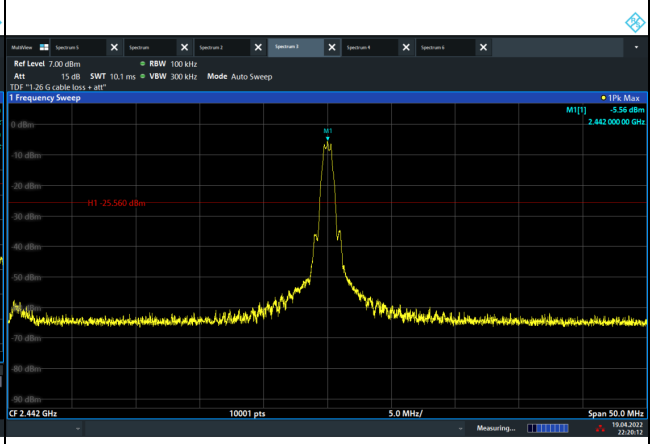
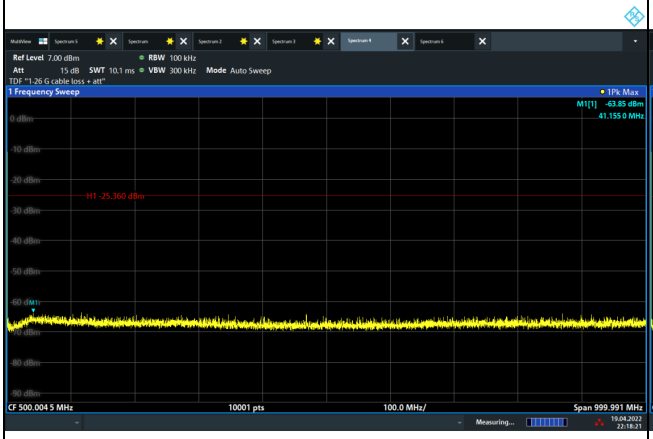
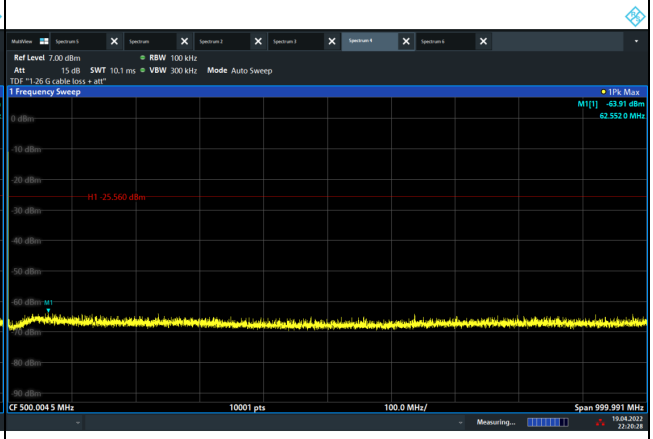
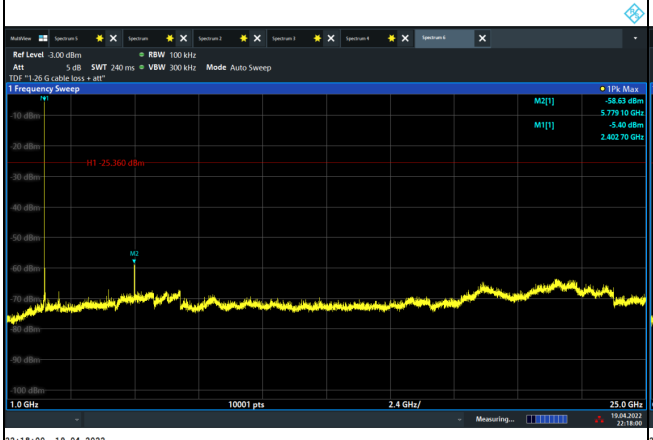
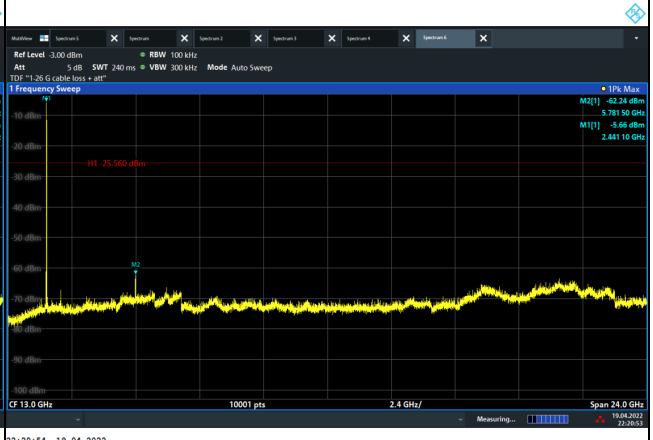
ANSI C63.10-2013 - Section 11.11

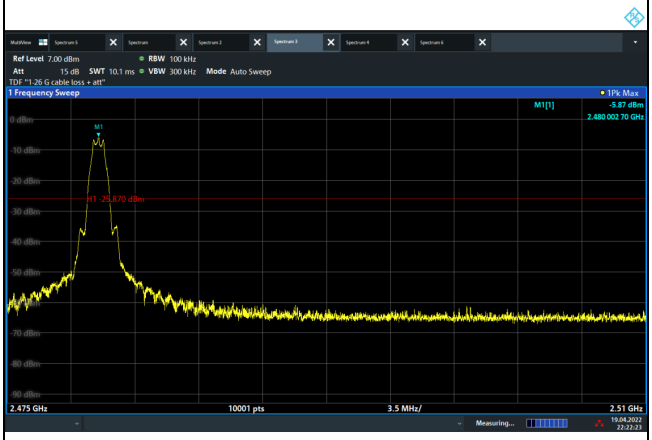
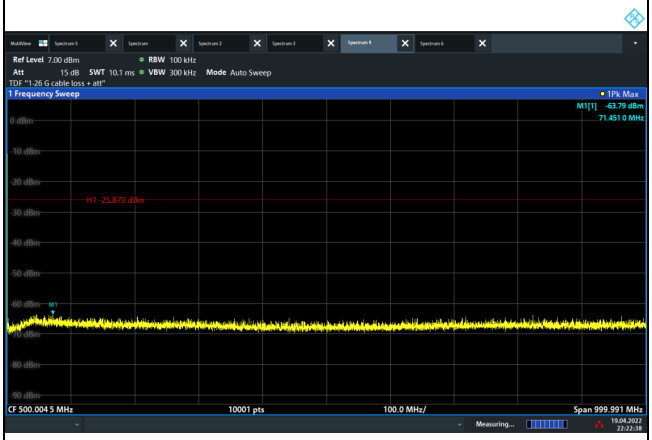
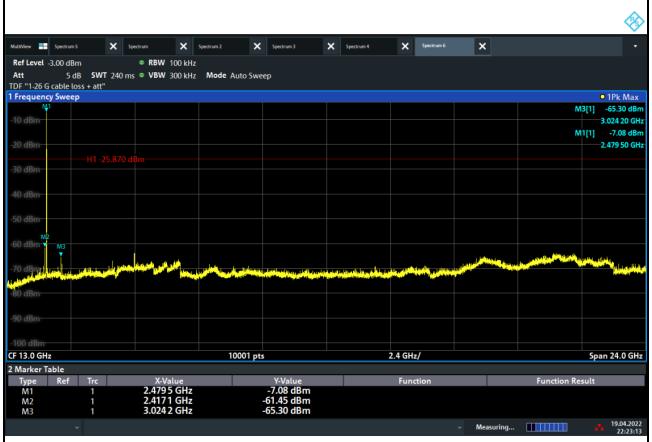
1. Start frequency was set to 30 ㎒ and stop frequency was set to 25 ㎓ for 2.4 ㎓ frequencies and 40 ㎓ for 5 ㎓ frequencies
2. Set the RBW = 100 ㎑
3. Set the VBW = [3 × RBW].
4. Detector = Peak
5. Sweep time = auto
6. Trace mode = max hold
7. Allow trace to fully stabilize.

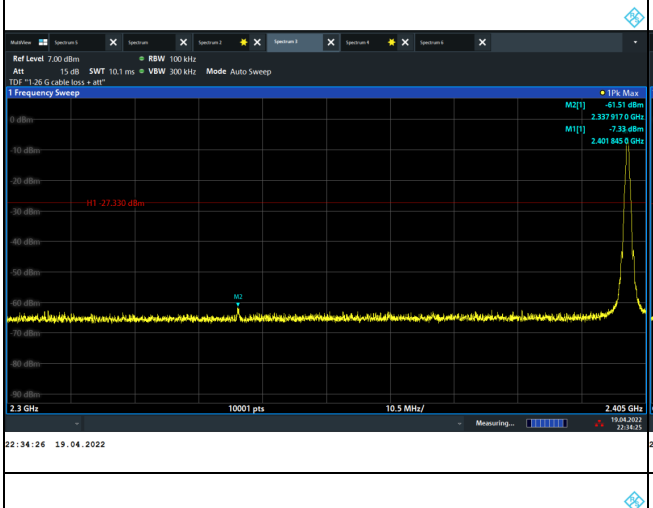
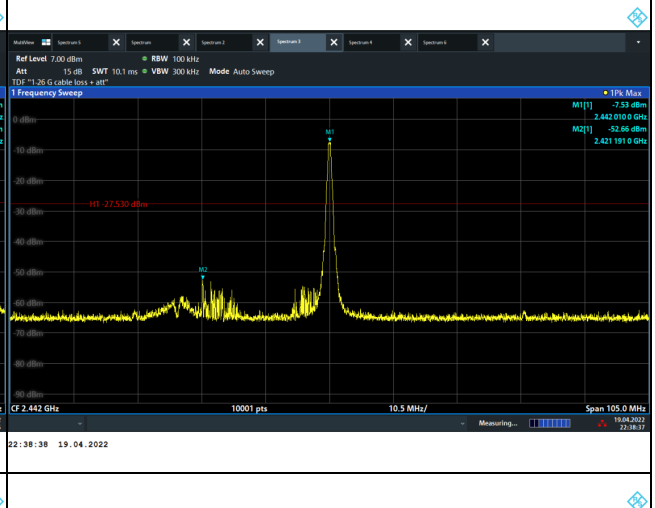
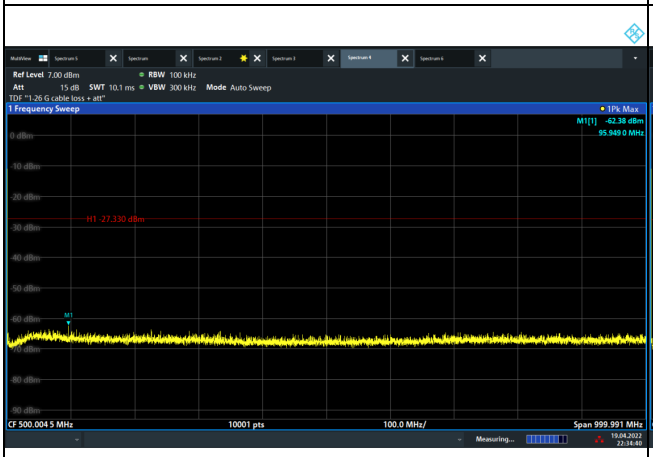
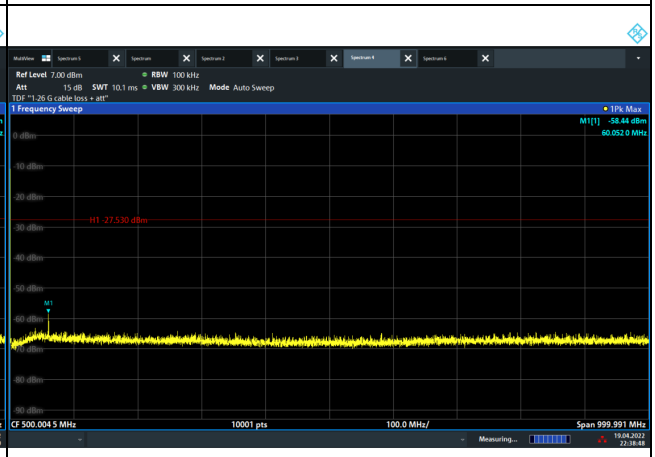
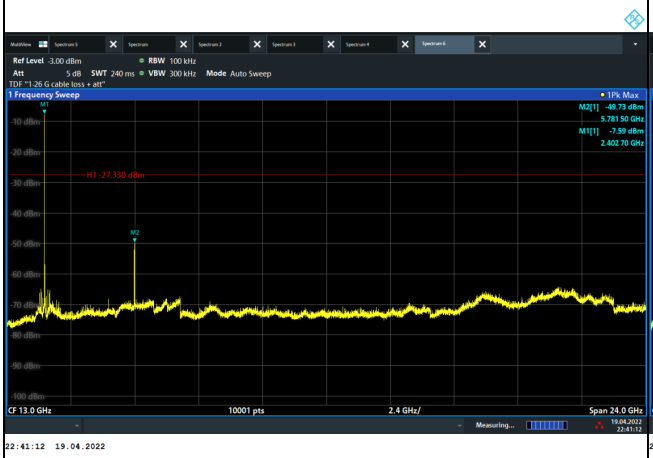
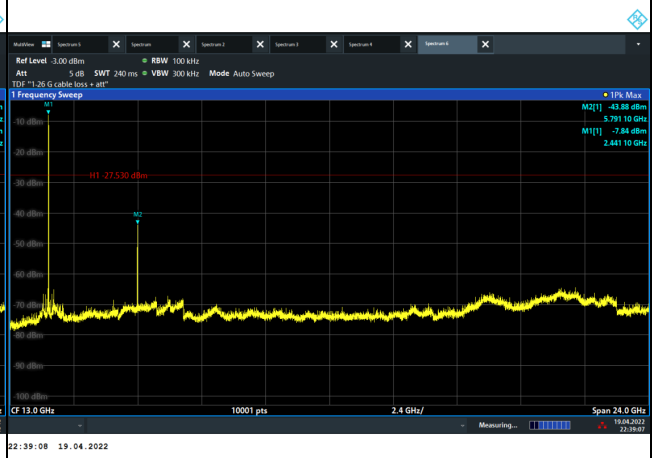
Limit

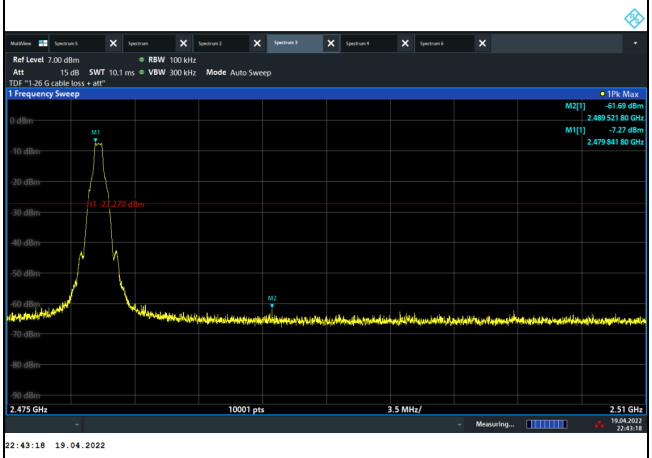
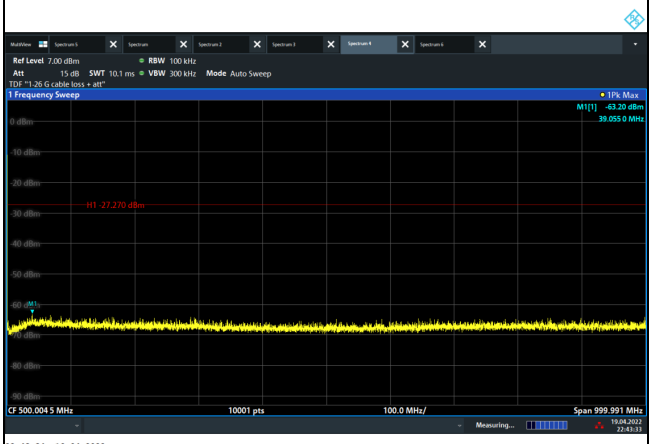
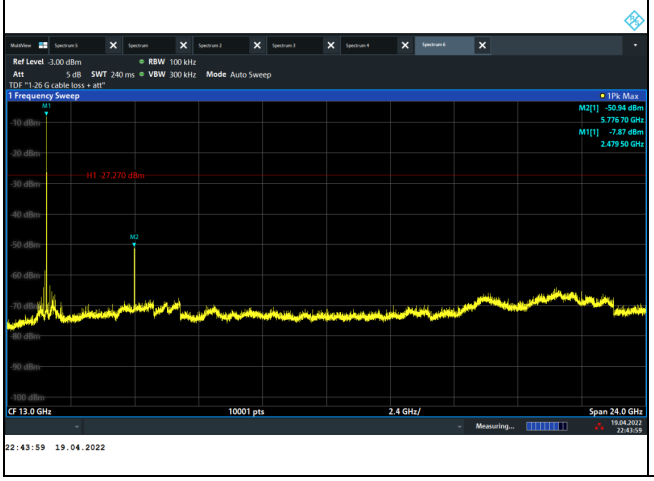
According to 15.247(d), in any 100 ㎑ bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 ㏈ below that in the 100 ㎑ bandwidth within the band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

LE 1 Mbps	
2 402 ㎒	2 442 ㎒
	
	
	

LE 1 Mbps	
2 480 MHz	-
	N/A
	N/A
	N/A

ANT+	
2 402 MHz	2 442 MHz
	
	
	

ANT+	
2 480 MHz	-
	N/A
	N/A
	N/A

3.6. AC conducted emissions

Limit

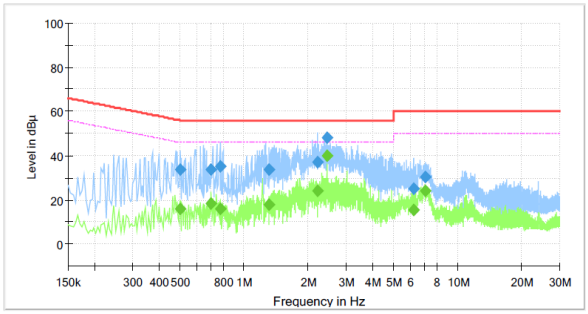
According to 15.207(a), for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 ㎑ to 30 ㎒, shall not exceed the limits in the following 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

Test results

Mode: LE 1 Mbps

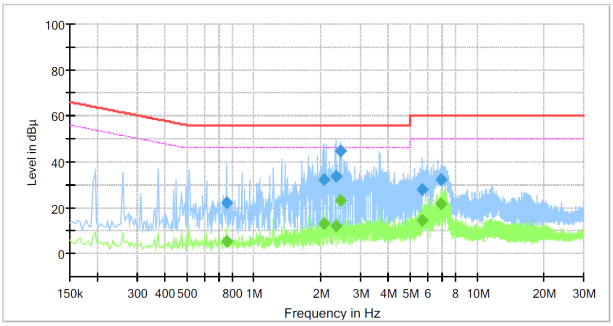
Hot Line



Final_Result

Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.502000	---	15.98	46.00	30.02	1000.0	9.000	L1	19.9
0.502000	33.68	---	56.00	22.32	1000.0	9.000	L1	19.9
0.702000	---	18.45	46.00	27.55	1000.0	9.000	L1	20.1
0.702000	33.53	---	56.00	22.47	1000.0	9.000	L1	20.1
0.778000	---	15.86	46.00	30.14	1000.0	9.000	L1	20.1
0.778000	35.20	---	56.00	20.80	1000.0	9.000	L1	20.1
1.306000	33.69	---	56.00	22.31	1000.0	9.000	L1	20.3
1.306000	---	17.75	46.00	28.25	1000.0	9.000	L1	20.3
2.206000	---	23.97	46.00	22.03	1000.0	9.000	L1	20.5
2.206000	37.14	---	56.00	18.86	1000.0	9.000	L1	20.5
2.438000	48.24	---	56.00	7.76	1000.0	9.000	L1	20.5
2.438000	---	39.96	46.00	6.04	1000.0	9.000	L1	20.5
6.194000	---	15.41	50.00	34.59	1000.0	9.000	L1	19.8
6.194000	25.10	---	60.00	34.90	1000.0	9.000	L1	19.8
7.046000	---	23.93	50.00	26.07	1000.0	9.000	L1	19.8
7.046000	30.58	---	60.00	29.42	1000.0	9.000	L1	19.8

Neutral Line

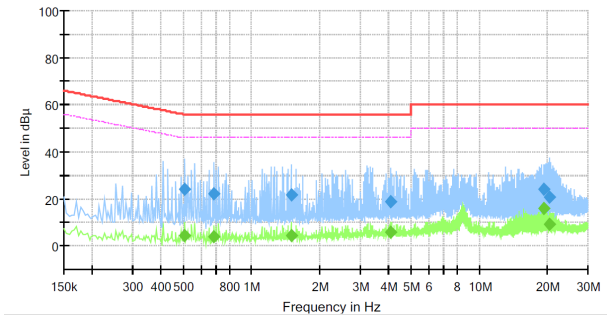


Final_Result

Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.754000	22.19	---	56.00	33.81	1000.0	9.000	N	20.1
0.754000	---	5.56	46.00	40.44	1000.0	9.000	N	20.1
2.070000	---	13.26	46.00	32.74	1000.0	9.000	N	20.5
2.070000	32.11	---	56.00	23.89	1000.0	9.000	N	20.5
2.338000	---	12.06	46.00	33.94	1000.0	9.000	N	20.4
2.338000	33.84	---	56.00	22.16	1000.0	9.000	N	20.4
2.442000	---	23.03	46.00	22.97	1000.0	9.000	N	20.4
2.442000	44.87	---	56.00	11.13	1000.0	9.000	N	20.4
5.682000	---	14.70	50.00	35.30	1000.0	9.000	N	19.8
5.682000	28.05	---	60.00	31.95	1000.0	9.000	N	19.8
6.934000	---	21.84	50.00	28.16	1000.0	9.000	N	19.8
6.934000	32.22	---	60.00	27.78	1000.0	9.000	N	19.8

Mode: ANT+

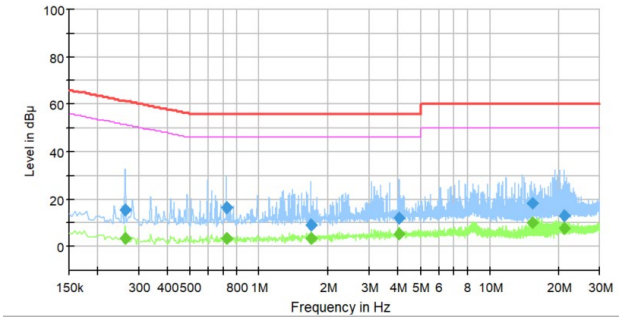
Hot Line



Final_Result

Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.510000	24.14	---	56.00	31.86	1000.0	9.000	L1	19.9
0.510000	---	4.19	46.00	41.81	1000.0	9.000	L1	19.9
0.686000	---	3.77	46.00	42.23	1000.0	9.000	L1	20.1
0.686000	21.98	---	56.00	34.02	1000.0	9.000	L1	20.1
1.494000	---	4.36	46.00	41.64	1000.0	9.000	L1	20.4
1.494000	21.91	---	56.00	34.09	1000.0	9.000	L1	20.4
4.094000	---	5.65	46.00	40.35	1000.0	9.000	L1	20.1
4.094000	18.70	---	56.00	37.30	1000.0	9.000	L1	20.1
19.258000	---	16.12	50.00	33.88	1000.0	9.000	L1	20.8
19.258000	23.89	---	60.00	36.11	1000.0	9.000	L1	20.8
20.446000	---	9.25	50.00	40.75	1000.0	9.000	L1	20.9
20.446000	20.93	---	60.00	39.07	1000.0	9.000	L1	20.9

Neutral Line



Final_Result

Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.262000	15.24	---	61.37	46.13	1000.0	9.000	N	19.6
0.262000	---	3.63	51.37	47.74	1000.0	9.000	N	19.6
0.722000	---	3.29	46.00	42.71	1000.0	9.000	N	20.0
0.722000	16.20	---	56.00	39.80	1000.0	9.000	N	20.0
1.678000	9.31	---	56.00	46.69	1000.0	9.000	N	20.4
1.678000	---	3.61	46.00	42.39	1000.0	9.000	N	20.4
4.058000	---	5.26	46.00	40.74	1000.0	9.000	N	20.1
4.058000	12.12	---	56.00	43.88	1000.0	9.000	N	20.1
15.294000	18.47	---	60.00	41.53	1000.0	9.000	N	20.4
15.294000	---	10.36	50.00	39.64	1000.0	9.000	N	20.4
21.118000	13.19	---	60.00	46.81	1000.0	9.000	N	20.9
21.118000	---	7.85	50.00	42.15	1000.0	9.000	N	20.9

Appendix A. Measurement equipment

Equipment	Manufacturer	Model	Serial No.	Calibration interval	Calibration due.
Spectrum Analyzer	R&S	FSV40	101725	1 year	2022.06.18
Spectrum Analyzer	R&S	FSV3044	101272	1 year	2023.03.14
SIGNAL GENERATOR	KEYSIGHT	N5182B	MY59100115	1 year	2022.04.29
SIGNAL GENERATOR	Anritsu	68369B	002118	1 year	2022.05.17
Power Meter	Anritsu	ML2495A	2010001	1 year	2022.04.29
Pulse Power Sensor	Anritsu	MA2411B	1911111	1 year	2022.04.29
Attenuator	Mini-Circuits	BW-S10-2W263+	3	1 year	2023.01.17
Attenuator	HUBER+SUHNER	6806.17.A	-	1 year	2022.11.02
Loop Antenna	Schwarzbeck	FMZB1513	225	2 years	2023.01.18
BILOG ANTENNA	Schwarzbeck	VULB 9168	9168-461	2 years	2022.12.22
Horn Antenna	A.H	SAS-571	414	1 year	2023.01.18
Horn Antenna	SCHWARZBECK	BBHA9170	BBHA 9170550	1 year	2023.01.18
Amplifier	SONOMA INSTRUMENT	310N	401123	1 year	2022.06.07
PREAMPLIFIER	HP	8449B	3008A00538	1 year	2022.06.21
BROADBAND AMPLIFIER	SCHWARZBECK	BBV9721	PS9721-003	1 year	2023.01.17
DC POWER SUPPLY	AGILENT	6632B	MY43004090	1 year	2022.06.21
EMI Test Receiver	R&S	ESU26	100552	1 year	2023.03.31
LISN	ENV216	R & S	101787	1 year	2022.12.27
EMI TEST RECEIVER	ESR3	R & S	101783	1 year	2022.12.28
PULSE LIMITER	ESH3-Z2	R & S	101915	1 year	2022.12.27

Peripheral devices

Device	Manufacturer	Model No.	Serial No.
Notebook computer	LG Electronics Inc.,	LGS53	306QCZP560949