

KCTL Inc.

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TEL: 82-31-285-0894 FAX: 82-505-299-8311
www.kctl.co.kr

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KR18-SRF0124-A
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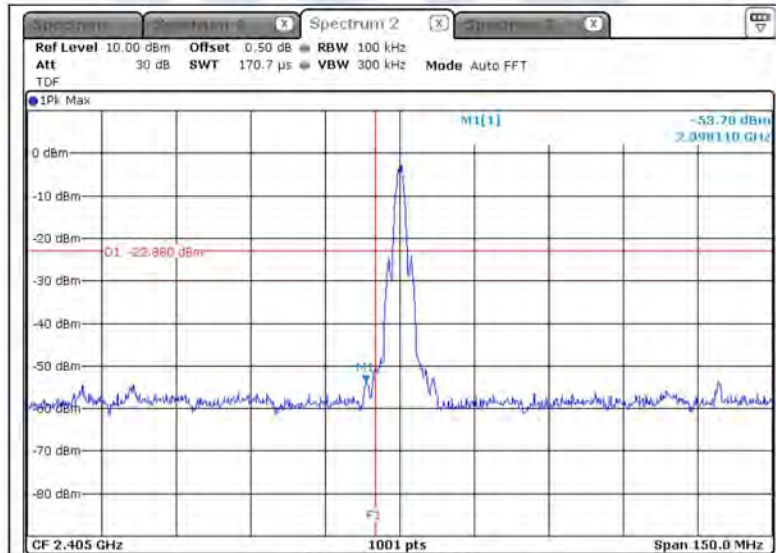
-Ant 3

Lowest Channel (2 405 MHz)

Reference



Band-edge



- Result of 2 400.0 MHz

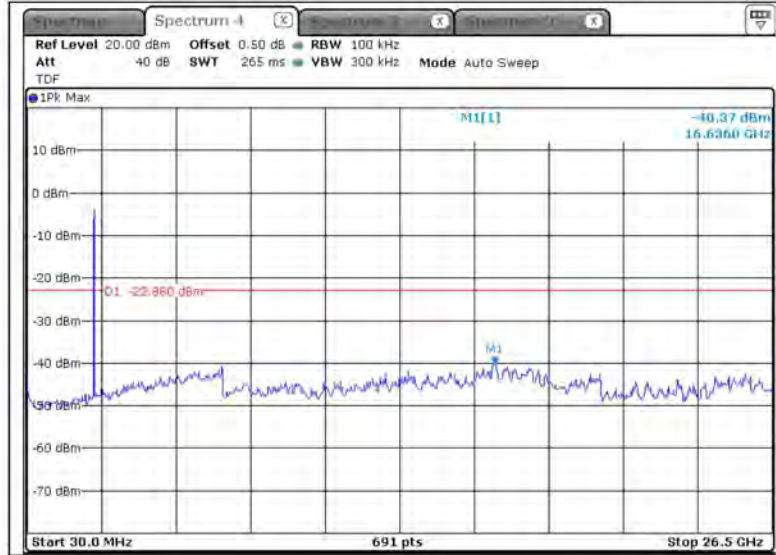
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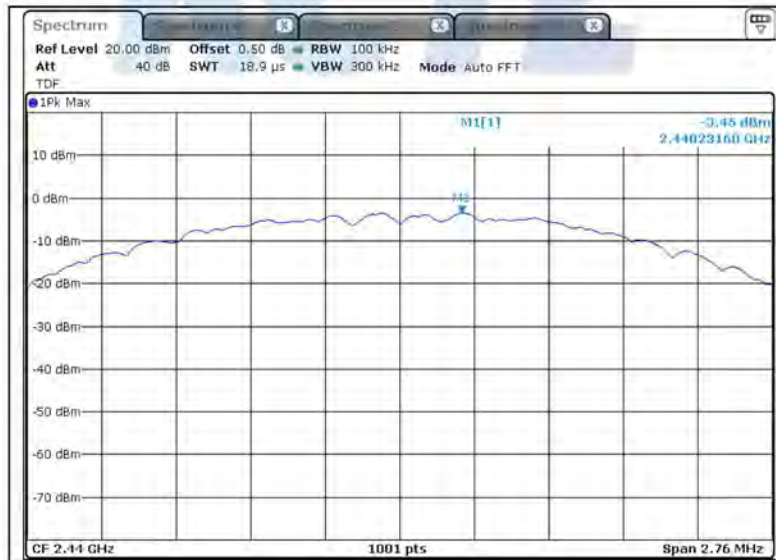


Conducted Spurious Emissions



Middle Channel (2 440 MHz)

Reference



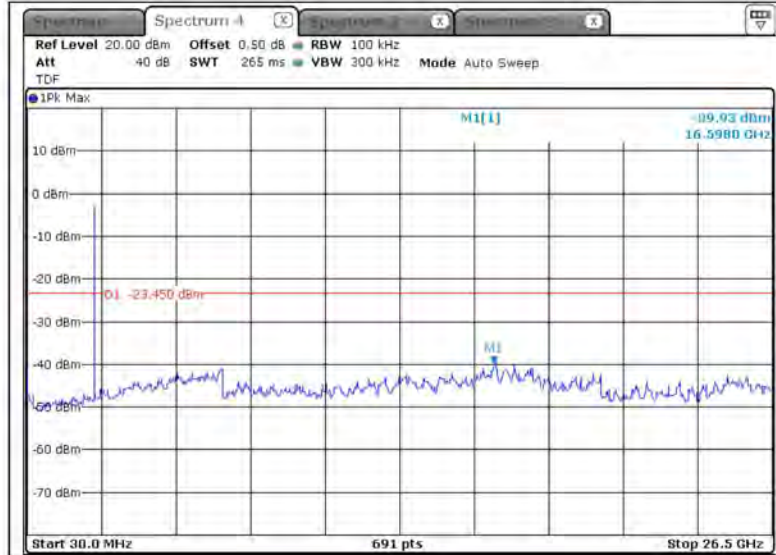
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Conducted Spurious Emissions



Highest Channel (2 480 MHz)

Reference



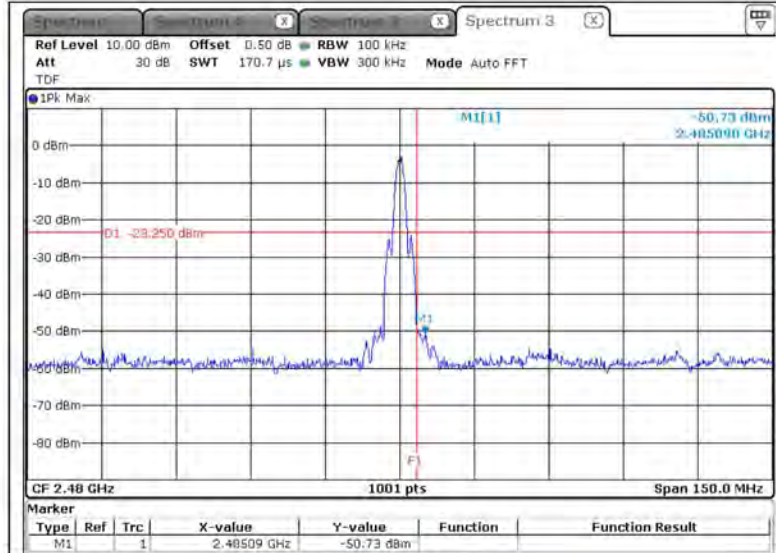
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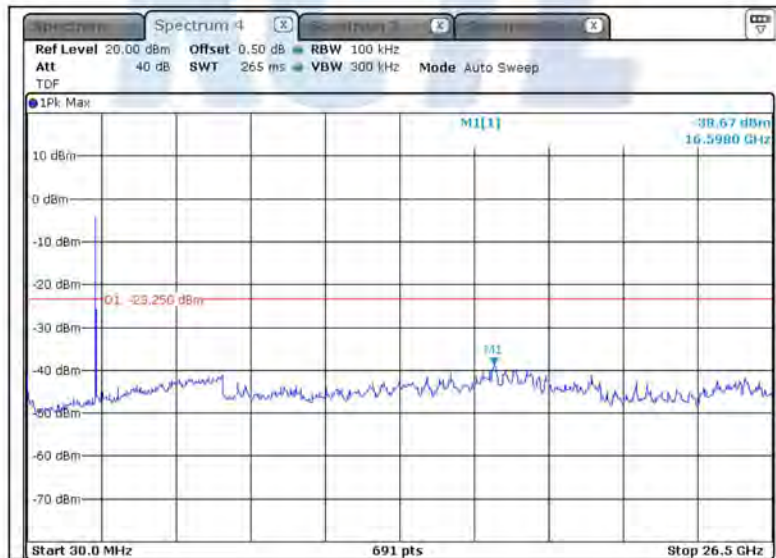


Band-edge



- Result of 2 483.5 Mhz

Conducted Spurious Emissions



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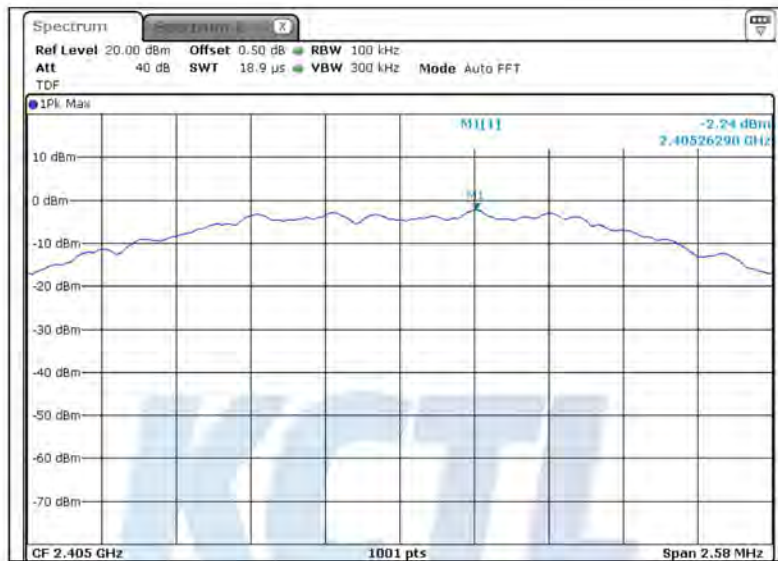


DC 48 V (PoE)

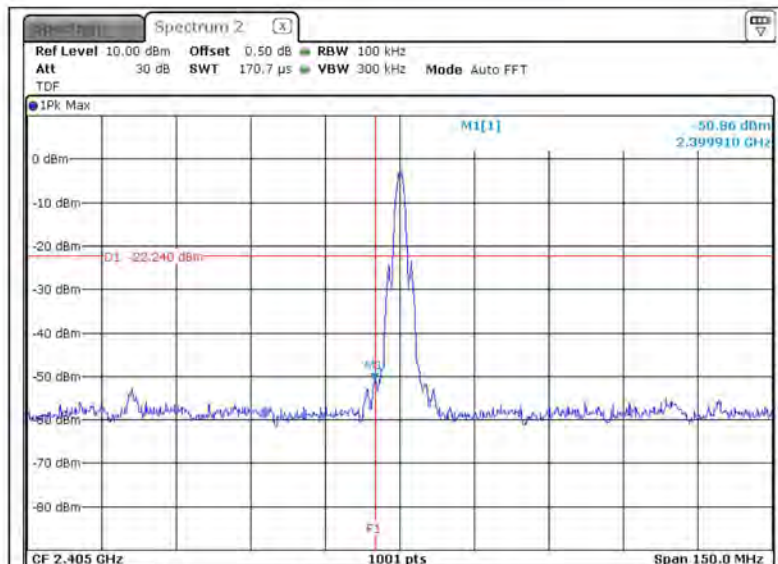
-Ant 0

Lowest Channel (2 405 MHz)

Reference



Band-edge



- Result of 2 400.0 MHz

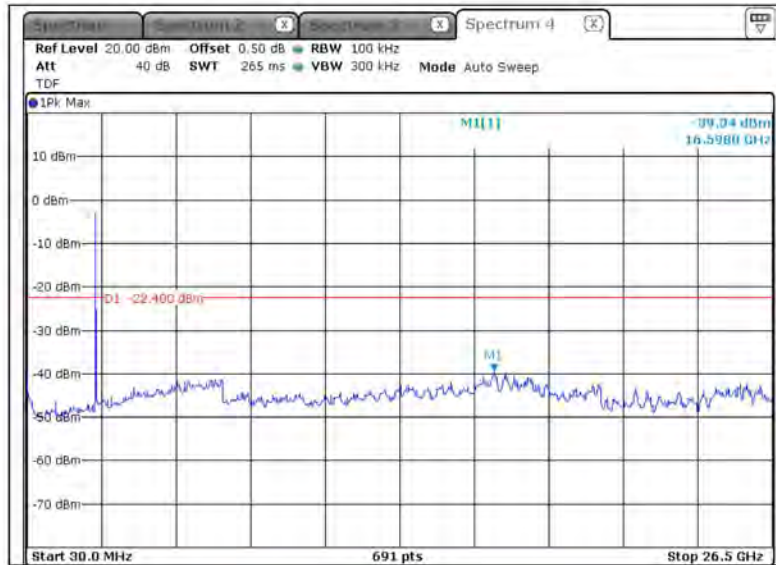
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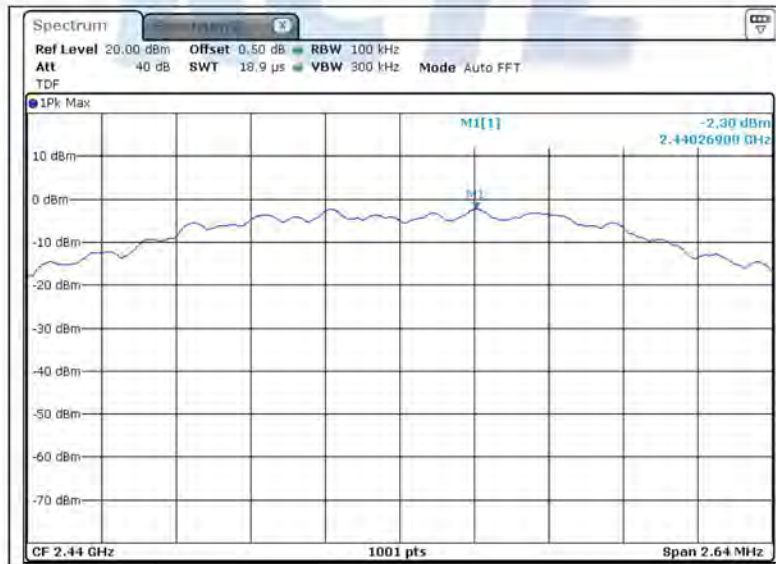


Conducted Spurious Emissions



Middle Channel (2 440 MHz)

Reference



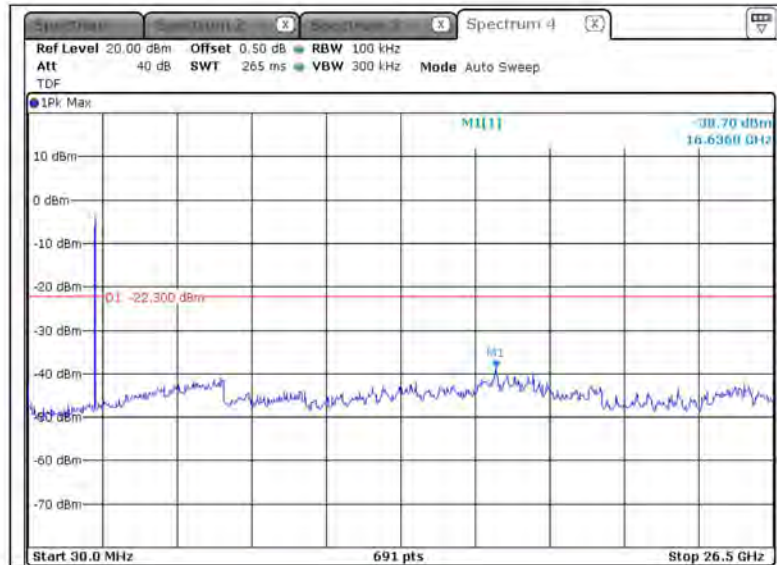
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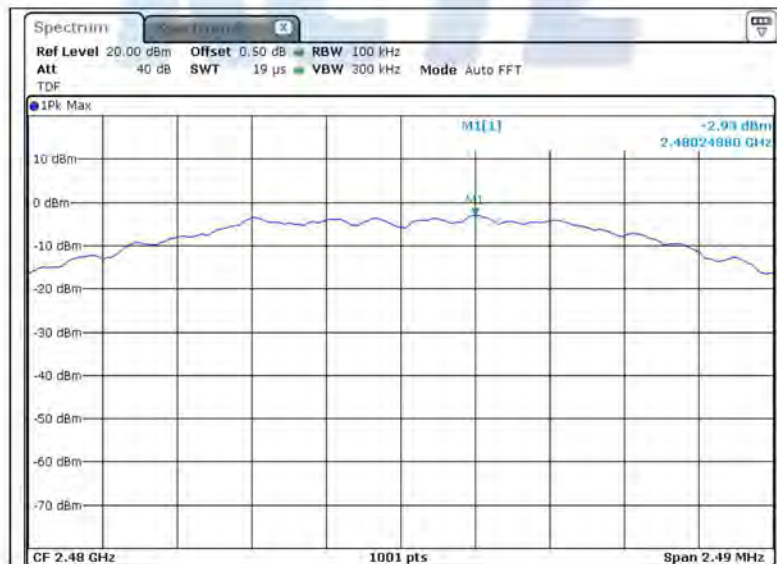


Conducted Spurious Emissions



Highest Channel (2 480 MHz)

Reference



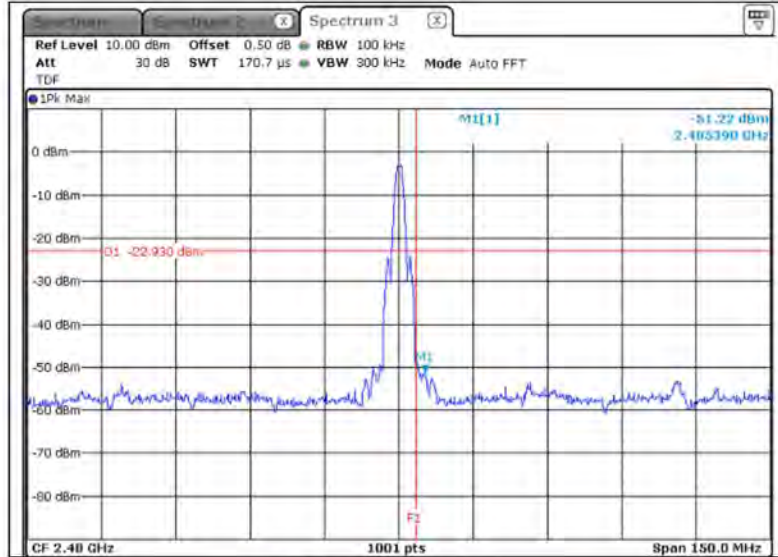
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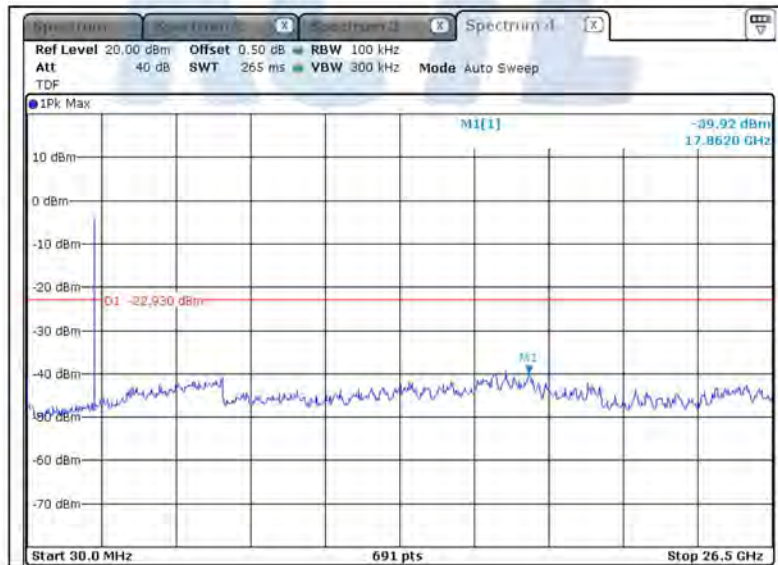


Band-edge



- Result of 2 483.5 Mhz

Conducted Spurious Emissions



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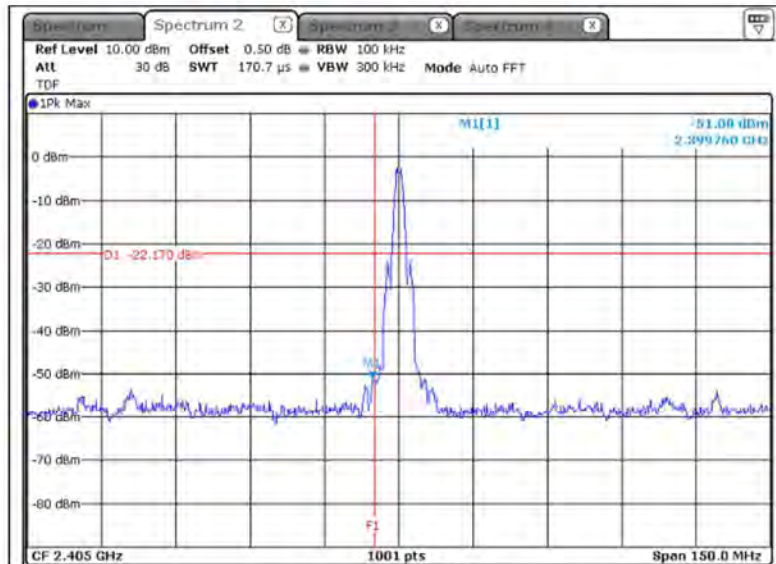
-Ant 1

Lowest Channel (2 405 MHz)

Reference



Band-edge



- Result of 2 400.0 MHz

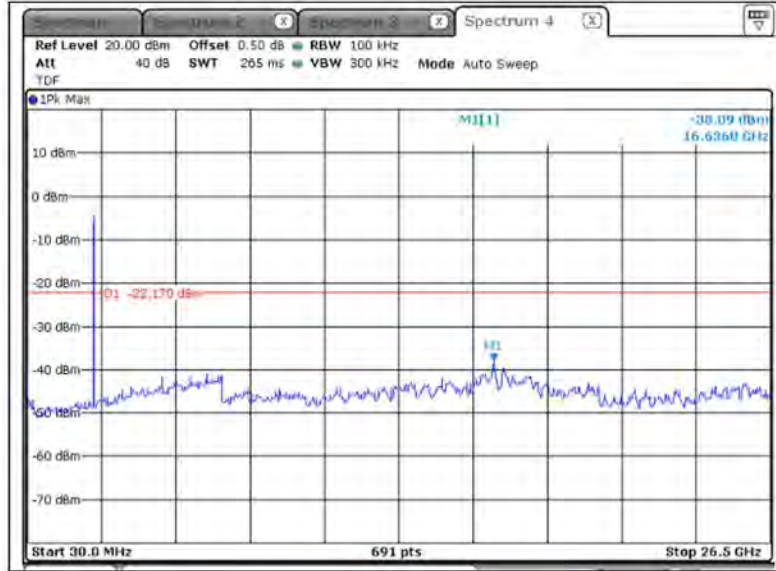
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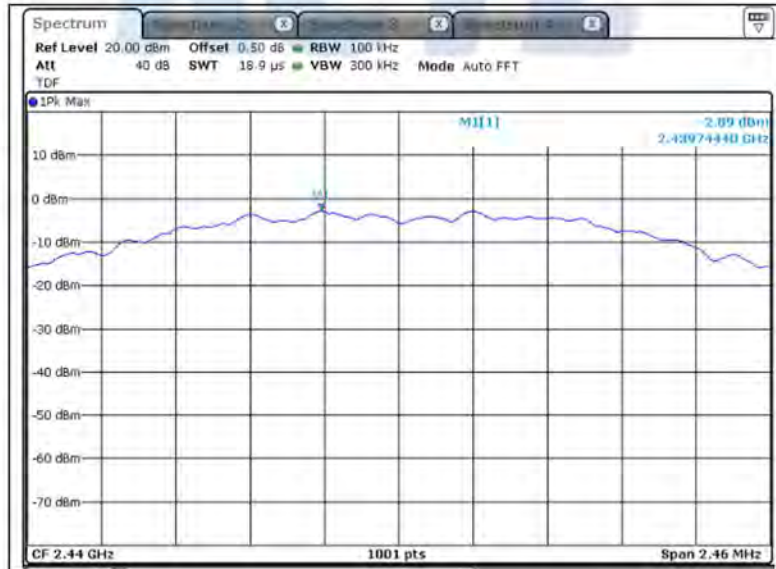


Conducted Spurious Emissions



Middle Channel (2 440 MHz)

Reference



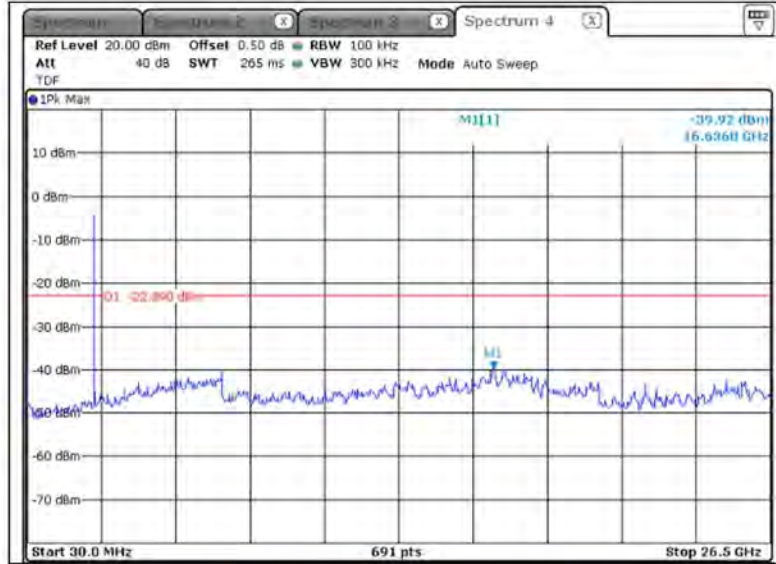
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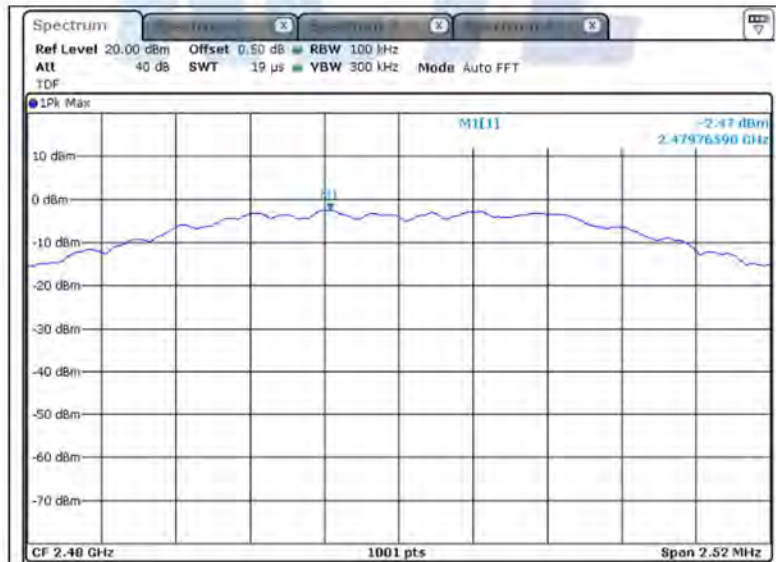


Conducted Spurious Emissions



Highest Channel (2 480 MHz)

Reference



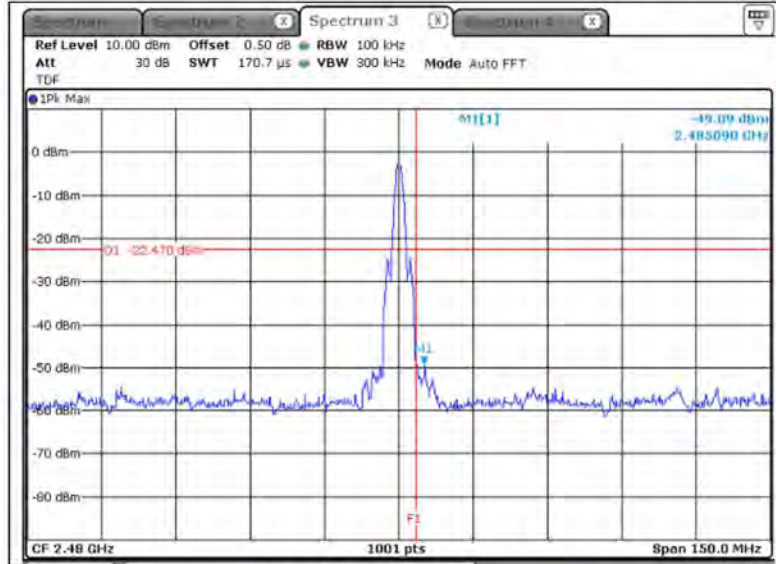
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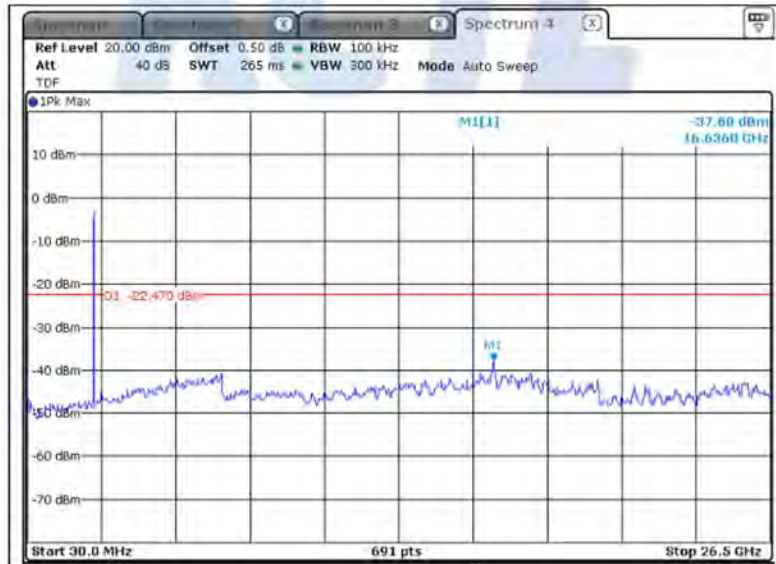


Band-edge



- Result of 2 483.5 Mhz

Conducted Spurious Emissions



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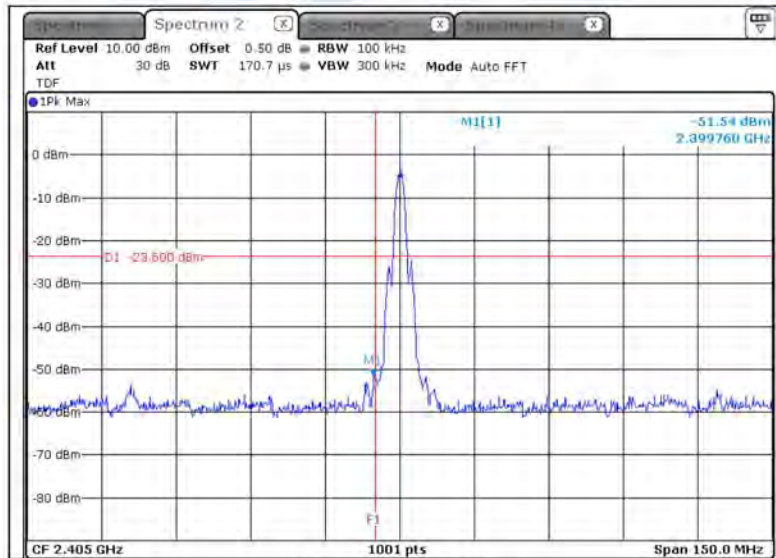
-Ant 2

Lowest Channel (2 405 MHz)

Reference



Band-edge



- Result of 2 400.0 MHz

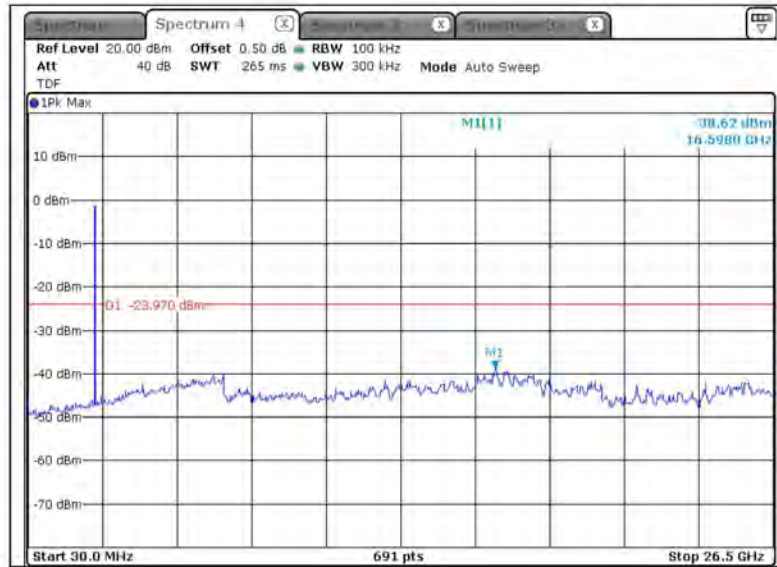
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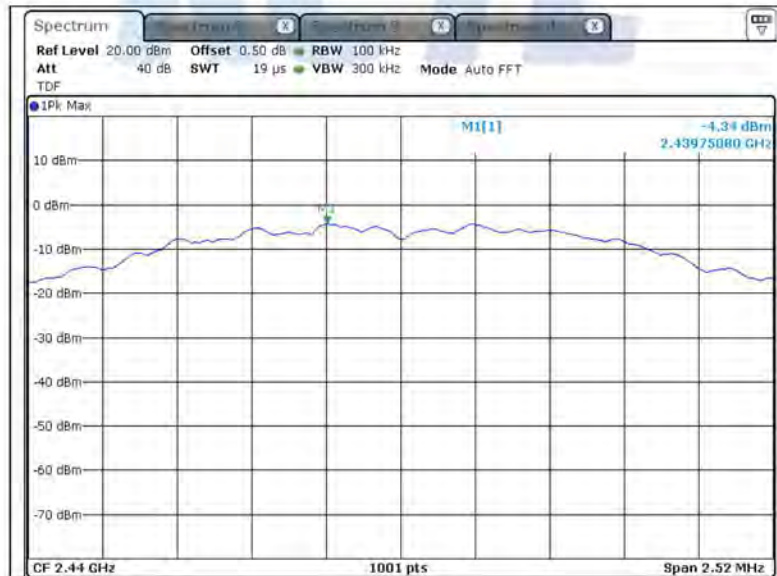


Conducted Spurious Emissions



Middle Channel (2 440 MHz)

Reference



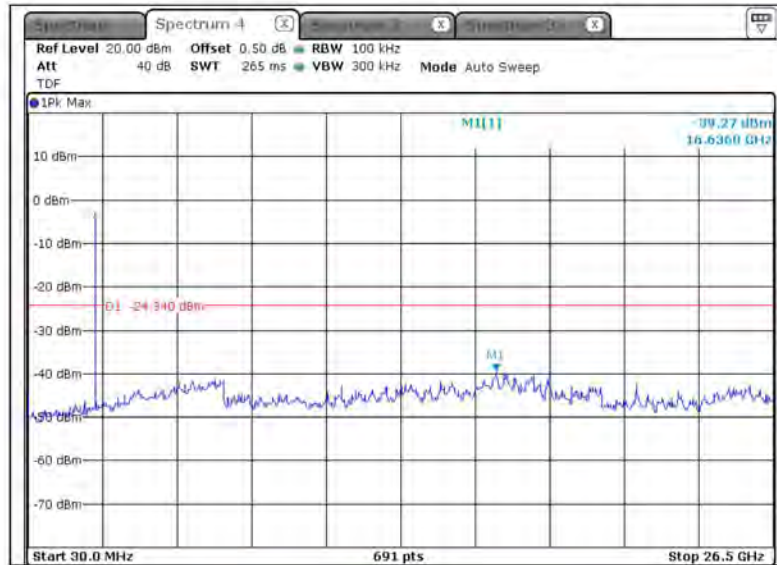
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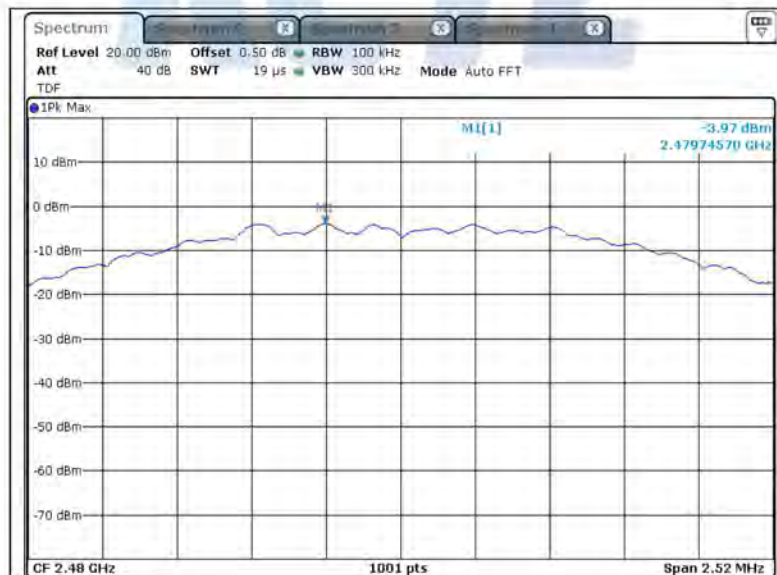


Conducted Spurious Emissions



Highest Channel (2 480 MHz)

Reference



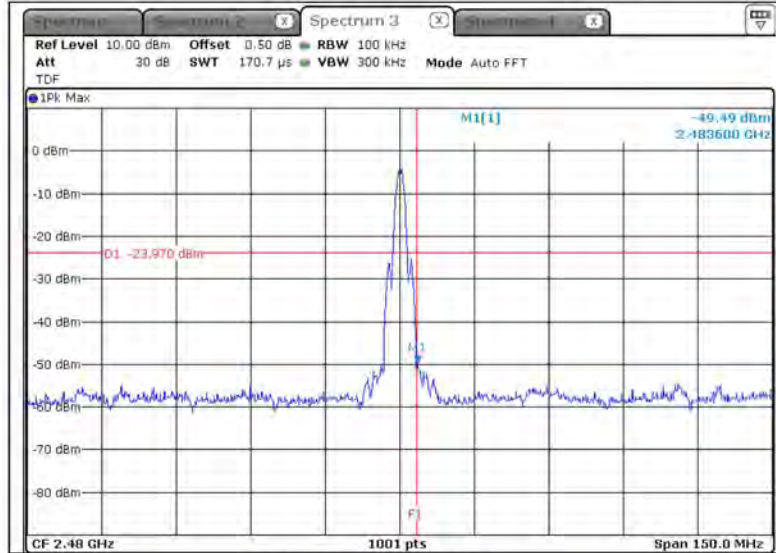
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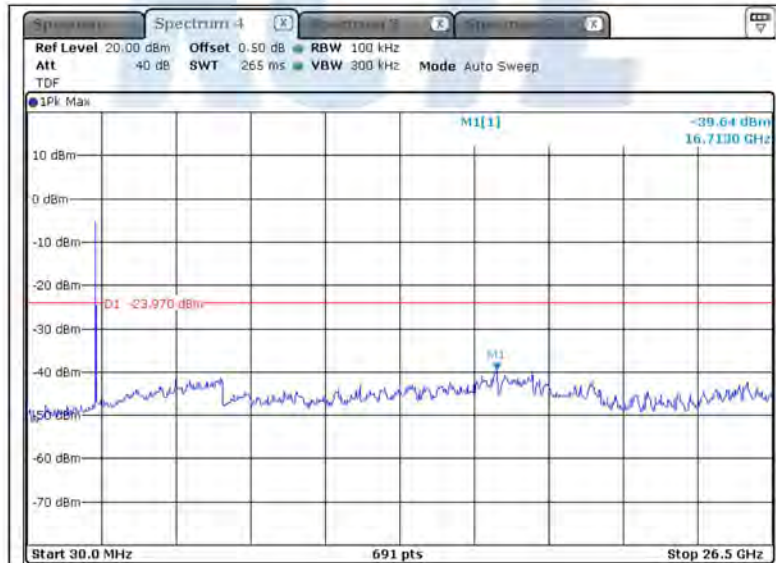


Band-edge



- Result of 2 483.5 MHz

Conducted Spurious Emissions



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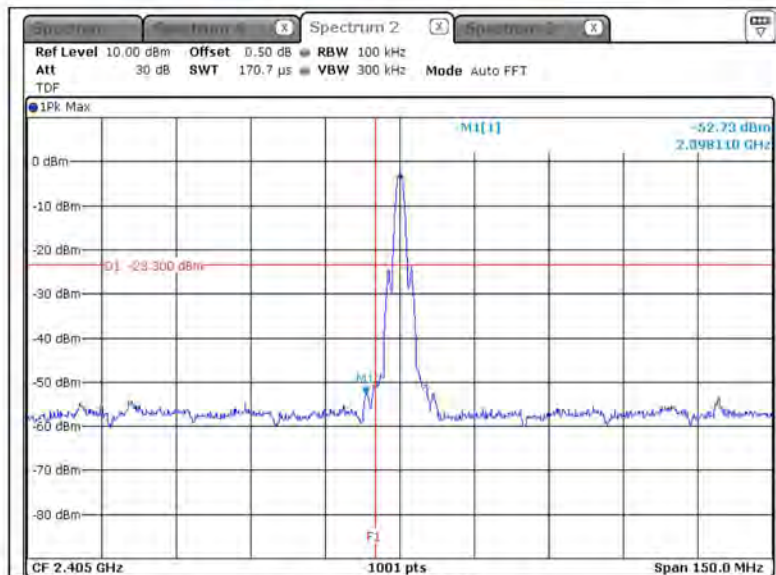
-Ant 3

Lowest Channel (2 405 MHz)

Reference



Band-edge



- Result of 2 400.0 MHz

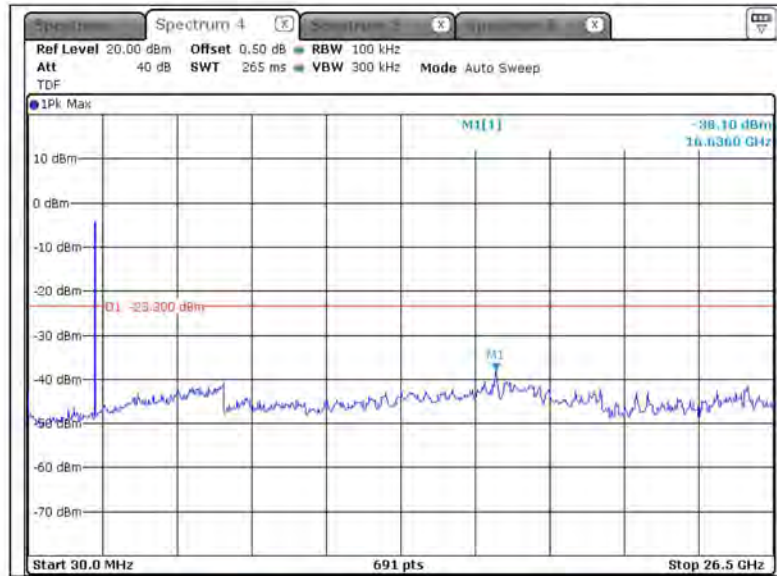
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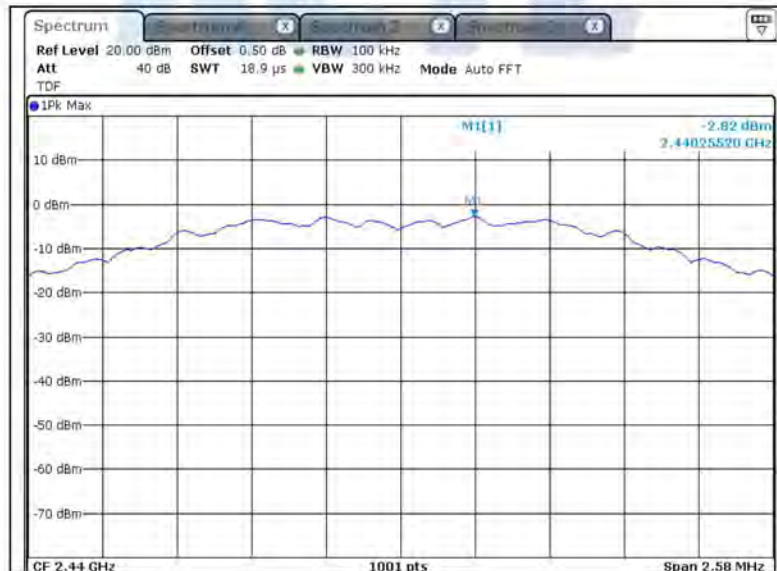


Conducted Spurious Emissions



Middle Channel (2 440 MHz)

Reference



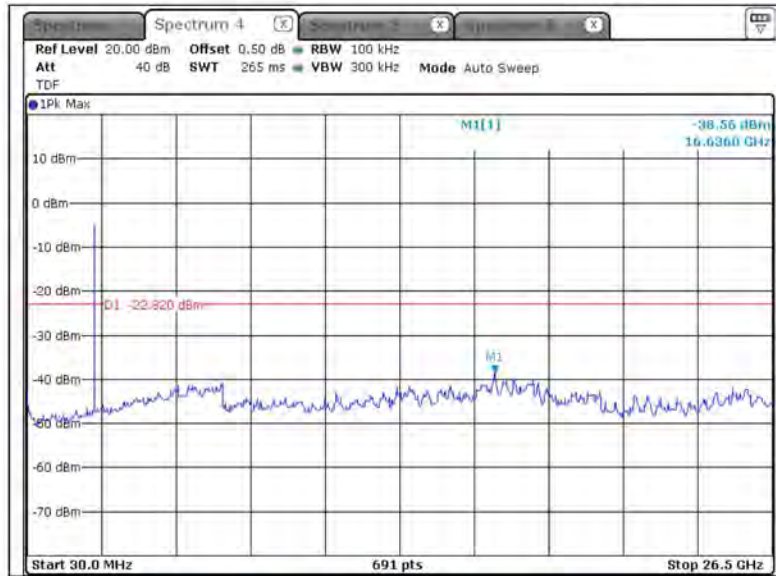
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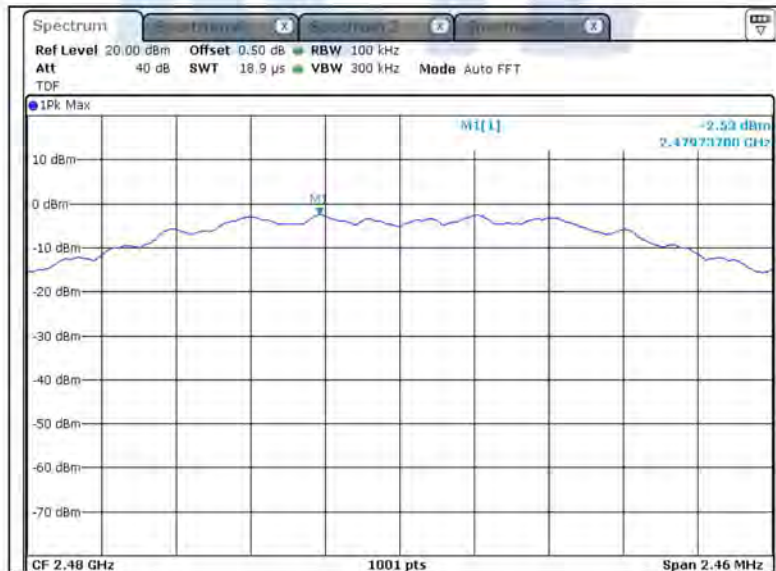


Conducted Spurious Emissions



Highest Channel (2 480 MHz)

Reference



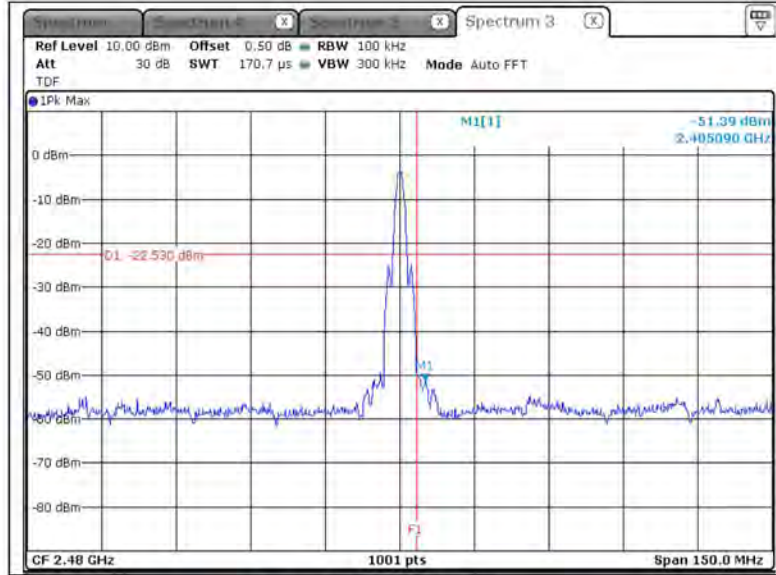
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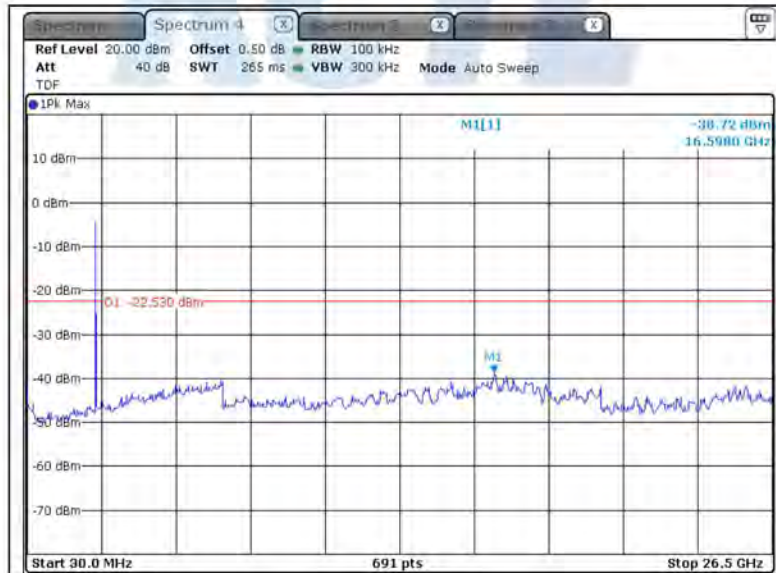


Band-edge



- Result of 2 483.5 Mhz

Conducted Spurious Emissions



5.6 Conducted Emission

5.6.1 Regulation

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 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50 μ H/50 Ω line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequency ranges.

Frequency of emission (MHz)	Conducted limit (dB μ V)	
	Quasi-peak	Average
0.15 – 0.5	66 to 56 *	56 to 46 *
0.5 – 5	56	46
5 – 30	60	50

* Decreases with the logarithm of the frequency.

According to §15.107(a), for unintentional device, except for Class A digital devices, line conducted emission limits are the same as the above table.

5.6.2 Measurement Procedure

- 1) The EUT was placed on a wooden table of size, 1 m by 1.5 m, raised 80 cm in which is located 40 cm 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 50 Ω /50 μ H LISN, which is an input transducer to a Spectrum Analyzer or an EMI/Field Intensity 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 in the system) was then performed over the frequency range of 0.15 MHz to 30 MHz.
- 5) The measurements were made with the detector set to PEAK amplitude within a bandwidth of 10 kHz or to QUASI-PEAK and AVERAGE within a bandwidth of 9 kHz. The EUT was in transmitting mode during the measurements.

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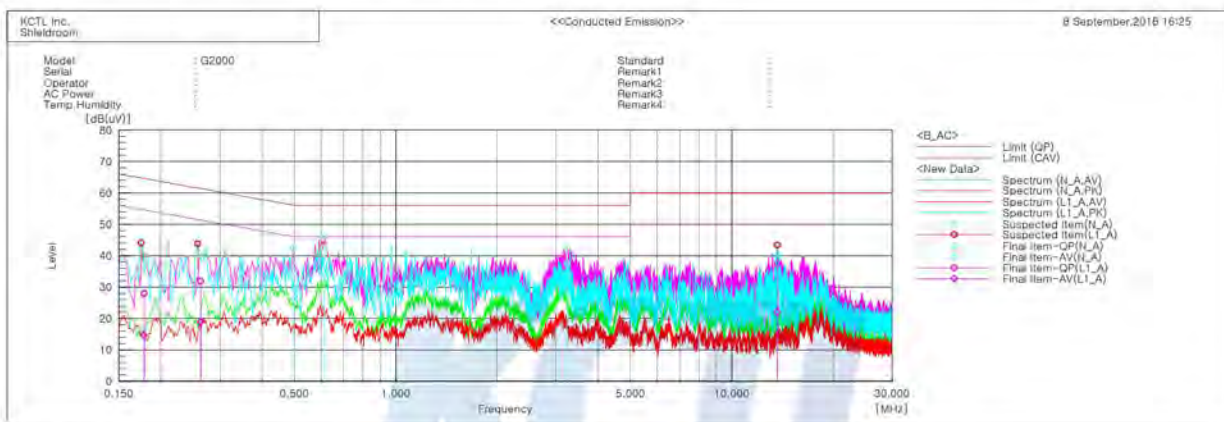
5.6.3 Test Result

Test Condition: Refer to the clause 3.5 Normal and extreme test conditions

- Complied

Figure 6. plot of Conducted Emission

- Conducted worst-case data: AC 110 V (AC adapter)



Final Result

N_A Phase										
No.	Frequency [MHz]	Reading OP [dB(uV)]	Reading CAV [dB(uV)]	c. f [dB]	Result OP [dB(uV)]	Result CAV [dB(uV)]	Limit OP [dB(uV)]	Limit AV [dB(uV)]	Margin OP [dB]	Margin CAV [dB]
1	0.49691	24.9	16.3	10.0	34.9	26.3	56.1	46.1	21.2	19.8
2	0.61119	32.4	23.7	10.0	42.4	33.7	56.0	46.0	13.6	12.3
3	3.22823	27.8	18.7	9.9	37.7	28.6	56.0	46.0	18.3	17.4

L1_A Phase										
No.	Frequency [MHz]	Reading OP [dB(uV)]	Reading CAV [dB(uV)]	c. f [dB]	Result OP [dB(uV)]	Result CAV [dB(uV)]	Limit OP [dB(uV)]	Limit AV [dB(uV)]	Margin OP [dB]	Margin CAV [dB]
1	0.17824	17.7	4.5	10.2	27.9	14.7	64.6	54.6	36.7	39.9
2	0.26246	22.0	9.1	9.8	31.8	18.9	61.4	51.4	29.6	32.5
3	13.64649	26.9	11.6	10.4	37.3	22.0	60.0	50.0	22.7	28.0

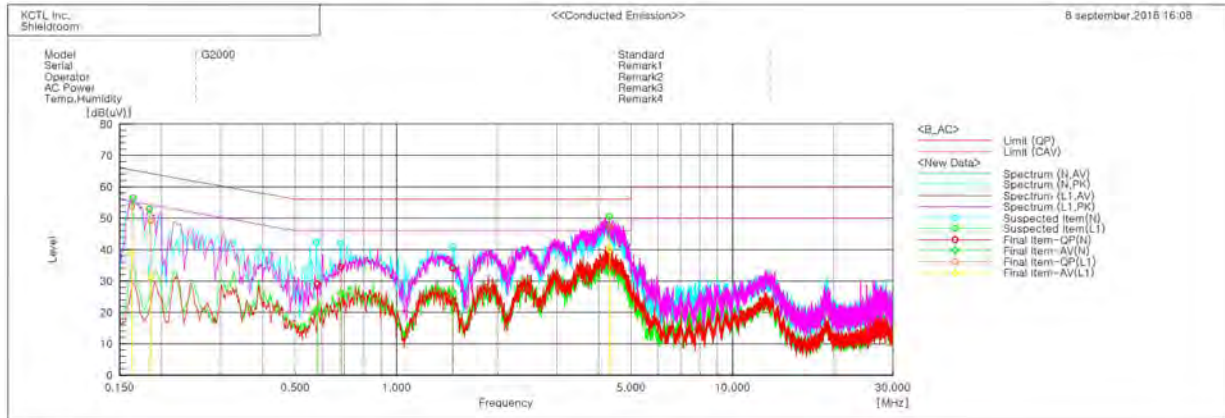
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- Conducted worst-case data: DC 48 V (PoE)



Final Result

--- N 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	0.58134	19.1	10.9	9.8	28.9	20.7	56.0	46.0	27.1	25.3
2	0.68387	24.6	16.5	9.8	34.4	26.3	56.0	46.0	21.6	19.7
3	1.469	24.3	16.8	9.7	34.0	26.5	56.0	46.0	22.0	19.5

--- L1 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	0.16285	43.7	28.5	10.0	53.7	38.5	65.3	55.3	11.6	16.8
2	0.18563	39.1	21.3	10.0	49.1	31.3	64.2	54.2	15.1	22.9
3	4.30723	37.7	30.4	9.7	47.4	40.1	56.0	46.0	8.6	5.9

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6. Test equipment used for test

	Equipment Name	Manufacturer	Model No.	Serial No.	Next Cal. Date
■	Spectrum Analyzer	R & S	FSV30	100810	19.08.01
■	Wideband Power Sensor	R & S	NRP-Z81	102398	19.01.31
■	ATTENUATOR	R & S	DNF Dämpfungsglied 10 dB in N-50 Ohm	31212	19.05.14
■	EMI TEST RECEIVER	R & S	ESCI	100732	19.08.23
■	Bilog Antenna	SCHWARZBECK	VULB 9168	583	20.04.13
■	COAXIAL FIXED ATTENUATOR	AGILENT	8491B-003	2708A18758	20.05.04
■	Amplifier	SONOMA INSTRUMENT	310N	186280	19.04.05
■	ATTENUATOR	Weinschel ENGINEERING	1	AE7348	19.05.14
■	Horn antenna	ETS.lindgren	3116	00086632	19.04.20
■	Horn antenna ₁₎	ETS.lindgren	3117	155787	18.10.20
■	AMPLIFIER	L-3 Narda-MITEQ	AMF-7D-01001800 -22-10P	2003683	19.05.15
■	AMPLIFIER	L-3 Narda-MITEQ	JS44-1800400 0-33-8P	2000997	19.08.02
■	LOOP Antenna	R & S	HFH2-Z2	100355	20.01.31
■	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	-
■	Highpass Filter	WT	WT-A1698-HS	WT160411001	19.05.14
■	Vector Signal Generator	R & S	SMBV100A	257566	19.01.05
■	Signal Generator	R & S	SMR40	100007	19.05.15
■	Cable Assembly	RadiAll	2301762000PJ	1724.66	-
■	Cable Assembly	gigalane	RG-400	-	-
■	Cable Assembly	HUER+SUHNER	SUCOFLEX 104	MY4342/4	-

Note 1): Tested before the calibration expiration date.