

5.6 BAND EDGE AT ANTENNA TERMINALS

Test Requirement: FCC 47 CFR Part 2.1051,
GSM 850 & WCDMA Band V & LTE Band 5: FCC 47 CFR Part 22.917(a),
GSM 1900 & WCDMA Band II & LTE Band 2: FCC 47 CFR Part 24.238(a),
WCDMA Band IV & LTE Band 4: FCC 47 CFR Part 27.53(h)(1),
LTE Band 12 & Band 17: FCC 47 CFR Part 27.53(g)
LTE Band 7: FCC 47 CFR Part 27.53(m)(4)

Test Method: ANSI C63.26-2015 & KDB 971168 D01v03r01

Limit:

FCC 47 CFR Part 22 & FCC 47 CFR Part 24: The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB. The emission limit equal to -13 dBm.

FCC 47 CFR Part 27.53(g): For operations in the 600 MHz band and the 698-746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least $43 + 10 \log(P)$ dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

FCC 47 CFR Part 27.53(h)(1): Except as otherwise specified below, for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log_{10}(P)$ dB. The emission limit equal to -13 dBm.

FCC 47 CFR Part 27.53(m)(4): For mobile digital stations, the attenuation factor shall be not less than $40 + 10 \log(P)$ dB on all frequencies between the channel edge and 5 megahertz from the channel edge, $43 + 10 \log(P)$ dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and $55 + 10 \log(P)$ dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less than $43 + 10 \log(P)$ dB on all frequencies between 2490.5 MHz and 2496 MHz and $55 + 10 \log(P)$ dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.

Test Procedure:

The transmitter output was connected to a calibrated coaxial cable and coupler, the other end of which was connected to a spectrum analyzer.

For each band edge measurement:

- 1) Set the spectrum analyzer span to include the block edge frequency.
- 2) Set a marker to point the corresponding band edge frequency in each test case.
- 3) Set display line at -13 dBm
- 4) Set resolution bandwidth to at least 1% of emission bandwidth.
- 5) Set spectrum analyzer with RMS detector.
- 6) Record the max trace plot into the test report

Note: The cable loss and attenuator loss were offset into measure device as an amplitude offset.

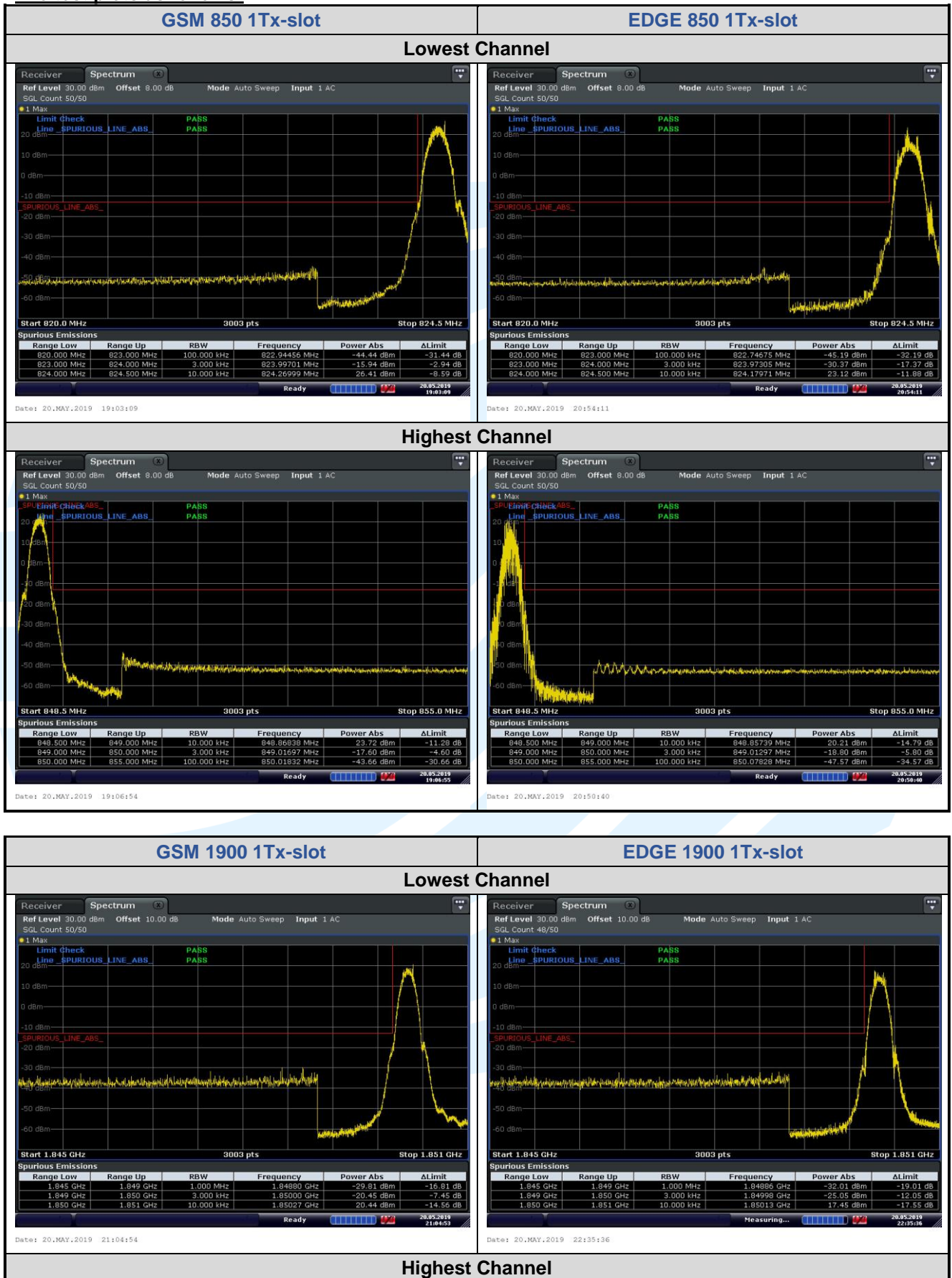
Test Setup: Refer to section 4.2.2 for details.

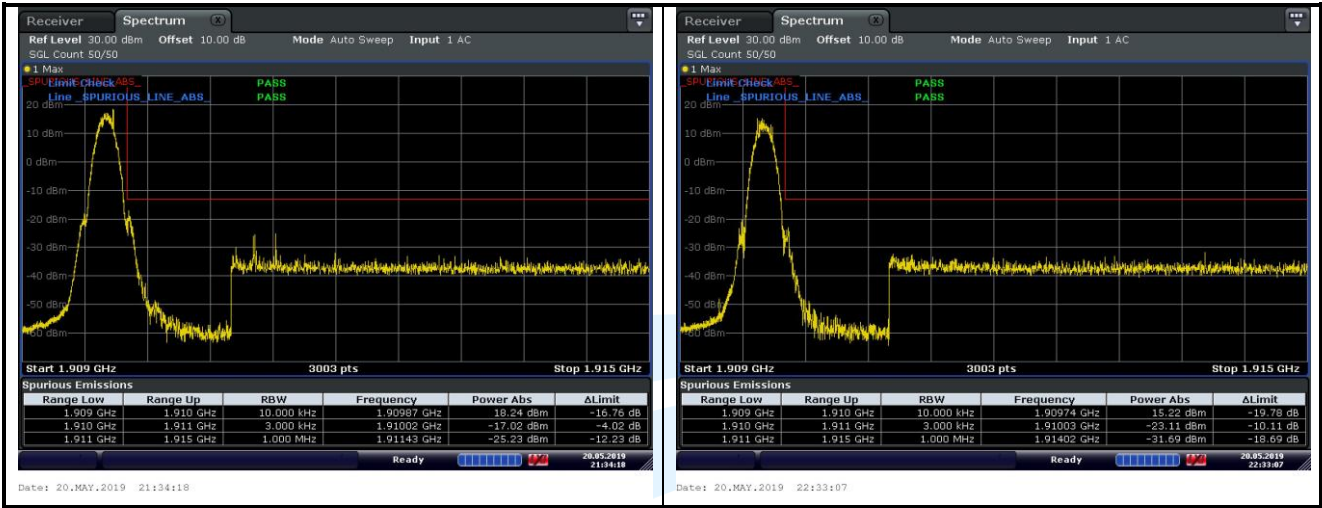
Instruments Used: Refer to section 3 for details

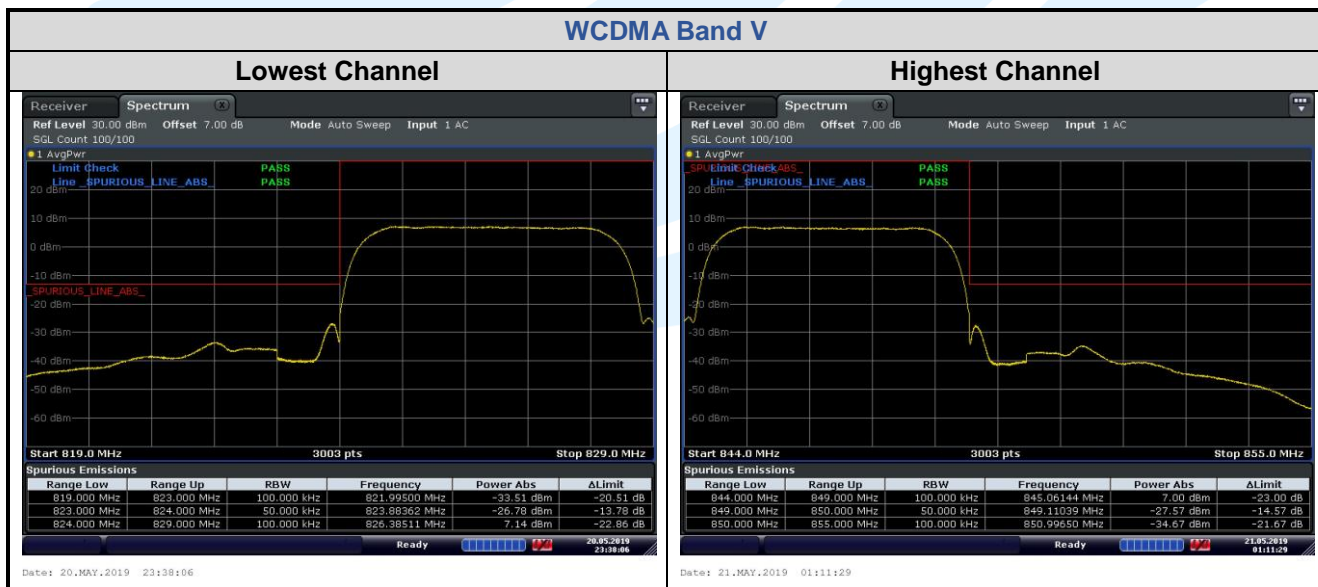
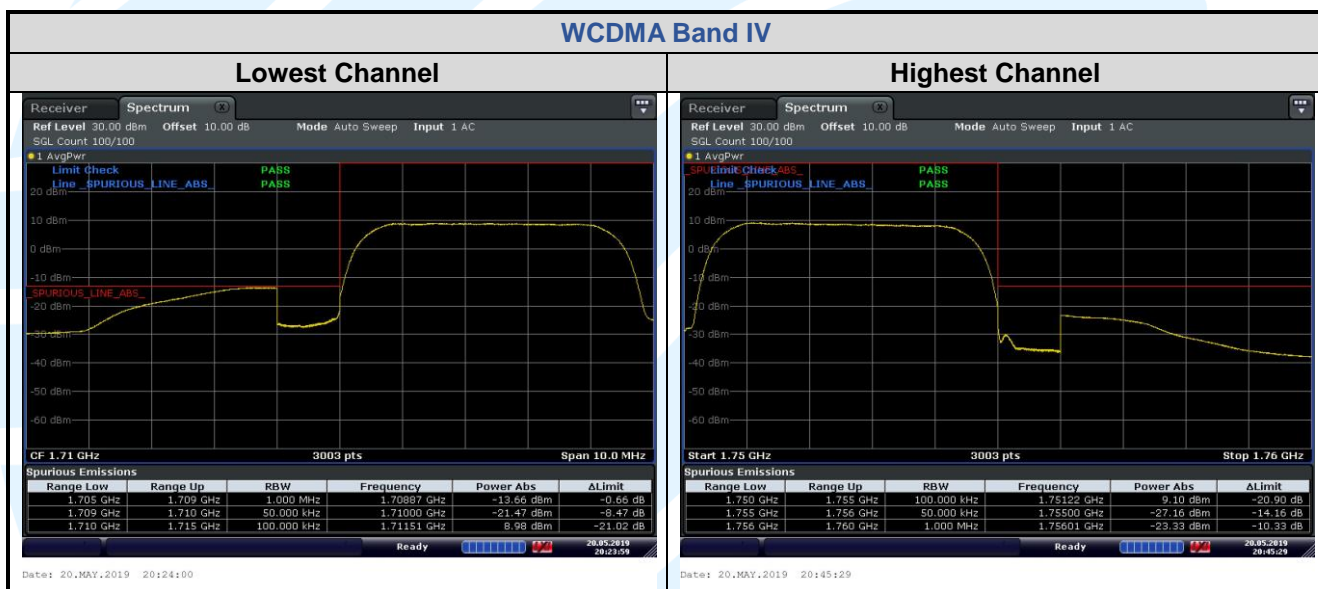
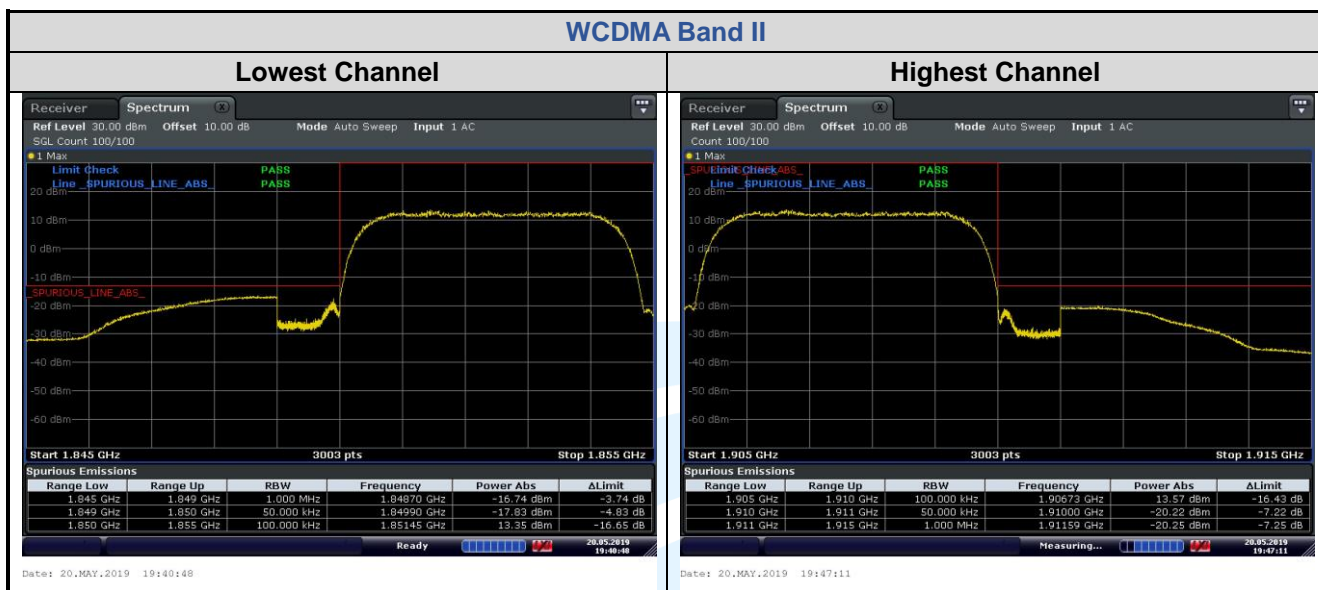
Test Mode: Link mode

Test Results: Pass

The test plots as follows:







LTE Band 2

Shenzhen UnionTrust Quality and Technology Co., Ltd.

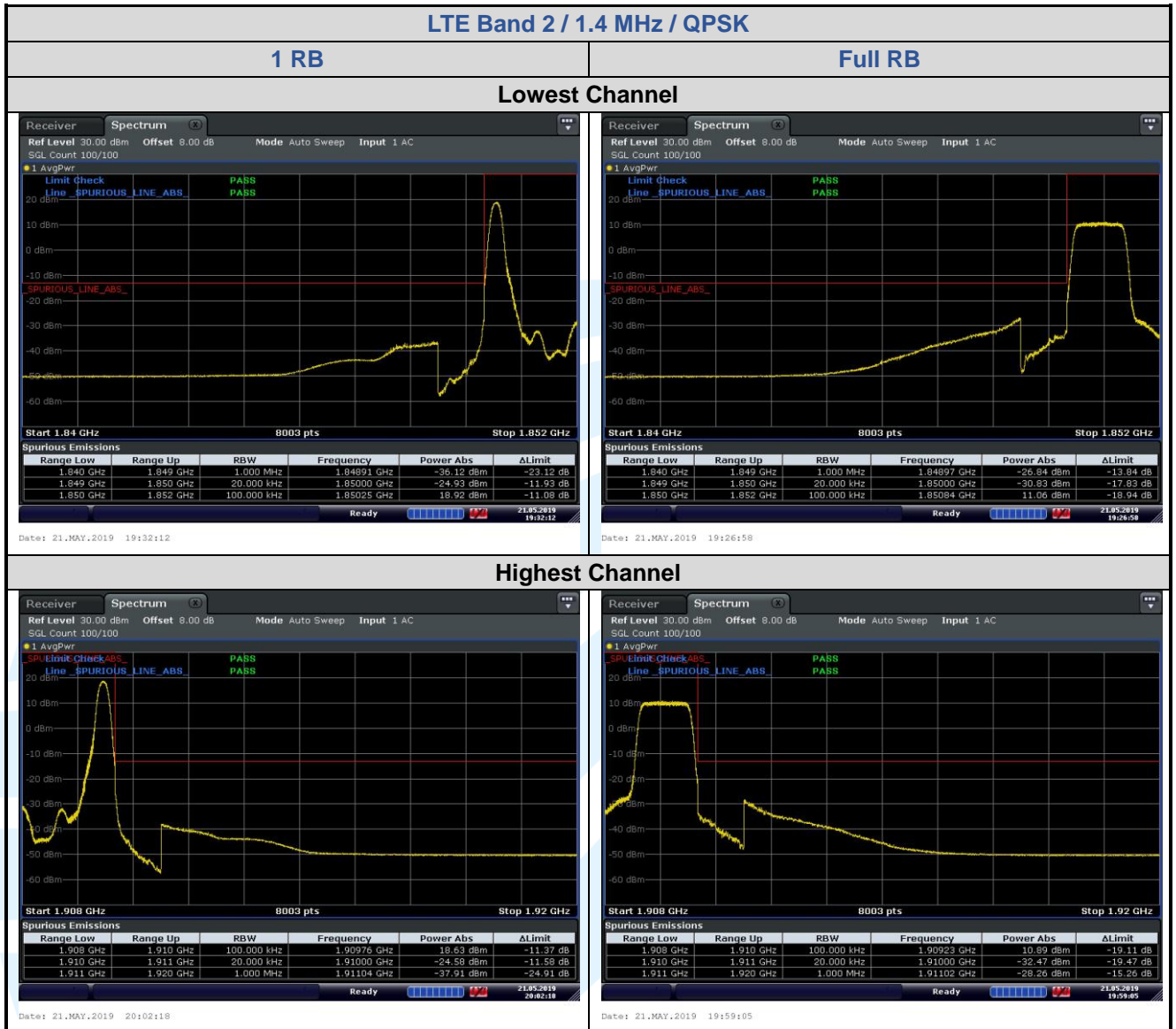
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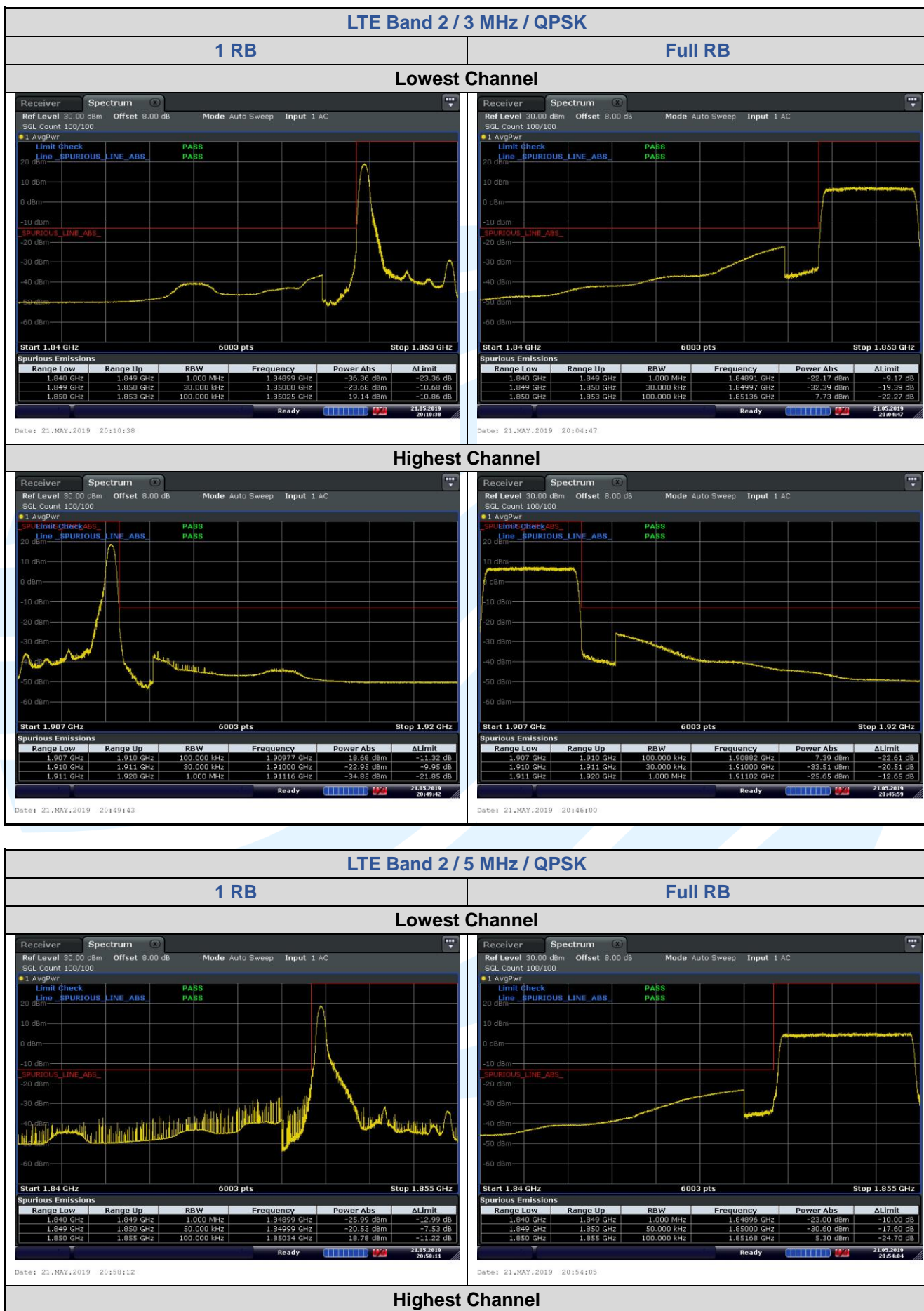
Tel: +86-755-28230888

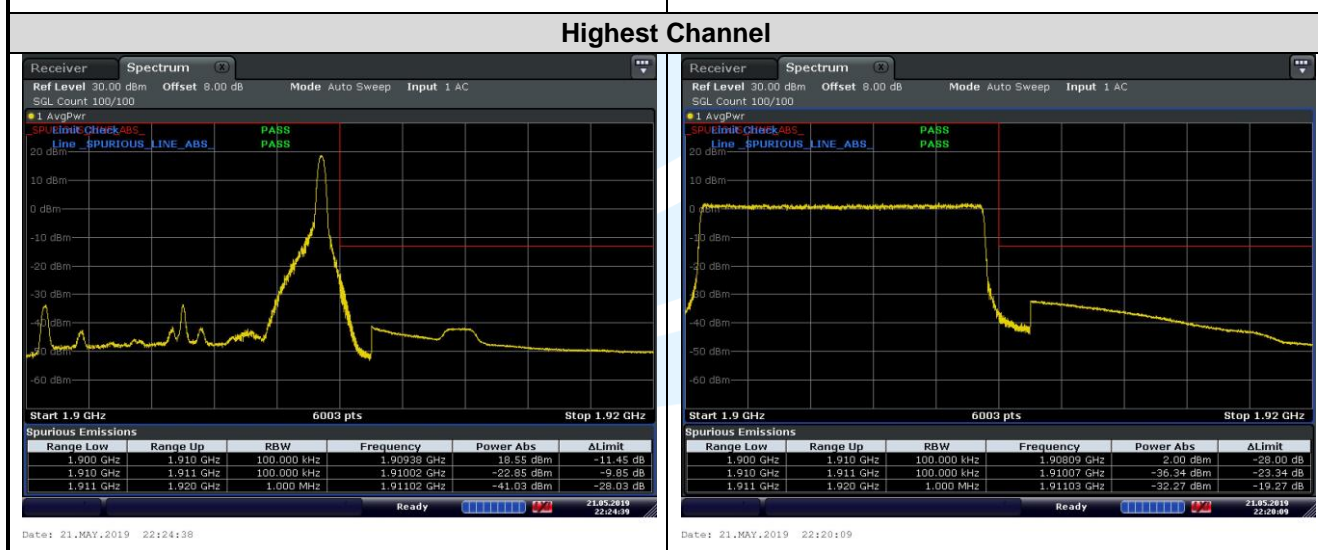
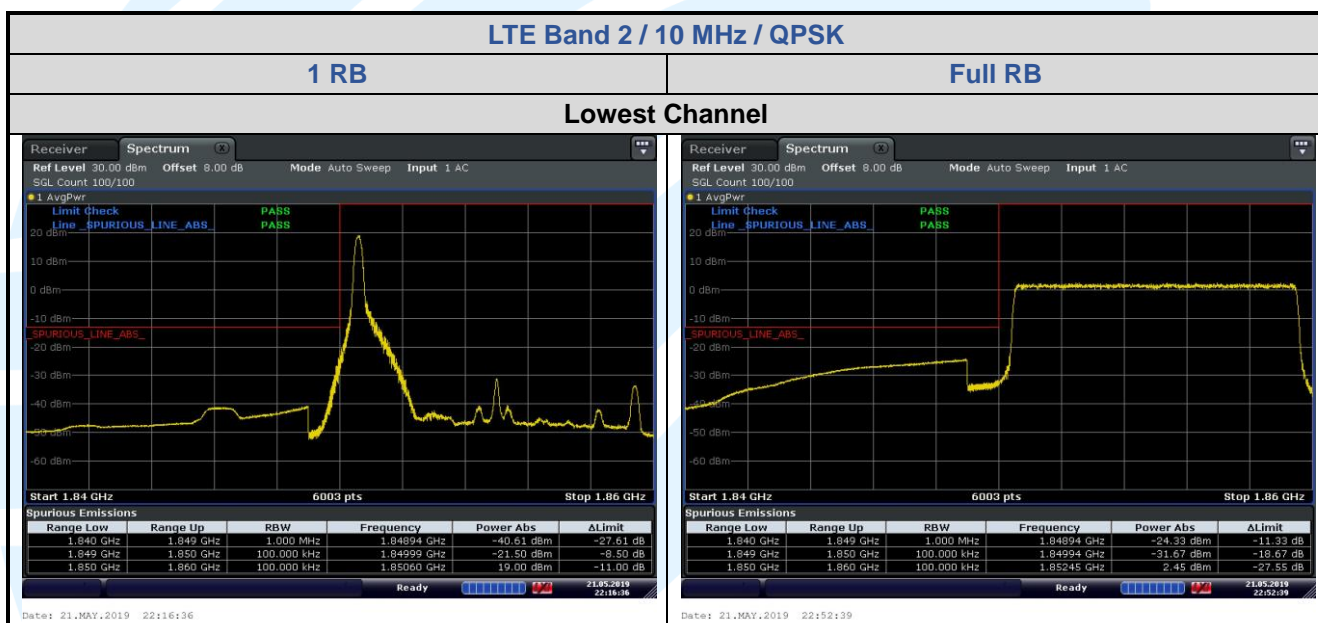
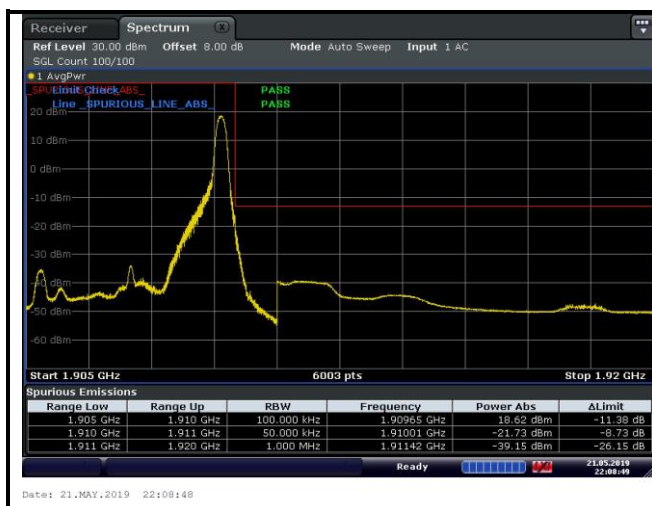
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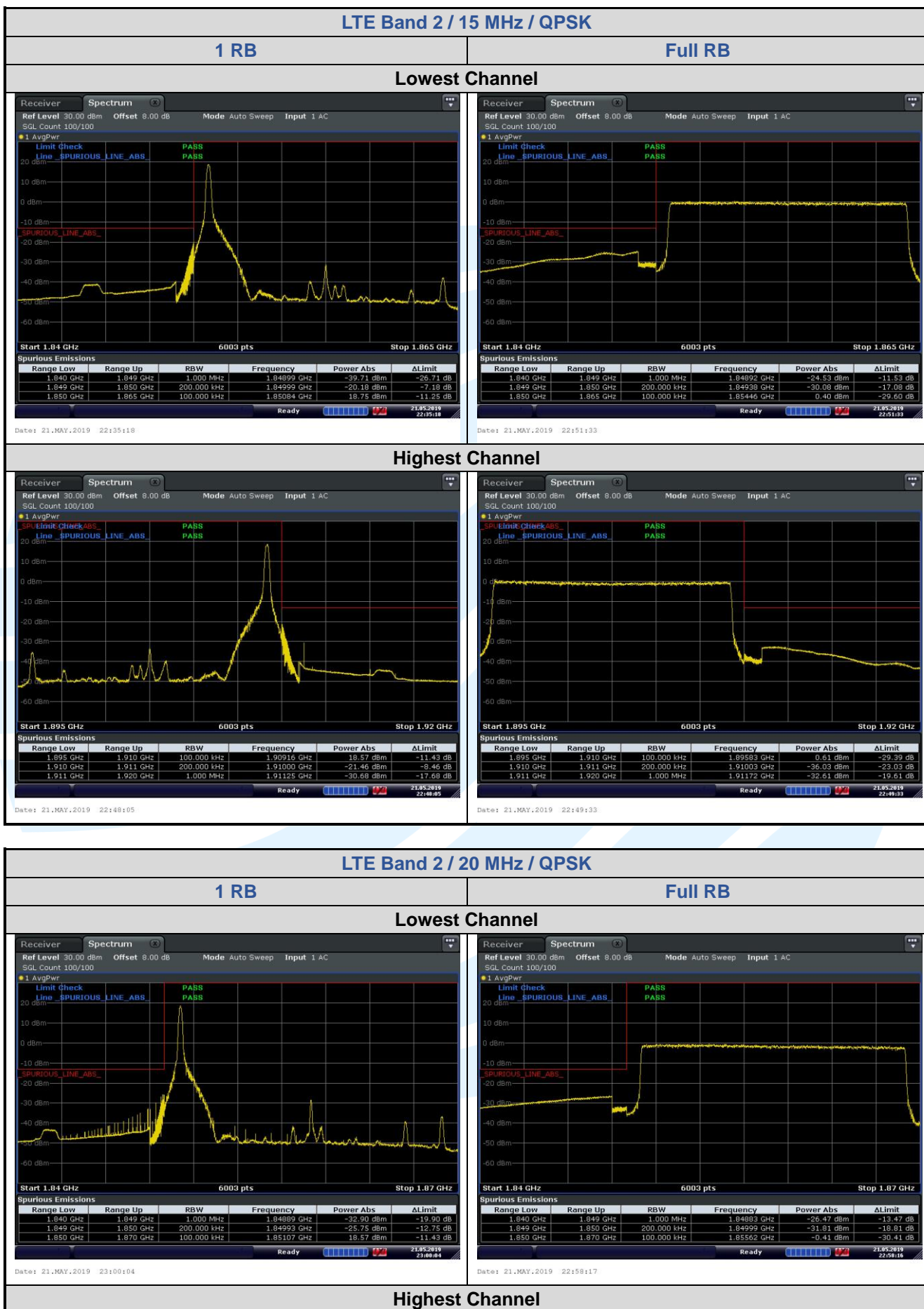
E-mail: info@uttlab.com

[Http://www.uttlab.com](http://www.uttlab.com)





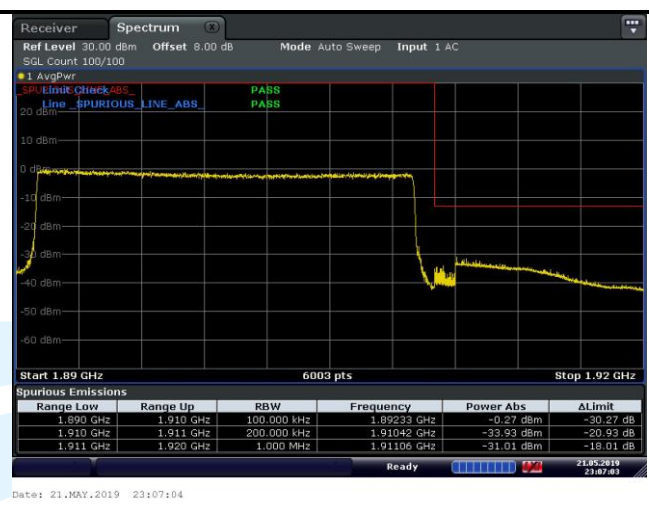
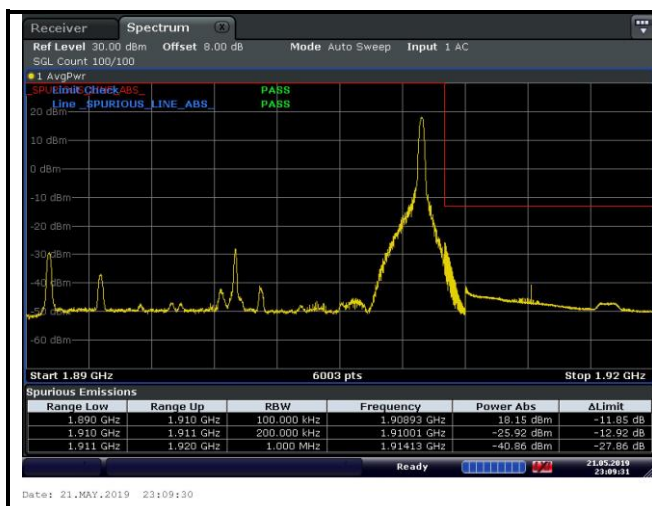


**LTE Band 2 / 20 MHz / QPSK**
1 RB
Full RB
Lowest Channel

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
1.840 GHz	1.849 GHz	1.000 MHz	1.84889 GHz	-32.90 dBm	-19.90 dB
1.849 GHz	1.850 GHz	200.000 kHz	1.84993 GHz	-25.75 dBm	-12.75 dB
1.850 GHz	1.870 GHz	100.000 kHz	1.85107 GHz	18.57 dBm	-11.43 dB

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
1.840 GHz	1.849 GHz	1.000 MHz	1.84883 GHz	-26.47 dBm	-13.47 dB
1.849 GHz	1.850 GHz	200.000 kHz	1.84999 GHz	-31.81 dBm	-18.81 dB
1.850 GHz	1.870 GHz	100.000 kHz	1.85562 GHz	-0.41 dBm	-30.41 dB

Highest Channel



LTE Band 2 / 1.4 MHz / 16QAM

1 RB

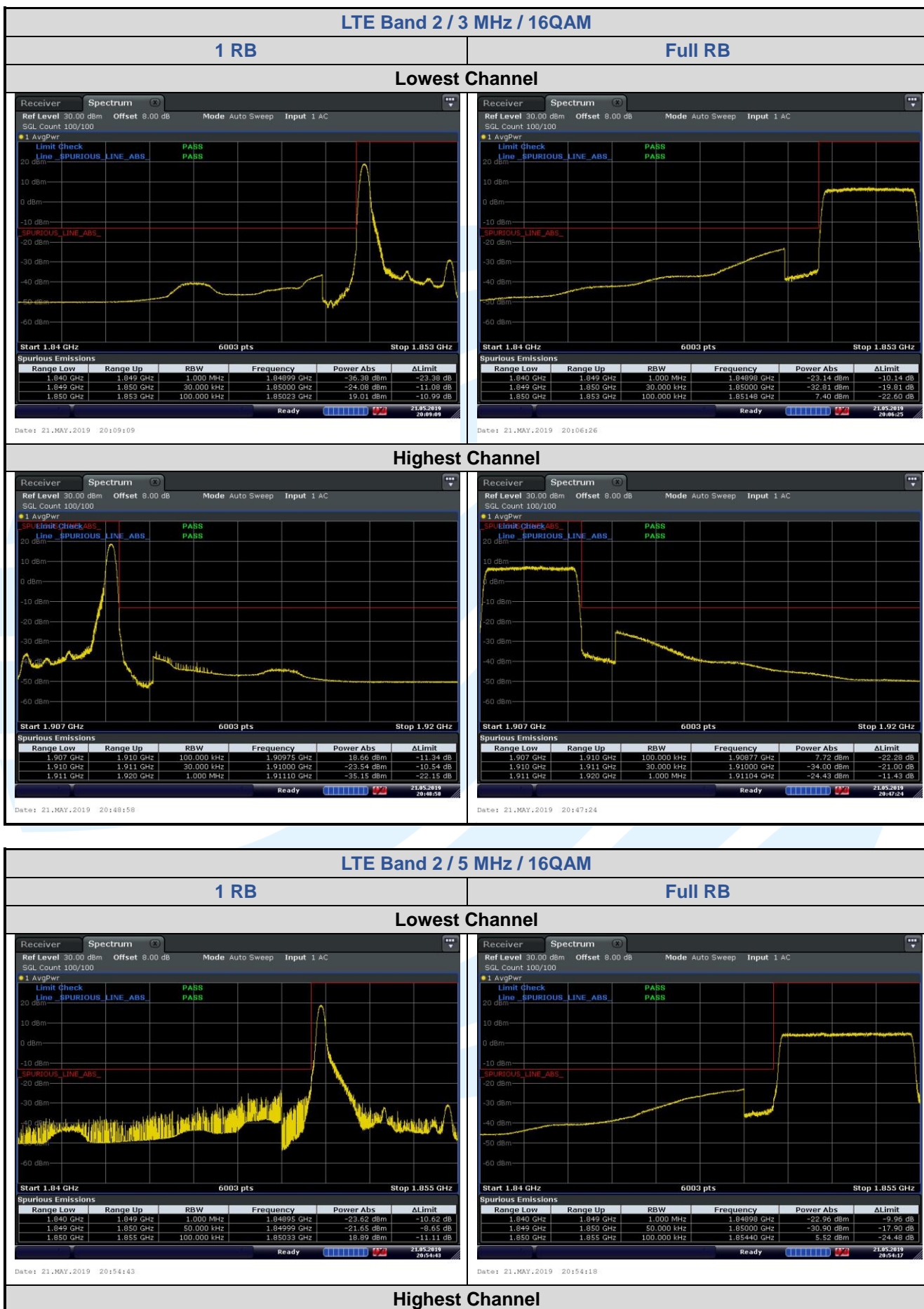
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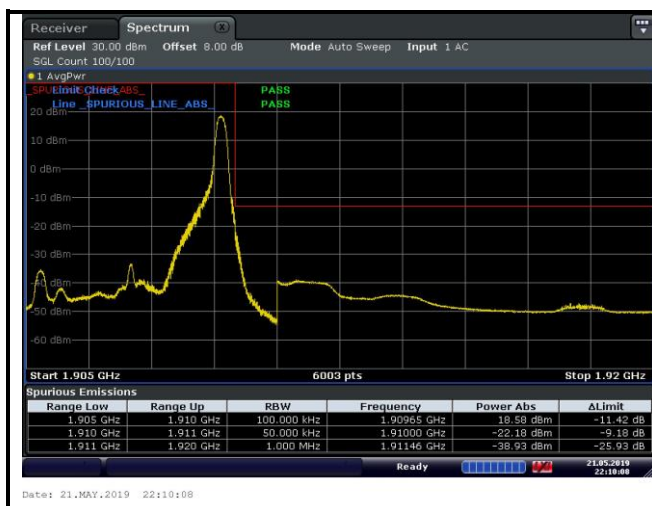
Lowest Channel



Highest Channel





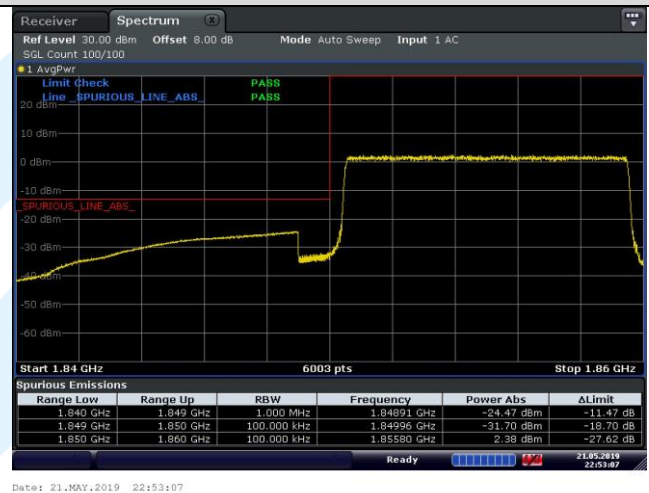
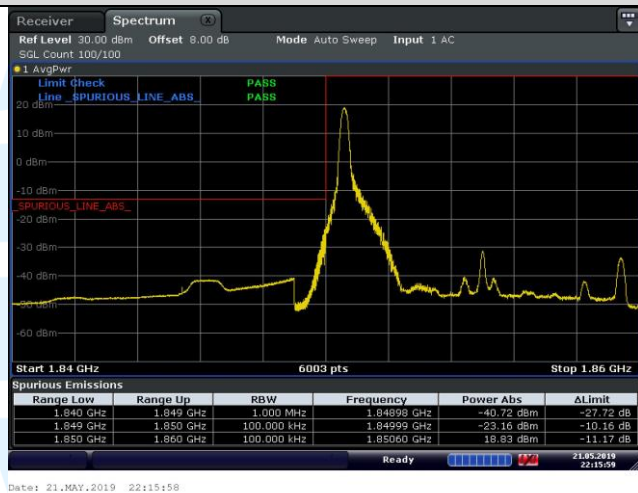


LTE Band 2 / 10 MHz / 16QAM

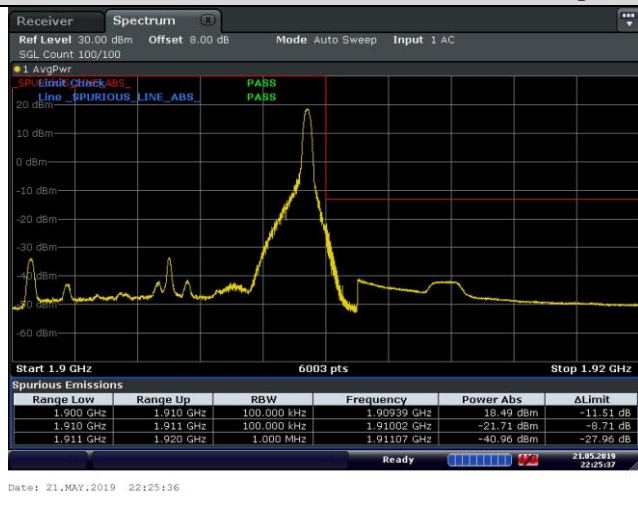
1 RB

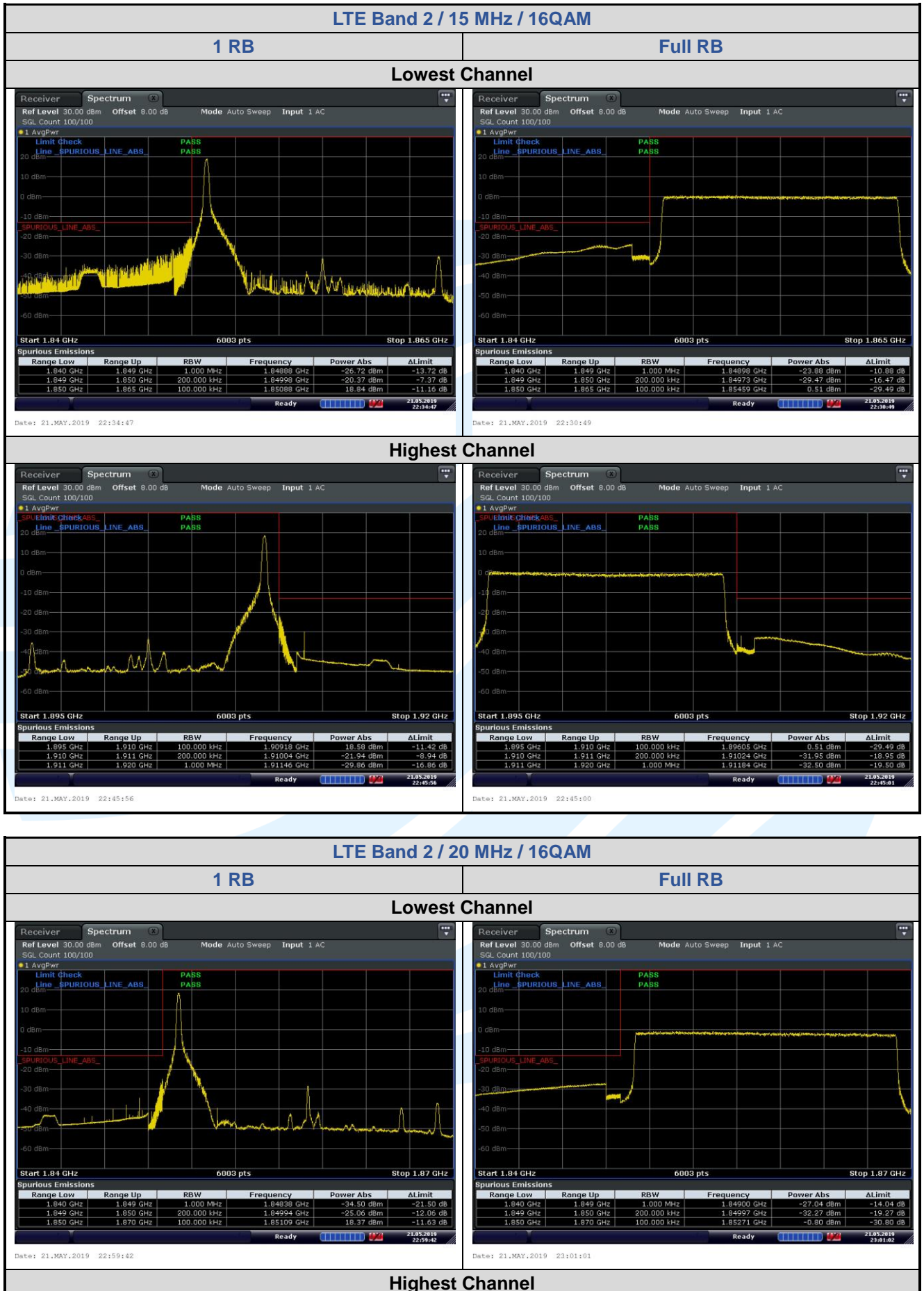
Full RB

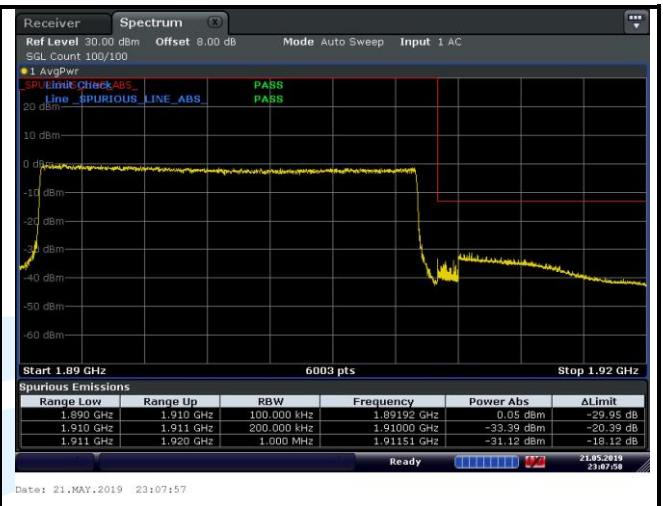
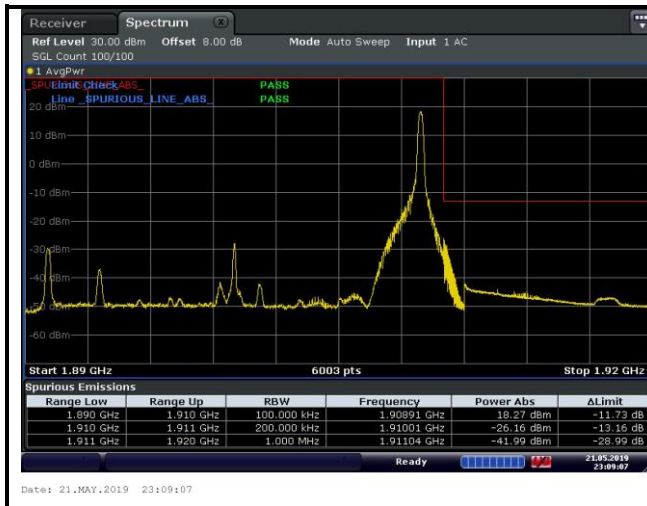
Lowest Channel



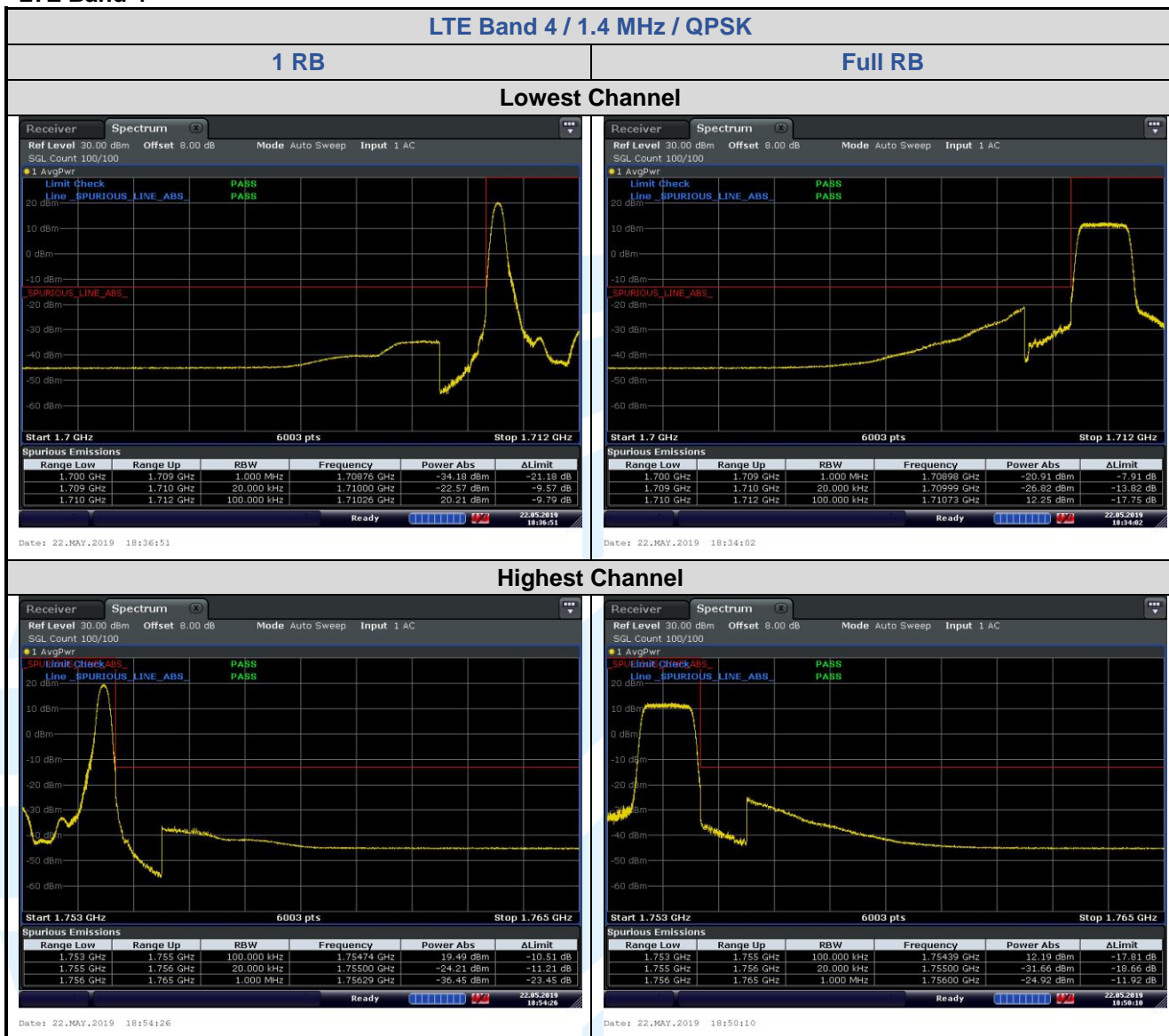
Highest Channel

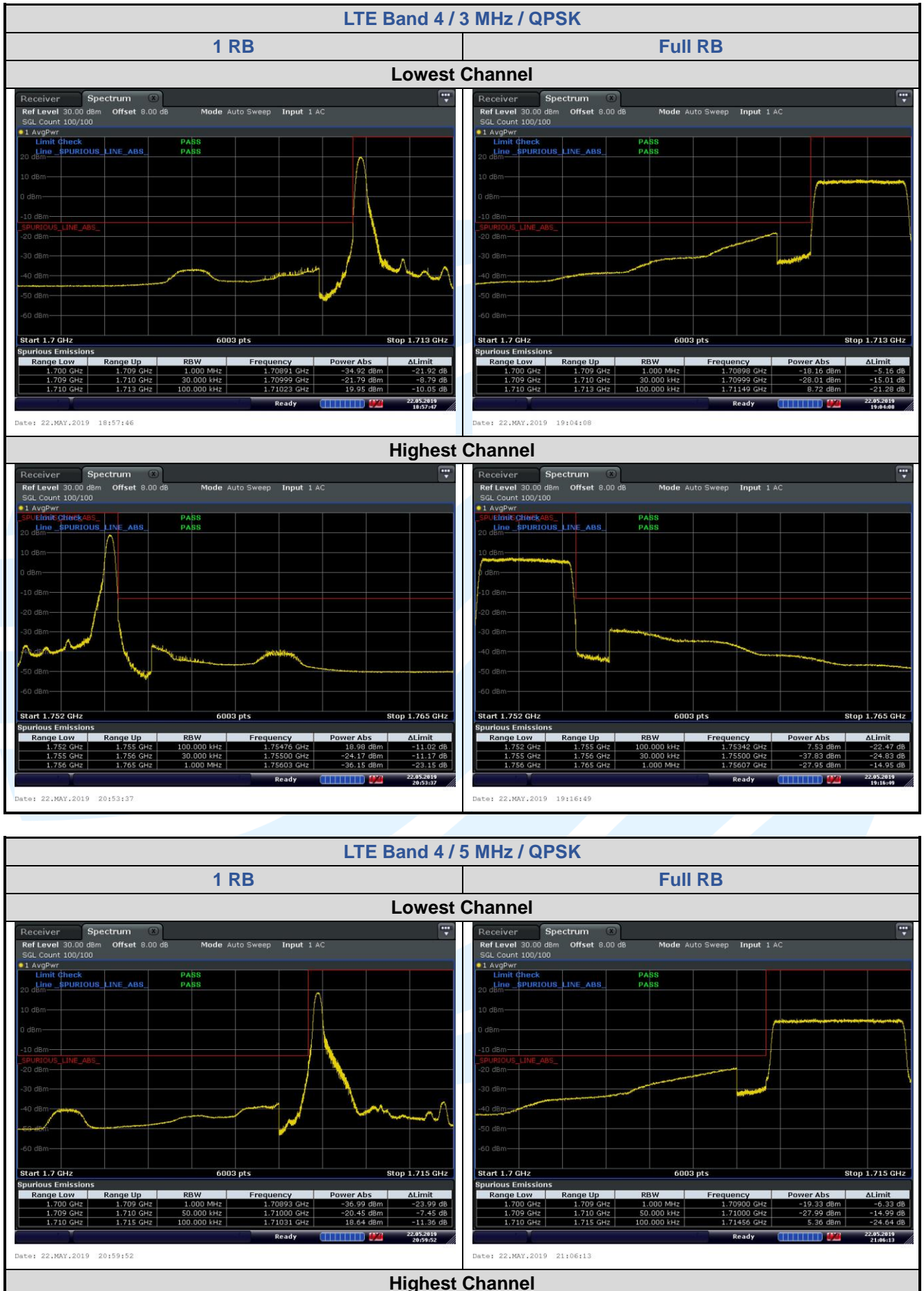


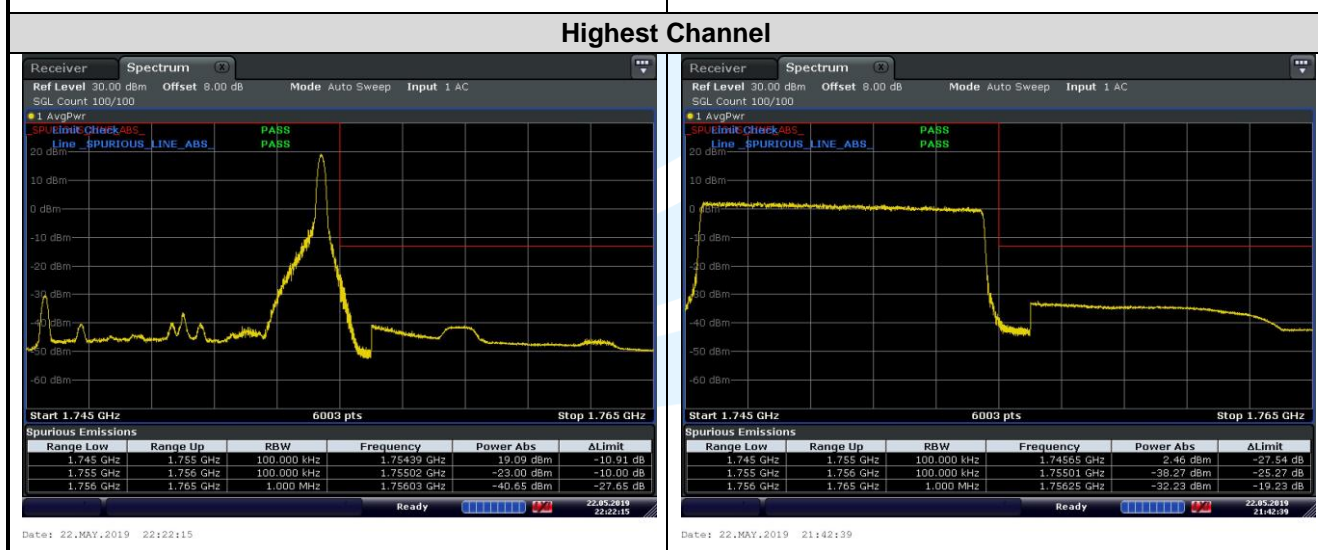
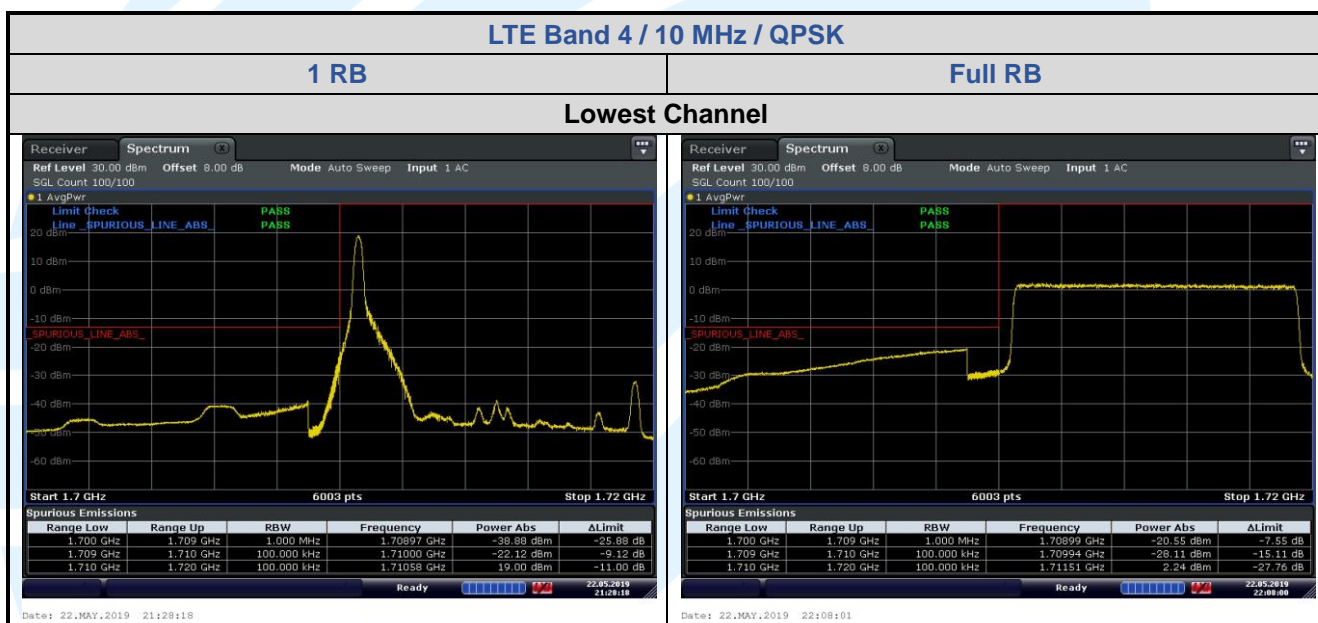
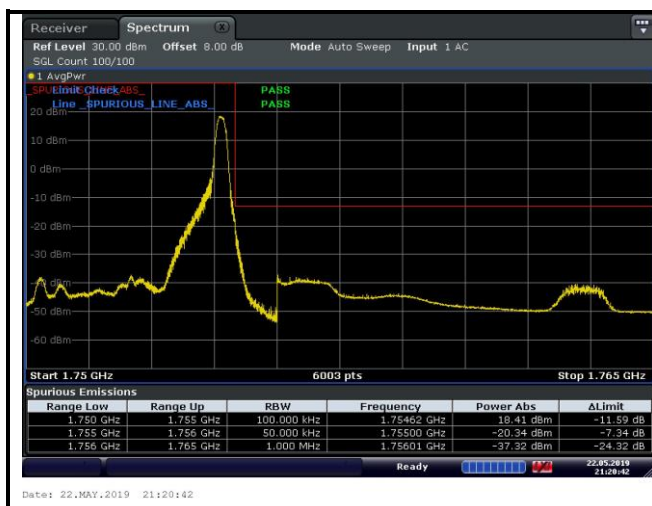


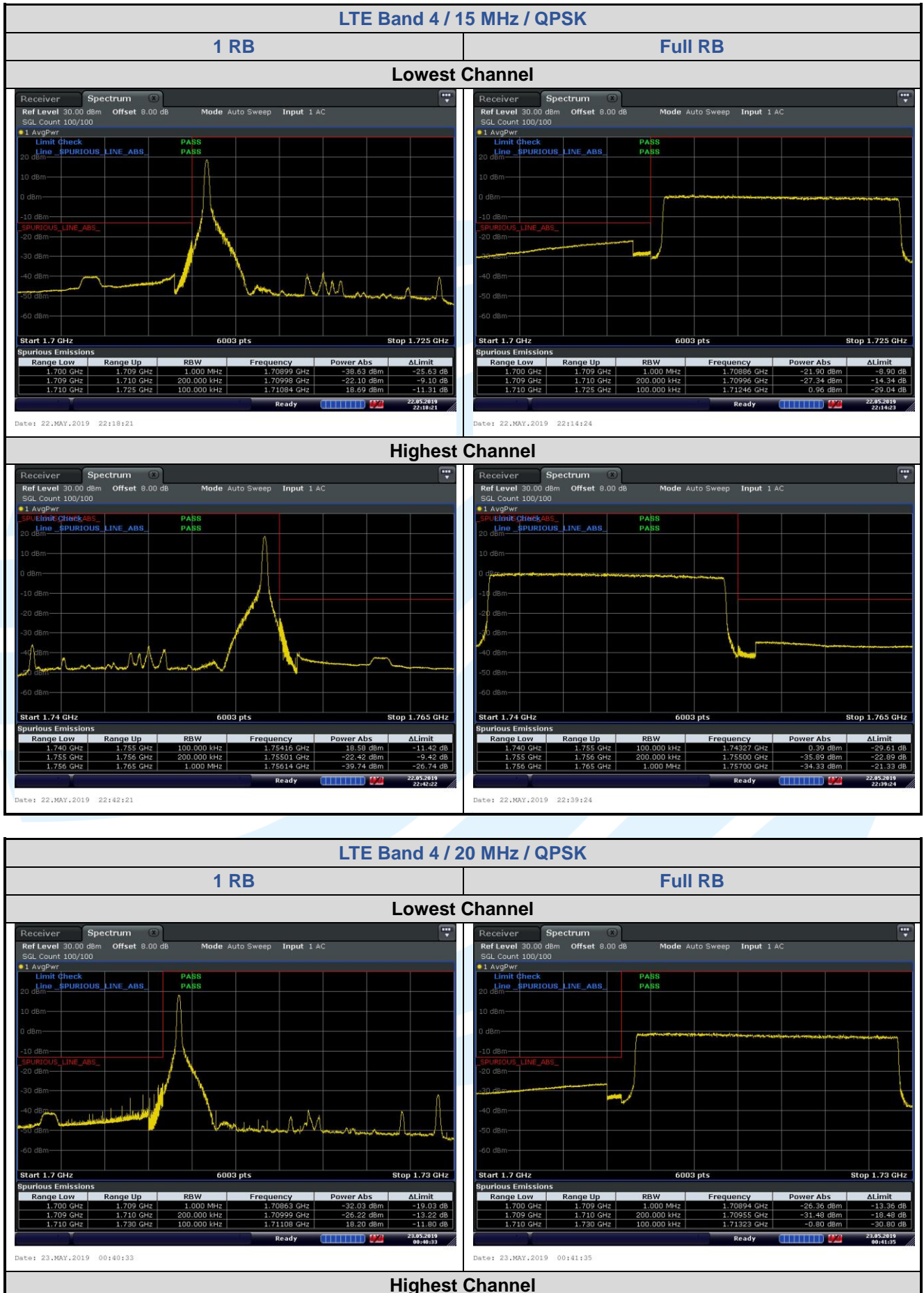


LTE Band 4







**LTE Band 4 / 20 MHz / QPSK**
1 RB
Full RB
Lowest Channel



Limit Check

Line	SPURIOUS	LINE	ABS	PASS
1	PASS	PASS		

Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
1.700 GHz	1.709 GHz	1.000 MHz	1.70863 GHz	-32.03 dBm	-19.03 dB
1.709 GHz	1.710 GHz	200.000 kHz	1.70999 GHz	-26.22 dBm	-13.22 dB
1.710 GHz	1.730 GHz	100.000 kHz	1.71108 GHz	18.20 dBm	-11.80 dB

Date: 23.MAY.2019 00:40:33



Limit Check

Line	SPURIOUS	LINE	ABS	PASS
1	PASS	PASS		

Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
1.700 GHz	1.709 GHz	1.000 MHz	1.70894 GHz	-26.36 dBm	-13.36 dB
1.709 GHz	1.710 GHz	200.000 kHz	1.70955 GHz	-31.48 dBm	-18.48 dB
1.710 GHz	1.730 GHz	100.000 kHz	1.71323 GHz	-0.80 dBm	-30.80 dB

Date: 23.MAY.2019 00:41:35

Highest Channel