
Hardware Setup: WMS Measurements\TS8997 Hardware Setup

Spectrum Analyzer: SA FSV 40 (SA FSV 40) @ VISA (ADR
TCPIP::192.168.48.100::inst0::instr), SN 1321.3008K40/101752,
FW 3.60

Vector Generator: VG SMW200A (VG SMW200A) @ VISA (ADR TCPIP0::A-N5182B-
301471::inst0::INSTR), SN 101752, FW 3.70

Generator: SMB100A (SMB100A) @ VISA (ADR
TCPIP::192.168.48.110::inst0::INSTR), SN 180599, FW
3.20.390.24 / Drv:Rev 2.21.0, 07/2016, CVI 2015

OSP: OSP-B157W8PLUS (OSP-B157W8PLUS) @ VISA (ADR
TCPIP::192.168.48.157::inst0::instr), SN 1527.1144.06 / 100955,
FW 2.00.1.0

Summary

| Test | Frequency (MHz) | Nominal Power (dBm) | Nominal Bandwidth (MHz) | Result |
|--------------------------------|-----------------|---------------------|-------------------------|--------|
| Emission Bandwidth 26 dB | 5260.000 | 24.0 | 20.000000 | PASS |
| RF output power | 5260.000 | 24.0 | 20.000000 | PASS |
| Power Spectral Density | 5260.000 | 24.0 | 20.000000 | PASS |
| Occupied Channel Bandwidth 99% | 5260.000 | 24.0 | 20.000000 | PASS |
| Emission Bandwidth 26 dB | 5300.000 | 24.0 | 20.000000 | PASS |
| Occupied Channel Bandwidth 99% | 5300.000 | 24.0 | 20.000000 | PASS |
| Emission Bandwidth 26 dB | 5335.000 | 24.0 | 20.000000 | PASS |
| Occupied Channel Bandwidth 99% | 5335.000 | 24.0 | 20.000000 | PASS |
| Emission Bandwidth 26 dB | 5270.000 | 24.0 | 40.000000 | PASS |
| Occupied Channel Bandwidth 99% | 5270.000 | 24.0 | 40.000000 | PASS |
| Emission Bandwidth 26 dB | 5300.000 | 24.0 | 40.000000 | PASS |
| Occupied Channel Bandwidth 99% | 5300.000 | 24.0 | 40.000000 | PASS |
| Emission Bandwidth 26 dB | 5325.000 | 24.0 | 40.000000 | PASS |
| Occupied Channel Bandwidth 99% | 5325.000 | 24.0 | 40.000000 | PASS |
| Emission Bandwidth 26 dB | 5290.000 | 24.0 | 80.000000 | PASS |
| Occupied Channel Bandwidth 99% | 5290.000 | 24.0 | 80.000000 | PASS |
| Emission Bandwidth 26 dB | 5300.000 | 24.0 | 80.000000 | PASS |
| Occupied Channel Bandwidth 99% | 5300.000 | 24.0 | 80.000000 | PASS |
| Emission Bandwidth 26 dB | 5305.000 | 24.0 | 80.000000 | PASS |
| Occupied Channel Bandwidth 99% | 5305.000 | 24.0 | 80.000000 | PASS |
| Emission Bandwidth 26 dB | 5250.000 | 24.0 | 160.000000 | PASS |
| Occupied Channel Bandwidth 99% | 5250.000 | 24.0 | 160.000000 | PASS |

Emission Bandwidth 26 dB (5260 MHz; 24.000 dBm; 20 MHz)

Customized settings.

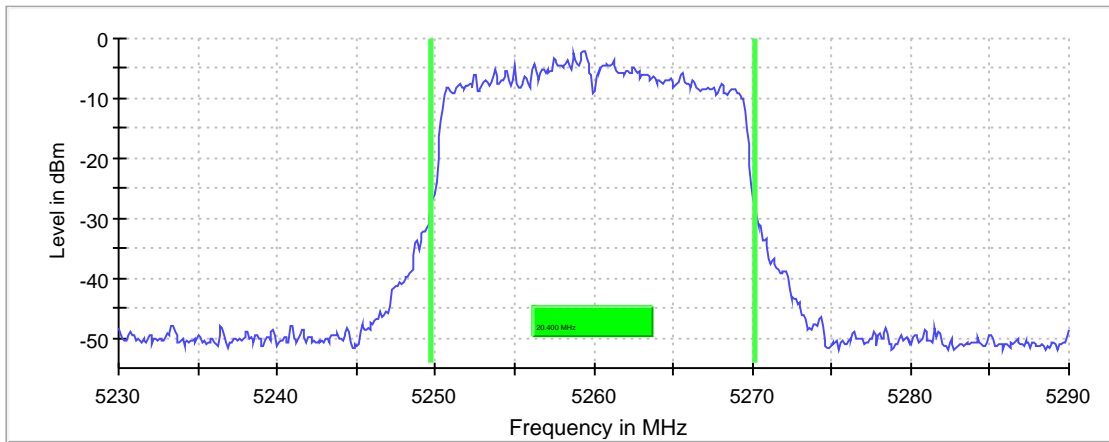
26 dB Bandwidth

| DUT Frequency (MHz) | Bandwidth (MHz) | Limit Min (MHz) | Limit Max (MHz) | Band Edge Left (MHz) | Band Edge Right (MHz) |
|---------------------|-----------------|-----------------|-----------------|----------------------|-----------------------|
| 5260.000000 | 20.400000 | --- | --- | 5249.750000 | 5270.150000 |

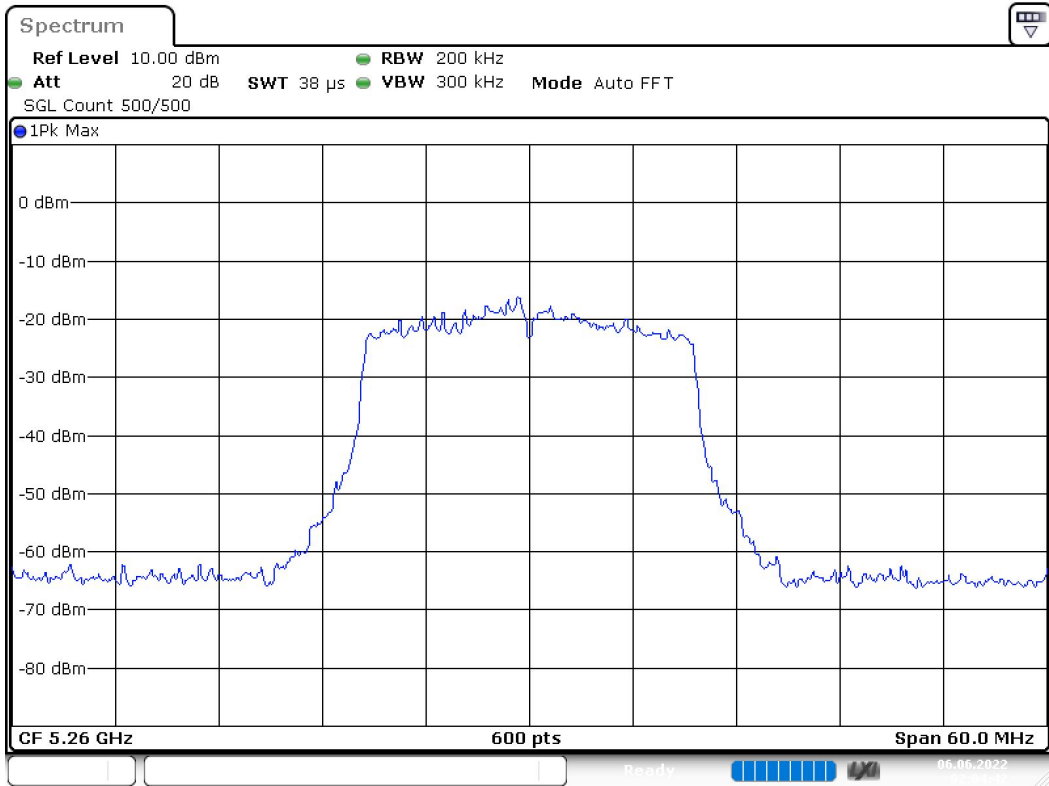
(continuation of the "26 dB Bandwidth" table from column 6 ...)

| DUT Frequency (MHz) | Max Level (dBm) | Result |
|---------------------|-----------------|--------|
| 5260.000000 | -2.0 | PASS |

26 dB Bandwidth



Bandwidth



Date: 6.JUN.2022 02:04:42

Measurement

| Setting | Instrument Value | Target Value |
|-----------------|------------------|----------------|
| Start Frequency | 5.23000 GHz | 5.23000 GHz |
| Stop Frequency | 5.29000 GHz | 5.29000 GHz |
| Span | 60.000 MHz | 60.000 MHz |
| RBW | 200.000 kHz | ~ 200.000 kHz |
| VBW | 300.000 kHz | >= 240.000 kHz |
| SweepPoints | 600 | ~ 600 |
| SweepTime | 37.969 μ s | AUTO |
| Reference Level | 10.000 dBm | AUTO |
| Attenuation | 20.000 dB | 20.000 dB |
| Detector | MaxPeak | MaxPeak |
| SweepCount | 500 | 500 |
| Filter | 3 dB | 3 dB |
| Trace Mode | Max Hold | Max Hold |
| Sweeptype | FFT | AUTO |
| Preamp | off | off |

RF output power (5260 MHz; 24.000 dBm; 20 MHz)

Customized settings.

Result

| DUT Frequency (MHz) | Gated RMS (dBm) | Limit Max (dBm) | Gated EIRP (dBm) | DutyCycle (%) | Result |
|---------------------|-----------------|-----------------|------------------|---------------|--------|
| 5260.000000 | 11.2 | 24.0 | 11.2 | 92.023 | PASS |

OSP PowerMeter settings

| Setting | Instrument Value | Target Value |
|------------------|------------------|---------------|
| Measurement Time | 1.000 s | 1.000 s |
| Points | 1000000 | 1000000 |
| Time resolution | 1.000 μ s | 1.000 μ s |

Power Spectral Density (5260 MHz; 24.000 dBm; 20 MHz)

Customized settings.

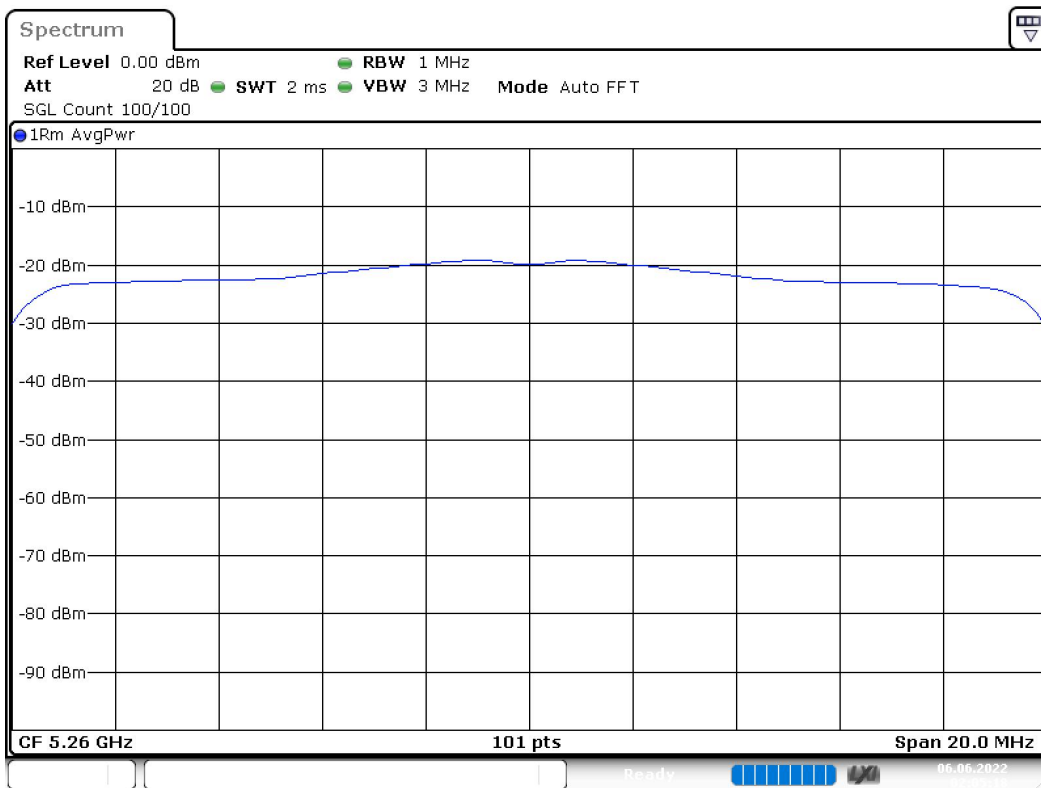
Result

| DUT Frequency (MHz) | Frequency (MHz) | PSD (dBm) | Limit Max (dBm) | Result |
|---------------------|-----------------|-----------|-----------------|--------|
| 5260.000000 | 5259.009901 | -2.350 | 11.0 | PASS |

Ports

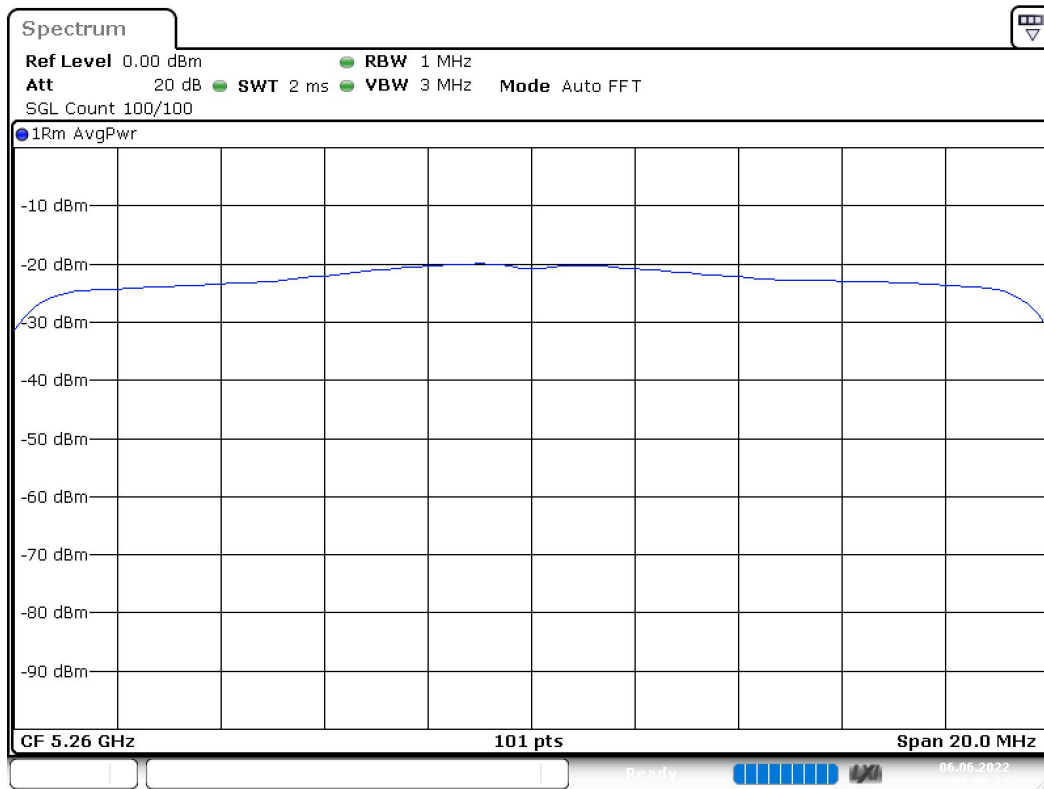
| Port | State |
|------|-------|
| 1 | used |
| 2 | used |

PSD Connector 1



Date: 6.JUN.2022 02:05:19

PSD Connector 2



Date: 6.JUN.2022 02:05:24

Measurement

| Setting | Instrument Value | Target Value |
|-----------------|------------------|---------------|
| Start Frequency | 5.25000 GHz | 5.25000 GHz |
| Stop Frequency | 5.27000 GHz | 5.27000 GHz |
| Span | 20.000 MHz | 20.000 MHz |
| RBW | 1.000 MHz | <= 1.000 MHz |
| VBW | 3.000 MHz | >= 3.000 MHz |
| SweepPoints | 101 | ~ 40 |
| Sweeptime | 2.020 ms | 2.020 ms |
| Reference Level | 0.000 dBm | 0.000 dBm |
| Attenuation | 20.000 dB | AUTO |
| Detector | RMS | RMS |
| SweepCount | 100 | 100 |
| Filter | 3 dB | 3 dB |
| Trace Mode | Average Power | Average Power |
| SweepType | FFT | AUTO |
| Preamp | off | off |

Occupied Channel Bandwidth 99% (5260 MHz; 24.000 dBm; 20 MHz)

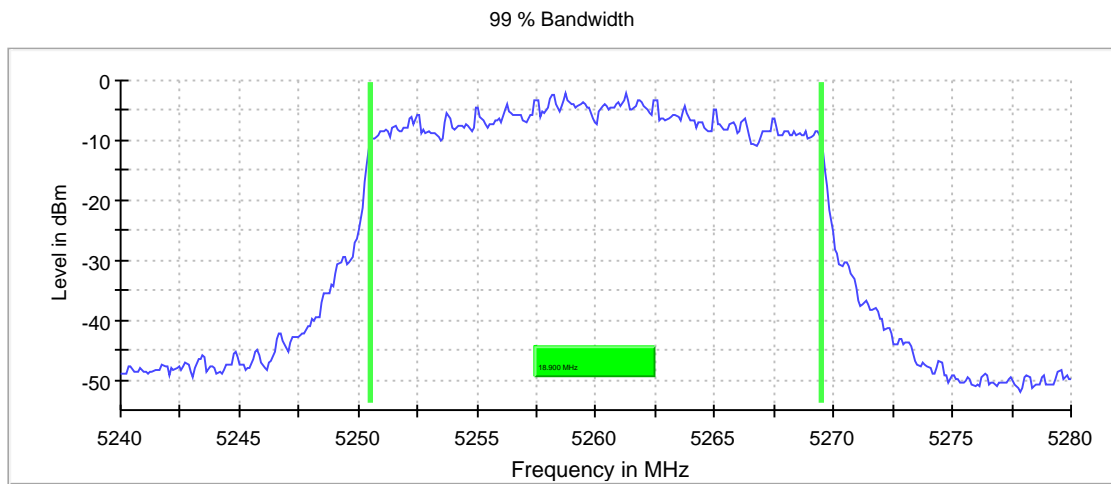
Customized settings.

99 % Bandwidth

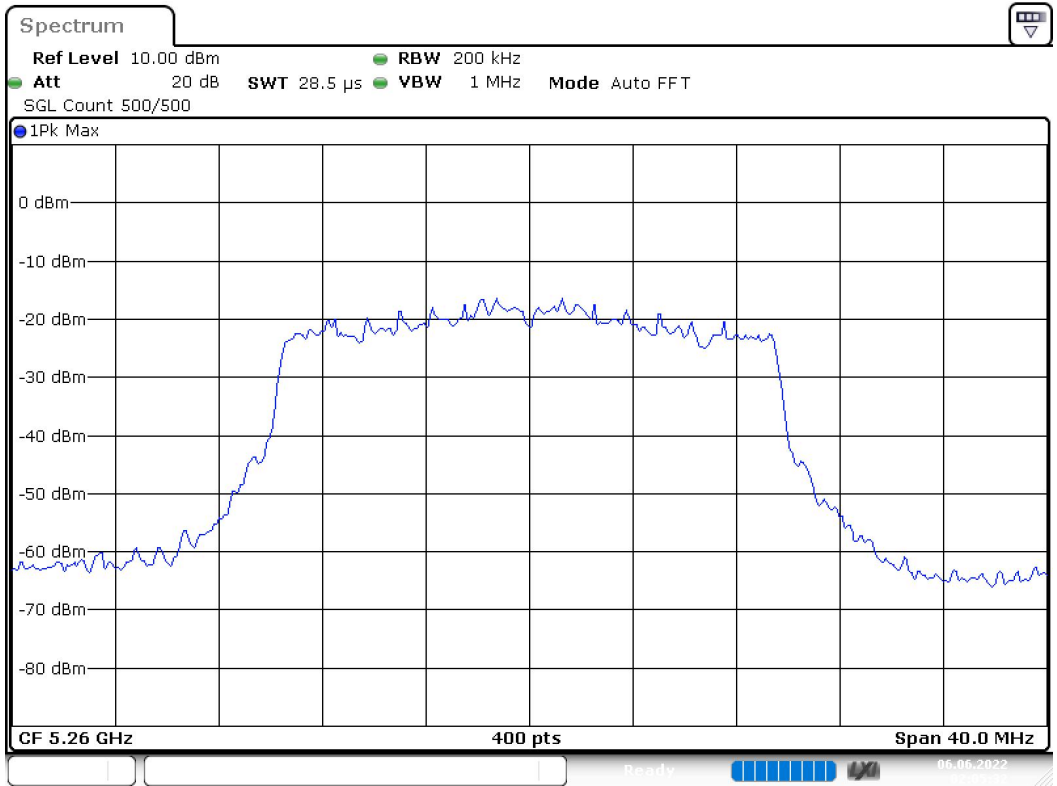
| DUT Frequency (MHz) | Bandwidth (MHz) | Limit Min (MHz) | Limit Max (MHz) | Band Edge Left (MHz) | Band Edge Right (MHz) |
|---------------------|-----------------|-----------------|-----------------|----------------------|-----------------------|
| 5260.000000 | 18.900000 | --- | --- | 5250.550000 | 5269.450000 |

(continuation of the "99 % Bandwidth" table from column 6 ...)

| DUT Frequency (MHz) | Result |
|---------------------|--------|
| 5260.000000 | PASS |



Bandwidth



Date: 6.JUN.2022 02:05:33

Measurement

| Setting | Instrument Value | Target Value |
|-----------------|------------------|--------------------|
| Start Frequency | 5.24000 GHz | 5.24000 GHz |
| Stop Frequency | 5.28000 GHz | 5.28000 GHz |
| Span | 40.000 MHz | 40.000 MHz |
| RBW | 200.000 kHz | \geq 200.000 kHz |
| VBW | 1.000 MHz | \geq 600.000 kHz |
| SweepPoints | 400 | \sim 400 |
| SweepTime | 28.477 μ s | AUTO |
| Reference Level | 10.000 dBm | AUTO |
| Attenuation | 20.000 dB | 20.000 dB |
| Detector | MaxPeak | MaxPeak |
| SweepCount | 500 | 500 |
| Filter | 3 dB | 3 dB |
| Trace Mode | Max Hold | Max Hold |
| Sweeptype | FFT | AUTO |
| Preamp | off | off |

Emission Bandwidth 26 dB (5300 MHz; 24.000 dBm; 20 MHz)

Customized settings.

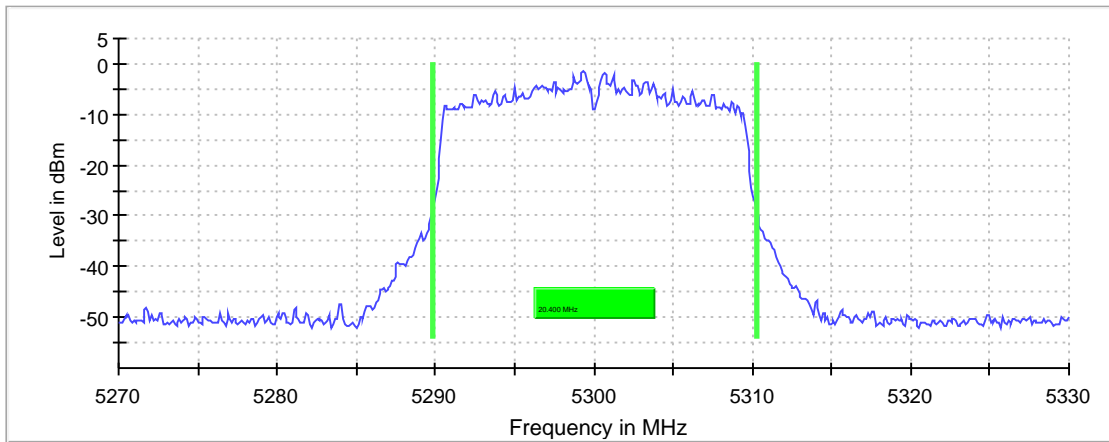
26 dB Bandwidth

| DUT Frequency (MHz) | Bandwidth (MHz) | Limit Min (MHz) | Limit Max (MHz) | Band Edge Left (MHz) | Band Edge Right (MHz) |
|---------------------|-----------------|-----------------|-----------------|----------------------|-----------------------|
| 5300.000000 | 20.400000 | --- | --- | 5289.850000 | 5310.250000 |

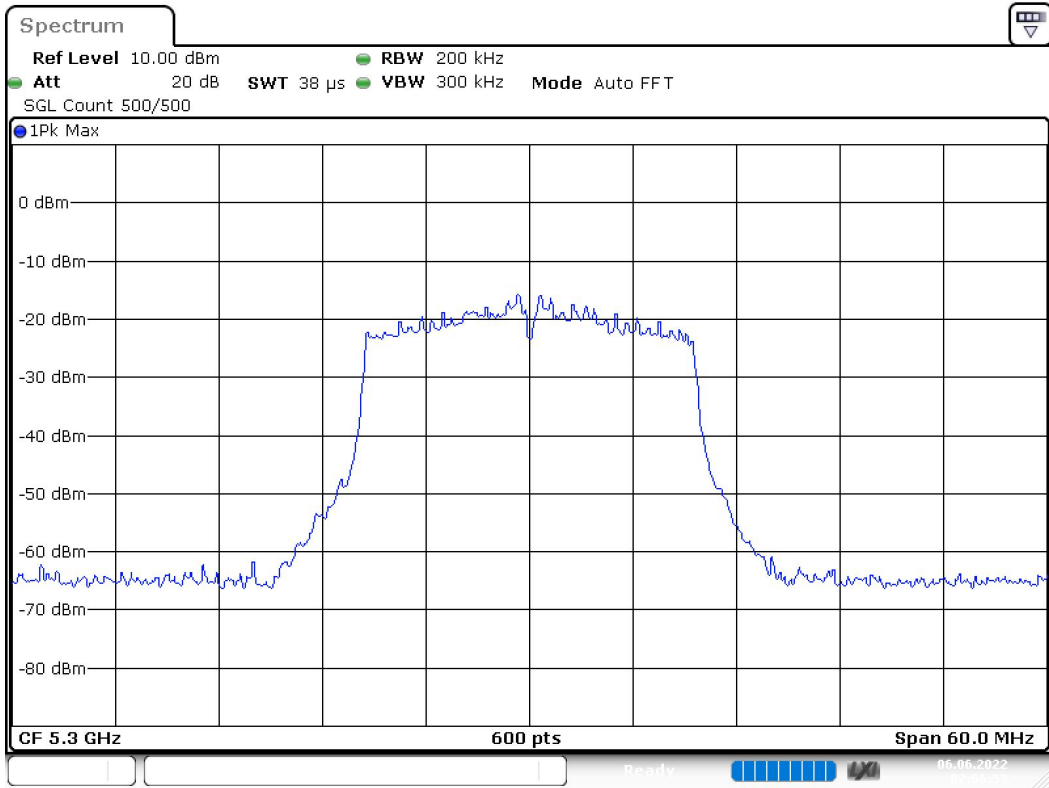
(continuation of the "26 dB Bandwidth" table from column 6 ...)

| DUT Frequency (MHz) | Max Level (dBm) | Result |
|---------------------|-----------------|--------|
| 5300.000000 | -1.5 | PASS |

26 dB Bandwidth



Bandwidth



Date: 6.JUN.2022 02:06:54

Occupied Channel Bandwidth 99% (5300 MHz; 24.000 dBm; 20 MHz)

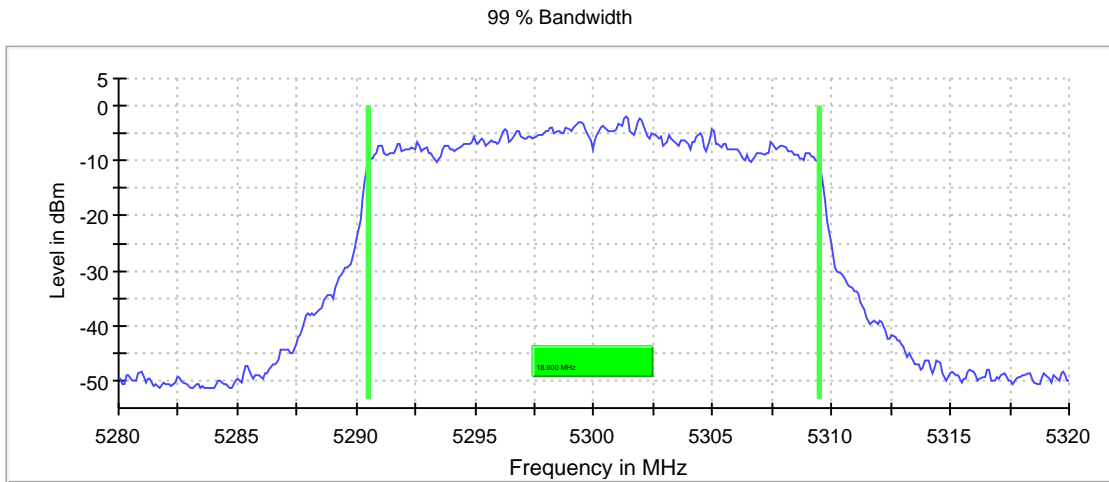
Customized settings.

99 % Bandwidth

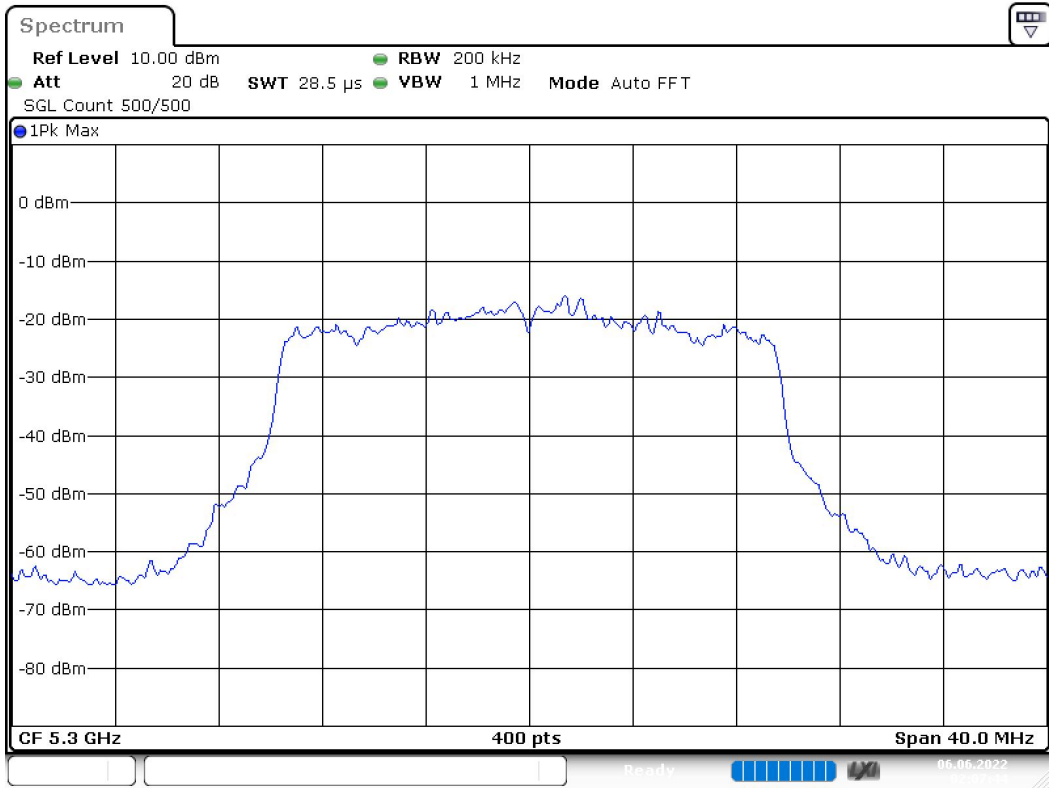
| DUT Frequency (MHz) | Bandwidth (MHz) | Limit Min (MHz) | Limit Max (MHz) | Band Edge Left (MHz) | Band Edge Right (MHz) |
|---------------------|-----------------|-----------------|-----------------|----------------------|-----------------------|
| 5300.000000 | 18.900000 | --- | --- | 5290.550000 | 5309.450000 |

(continuation of the "99 % Bandwidth" table from column 6 ...)

| DUT Frequency (MHz) | Result |
|---------------------|--------|
| 5300.000000 | PASS |



Bandwidth



Date: 6.JUN.2022 02:07:45

Emission Bandwidth 26 dB (5335 MHz; 24.000 dBm; 20 MHz)

Customized settings.

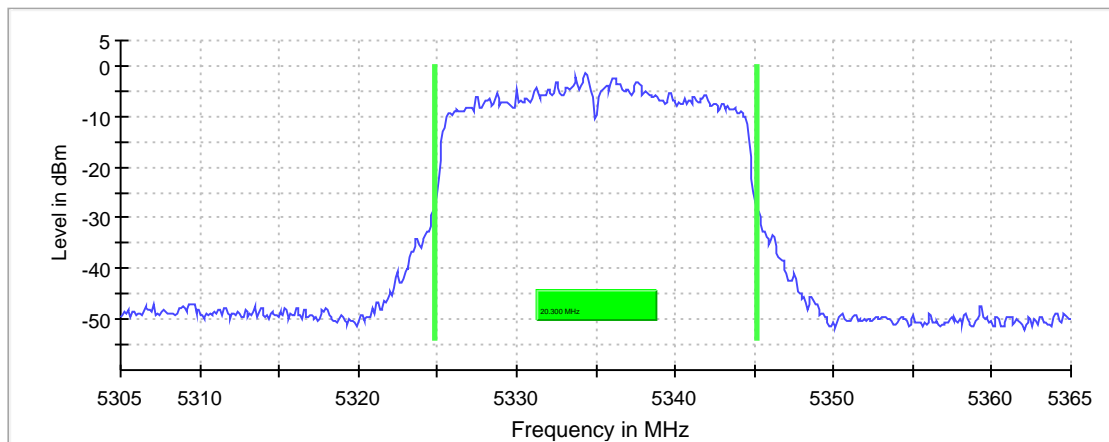
26 dB Bandwidth

| DUT Frequency (MHz) | Bandwidth (MHz) | Limit Min (MHz) | Limit Max (MHz) | Band Edge Left (MHz) | Band Edge Right (MHz) |
|---------------------|-----------------|-----------------|-----------------|----------------------|-----------------------|
| 5335.000000 | 20.300000 | --- | --- | 5324.850000 | 5345.150000 |

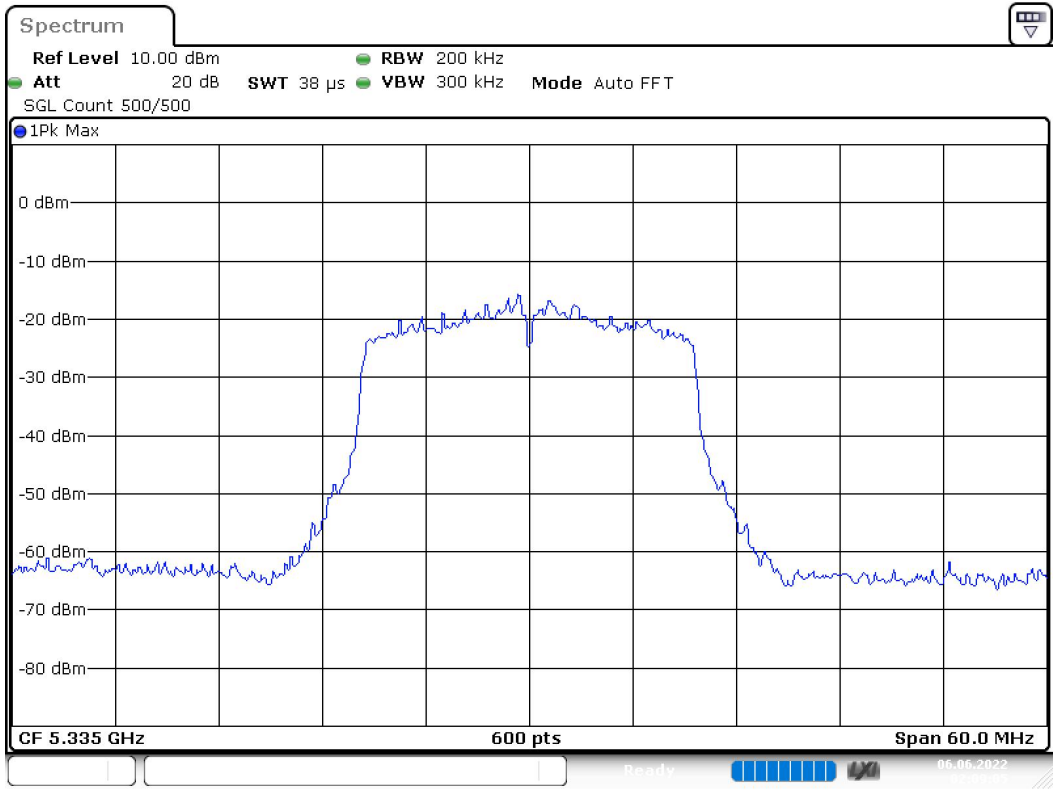
(continuation of the "26 dB Bandwidth" table from column 6 ...)

| DUT Frequency (MHz) | Max Level (dBm) | Result |
|---------------------|-----------------|--------|
| 5335.000000 | -1.5 | PASS |

26 dB Bandwidth



Bandwidth



Date: 6.JUN.2022 02:09:06

Occupied Channel Bandwidth 99% (5335 MHz; 24.000 dBm; 20 MHz)

Customized settings.

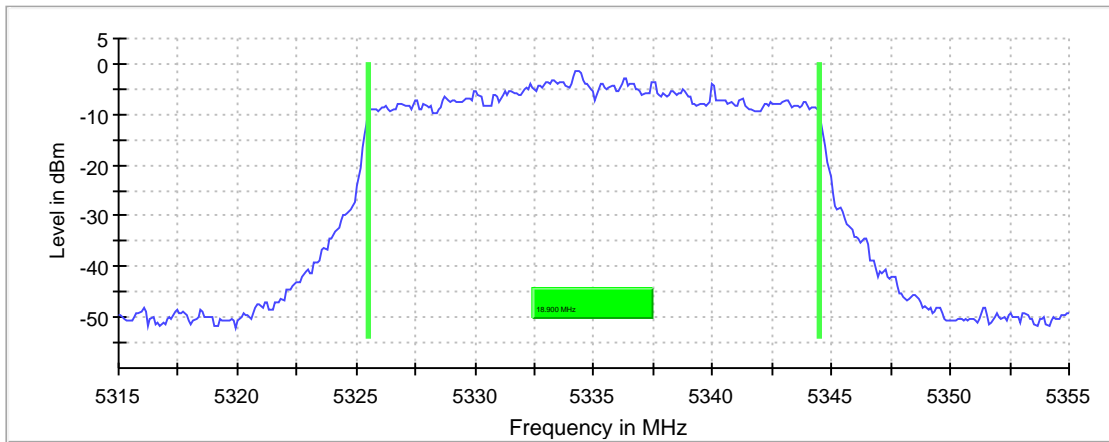
99 % Bandwidth

| DUT Frequency (MHz) | Bandwidth (MHz) | Limit Min (MHz) | Limit Max (MHz) | Band Edge Left (MHz) | Band Edge Right (MHz) |
|---------------------|-----------------|-----------------|-----------------|----------------------|-----------------------|
| 5335.000000 | 18.900000 | --- | --- | 5325.550000 | 5344.450000 |

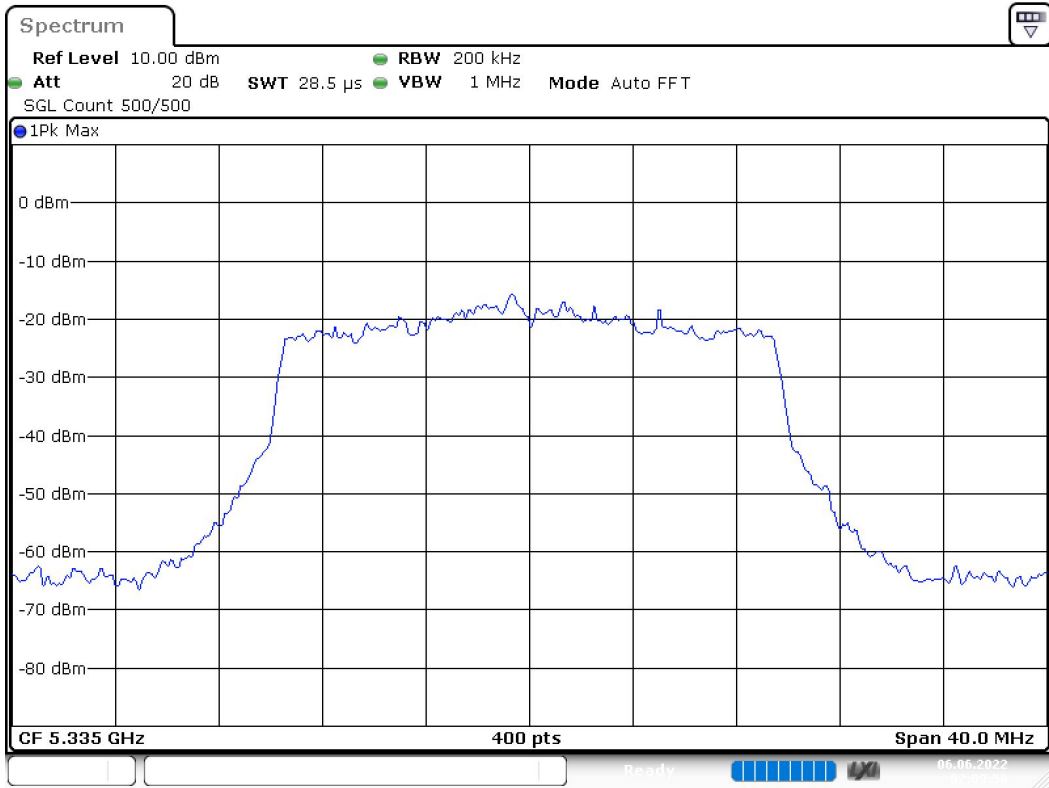
(continuation of the "99 % Bandwidth" table from column 6 ...)

| DUT Frequency (MHz) | Result |
|---------------------|--------|
| 5335.000000 | PASS |

99 % Bandwidth



Bandwidth



Date: 6.JUN.2022 02:09:56

Emission Bandwidth 26 dB (5270 MHz; 24.000 dBm; 40 MHz)

Customized settings.

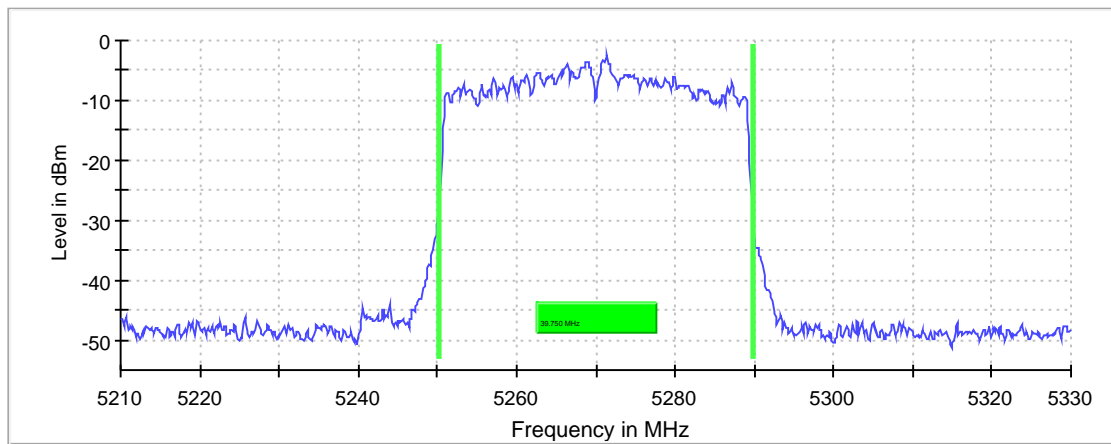
26 dB Bandwidth

| DUT Frequency (MHz) | Bandwidth (MHz) | Limit Min (MHz) | Limit Max (MHz) | Band Edge Left (MHz) | Band Edge Right (MHz) |
|---------------------|-----------------|-----------------|-----------------|----------------------|-----------------------|
| 5270.000000 | 39.750000 | --- | --- | 5250.125000 | 5289.875000 |

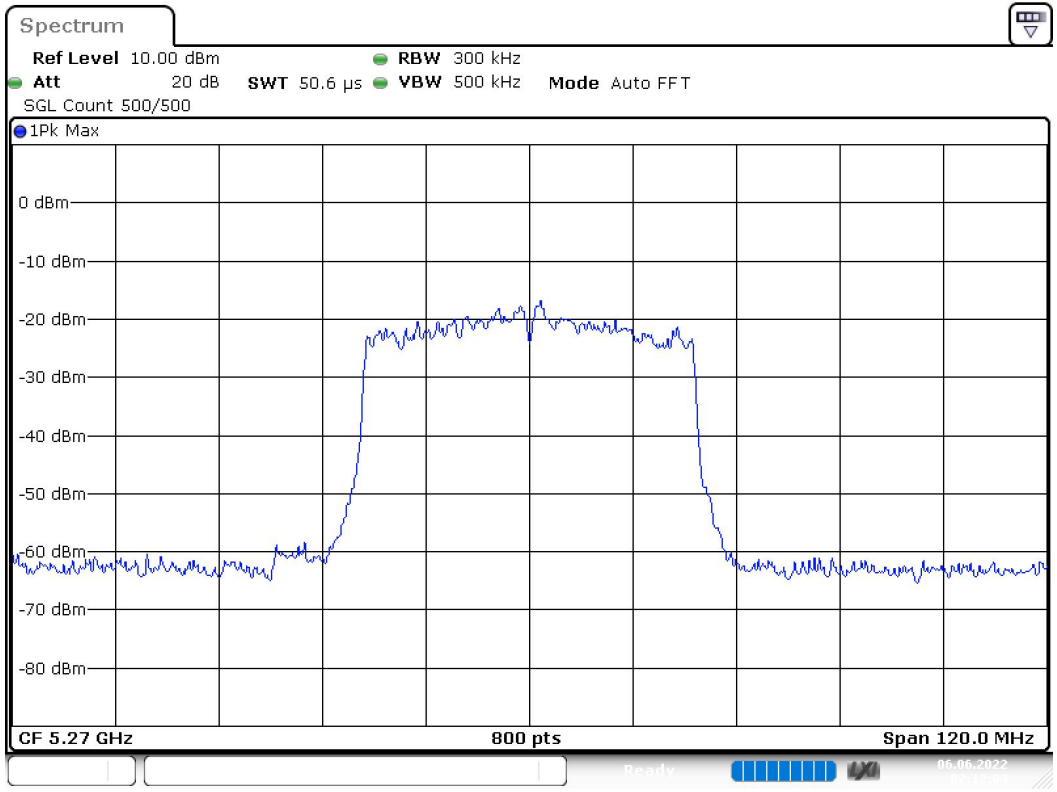
(continuation of the "26 dB Bandwidth" table from column 6 ...)

| DUT Frequency (MHz) | Max Level (dBm) | Result |
|---------------------|-----------------|--------|
| 5270.000000 | -2.6 | PASS |

26 dB Bandwidth



Bandwidth



Date: 6.JUN.2022 02:12:04

Occupied Channel Bandwidth 99% (5270 MHz; 24.000 dBm; 40 MHz)

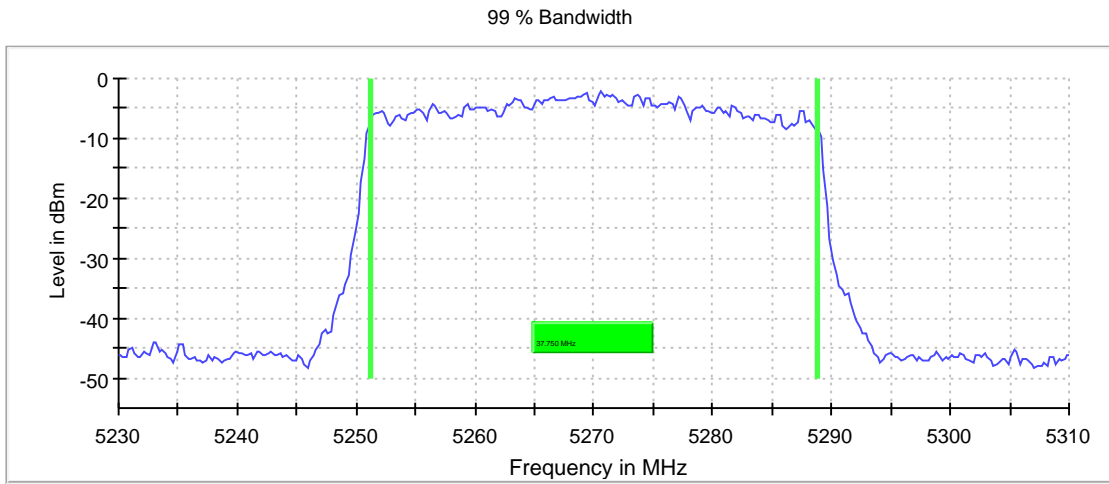
Customized settings.

99 % Bandwidth

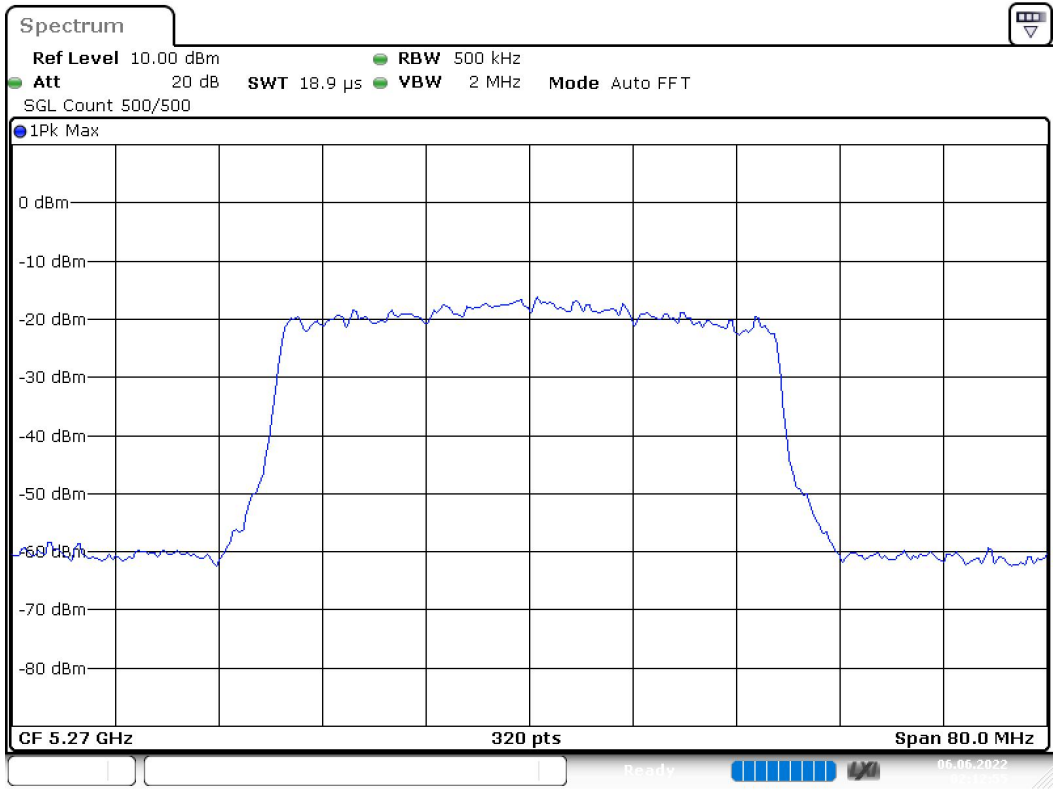
| DUT Frequency (MHz) | Bandwidth (MHz) | Limit Min (MHz) | Limit Max (MHz) | Band Edge Left (MHz) | Band Edge Right (MHz) |
|---------------------|-----------------|-----------------|-----------------|----------------------|-----------------------|
| 5270.000000 | 37.750000 | --- | --- | 5251.125000 | 5288.875000 |

(continuation of the "99 % Bandwidth" table from column 6 ...)

| DUT Frequency (MHz) | Result |
|---------------------|--------|
| 5270.000000 | PASS |



Bandwidth



Date: 6.JUN.2022 02:12:55

Emission Bandwidth 26 dB (5300 MHz; 24.000 dBm; 40 MHz)

Customized settings.

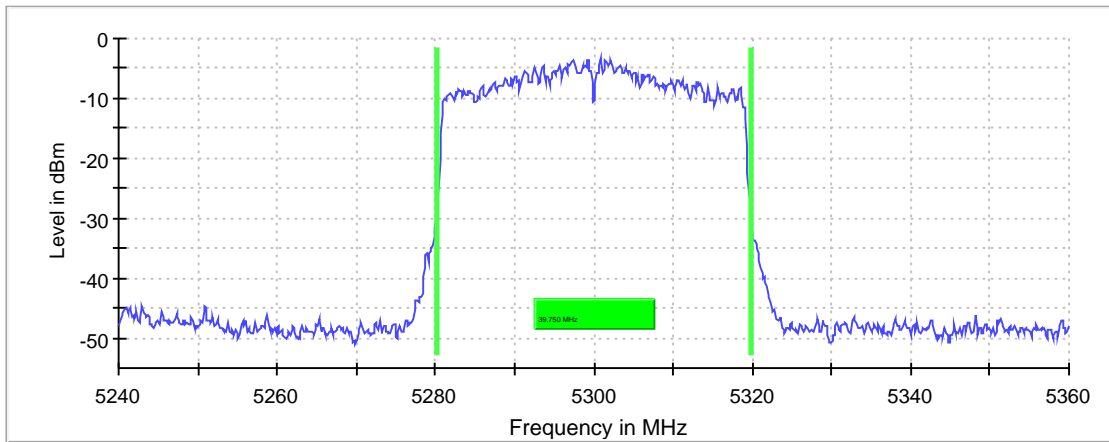
26 dB Bandwidth

| DUT Frequency (MHz) | Bandwidth (MHz) | Limit Min (MHz) | Limit Max (MHz) | Band Edge Left (MHz) | Band Edge Right (MHz) |
|---------------------|-----------------|-----------------|-----------------|----------------------|-----------------------|
| 5300.000000 | 39.750000 | --- | --- | 5280.125000 | 5319.875000 |

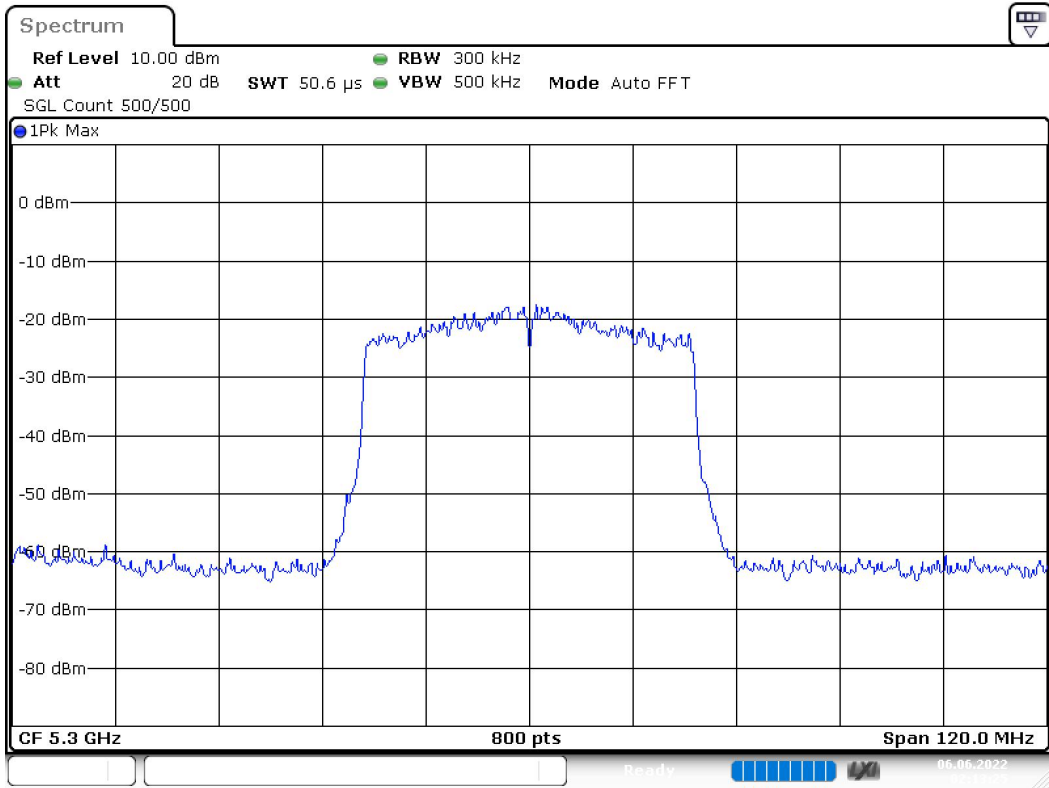
(continuation of the "26 dB Bandwidth" table from column 6 ...)

| DUT Frequency (MHz) | Max Level (dBm) | Result |
|---------------------|-----------------|--------|
| 5300.000000 | -3.4 | PASS |

26 dB Bandwidth



Bandwidth



Date: 6.JUN.2022 02:13:26

Occupied Channel Bandwidth 99% (5300 MHz; 24.000 dBm; 40 MHz)

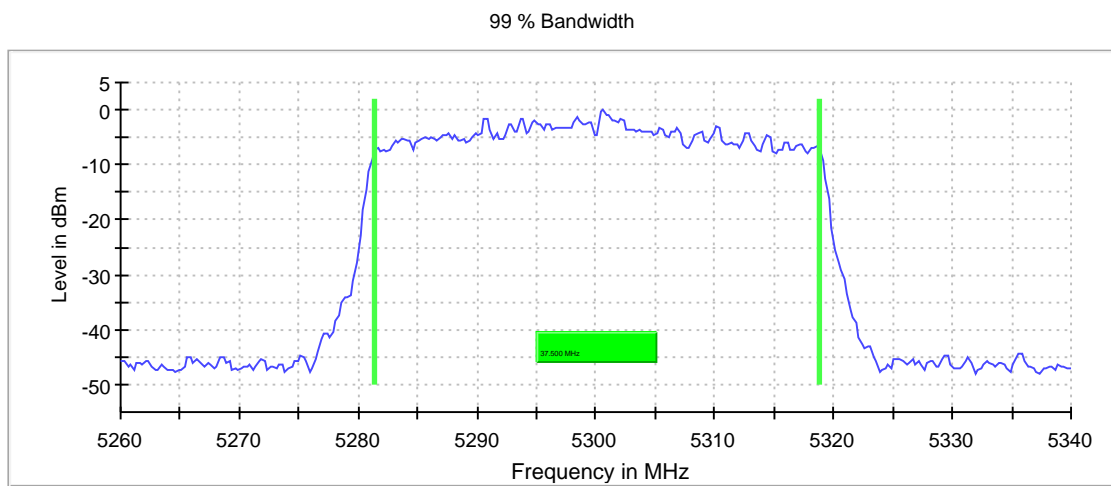
Customized settings.

99 % Bandwidth

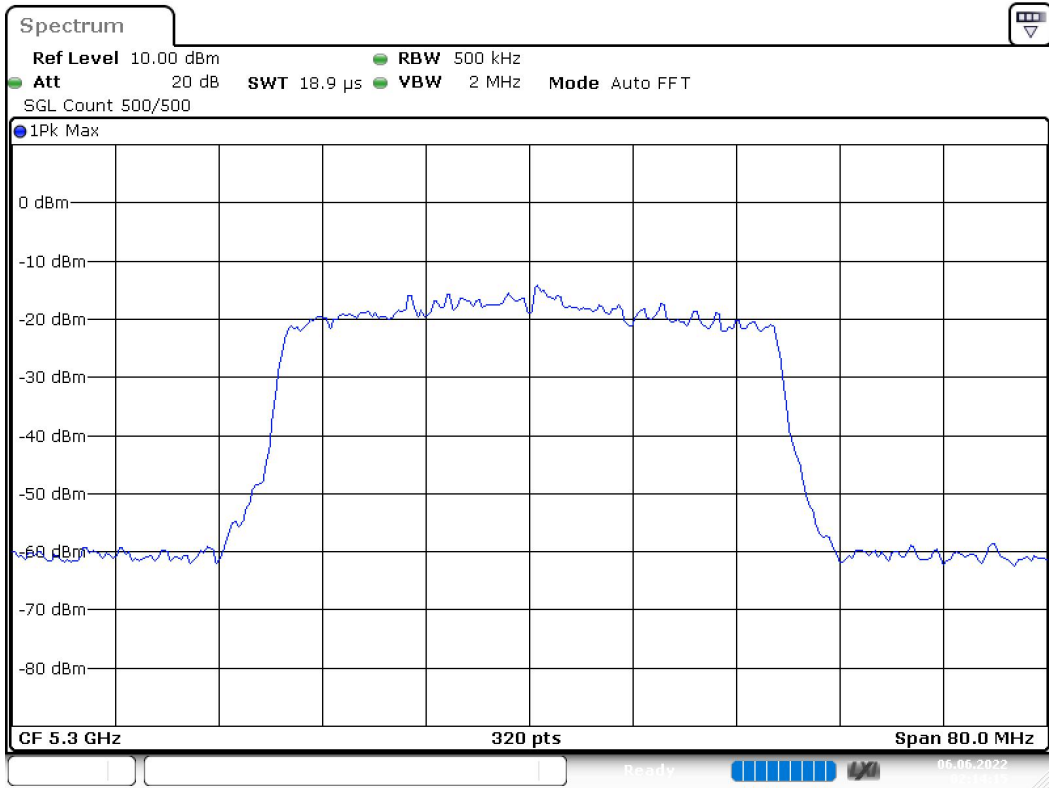
| DUT Frequency (MHz) | Bandwidth (MHz) | Limit Min (MHz) | Limit Max (MHz) | Band Edge Left (MHz) | Band Edge Right (MHz) |
|---------------------|-----------------|-----------------|-----------------|----------------------|-----------------------|
| 5300.000000 | 37.500000 | --- | --- | 5281.375000 | 5318.875000 |

(continuation of the "99 % Bandwidth" table from column 6 ...)

| DUT Frequency (MHz) | Result |
|---------------------|--------|
| 5300.000000 | PASS |



Bandwidth



Date: 6.JUN.2022 02:14:15

Emission Bandwidth 26 dB (5325 MHz; 24.000 dBm; 40 MHz)

Customized settings.

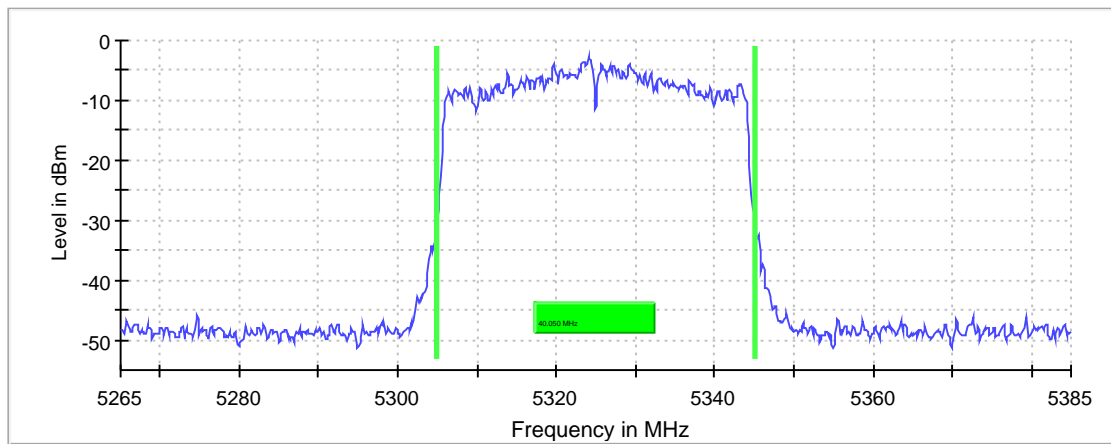
26 dB Bandwidth

| DUT Frequency (MHz) | Bandwidth (MHz) | Limit Min (MHz) | Limit Max (MHz) | Band Edge Left (MHz) | Band Edge Right (MHz) |
|---------------------|-----------------|-----------------|-----------------|----------------------|-----------------------|
| 5325.000000 | 40.050000 | --- | --- | 5304.975000 | 5345.025000 |

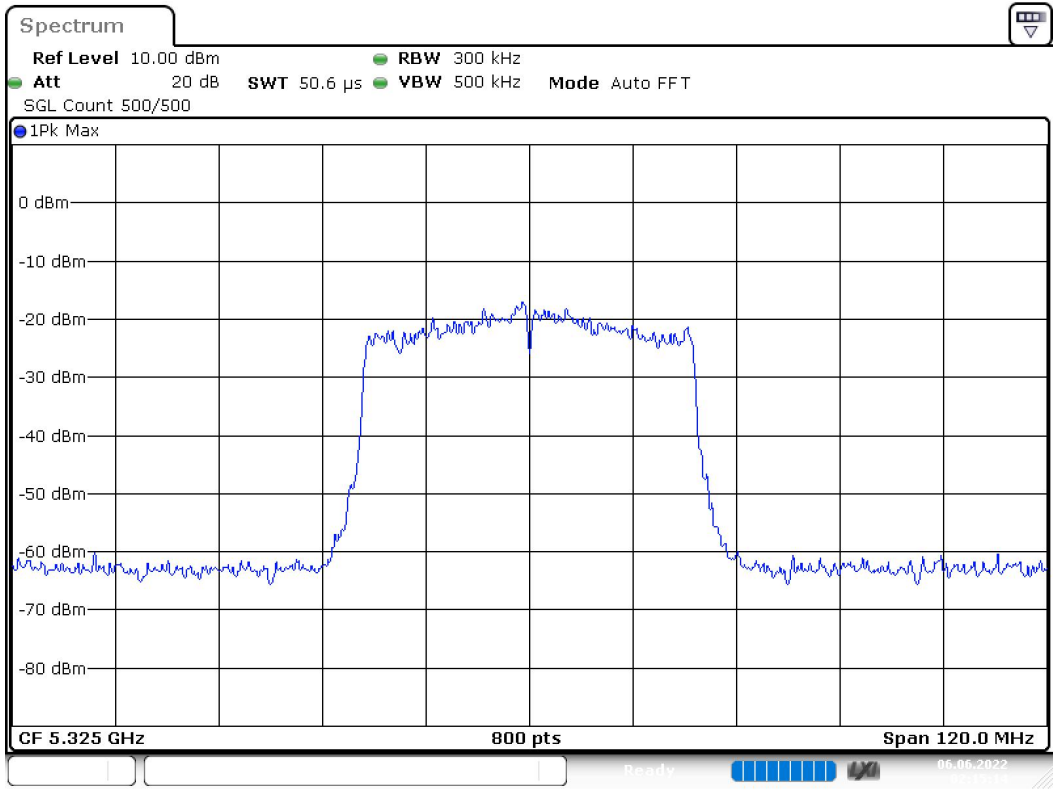
(continuation of the "26 dB Bandwidth" table from column 6 ...)

| DUT Frequency (MHz) | Max Level (dBm) | Result |
|---------------------|-----------------|--------|
| 5325.000000 | -2.8 | PASS |

26 dB Bandwidth



Bandwidth



Date: 6.JUN.2022 02:15:14

Occupied Channel Bandwidth 99% (5325 MHz; 24.000 dBm; 40 MHz)

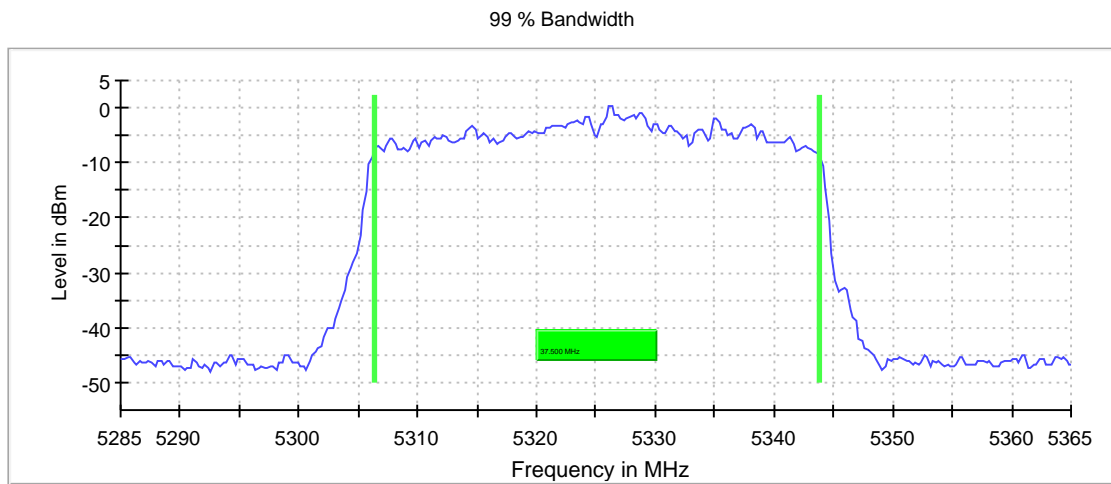
Customized settings.

99 % Bandwidth

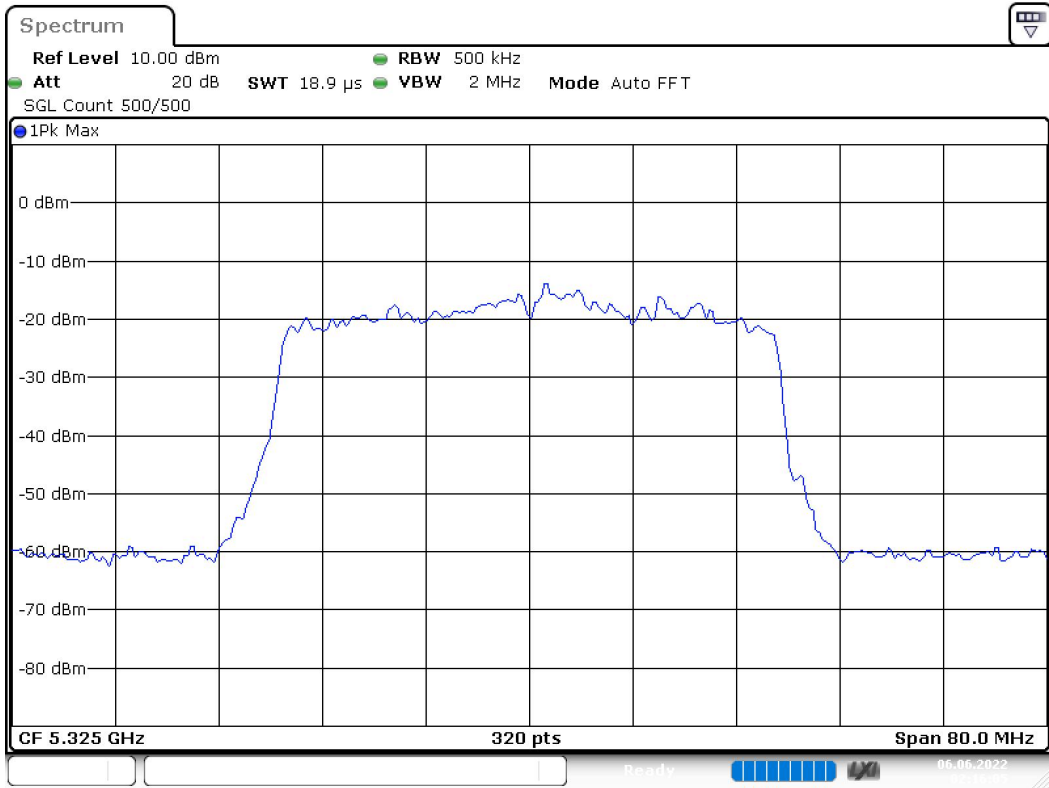
| DUT Frequency (MHz) | Bandwidth (MHz) | Limit Min (MHz) | Limit Max (MHz) | Band Edge Left (MHz) | Band Edge Right (MHz) |
|---------------------|-----------------|-----------------|-----------------|----------------------|-----------------------|
| 5325.000000 | 37.500000 | --- | --- | 5306.375000 | 5343.875000 |

(continuation of the "99 % Bandwidth" table from column 6 ...)

| DUT Frequency (MHz) | Result |
|---------------------|--------|
| 5325.000000 | PASS |



Bandwidth



Date: 6.JUN.2022 02:16:06

Emission Bandwidth 26 dB (5290 MHz; 24.000 dBm; 80 MHz)

Customized settings.

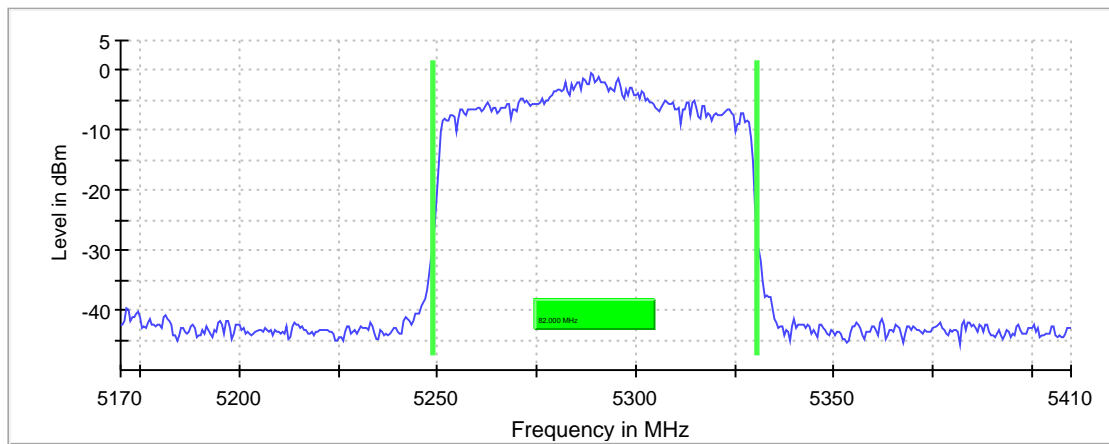
26 dB Bandwidth

| DUT Frequency (MHz) | Bandwidth (MHz) | Limit Min (MHz) | Limit Max (MHz) | Band Edge Left (MHz) | Band Edge Right (MHz) |
|---------------------|-----------------|-----------------|-----------------|----------------------|-----------------------|
| 5290.000000 | 82.000000 | --- | --- | 5248.750000 | 5330.750000 |

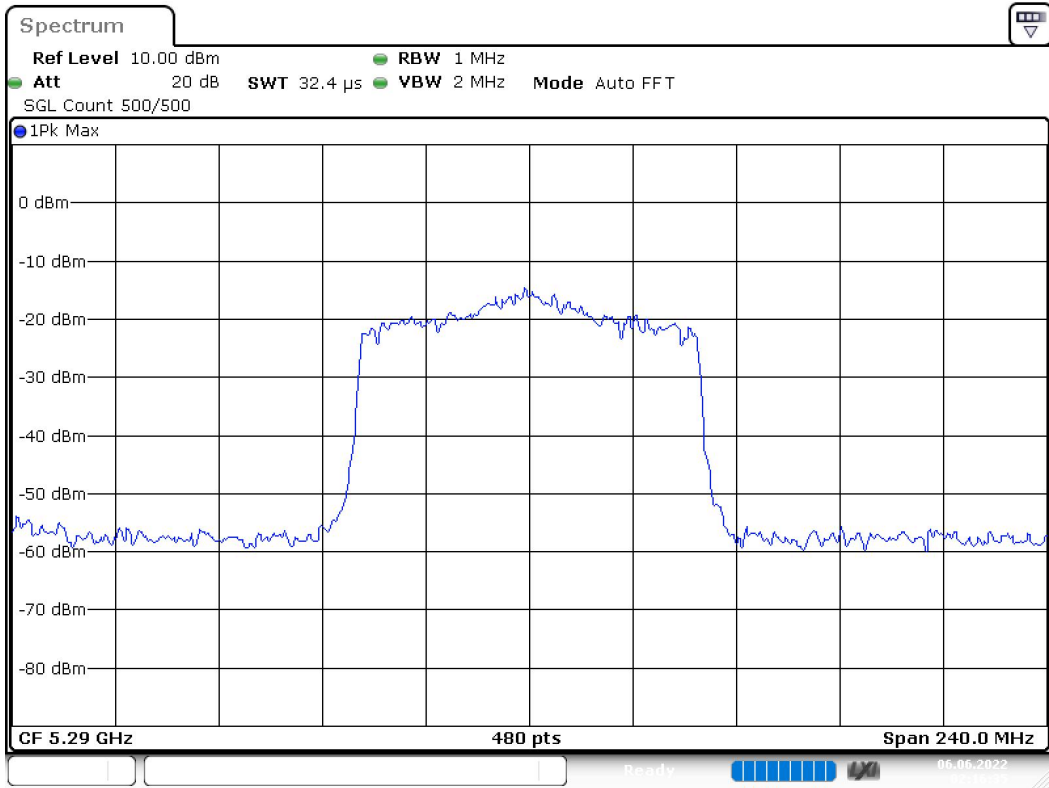
(continuation of the "26 dB Bandwidth" table from column 6 ...)

| DUT Frequency (MHz) | Max Level (dBm) | Result |
|---------------------|-----------------|--------|
| 5290.000000 | -0.5 | PASS |

26 dB Bandwidth



Bandwidth



Date: 6.JUN.2022 02:16:36

Occupied Channel Bandwidth 99% (5290 MHz; 24.000 dBm; 80 MHz)

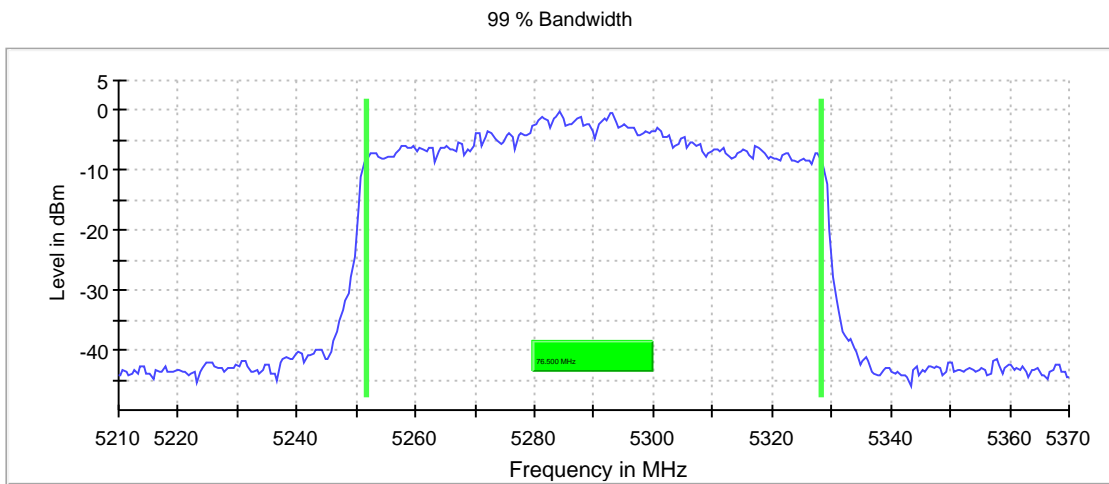
Customized settings.

99 % Bandwidth

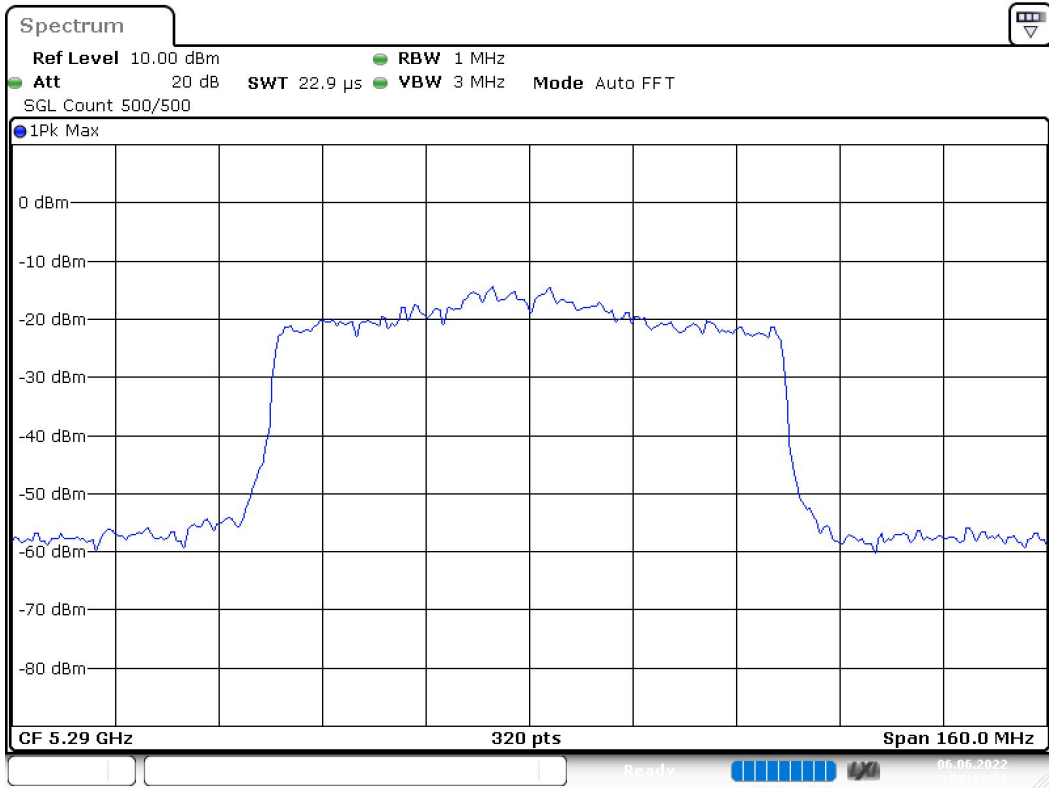
| DUT Frequency (MHz) | Bandwidth (MHz) | Limit Min (MHz) | Limit Max (MHz) | Band Edge Left (MHz) | Band Edge Right (MHz) |
|---------------------|-----------------|-----------------|-----------------|----------------------|-----------------------|
| 5290.000000 | 76.500000 | --- | --- | 5251.750000 | 5328.250000 |

(continuation of the "99 % Bandwidth" table from column 6 ...)

| DUT Frequency (MHz) | Result |
|---------------------|--------|
| 5290.000000 | PASS |



Bandwidth



Date: 6.JUN.2022 02:17:33

Emission Bandwidth 26 dB (5300 MHz; 24.000 dBm; 80 MHz)

Customized settings.

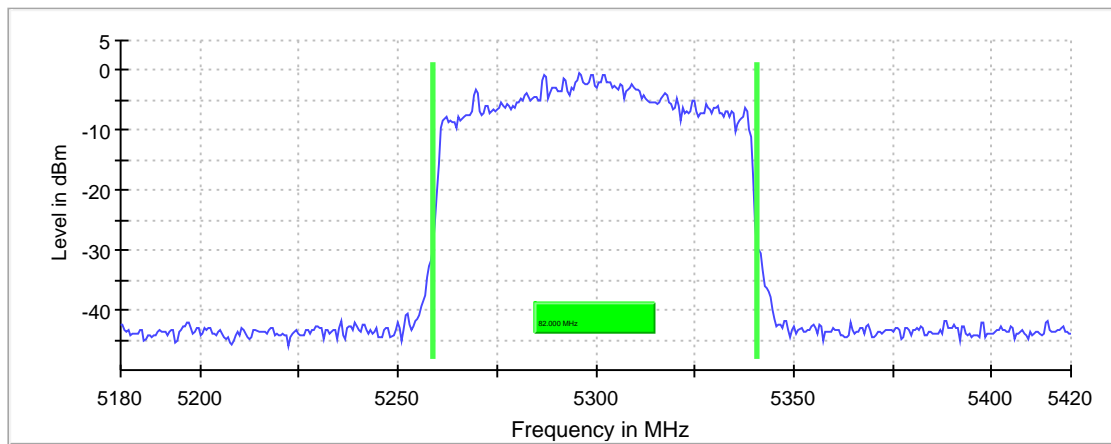
26 dB Bandwidth

| DUT Frequency (MHz) | Bandwidth (MHz) | Limit Min (MHz) | Limit Max (MHz) | Band Edge Left (MHz) | Band Edge Right (MHz) |
|---------------------|-----------------|-----------------|-----------------|----------------------|-----------------------|
| 5300.000000 | 82.000000 | --- | --- | 5258.750000 | 5340.750000 |

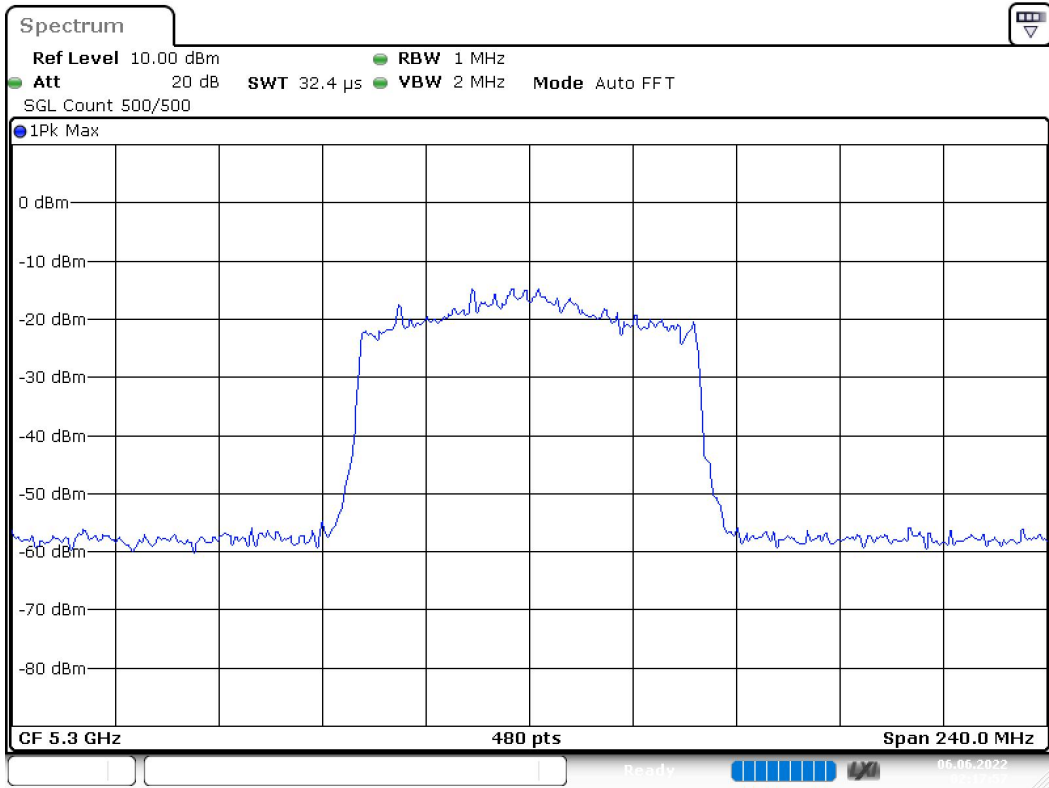
(continuation of the "26 dB Bandwidth" table from column 6 ...)

| DUT Frequency (MHz) | Max Level (dBm) | Result |
|---------------------|-----------------|--------|
| 5300.000000 | -0.6 | PASS |

26 dB Bandwidth



Bandwidth



Date: 6.JUN.2022 02:17:58

Occupied Channel Bandwidth 99% (5300 MHz; 24.000 dBm; 80 MHz)

Customized settings.

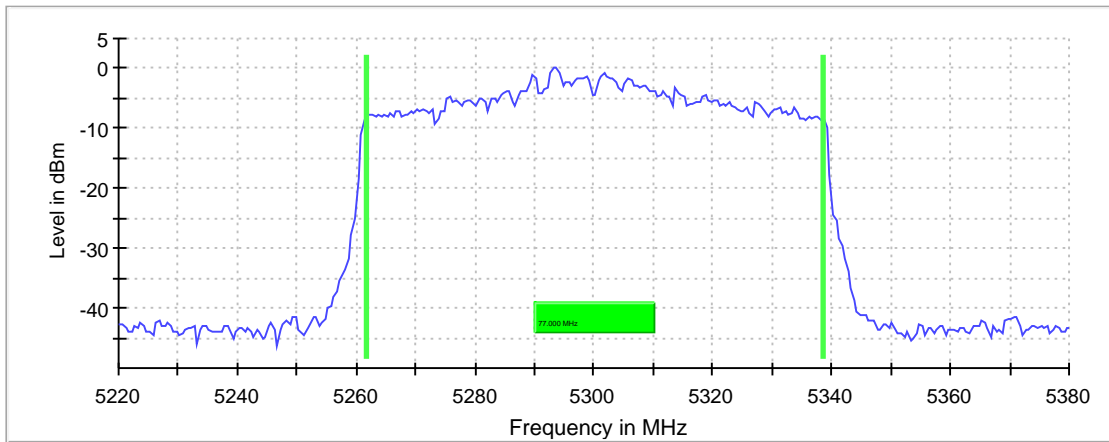
99 % Bandwidth

| DUT Frequency (MHz) | Bandwidth (MHz) | Limit Min (MHz) | Limit Max (MHz) | Band Edge Left (MHz) | Band Edge Right (MHz) |
|---------------------|-----------------|-----------------|-----------------|----------------------|-----------------------|
| 5300.000000 | 77.000000 | --- | --- | 5261.750000 | 5338.750000 |

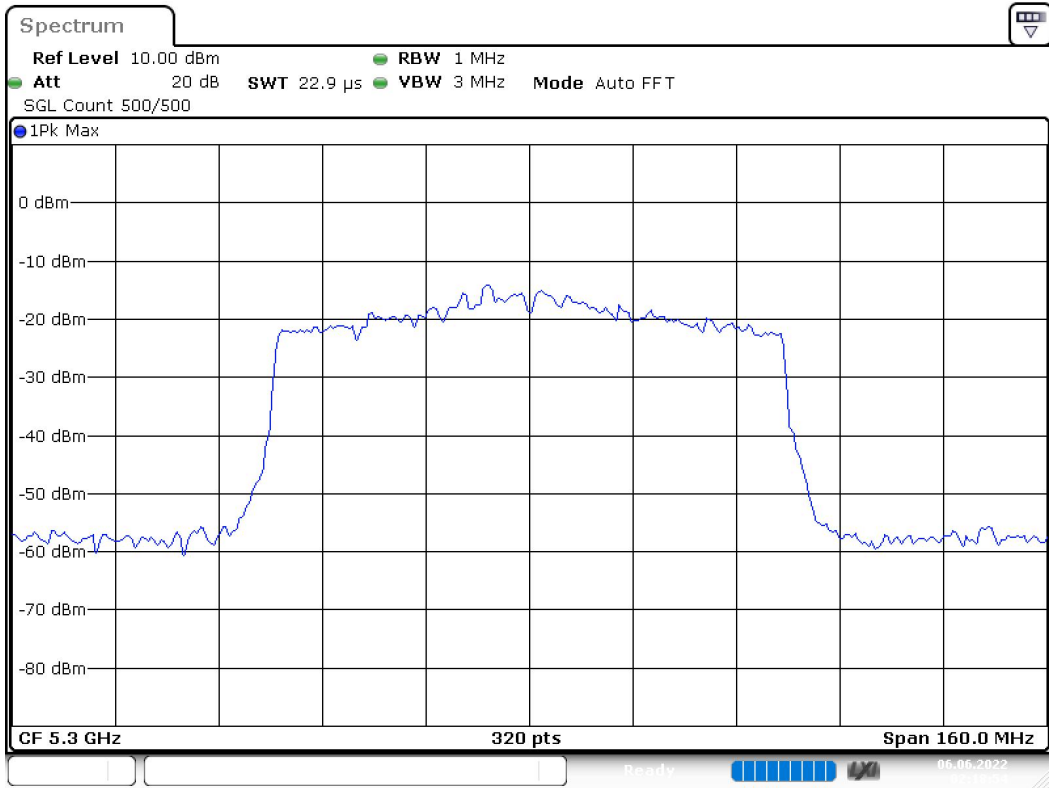
(continuation of the "99 % Bandwidth" table from column 6 ...)

| DUT Frequency (MHz) | Result |
|---------------------|--------|
| 5300.000000 | PASS |

99 % Bandwidth



Bandwidth



Date: 6.JUN.2022 02:18:54

Emission Bandwidth 26 dB (5305 MHz; 24.000 dBm; 80 MHz)

Customized settings.

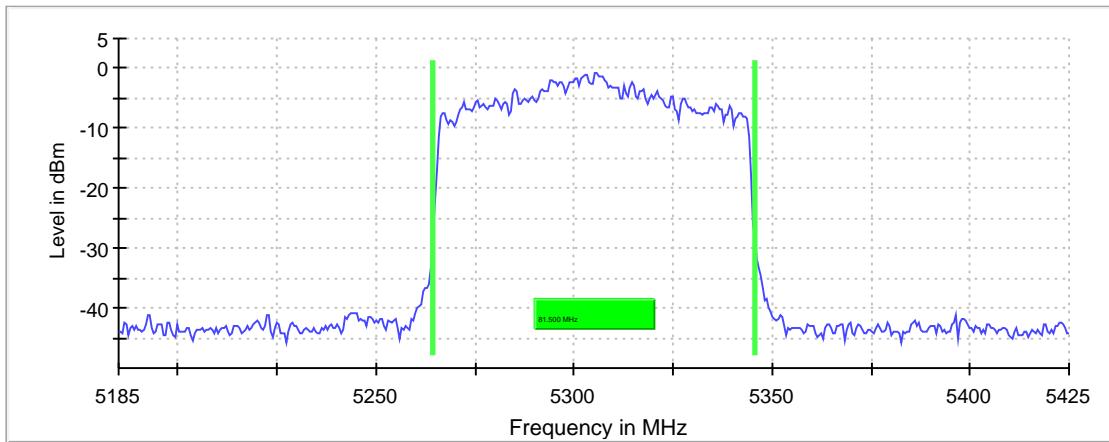
26 dB Bandwidth

| DUT Frequency (MHz) | Bandwidth (MHz) | Limit Min (MHz) | Limit Max (MHz) | Band Edge Left (MHz) | Band Edge Right (MHz) |
|---------------------|-----------------|-----------------|-----------------|----------------------|-----------------------|
| 5305.000000 | 81.500000 | --- | --- | 5264.250000 | 5345.750000 |

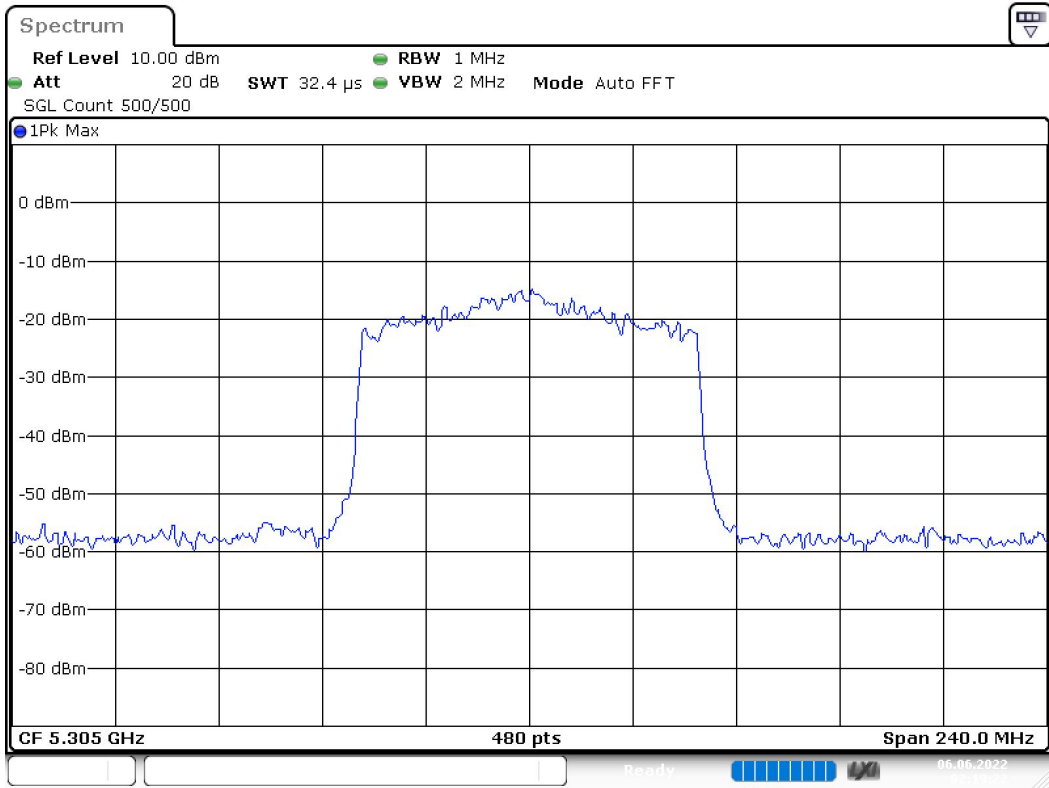
(continuation of the "26 dB Bandwidth" table from column 6 ...)

| DUT Frequency (MHz) | Max Level (dBm) | Result |
|---------------------|-----------------|--------|
| 5305.000000 | -0.7 | PASS |

26 dB Bandwidth



Bandwidth



Date: 6.JUN.2022 02:19:22

Occupied Channel Bandwidth 99% (5305 MHz; 24.000 dBm; 80 MHz)

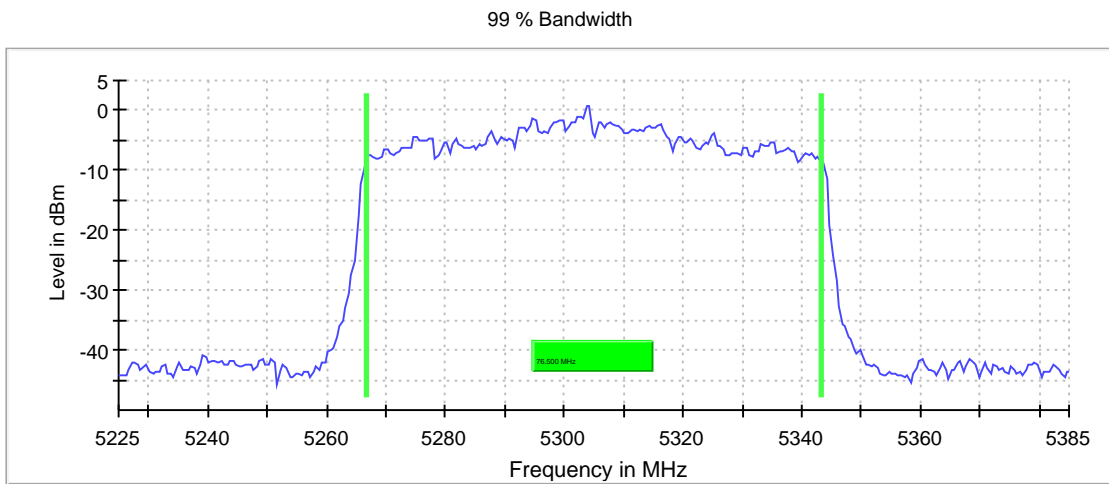
Customized settings.

99 % Bandwidth

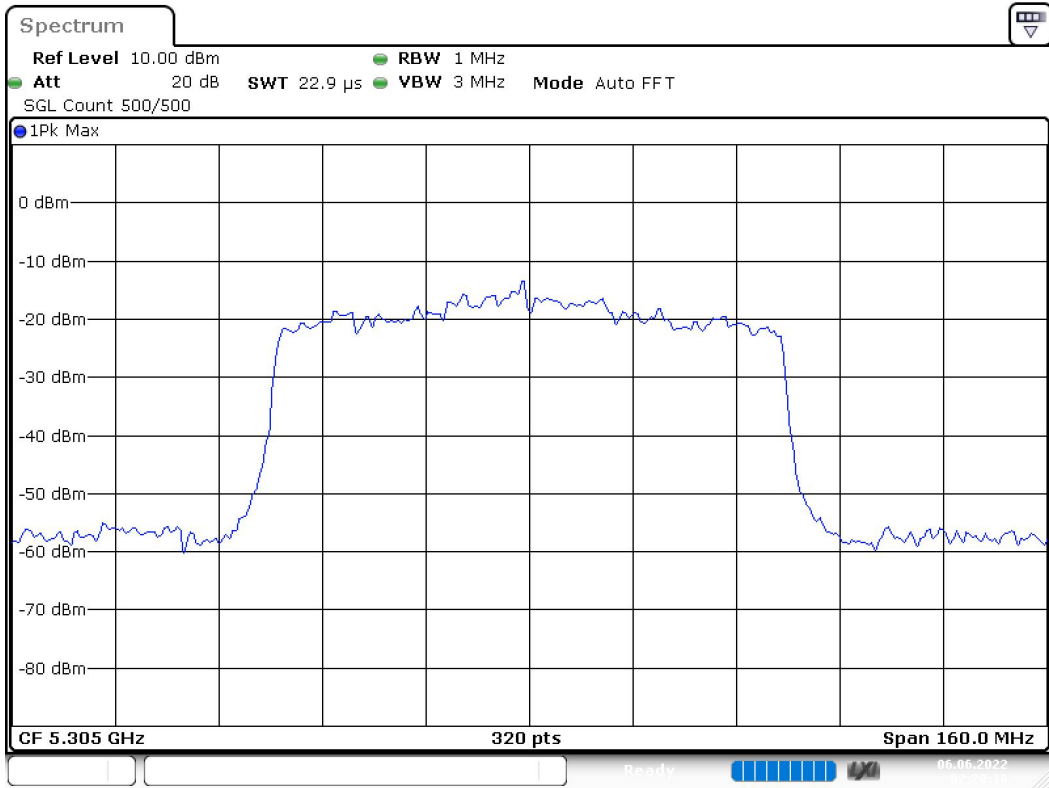
| DUT Frequency (MHz) | Bandwidth (MHz) | Limit Min (MHz) | Limit Max (MHz) | Band Edge Left (MHz) | Band Edge Right (MHz) |
|---------------------|-----------------|-----------------|-----------------|----------------------|-----------------------|
| 5305.000000 | 76.500000 | --- | --- | 5266.750000 | 5343.250000 |

(continuation of the "99 % Bandwidth" table from column 6 ...)

| DUT Frequency (MHz) | Result |
|---------------------|--------|
| 5305.000000 | PASS |



Bandwidth



Date: 6.JUN.2022 02:20:19

Emission Bandwidth 26 dB (5250 MHz; 24.000 dBm; 160 MHz)

Customized settings.

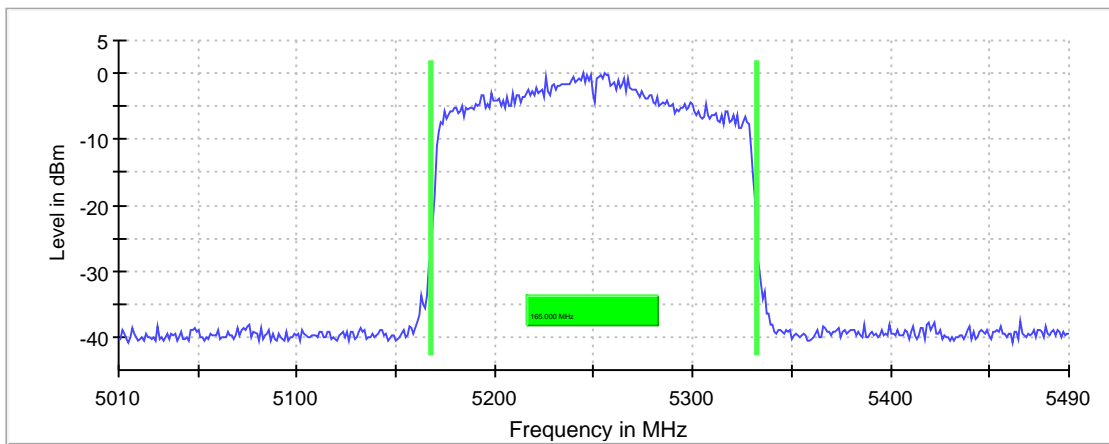
26 dB Bandwidth

| DUT Frequency (MHz) | Bandwidth (MHz) | Limit Min (MHz) | Limit Max (MHz) | Band Edge Left (MHz) | Band Edge Right (MHz) |
|---------------------|-----------------|-----------------|-----------------|----------------------|-----------------------|
| 5250.000000 | 165.000000 | --- | --- | 5167.500000 | 5332.500000 |

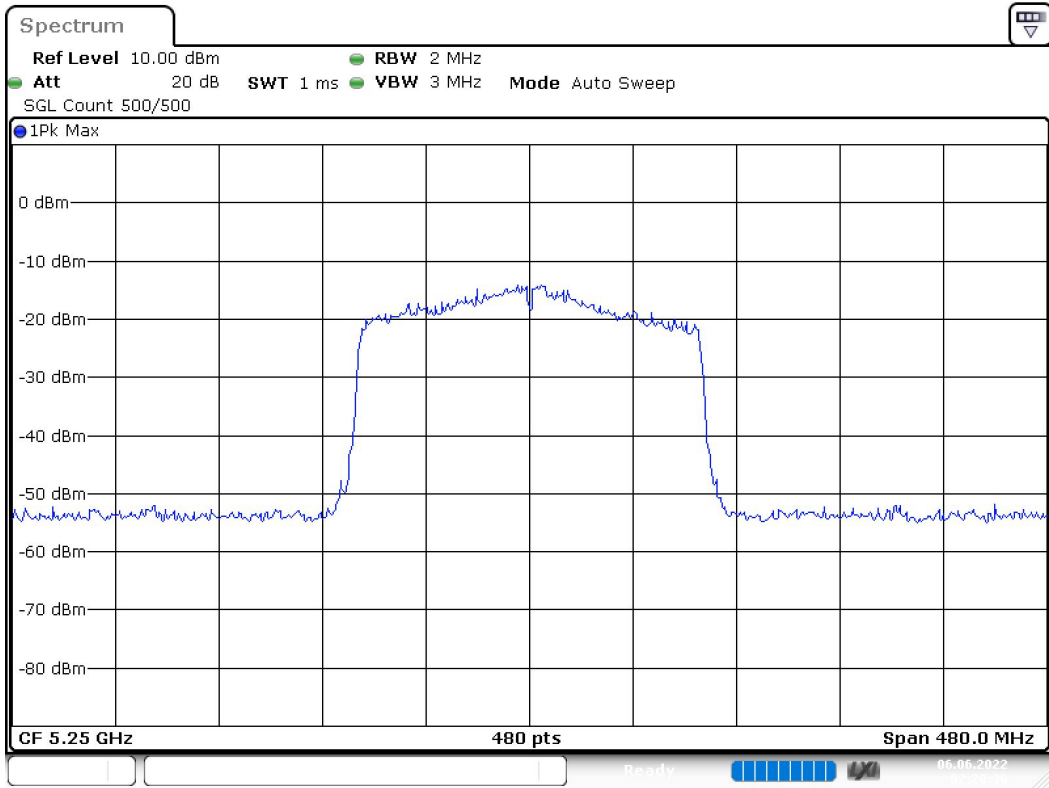
(continuation of the "26 dB Bandwidth" table from column 6 ...)

| DUT Frequency (MHz) | Max Level (dBm) | Result |
|---------------------|-----------------|--------|
| 5250.000000 | 0.1 | PASS |

26 dB Bandwidth



Bandwidth



Date: 6.JUN.2022 02:20:37

Occupied Channel Bandwidth 99% (5250 MHz; 24.000 dBm; 160 MHz)

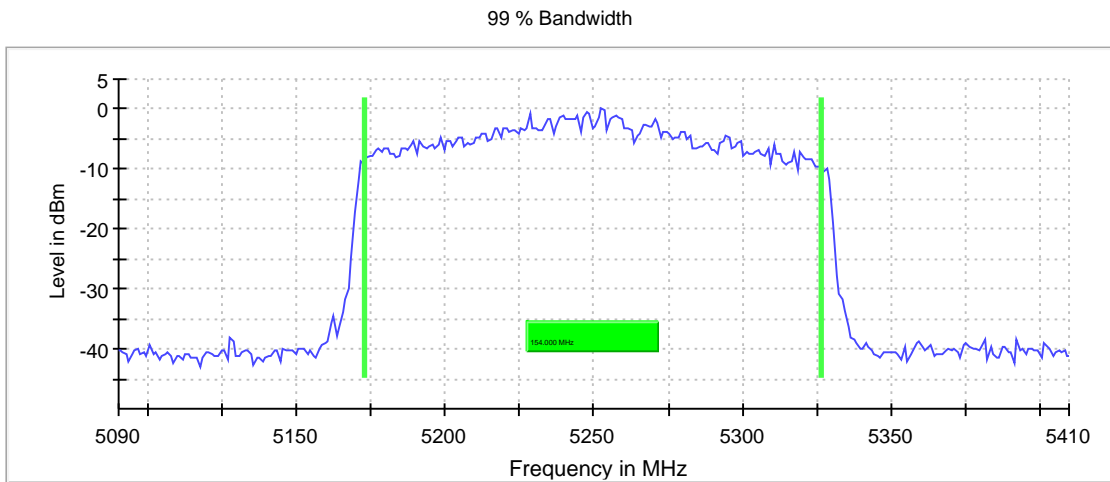
Customized settings.

99 % Bandwidth

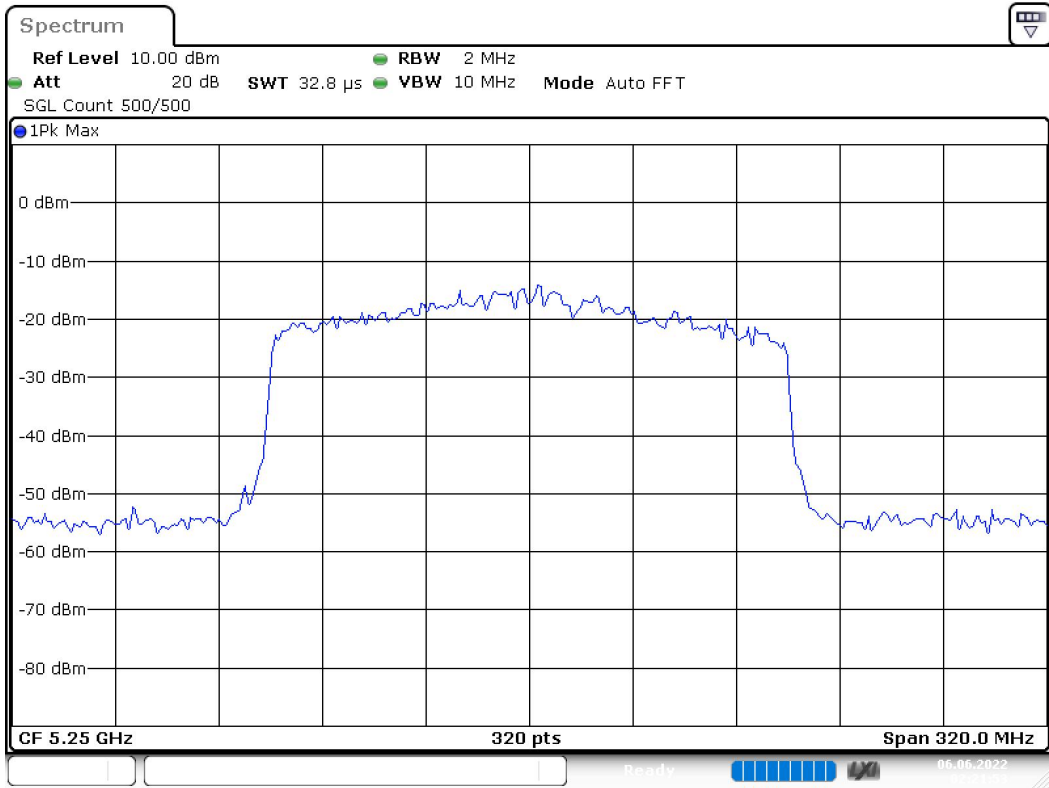
| DUT Frequency (MHz) | Bandwidth (MHz) | Limit Min (MHz) | Limit Max (MHz) | Band Edge Left (MHz) | Band Edge Right (MHz) |
|---------------------|-----------------|-----------------|-----------------|----------------------|-----------------------|
| 5250.000000 | 154.000000 | --- | --- | 5172.500000 | 5326.500000 |

(continuation of the "99 % Bandwidth" table from column 6 ...)

| DUT Frequency (MHz) | Result |
|---------------------|--------|
| 5250.000000 | PASS |



Bandwidth



Date: 6.JUN.2022 02:21:54