

CA_14A_30A, CH23305+27685,QPSK

| Frequency (MHz) | SG (dBm) | CableLoss (dB) | AntennaGain (dBi) | Correction | Peak ERP (dBm) | Limit (dBm) | Margin (dB) | Polarization |
|-----------------|----------|----------------|-------------------|------------|----------------|-------------|-------------|--------------|
| 3956.72 | -67.81 | 6.10 | 8.84 | 2.15 | -67.22 | -13.00 | 54.22 | H |
| 4745.63 | -67.02 | 6.56 | 9.65 | 2.15 | -66.08 | -13.00 | 53.08 | V |
| 5535.94 | -66.24 | 7.17 | 10.59 | 2.15 | -64.97 | -13.00 | 51.97 | V |
| 6328.13 | -65.04 | 7.56 | 10.83 | 2.15 | -63.92 | -13.00 | 50.92 | H |
| 7112.34 | -63.18 | 8.16 | 11.73 | 2.15 | -61.76 | -13.00 | 48.76 | H |
| 7909.69 | -62.44 | 8.42 | 12.53 | 2.15 | -60.48 | -13.00 | 47.48 | H |
| 4608.75 | -68.96 | 6.46 | 9.51 | 0.00 | -65.91 | -40.00 | 25.91 | H |
| 6922.97 | -49.13 | 7.72 | 11.51 | 0.00 | -45.34 | -40.00 | 5.34 | V |
| 9230.63 | -62.23 | 9.00 | 13.24 | 0.00 | -57.99 | -40.00 | 17.99 | V |
| 11551.41 | -59.94 | 9.81 | 13.09 | 0.00 | -56.66 | -40.00 | 16.66 | H |
| 13830.94 | -57.88 | 10.67 | 14.40 | 0.00 | -54.15 | -40.00 | 14.15 | V |
| 16167.19 | -55.79 | 11.77 | 13.67 | 0.00 | -53.89 | -40.00 | 13.89 | H |

CA_14A_30A, CH23330+27710,QPSK

| Frequency (MHz) | SG (dBm) | CableLoss (dB) | AntennaGain (dBi) | Correction | Peak ERP (dBm) | Limit (dBm) | Margin (dB) | Polarization |
|-----------------|----------|----------------|-------------------|------------|----------------|-------------|-------------|--------------|
| 3960.00 | -67.61 | 6.10 | 8.84 | 2.15 | -67.02 | -13.00 | 54.02 | H |
| 4762.03 | -66.73 | 6.59 | 9.66 | 2.15 | -65.81 | -13.00 | 52.81 | V |
| 5552.34 | -66.34 | 7.18 | 10.59 | 2.15 | -65.08 | -13.00 | 52.08 | V |
| 6346.88 | -65.14 | 7.56 | 10.85 | 2.15 | -64.00 | -13.00 | 51.00 | H |
| 7136.72 | -63.39 | 8.17 | 11.76 | 2.15 | -61.95 | -13.00 | 48.95 | H |
| 7935.00 | -62.10 | 8.39 | 12.55 | 2.15 | -60.09 | -13.00 | 47.09 | H |
| 4620.00 | -68.04 | 6.45 | 9.52 | 0.00 | -64.97 | -40.00 | 24.97 | V |
| 6930.47 | -53.11 | 7.76 | 11.52 | 0.00 | -49.35 | -40.00 | 9.35 | H |
| 9252.66 | -62.68 | 9.05 | 13.25 | 0.00 | -58.48 | -40.00 | 18.48 | V |
| 11556.56 | -59.77 | 9.81 | 13.09 | 0.00 | -56.49 | -40.00 | 16.49 | V |
| 13867.50 | -58.38 | 10.74 | 14.42 | 0.00 | -54.70 | -40.00 | 14.70 | H |
| 16188.28 | -55.64 | 11.74 | 13.66 | 0.00 | -53.72 | -40.00 | 13.72 | V |

CA_14A_30A, CH23355+27735,QPSK

| Frequency (MHz) | SG (dBm) | CableLoss (dB) | AntennaGain (dBi) | Correction | Peak ERP (dBm) | Limit (dBm) | Margin (dB) | Polarization |
|-----------------|----------|----------------|-------------------|------------|----------------|-------------|-------------|--------------|
| 3975.94 | -67.60 | 6.09 | 8.87 | 2.15 | -66.97 | -13.00 | 53.97 | H |
| 4774.69 | -66.99 | 6.62 | 9.67 | 2.15 | -66.09 | -13.00 | 53.09 | V |
| 5573.44 | -66.02 | 7.21 | 10.59 | 2.15 | -64.79 | -13.00 | 51.79 | V |
| 6361.41 | -64.11 | 7.56 | 10.86 | 2.15 | -62.96 | -13.00 | 49.96 | V |
| 7161.56 | -63.34 | 8.18 | 11.79 | 2.15 | -61.88 | -13.00 | 48.88 | H |

| | | | | | | | | |
|----------|--------|-------|-------|------|--------|--------|-------|---|
| 7953.28 | -62.22 | 8.37 | 12.56 | 2.15 | -60.18 | -13.00 | 47.18 | H |
| 4631.72 | -69.53 | 6.45 | 9.53 | 0.00 | -66.45 | -40.00 | 26.45 | V |
| 6937.97 | -48.85 | 7.82 | 11.53 | 0.00 | -45.14 | -40.00 | 5.14 | H |
| 9247.03 | -62.33 | 9.03 | 13.25 | 0.00 | -58.11 | -40.00 | 18.11 | V |
| 11555.63 | -59.92 | 9.81 | 13.09 | 0.00 | -56.64 | -40.00 | 16.64 | H |
| 13884.84 | -58.20 | 10.77 | 14.43 | 0.00 | -54.54 | -40.00 | 14.54 | V |
| 16195.31 | -55.66 | 11.73 | 13.66 | 0.00 | -53.73 | -40.00 | 13.73 | V |

Note: Expanded measurement uncertainty is $U = 5.62$ dB, $k = 2$.

A.3 Frequency Stability

A.3.1 Method of Measurement

Frequency stability is a measure of the frequency drift due to temperature and supply voltage variations, with reference to the frequency measured at +20 °C and rated supply voltage. Two reference points are established at the applicable unwanted emissions limit using a RBW equal to the RBW required by the unwanted emissions specification of the applicable regulatory standard. These reference points measured using the lowest and highest channel of operation shall be identified as F_L and F_H respectively.

In order to measure the carrier frequency under the condition of AFC lock, it is necessary to make measurements with the EUT in a “call mode”. This is accomplished with the use of CMW500.

1. Measure the carrier frequency at room temperature.
2. Subject the EUT to overnight soak at -30°C .
3. With the EUT, powered via nominal voltage, connected to the CMW500, and in a simulated call on middle channel for each LTE band, measure the carrier frequency. These measurements should be made within 2 minutes of Powering up the EUT, to prevent significant self-warming.
4. Repeat the above measurements at 10°C increments from -30°C to +50°C. Allow at least 1.5 hours at each temperature, unpowered, before making measurements.
5. Re-measure carrier frequency at room temperature with nominal voltage. Vary supply voltage from minimum voltage to maximum voltage, in 0.1Volt increments re-measuring carrier frequency at each voltage. Pause at nominal voltage for 1.5 hours unpowered, to allow any self-heating to stabilize, before continuing.
6. Subject the EUT to overnight soak at +50°C .
7. With the EUT, powered via nominal voltage, connected to the CMW500 and in a simulated call on the center channel, measure the carrier frequency. These measurements should be made within 2 minutes of Powering up the EUT, to prevent significant self-warming.
8. Repeat the above measurements at 10 °C decrements from +50°C to -30°C. Allow at least 1.5 hours at each temperature, unpowered, before making measurements.
9. At all temperature levels hold the temperature to +/- 0.5°C during the measurement procedure.

The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block. As this transceiver is considered "Hand carried, battery powered equipment" Section 2.1055(d)(2) applies. This requires that the lower voltage for frequency stability testing be specified by the manufacturer. This transceiver is specified to operate with an input voltage of the lower, higher and nominal voltage. Operation above or below these voltage limits is prohibited by transceiver software in order to prevent improper operation as well as to protect components from overstress.

A.3.2 Measurement results

LTE Band 2, 20MHz bandwidth QPSK (worst case of all bandwidths)

Frequency Error vs Temperature

| Temperature(°C) | Voltage(V) | F _L (MHz) | F _H (MHz) | Offset(Hz) | Frequency error(ppm) |
|-----------------|------------|----------------------|----------------------|------------|----------------------|
| 20 | 3.8 | 1850.801 | 1909.231 | | |
| 50 | | | | 1.32 | 0.0007 |
| 40 | | | | 0.33 | 0.0002 |
| 30 | | | | 0.24 | 0.0001 |
| 10 | | | | 1.87 | 0.0010 |
| 0 | | | | -11.14 | 0.0059 |
| -10 | | | | 3.15 | 0.0017 |
| -20 | | | | 1.65 | 0.0009 |
| -30 | | | | -19.94 | 0.0106 |

Frequency Error vs Voltage

| Voltage(V) | Temperature(°C) | F _L (MHz) | F _H (MHz) | Offset(Hz) | Frequency error(ppm) |
|------------|-----------------|----------------------|----------------------|------------|----------------------|
| 3.6 | 20 | 1850.801 | 1909.231 | 1.17 | 0.0006 |
| 4.4 | | | | -11.59 | 0.0062 |

LTE Band 5, 10MHz bandwidth QPSK (worst case of all bandwidths)

Frequency Error vs Temperature

| Temperature(°C) | Voltage(V) | F _L (MHz) | F _H (MHz) | Offset(Hz) | Frequency error(ppm) |
|-----------------|------------|----------------------|----------------------|------------|----------------------|
| 20 | 3.8 | 824.417 | 848.583 | | |
| 50 | | | | -1.30 | 0.0016 |
| 40 | | | | -2.00 | 0.0024 |
| 30 | | | | -0.51 | 0.0006 |
| 10 | | | | -1.32 | 0.0016 |
| 0 | | | | -0.33 | 0.0004 |
| -10 | | | | -2.32 | 0.0028 |
| -20 | | | | -1.87 | 0.0022 |
| -30 | | | | -1.20 | 0.0014 |

Frequency Error vs Voltage

| Voltage(V) | Temperature(°C) | F _L (MHz) | F _H (MHz) | Offset(Hz) | Frequency error(ppm) |
|------------|-----------------|----------------------|----------------------|------------|----------------------|
| 3.6 | 20 | 824.417 | 848.583 | -0.76 | 0.0009 |
| 4.4 | | | | -1.44 | 0.0017 |

LTE Band 7, 20MHz bandwidth QPSK (worst case of all bandwidths)
Frequency Error vs Temperature

| Temperature(°C) | Voltage(V) | F _L (MHz) | F _H (MHz) | Offset(Hz) | Frequency error(ppm) |
|-----------------|------------|----------------------|----------------------|------------|----------------------|
| 20 | 3.8 | 2500.641 | 2569.423 | | |
| 50 | | | | -11.29 | 0.0045 |
| 40 | | | | -2.98 | 0.0012 |
| 30 | | | | 1.00 | 0.0004 |
| 10 | | | | -1.65 | 0.0007 |
| 0 | | | | -1.65 | 0.0007 |
| -10 | | | | -2.39 | 0.0009 |
| -20 | | | | -3.58 | 0.0014 |
| -30 | | | | -2.83 | 0.0011 |

Frequency Error vs Voltage

| Voltage(V) | Temperature(°C) | F _L (MHz) | F _H (MHz) | Offset(Hz) | Frequency error(ppm) |
|------------|-----------------|----------------------|----------------------|------------|----------------------|
| 3.6 | 20 | 2500.641 | 2569.423 | 0.20 | 0.0001 |
| 4.4 | | | | 0.51 | 0.0002 |

LTE Band 12, 10MHz bandwidth QPSK (worst case of all bandwidths)
Frequency Error vs Temperature

| Temperature(°C) | Voltage(V) | F _L (MHz) | F _H (MHz) | Offset(Hz) | Frequency error(ppm) |
|-----------------|------------|----------------------|----------------------|------------|----------------------|
| 20 | 3.8 | 699.465 | 715.519 | | |
| 50 | | | | 0.17 | 0.0002 |
| 40 | | | | 1.02 | 0.0014 |
| 30 | | | | 7.91 | 0.0112 |
| 10 | | | | 1.12 | 0.0016 |
| 0 | | | | 0.16 | 0.0002 |
| -10 | | | | 15.15 | 0.0214 |
| -20 | | | | 1.80 | 0.0025 |
| -30 | | | | 0.93 | 0.0013 |

Frequency Error vs Voltage

| Voltage(V) | Temperature(°C) | F _L (MHz) | F _H (MHz) | Offset(Hz) | Frequency error(ppm) |
|------------|-----------------|----------------------|----------------------|------------|----------------------|
| 3.6 | 20 | 699.465 | 715.519 | 0.24 | 0.0003 |
| 4.4 | | | | 2.03 | 0.0029 |

LTE Band 14, 10MHz bandwidth QPSK (worst case of all bandwidths)
Frequency Error vs Temperature

| Temperature(°C) | Voltage(V) | F _L (MHz) | F _H (MHz) | Offset(Hz) | Frequency error(ppm) |
|-----------------|------------|----------------------|----------------------|------------|----------------------|
| 20 | 3.8 | 788.476 | 797.519 | | |
| 50 | | | | 1.72 | 0.0022 |
| 40 | | | | 0.67 | 0.0008 |
| 30 | | | | 2.06 | 0.0026 |
| 10 | | | | 2.12 | 0.0027 |
| 0 | | | | 2.46 | 0.0031 |
| -10 | | | | 2.16 | 0.0027 |
| -20 | | | | -0.79 | 0.0010 |
| -30 | | | | 3.13 | 0.0039 |

Frequency Error vs Voltage

| Voltage(V) | Temperature(°C) | F _L (MHz) | F _H (MHz) | Offset(Hz) | Frequency error(ppm) |
|------------|-----------------|----------------------|----------------------|------------|----------------------|
| 3.6 | 20 | 788.476 | 797.519 | 2.15 | 0.0027 |
| 4.4 | | | | 0.83 | 0.0010 |

LTE Band 30, 10MHz bandwidth QPSK (worst case of all bandwidths)
Frequency Error vs Temperature

| Temperature(°C) | Voltage(V) | F _L (MHz) | F _H (MHz) | Offset(Hz) | Frequency error(ppm) |
|-----------------|------------|----------------------|----------------------|------------|----------------------|
| 20 | 3.8 | 2305.417 | 2314.583 | | |
| 50 | | | | -5.88 | 0.0025 |
| 40 | | | | -5.99 | 0.0026 |
| 30 | | | | -17.72 | 0.0077 |
| 10 | | | | -18.57 | 0.0080 |
| 0 | | | | -19.76 | 0.0086 |
| -10 | | | | -29.25 | 0.0127 |
| -20 | | | | -21.73 | 0.0094 |
| -30 | | | | -19.88 | 0.0086 |

Frequency Error vs Voltage

| Voltage(V) | Temperature(°C) | F _L (MHz) | F _H (MHz) | Offset(Hz) | Frequency error(ppm) |
|------------|-----------------|----------------------|----------------------|------------|----------------------|
| 3.6 | 20 | 2305.417 | 2314.583 | -2.96 | 0.0013 |
| 4.4 | | | | -21.40 | 0.0093 |

LTE Band 66, 20MHz bandwidth QPSK (worst case of all bandwidths)
Frequency Error vs Temperature

| Temperature(°C) | Voltage(V) | F _L (MHz) | F _H (MHz) | Offset(Hz) | Frequency error(ppm) |
|-----------------|------------|----------------------|----------------------|------------|----------------------|
| 20 | 3.8 | 1710.833 | 1779.231 | | |
| 50 | | | | 1.70 | 0.0010 |
| 40 | | | | 0.47 | 0.0003 |
| 30 | | | | 0.33 | 0.0002 |
| 10 | | | | -5.31 | 0.0030 |
| 0 | | | | 1.77 | 0.0010 |
| -10 | | | | 2.39 | 0.0014 |
| -20 | | | | 15.19 | 0.0087 |
| -30 | | | | -1.47 | 0.0008 |

Frequency Error vs Voltage

| Voltage(V) | Temperature(°C) | F _L (MHz) | F _H (MHz) | Offset(Hz) | Frequency error(ppm) |
|------------|-----------------|----------------------|----------------------|------------|----------------------|
| 3.6 | 20 | 1710.833 | 1779.231 | -1.34 | 0.0008 |
| 4.4 | | | | 0.51 | 0.0003 |

LTE CA band 5B, 10MHz+10MHz bandwidth QPSK(worst case of all bandwidths)
Frequency Error vs Voltage

| Temperature(°C) | Voltage(V) | F _L (MHz) | F _H (MHz) | Offset(Hz) | Frequency error(ppm) |
|-----------------|------------|----------------------|----------------------|------------|----------------------|
| 20 | 3.8 | 824.340 | 848.660 | | |
| 50 | | | | 0.34 | 0.0004 |
| 40 | | | | 0.26 | 0.0003 |
| 30 | | | | 0.56 | 0.0007 |
| 10 | | | | 0.09 | 0.0001 |
| 0 | | | | 1.27 | 0.0015 |
| -10 | | | | 2.53 | 0.0030 |
| -20 | | | | 1.69 | 0.0020 |
| -30 | | | | -0.59 | 0.0007 |

Frequency Error vs Voltage

| Voltage(V) | Temperature(°C) | F _L (MHz) | F _H (MHz) | Offset(Hz) | Frequency error(ppm) |
|------------|-----------------|----------------------|----------------------|------------|----------------------|
| 3.6 | 20 | 824.340 | 848.660 | -1.35 | 0.0016 |
| 4.4 | | | | 1.99 | 0.0024 |

Note: Expanded measurement uncertainty is U = 0.01 PPM, k = 2.

A.4 Occupied Bandwidth

Occupied bandwidth measurements are only provided for selected frequencies in order to reduce the amount of submitted data. Data were taken at the mid frequencies frequency. The table below lists the measured 99% BW. Spectrum analyzer plots are included on the following pages.

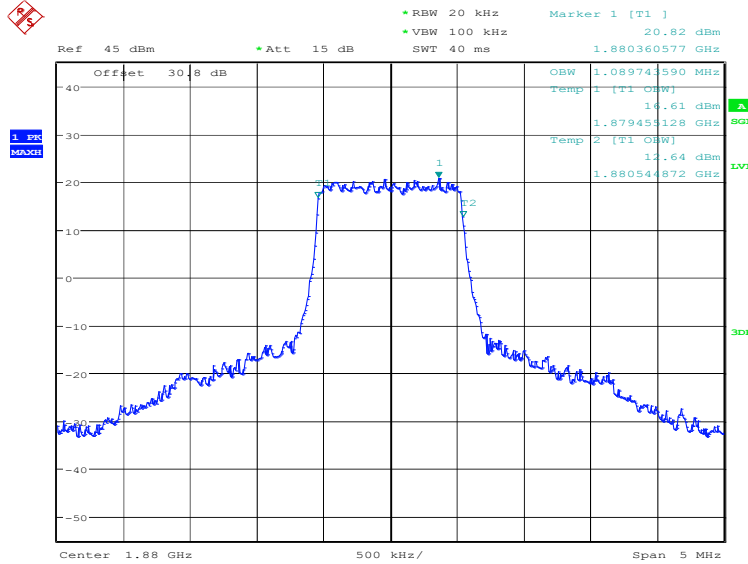
The measurement method is from ANSI C63.26:

- a) The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The frequency span for the spectrum analyzer shall be set wide enough to capture all modulation products including the emission skirts.
- b) The nominal IF filter 3 dB bandwidth (RBW) shall be in the range of 1% to 5% of the anticipated OBW, and the VBW shall be set $\geq 3 \times$ RBW.
- c) Set the reference level of the instrument as required to prevent the signal amplitude from exceeding the maximum spectrum analyzer input mixer level for linear operation.
- d) Set the detection mode to peak, and the trace mode to max-hold.

LTE band 2, 1.4MHz (99%)

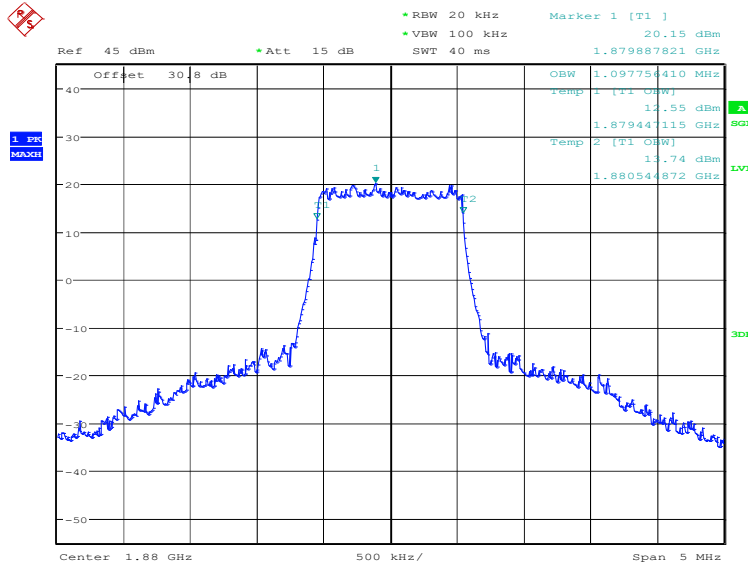
| Frequency(MHz) | Occupied Bandwidth (99%)(kHz) | |
|----------------|-------------------------------|---------|
| 1880.0 | QPSK | 16QAM |
| | 1089.74 | 1097.76 |

LTE band 2, 1.4MHz Bandwidth, QPSK (99% BW)



Date: 15.MAY.2024 10:50:26

LTE band 2, 1.4MHz Bandwidth, 16QAM (99% BW)

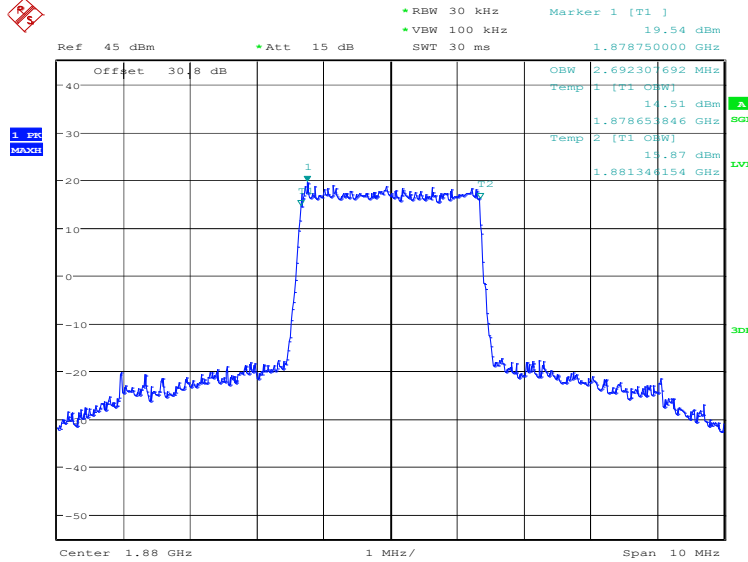


Date: 15.MAY.2024 10:51:06

LTE band 2, 3MHz (99%)

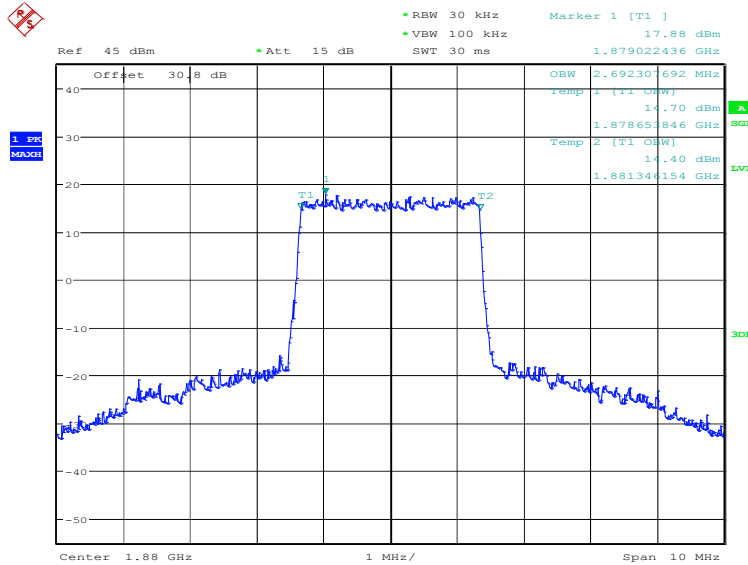
| Frequency(MHz) | Occupied Bandwidth (99%)(kHz) | |
|----------------|-------------------------------|---------|
| 1880.0 | QPSK | 16QAM |
| | 2692.31 | 2692.31 |

LTE band 2, 3MHz Bandwidth, QPSK (99% BW)



Date: 15.MAY.2024 10:51:48

LTE band 2, 3MHz Bandwidth, 16QAM (99% BW)

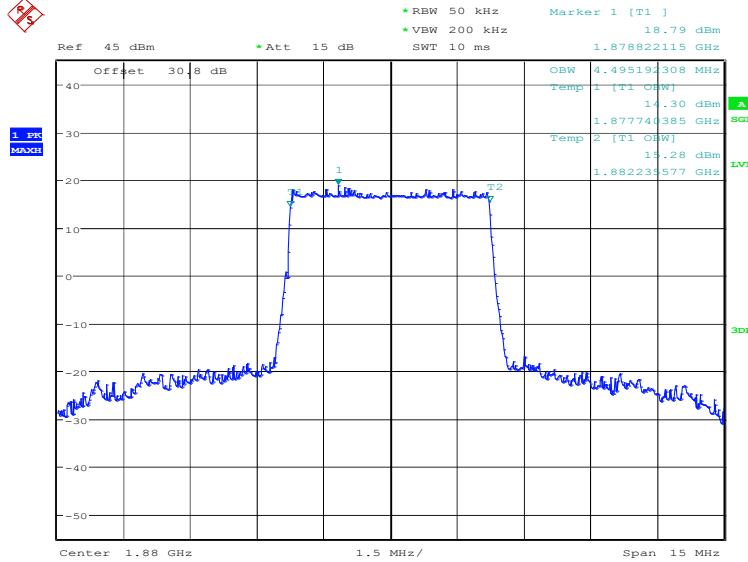


Date: 15.MAY.2024 10:52:28

LTE band 2, 5MHz (99%)

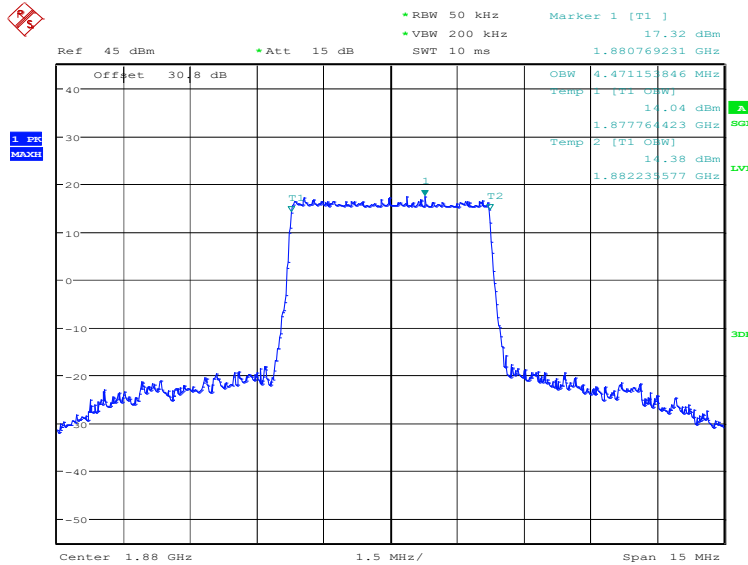
| Frequency(MHz) | Occupied Bandwidth (99%)(kHz) | |
|----------------|-------------------------------|---------|
| 1880.0 | QPSK | 16QAM |
| | 4495.19 | 4471.15 |

LTE band 2, 5MHz Bandwidth, QPSK (99% BW)



Date: 15.MAY.2024 10:53:09

LTE band 2, 5MHz Bandwidth, 16QAM (99% BW)

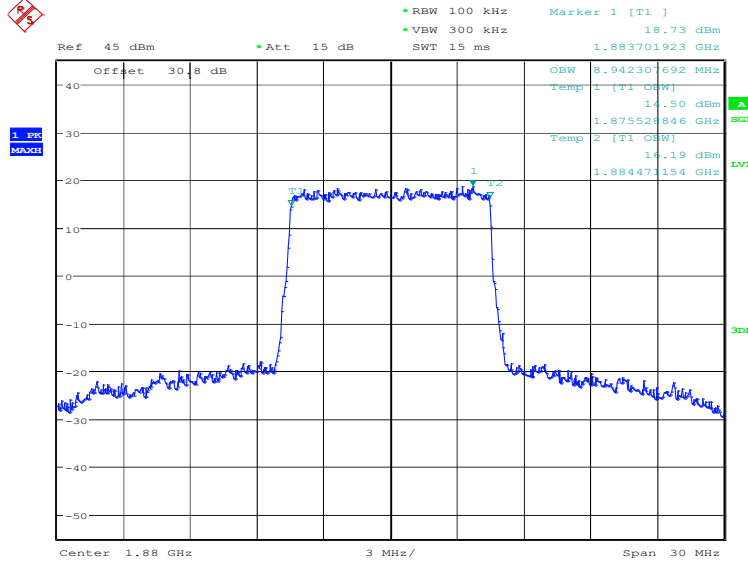


Date: 15.MAY.2024 10:53:49

LTE band 2, 10MHz (99%)

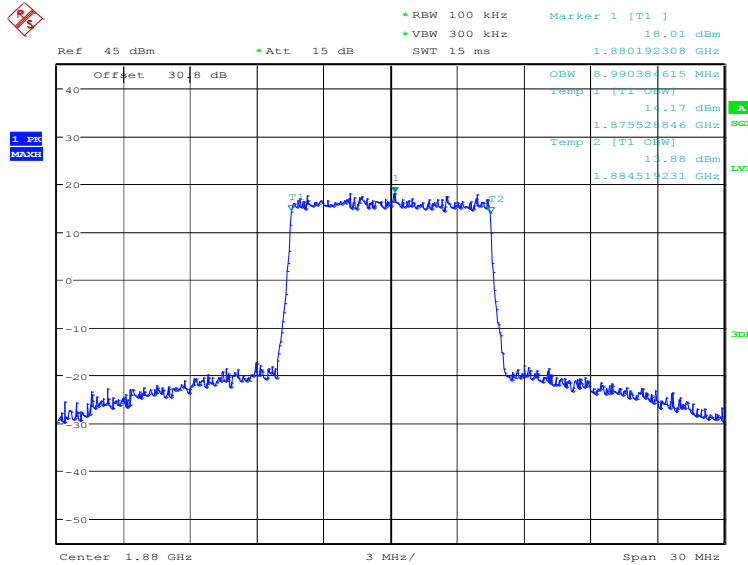
| Frequency(MHz) | Occupied Bandwidth (99%)(kHz) | |
|----------------|-------------------------------|---------|
| 1880.0 | QPSK | 16QAM |
| | 8942.31 | 8990.38 |

LTE band 2, 10MHz Bandwidth, QPSK (99% BW)



Date: 15.MAY.2024 10:54:31

LTE band 2, 10MHz Bandwidth, 16QAM (99% BW)

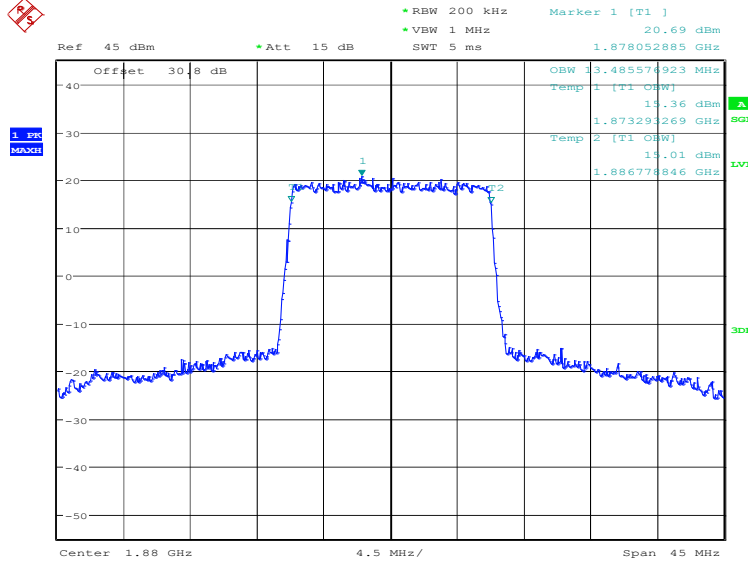


Date: 15.MAY.2024 10:55:11

LTE band 2, 15MHz (99%)

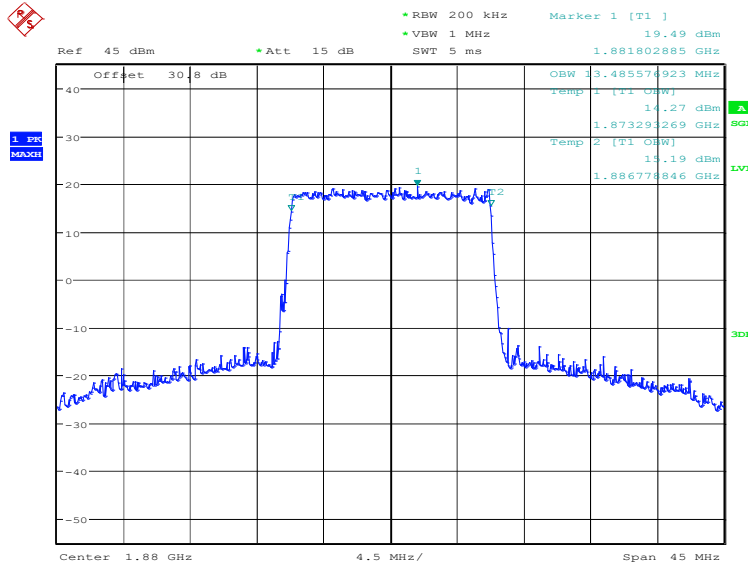
| Frequency(MHz) | Occupied Bandwidth (99%)(kHz) | |
|----------------|-------------------------------|----------|
| 1880.0 | QPSK | 16QAM |
| | 13485.58 | 13485.58 |

LTE band 2, 15MHz Bandwidth, QPSK (99% BW)



Date: 15.MAY.2024 10:55:53

LTE band 2, 15MHz Bandwidth, 16QAM (99% BW)

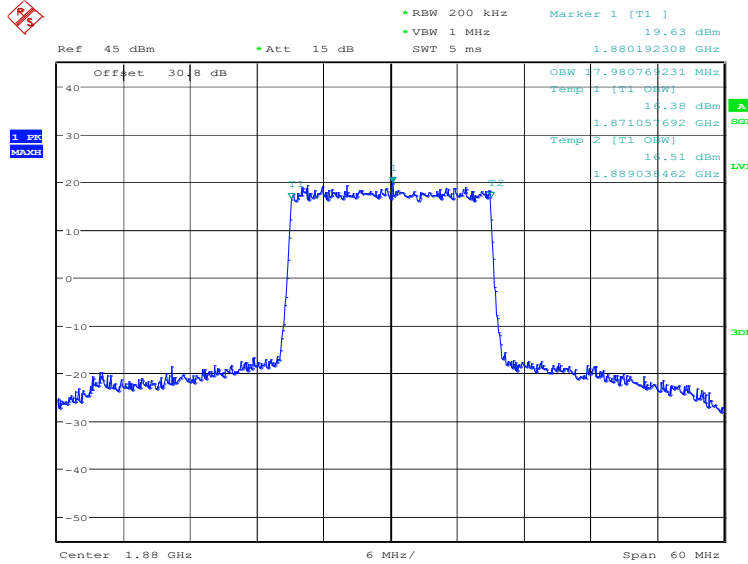


Date: 15.MAY.2024 10:56:33

LTE band 2, 20MHz (99%)

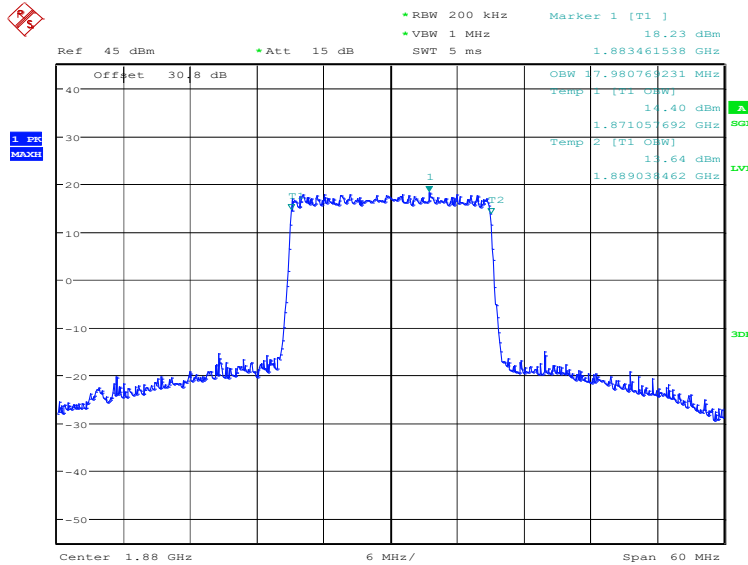
| Frequency(MHz) | Occupied Bandwidth (99%)(kHz) | |
|----------------|-------------------------------|----------|
| 1880.0 | QPSK | 16QAM |
| | 17980.77 | 17980.77 |

LTE band 2, 20MHz Bandwidth, QPSK (99% BW)



Date: 15.MAY.2024 10:57:15

LTE band 2, 20MHz Bandwidth, 16QAM (99% BW)

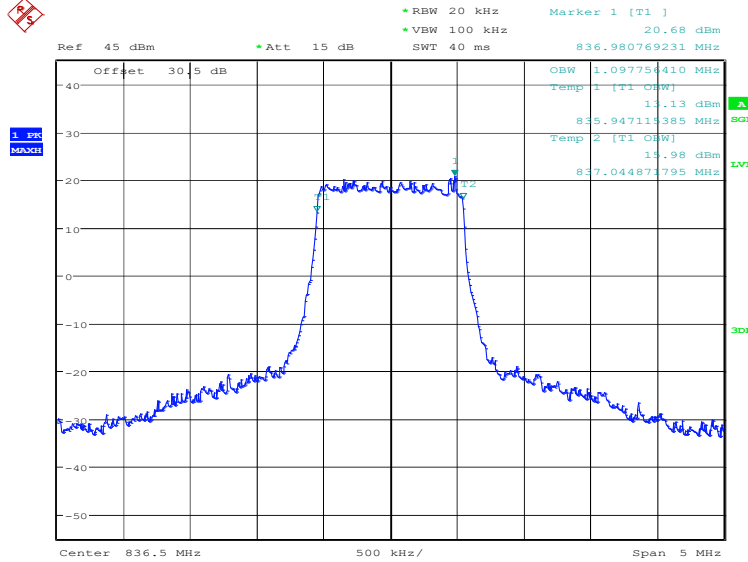


Date: 15.MAY.2024 10:57:55

LTE band 5, 1.4MHz (99%)

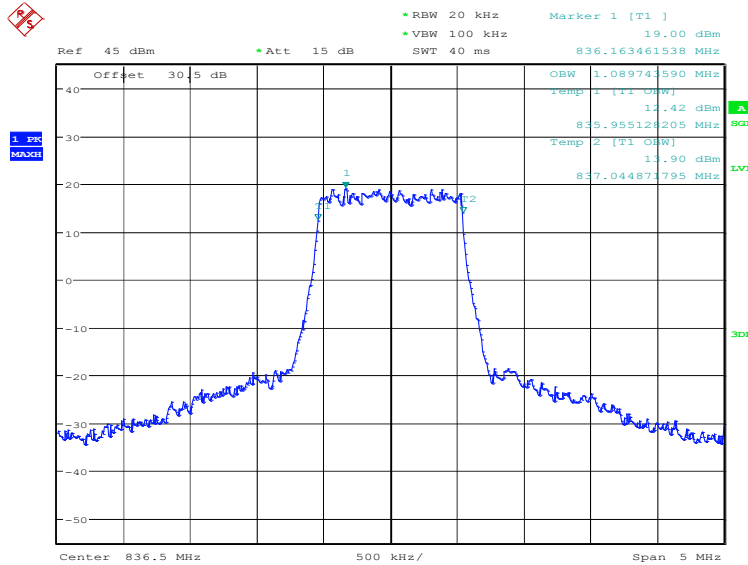
| Frequency(MHz) | Occupied Bandwidth (99%)(kHz) | |
|----------------|-------------------------------|---------|
| 836.5 | QPSK | 16QAM |
| | 1097.76 | 1089.74 |

LTE band 5, 1.4MHz Bandwidth, QPSK (99% BW)



Date: 15.MAY.2024 13:56:38

LTE band 5, 1.4MHz Bandwidth, 16QAM (99% BW)

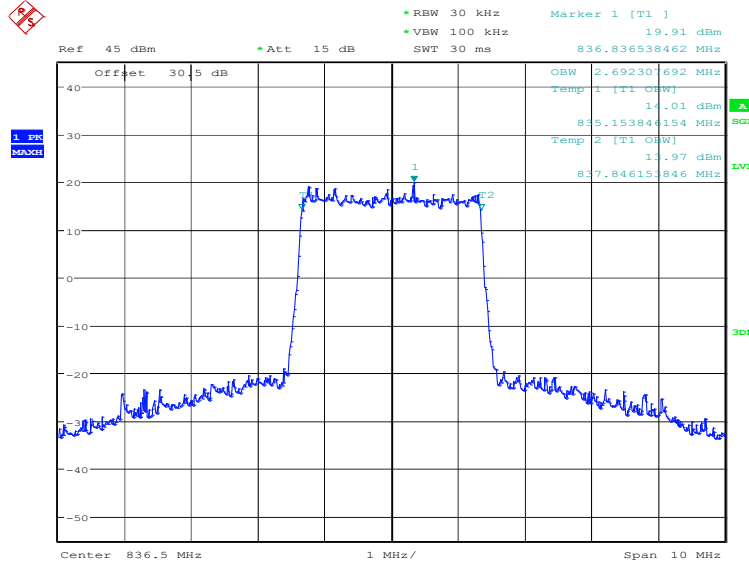


Date: 15.MAY.2024 13:57:18

LTE band 5, 3MHz (99%)

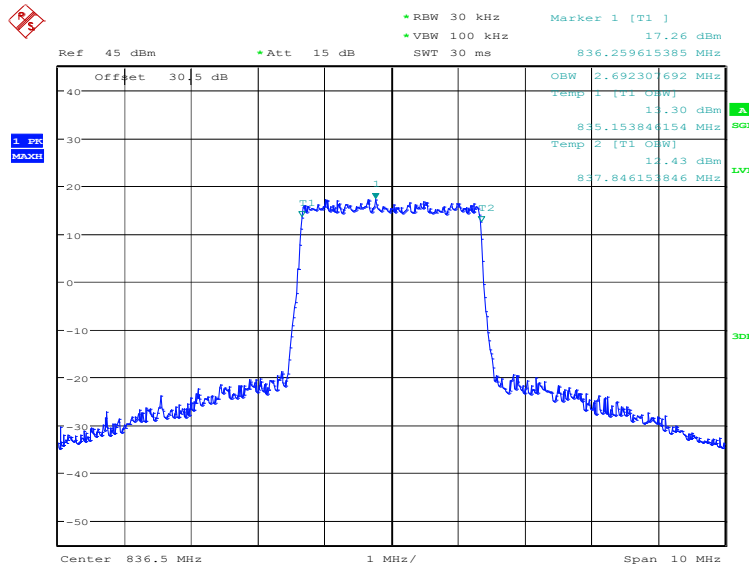
| Frequency(MHz) | Occupied Bandwidth (99%)(kHz) | |
|----------------|-------------------------------|---------|
| 836.5 | QPSK | 16QAM |
| | 2692.31 | 2692.31 |

LTE band 5, 3MHz Bandwidth, QPSK (99% BW)



Date: 15.MAY.2024 13:58:00

LTE band 5, 3MHz Bandwidth, 16QAM (99% BW)

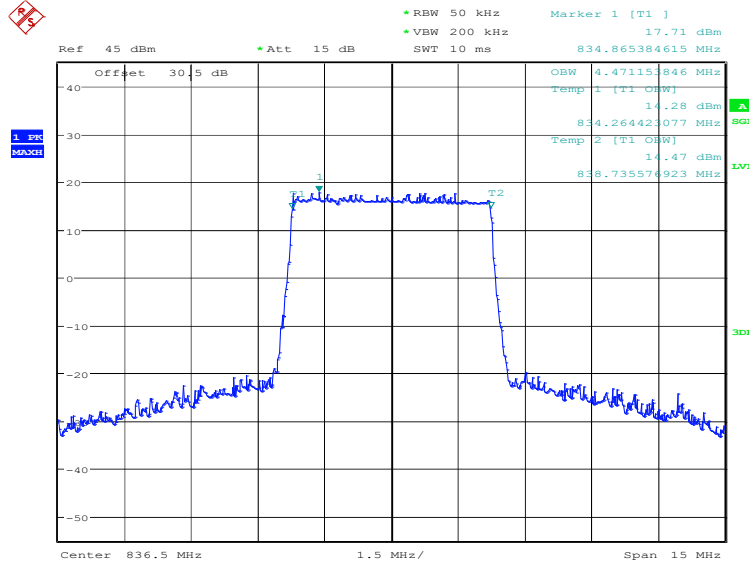


Date: 15.MAY.2024 13:58:40

LTE band 5, 5MHz (99%)

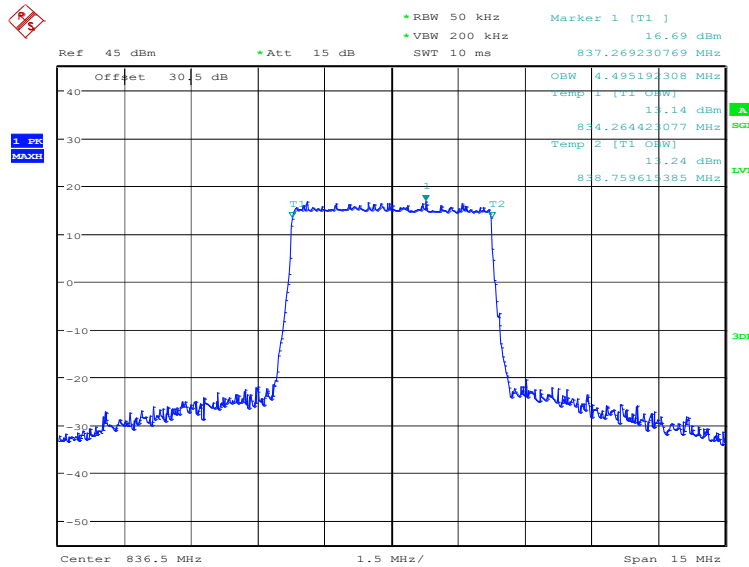
| Frequency(MHz) | Occupied Bandwidth (99%)(kHz) | |
|----------------|-------------------------------|---------|
| 836.5 | QPSK | 16QAM |
| | 4471.15 | 4495.19 |

LTE band 5, 5MHz Bandwidth, QPSK (99% BW)



Date: 15.MAY.2024 13:59:21

LTE band 5, 5MHz Bandwidth, 16QAM (99% BW)

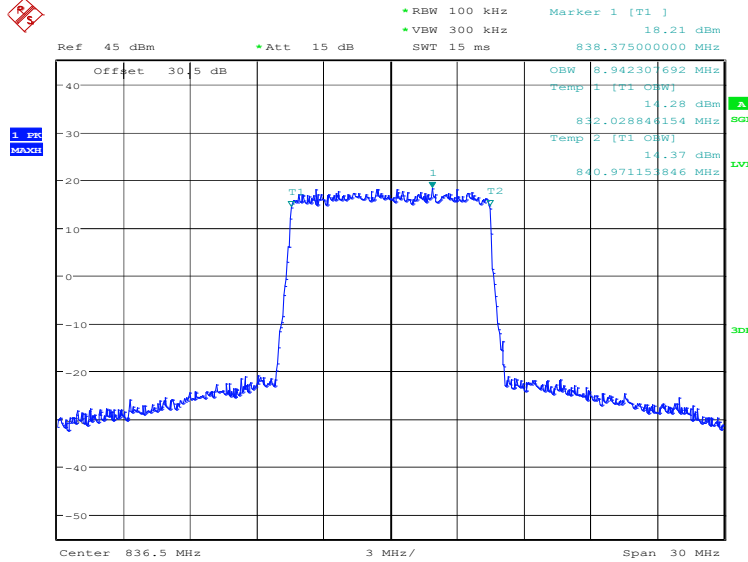


Date: 15.MAY.2024 14:00:01

LTE band 5, 10MHz (99%)

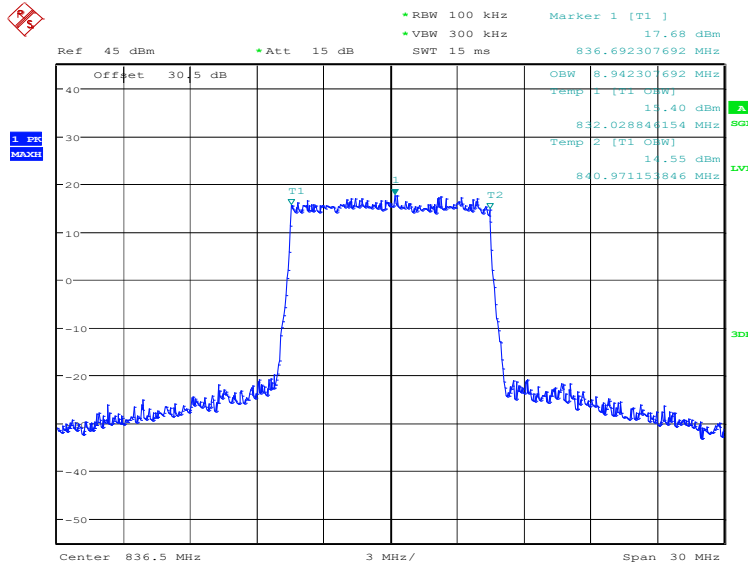
| Frequency(MHz) | Occupied Bandwidth (99%)(kHz) | |
|----------------|-------------------------------|---------|
| 836.5 | QPSK | 16QAM |
| | 8942.31 | 8942.31 |

LTE band 5, 10MHz Bandwidth, QPSK (99% BW)



Date: 15.MAY.2024 14:00:43

LTE band 5, 10MHz Bandwidth, 16QAM (99% BW)

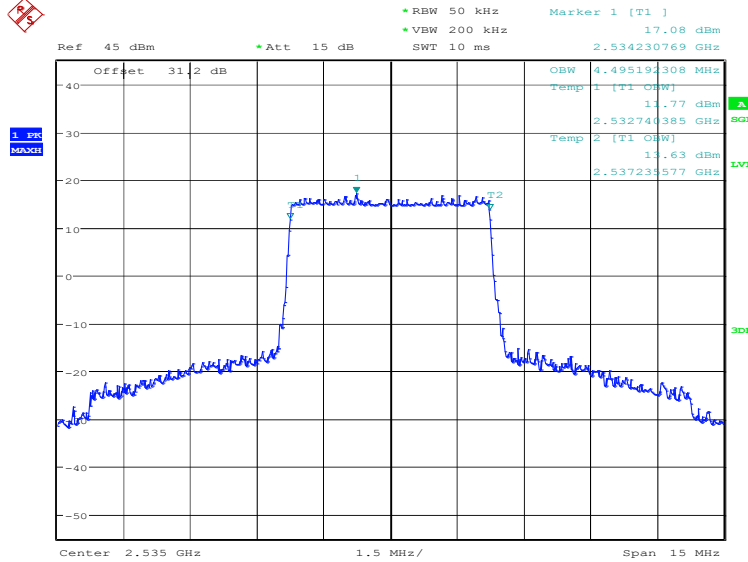


Date: 15.MAY.2024 14:01:23

LTE band 7, 5MHz (99%)

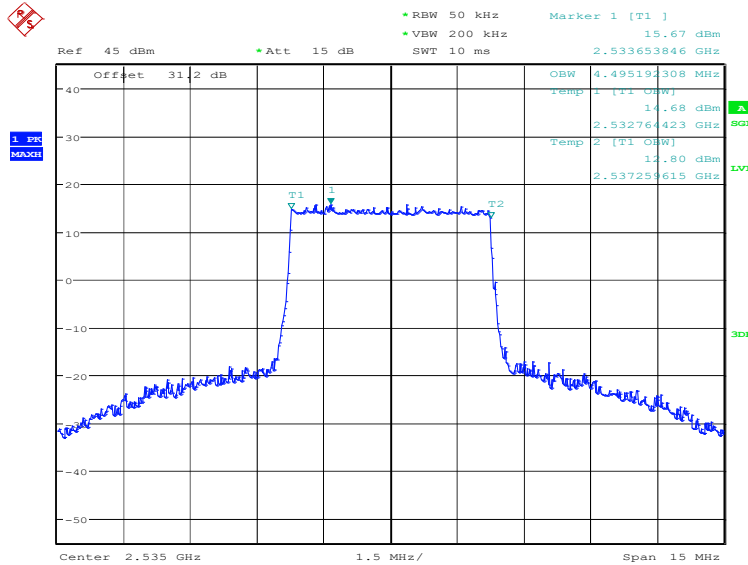
| Frequency(MHz) | Occupied Bandwidth (99%)(kHz) | |
|----------------|-------------------------------|---------|
| 2535.0 | QPSK | 16QAM |
| | 4495.19 | 4495.19 |

LTE band 7, 5MHz Bandwidth, QPSK (99% BW)



Date: 15.MAY.2024 10:58:38

LTE band 7, 5MHz Bandwidth, 16QAM (99% BW)

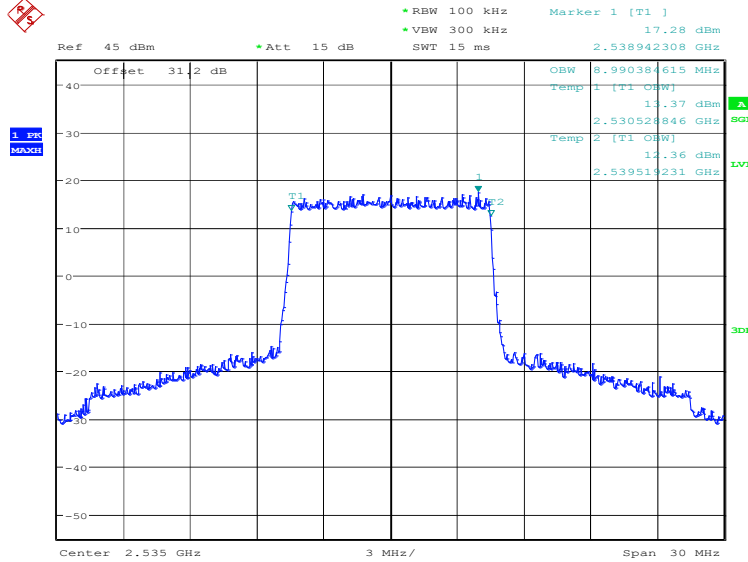


Date: 15.MAY.2024 10:59:18

LTE band 7, 10MHz (99%)

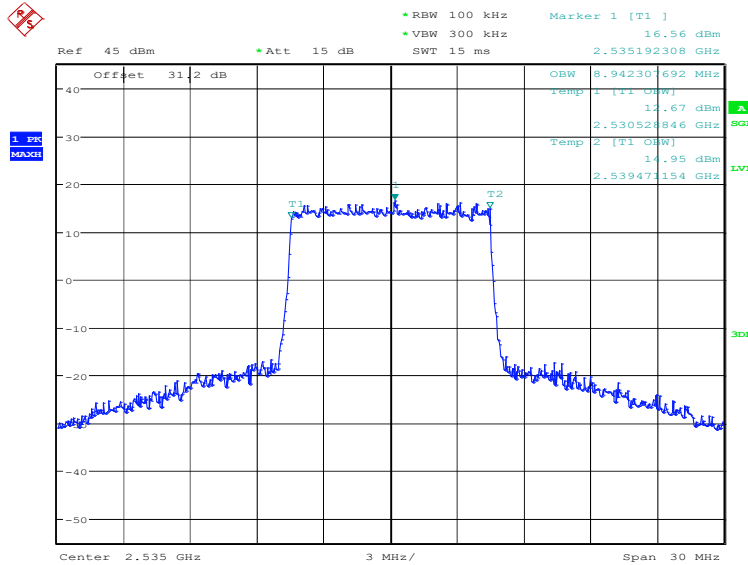
| Frequency(MHz) | Occupied Bandwidth (99%)(kHz) | |
|----------------|-------------------------------|---------|
| 2535.0 | QPSK | 16QAM |
| | 8990.38 | 8942.31 |

LTE band 7, 10MHz Bandwidth, QPSK (99% BW)



Date: 15.MAY.2024 11:00:00

LTE band 7, 10MHz Bandwidth, 16QAM (99% BW)

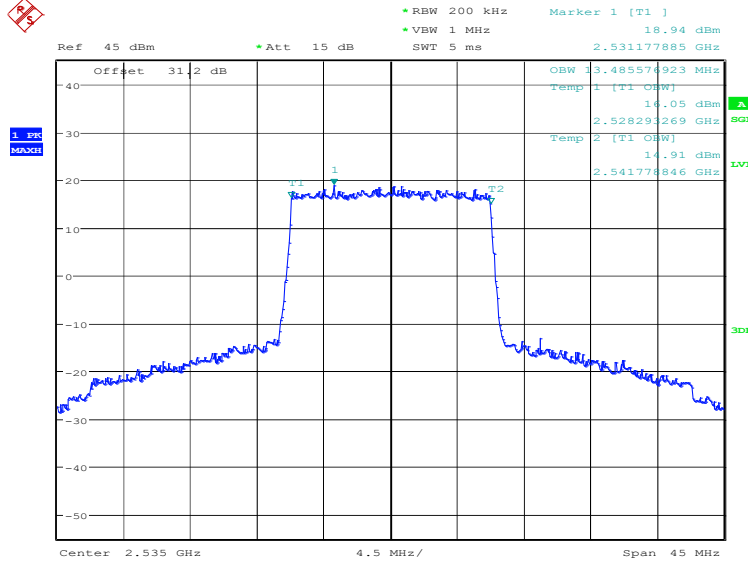


Date: 15.MAY.2024 11:00:39

LTE band 7, 15MHz (99%)

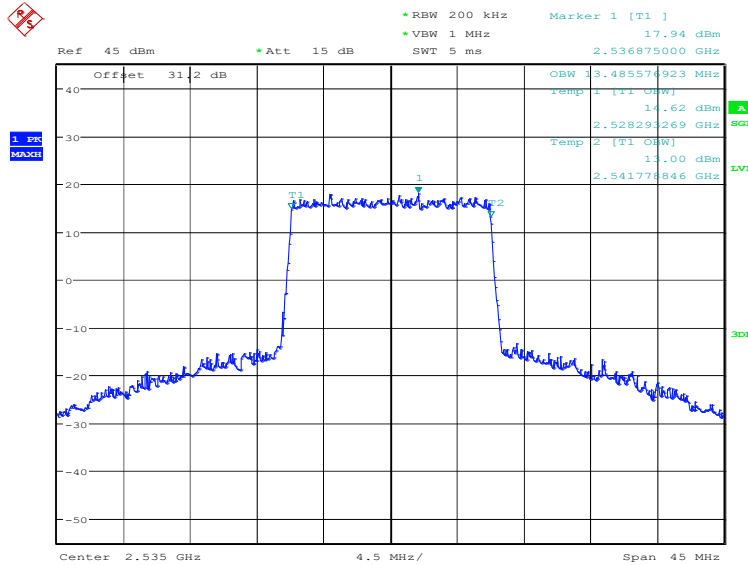
| Frequency(MHz) | Occupied Bandwidth (99%)(kHz) | |
|----------------|-------------------------------|----------|
| 2535.0 | QPSK | 16QAM |
| | 13485.58 | 13485.58 |

LTE band 7, 15MHz Bandwidth, QPSK (99% BW)



Date: 15.MAY.2024 11:01:21

LTE band 7, 15MHz Bandwidth, 16QAM (99% BW)

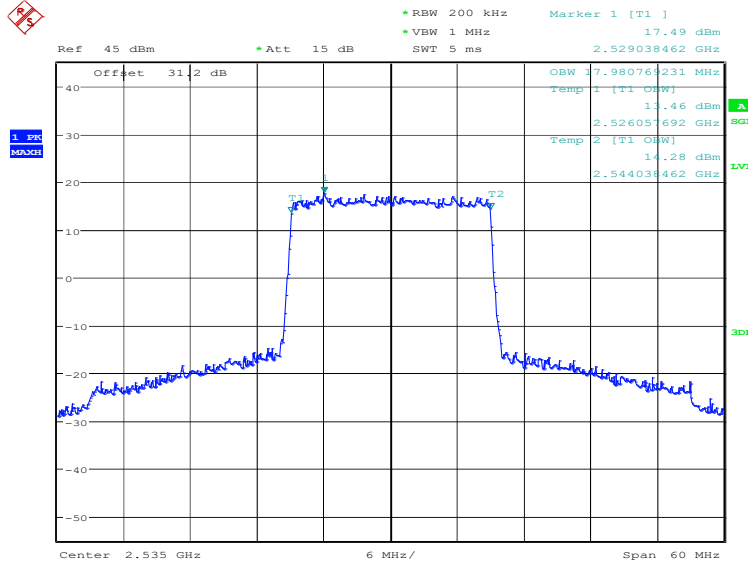


Date: 15.MAY.2024 11:02:01

LTE band 7, 20MHz (99%)

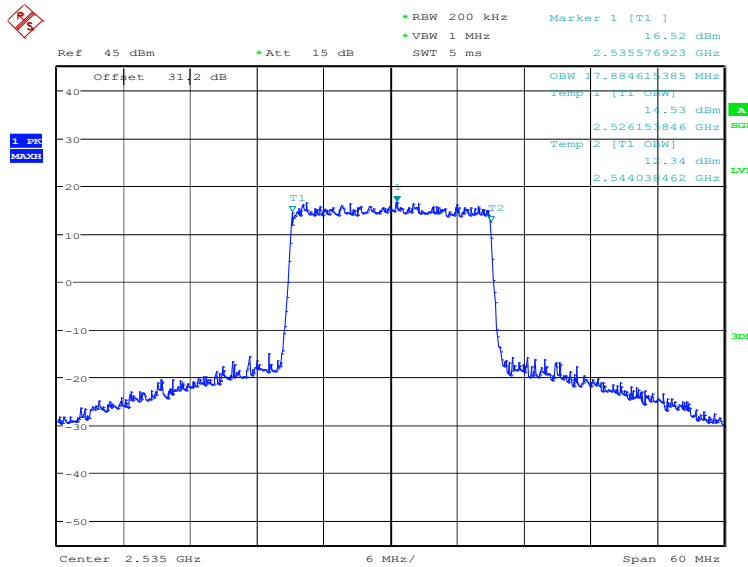
| Frequency(MHz) | Occupied Bandwidth (99%)(kHz) | |
|----------------|-------------------------------|----------|
| 2535.0 | QPSK | 16QAM |
| | 17980.77 | 17884.62 |

LTE band 7, 20MHz Bandwidth, QPSK (99% BW)



Date: 15.MAY.2024 11:02:43

LTE band 7, 20MHz Bandwidth, 16QAM (99% BW)

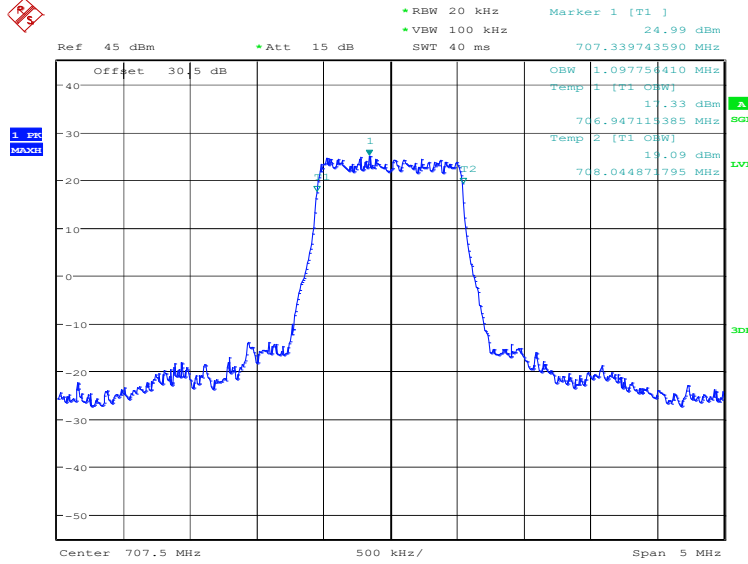


Date: 15.MAY.2024 11:03:23

LTE band 12, 1.4MHz (99%)

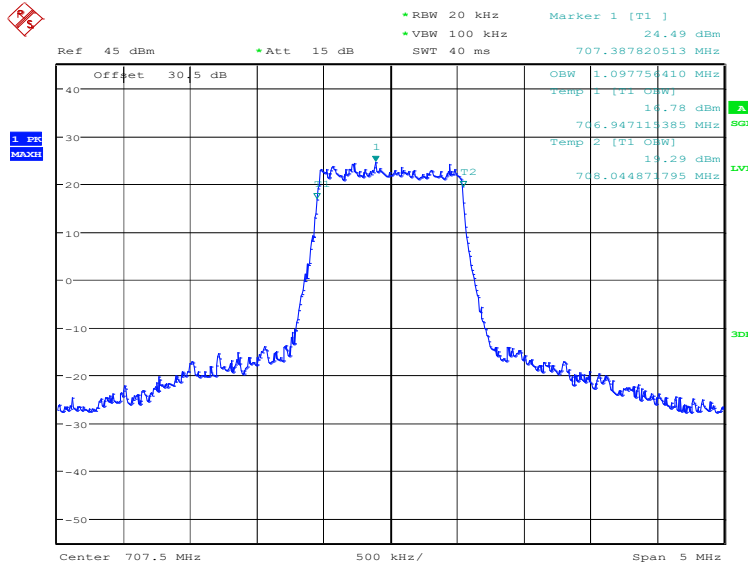
| Frequency(MHz) | Occupied Bandwidth (99%)(kHz) | |
|----------------|-------------------------------|---------|
| 707.5 | QPSK | 16QAM |
| | 1097.76 | 1097.76 |

LTE band 12, 1.4MHz Bandwidth, QPSK (99% BW)



Date: 15.MAY.2024 14:02:06

LTE band 12, 1.4MHz Bandwidth, 16QAM (99% BW)

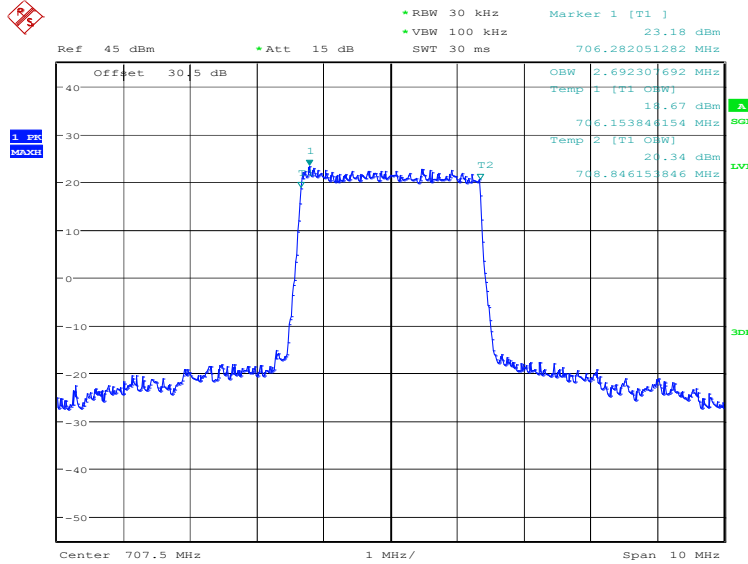


Date: 15.MAY.2024 14:02:46

LTE band 12, 3MHz (99%)

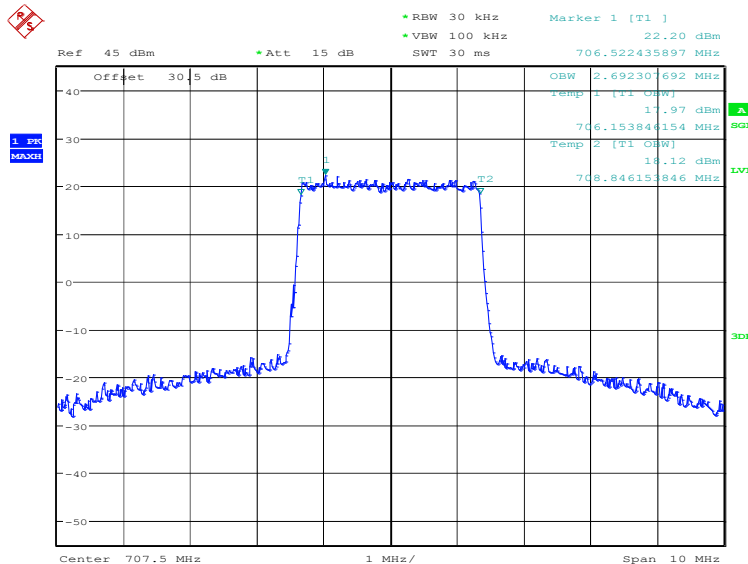
| Frequency(MHz) | Occupied Bandwidth (99%)(kHz) | |
|----------------|-------------------------------|---------|
| 707.5 | QPSK | 16QAM |
| | 2692.31 | 2692.31 |

LTE band 12, 3MHz Bandwidth, QPSK (99% BW)



Date: 15.MAY.2024 14:03:28

LTE band 12, 3MHz Bandwidth, 16QAM (99% BW)

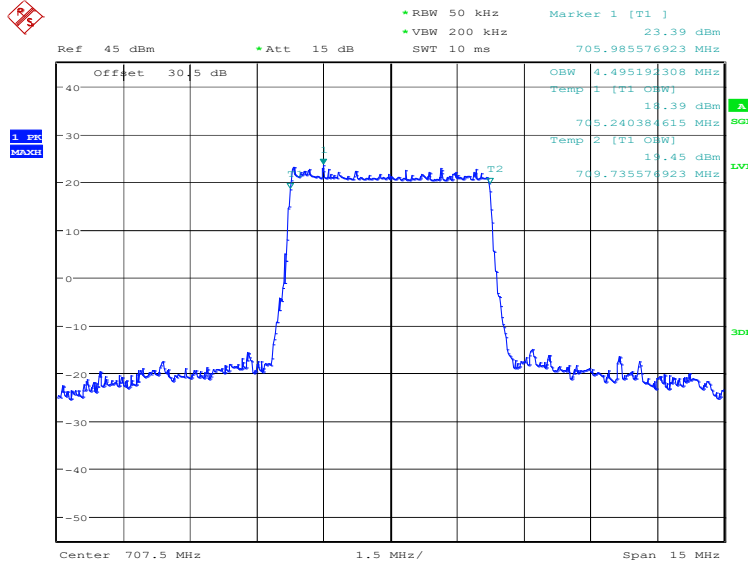


Date: 15.MAY.2024 14:04:08

LTE band 12, 5MHz (99%)

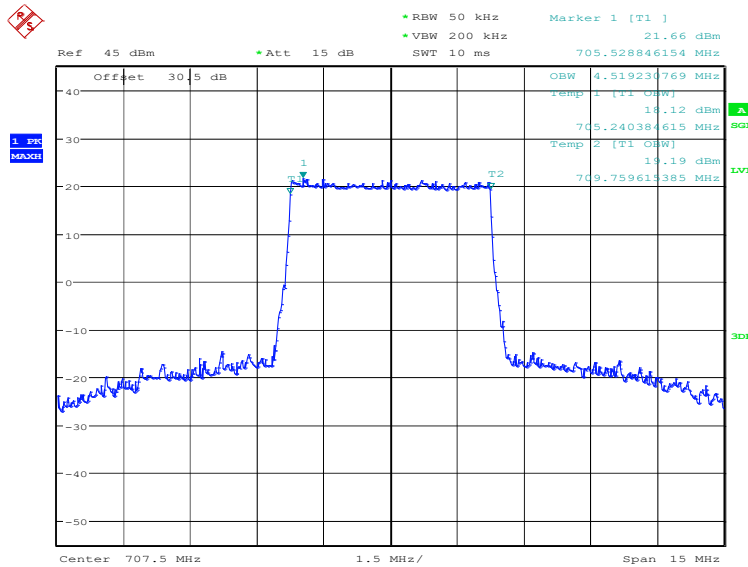
| Frequency(MHz) | Occupied Bandwidth (99%)(kHz) | |
|----------------|-------------------------------|---------|
| 707.5 | QPSK | 16QAM |
| | 4495.19 | 4519.23 |

LTE band 12, 5MHz Bandwidth, QPSK (99% BW)



Date: 15.MAY.2024 14:04:49

LTE band 12, 5MHz Bandwidth, 16QAM (99% BW)

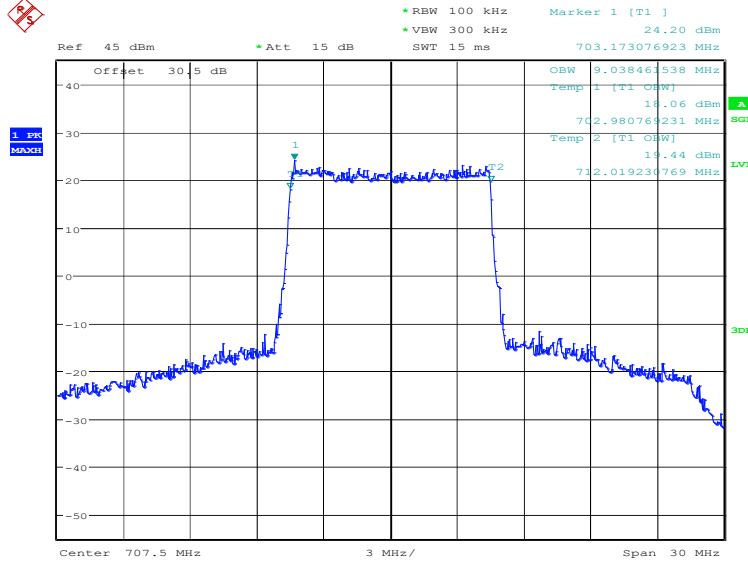


Date: 15.MAY.2024 14:05:29

LTE band 12, 10MHz (99%)

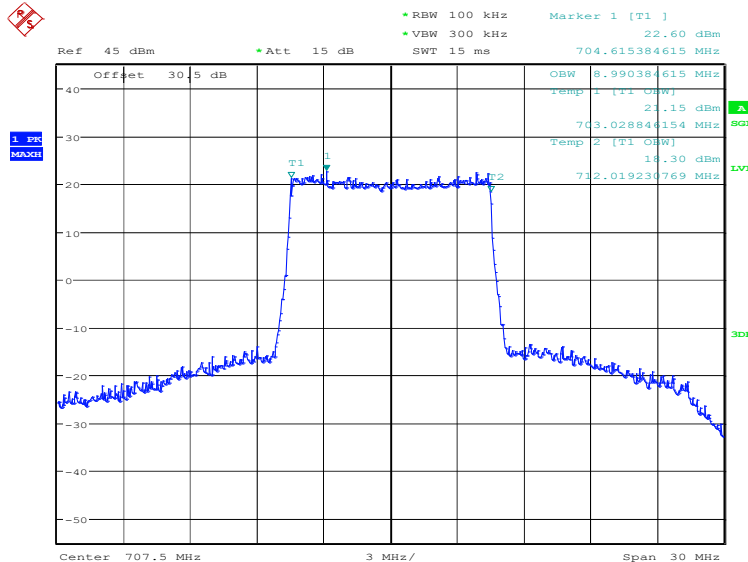
| Frequency(MHz) | Occupied Bandwidth (99%)(kHz) | |
|----------------|-------------------------------|---------|
| 707.5 | QPSK | 16QAM |
| | 9038.46 | 8990.38 |

LTE band 12, 10MHz Bandwidth, QPSK (99% BW)



Date: 15.MAY.2024 14:06:11

LTE band 12, 10MHz Bandwidth, 16QAM (99% BW)

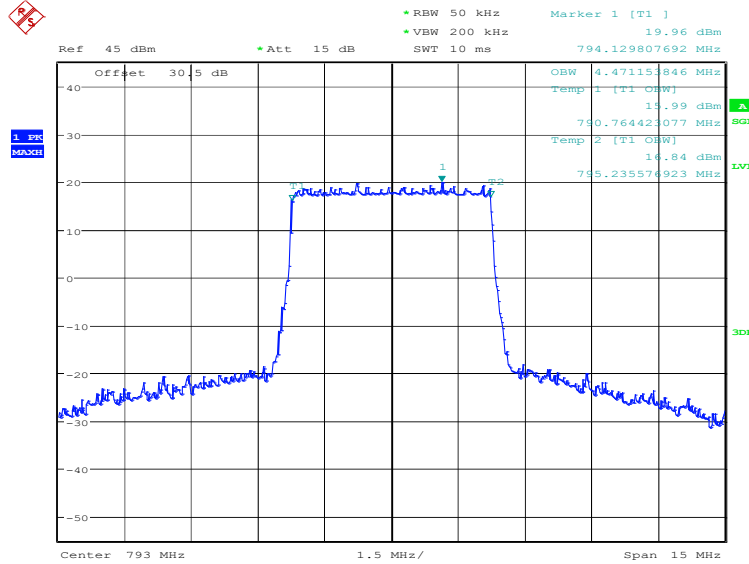


Date: 15.MAY.2024 14:06:51

LTE band 14, 5MHz (99%)

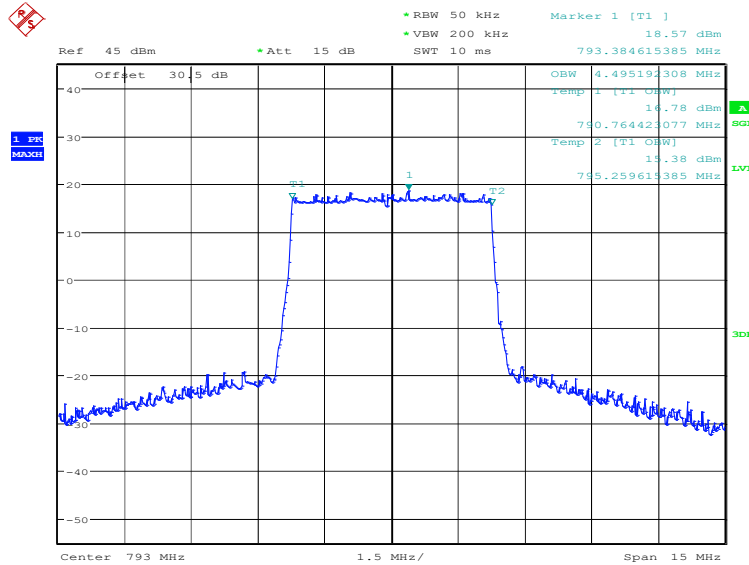
| Frequency(MHz) | Occupied Bandwidth (99%)(kHz) | |
|----------------|-------------------------------|---------|
| 793.0 | QPSK | 16QAM |
| | 4471.15 | 4495.19 |

LTE band 14, 5MHz Bandwidth, QPSK (99% BW)



Date: 15.MAY.2024 14:07:34

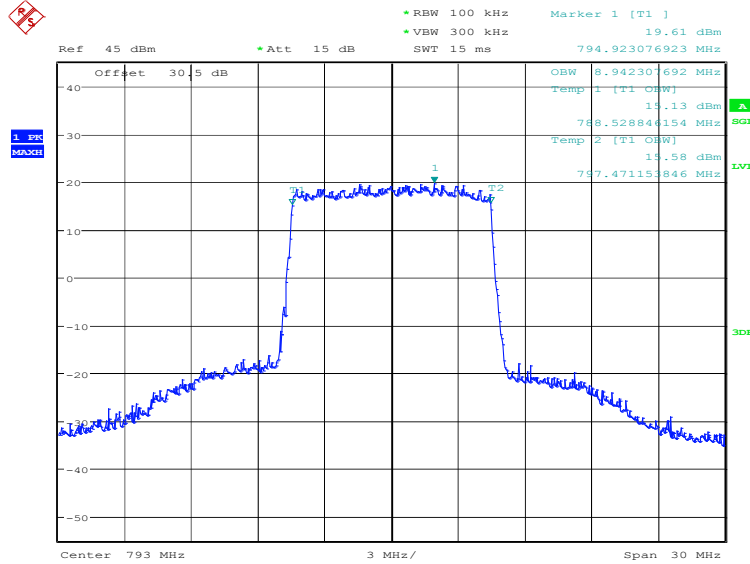
LTE band 14, 5MHz Bandwidth, 16QAM (99% BW)



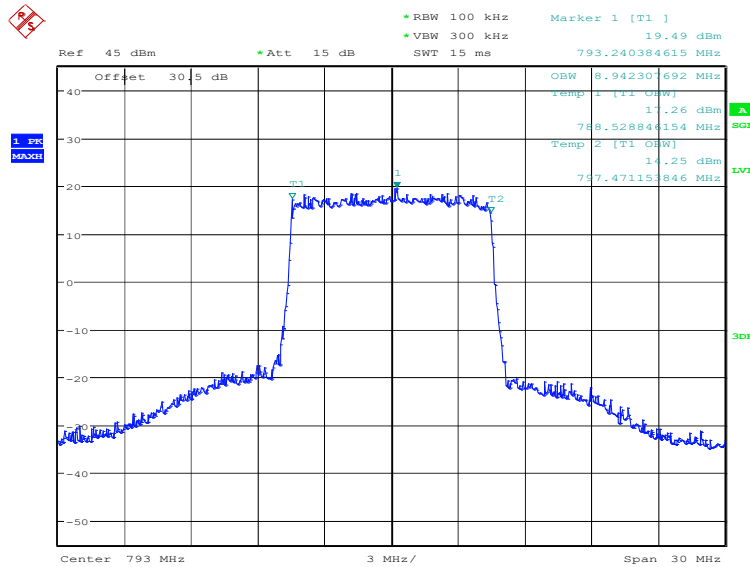
Date: 15.MAY.2024 14:08:14

LTE band 14, 10MHz (99%)

| Frequency(MHz) | Occupied Bandwidth (99%)(kHz) | |
|----------------|-------------------------------|---------|
| 793.0 | QPSK | 16QAM |
| | 8942.31 | 8942.31 |

LTE band 14, 10MHz Bandwidth, QPSK (99% BW)

Date: 15.MAY.2024 14:08:56

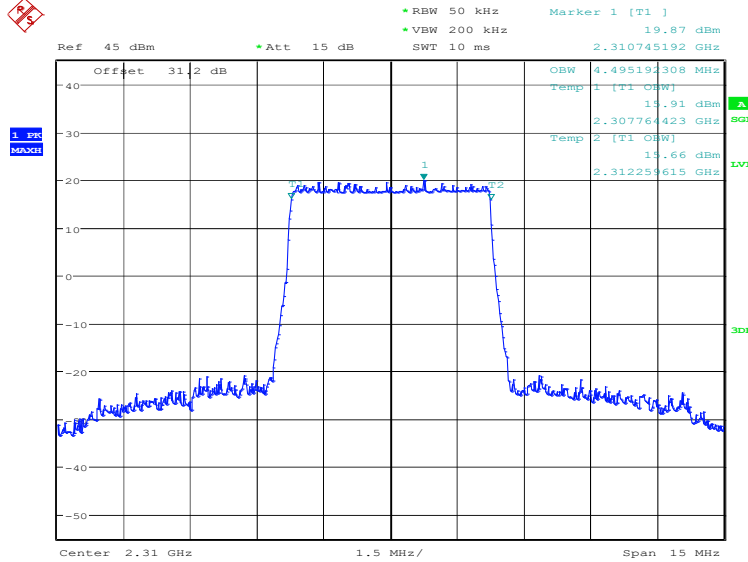
LTE band 14, 10MHz Bandwidth, 16QAM (99% BW)

Date: 15.MAY.2024 14:09:36

LTE band 30, 5MHz (99%)

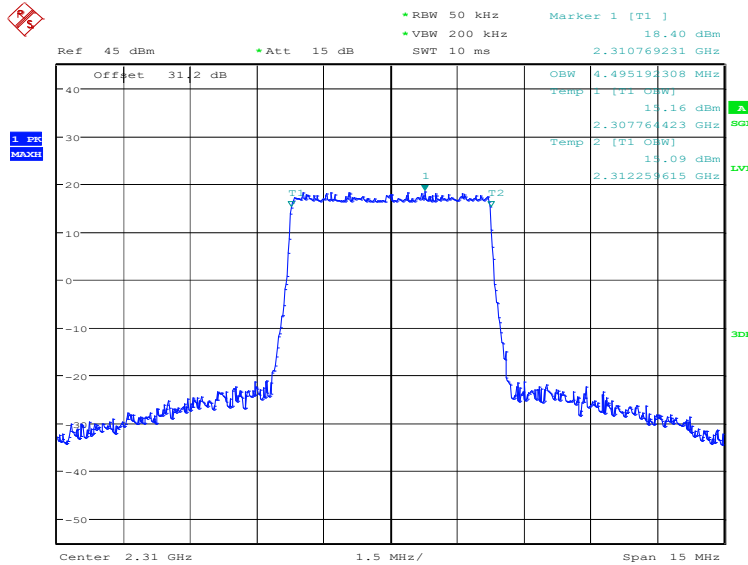
| Frequency(MHz) | Occupied Bandwidth (99%)(kHz) | |
|----------------|-------------------------------|---------|
| 2310.0 | QPSK | 16QAM |
| | 4495.19 | 4495.19 |

LTE band 30, 5MHz Bandwidth, QPSK (99% BW)



Date: 17.MAY.2024 13:33:22

LTE band 30, 5MHz Bandwidth, 16QAM (99% BW)

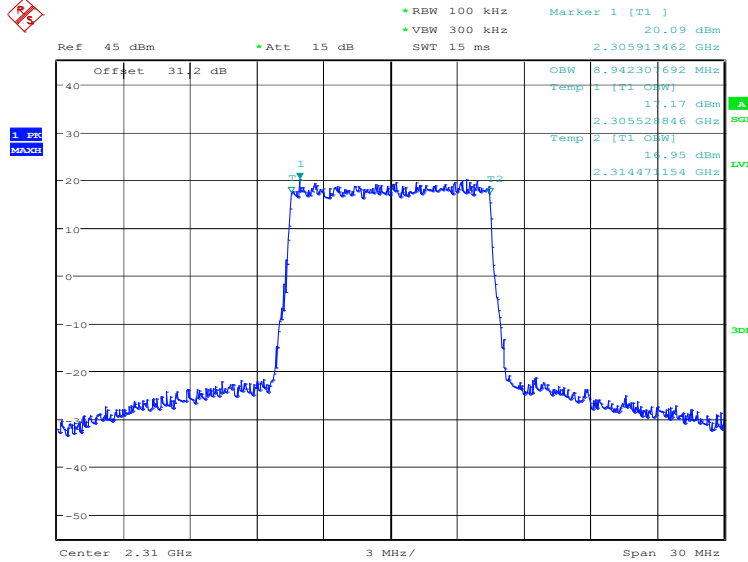


Date: 17.MAY.2024 13:34:01

LTE band 30, 10MHz (99%)

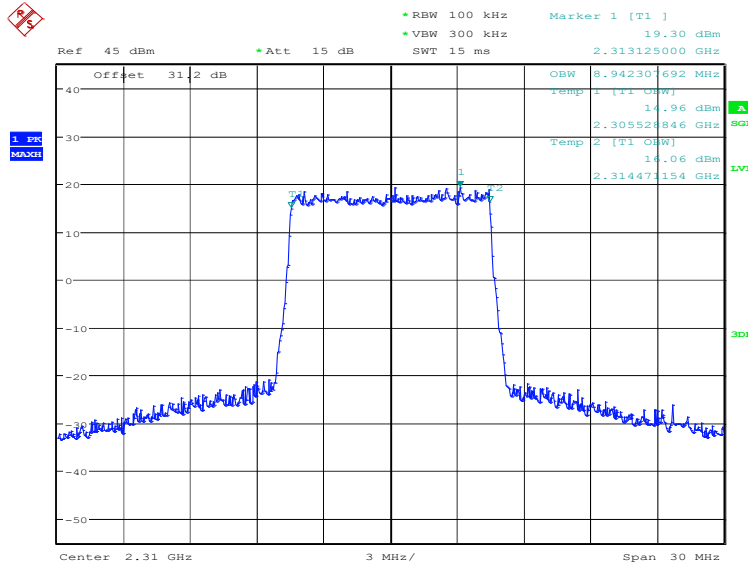
| | | |
|----------------|-------------------------------|---------|
| Frequency(MHz) | Occupied Bandwidth (99%)(kHz) | |
| 2310.0 | QPSK | 16QAM |
| | 8942.31 | 8942.31 |

LTE band 30, 10MHz Bandwidth, QPSK (99% BW)



Date: 17.MAY.2024 13:34:43

LTE band 30, 10MHz Bandwidth,16QAM (99% BW)

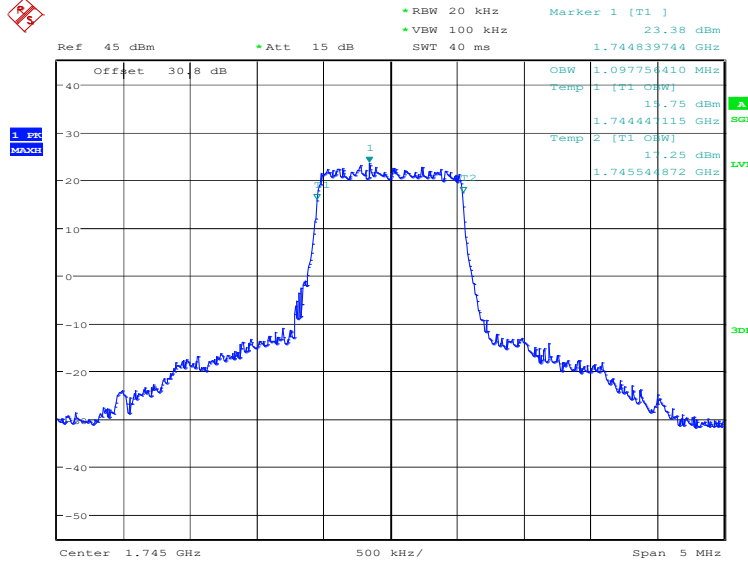


Date: 17.MAY.2024 13:35:23

LTE band 66, 1.4MHz (99%)

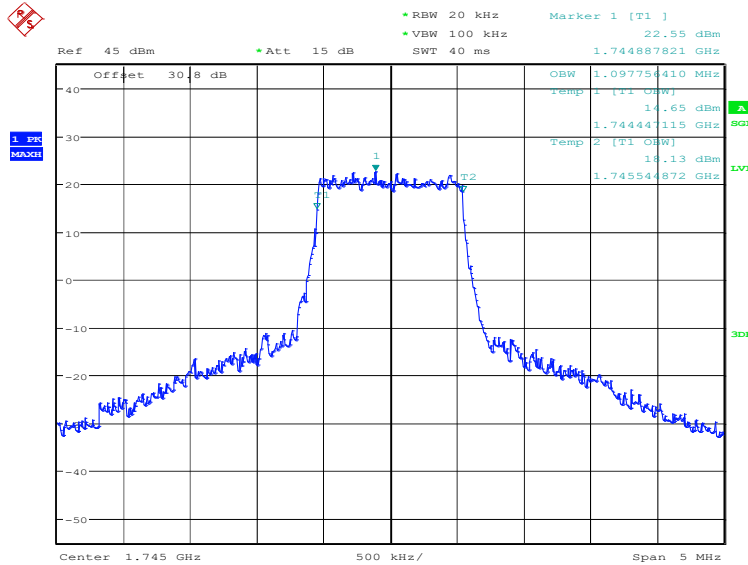
| Frequency(MHz) | Occupied Bandwidth (99%)(kHz) | |
|----------------|-------------------------------|---------|
| 1745.0 | QPSK | 16QAM |
| | 1097.76 | 1097.76 |

LTE band 66, 1.4MHz Bandwidth, QPSK (99% BW)



Date: 15.MAY.2024 11:07:47

LTE band 66, 1.4MHz Bandwidth, 16QAM (99% BW)

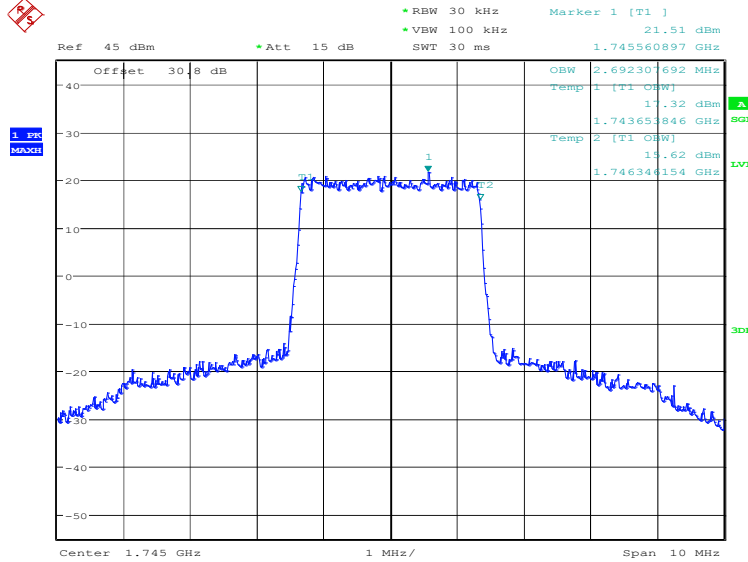


Date: 15.MAY.2024 11:08:27

LTE band 66, 3MHz (99%)

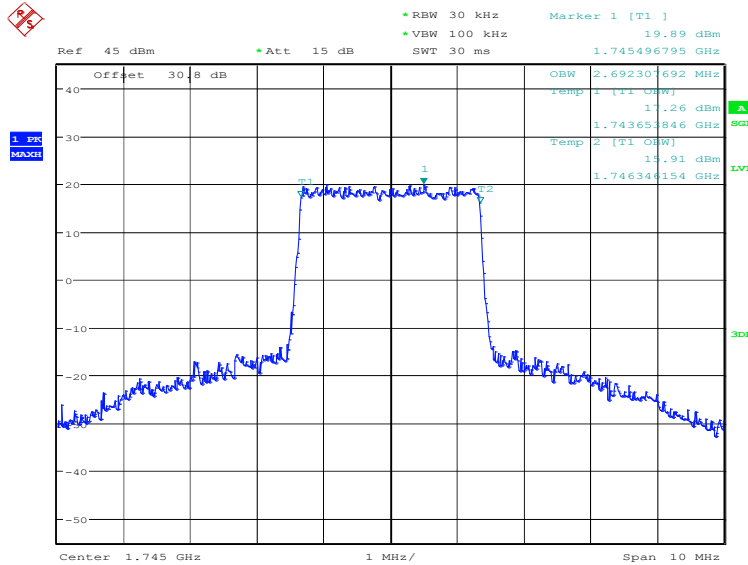
| Frequency(MHz) | Occupied Bandwidth (99%)(kHz) | |
|----------------|-------------------------------|---------|
| 1745.0 | QPSK | 16QAM |
| | 2692.31 | 2692.31 |

LTE band 66, 3MHz Bandwidth, QPSK (99% BW)



Date: 15.MAY.2024 11:09:09

LTE band 66, 3MHz Bandwidth, 16QAM (99% BW)

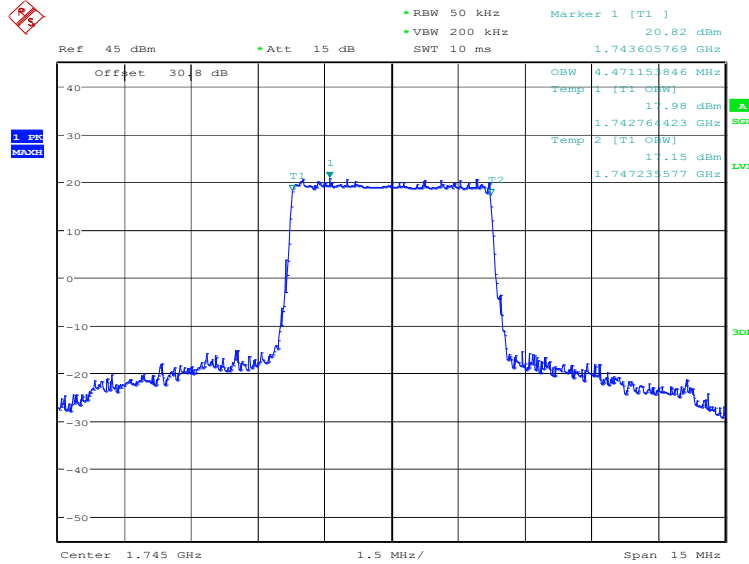


Date: 15.MAY.2024 11:09:49

LTE band 66, 5MHz (99%)

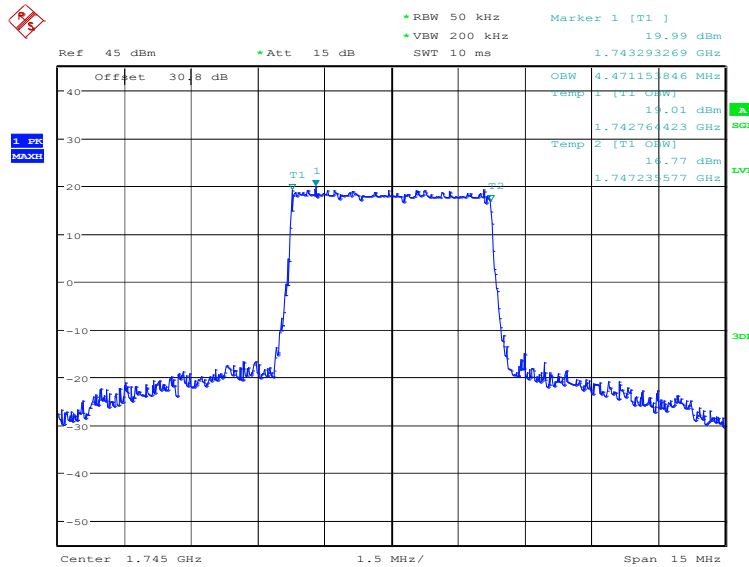
| Frequency(MHz) | Occupied Bandwidth (99%)(kHz) | |
|----------------|-------------------------------|---------|
| 1745.0 | QPSK | 16QAM |
| | 4471.15 | 4471.15 |

LTE band 66, 5MHz Bandwidth, QPSK (99% BW)



Date: 15.MAY.2024 11:10:31

LTE band 66, 5MHz Bandwidth, 16QAM (99% BW)

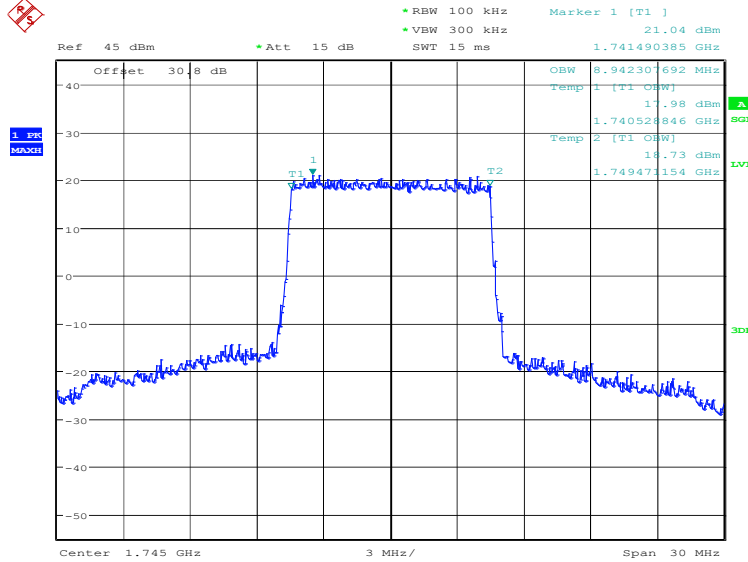


Date: 15.MAY.2024 11:11:11

LTE band 66, 10MHz (99%)

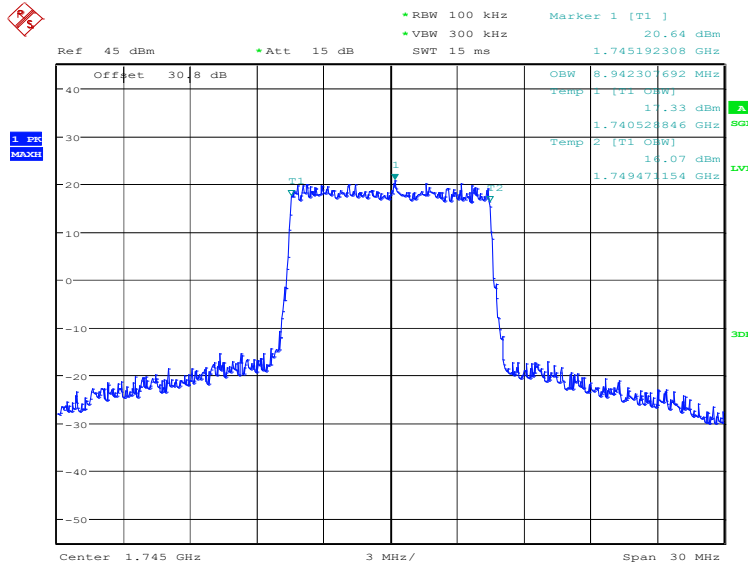
| Frequency(MHz) | Occupied Bandwidth (99%)(kHz) | |
|----------------|-------------------------------|---------|
| 1745.0 | QPSK | 16QAM |
| | 8942.31 | 8942.31 |

LTE band 66, 10MHz Bandwidth, QPSK (99% BW)



Date: 15.MAY.2024 11:11:52

LTE band 66, 10MHz Bandwidth, 16QAM (99% BW)

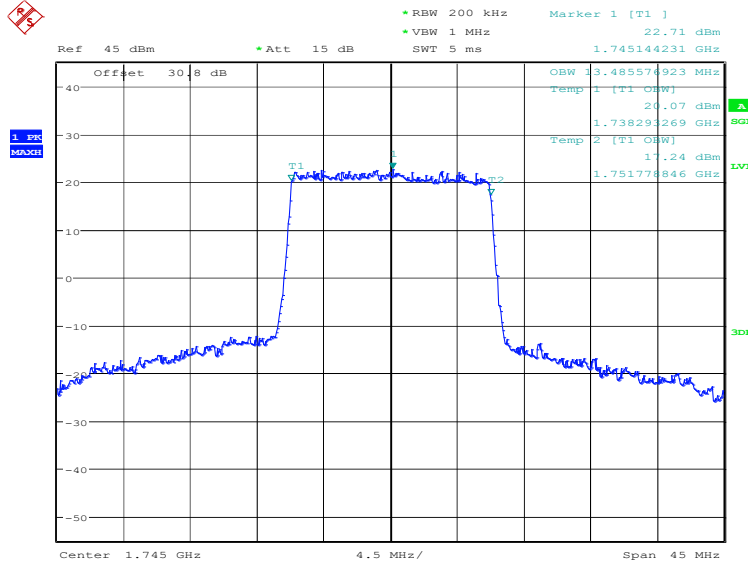


Date: 15.MAY.2024 11:12:32

LTE band 66, 15MHz (99%)

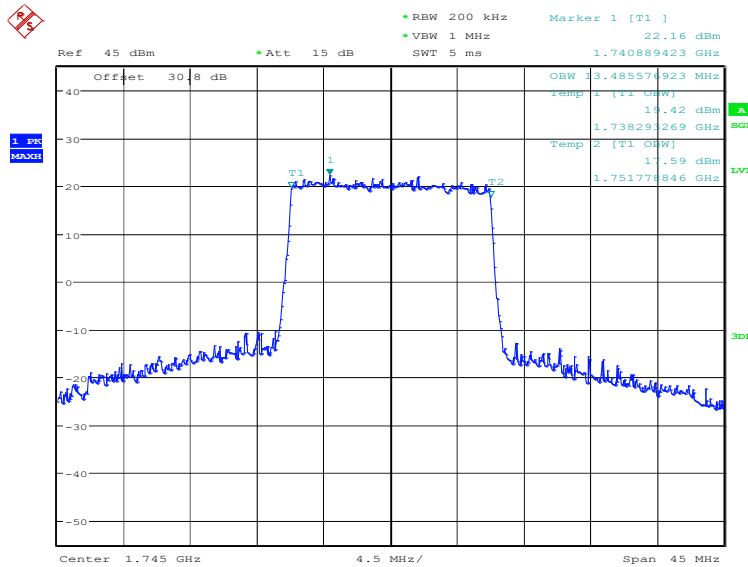
| Frequency(MHz) | Occupied Bandwidth (99%)(kHz) | |
|----------------|-------------------------------|----------|
| 1745.0 | QPSK | 16QAM |
| | 13485.58 | 13485.58 |

LTE band 66, 15MHz Bandwidth, QPSK (99% BW)



Date: 15.MAY.2024 11:13:14

LTE band 66, 15MHz Bandwidth, 16QAM (99% BW)

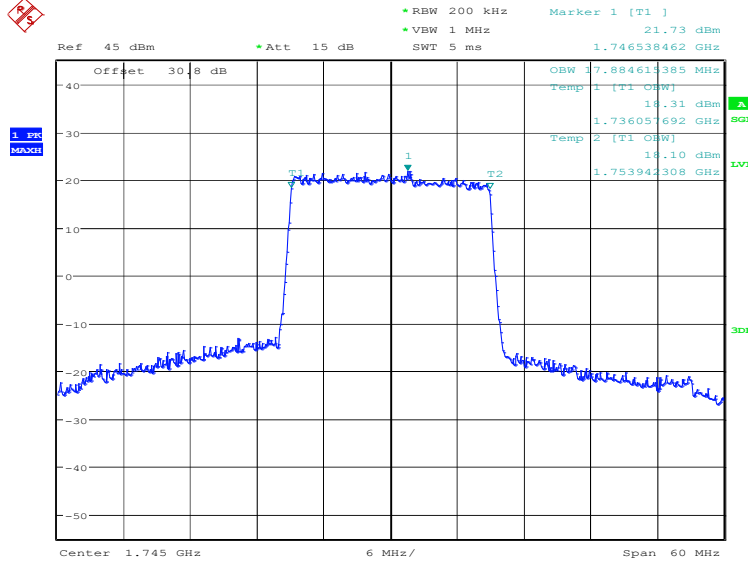


Date: 15.MAY.2024 11:13:54

LTE band 66, 20MHz (99%)

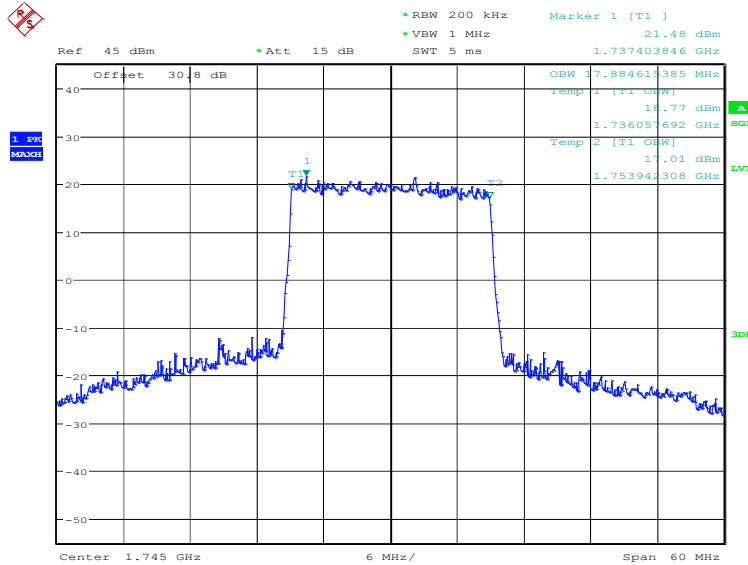
| Frequency(MHz) | Occupied Bandwidth (99%)(kHz) | |
|----------------|-------------------------------|----------|
| 1745.0 | QPSK | 16QAM |
| | 17884.62 | 17884.62 |

LTE band 66, 20MHz Bandwidth, QPSK (99% BW)



Date: 15.MAY.2024 11:14:36

LTE band 66, 20MHz Bandwidth, 16QAM (99% BW)

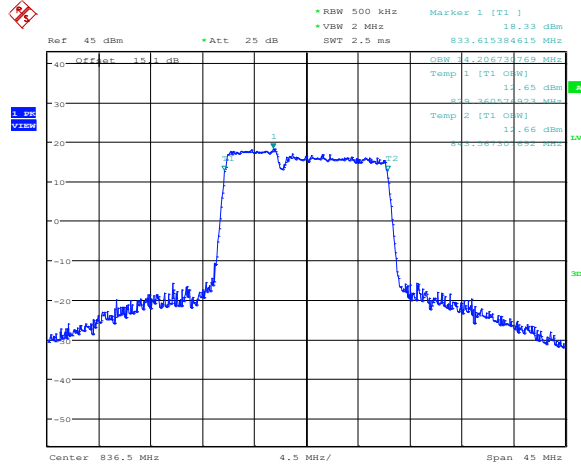


Date: 15.MAY.2024 11:15:16

LTE CA band 5B, 5MHz+10MHz(99%)

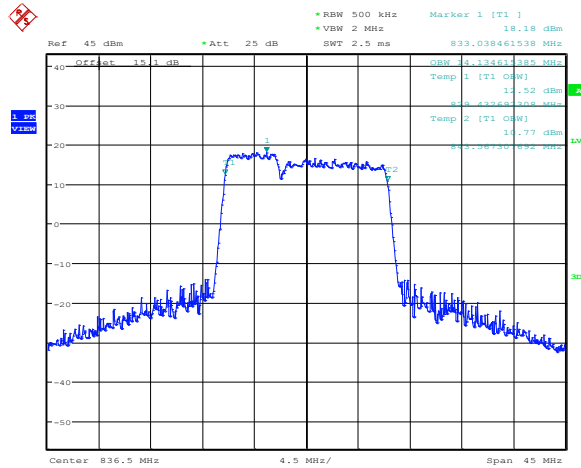
| Frequency (MHz) | Occupied Bandwidth (99%) (MHz) | |
|-----------------|--------------------------------|--------|
| | QPSK | 16QAM |
| 836.5 | 14.207 | 14.135 |

LTE CA band 5B , 5MHz+10MHz Bandwidth,QPSK (99% BW)



Date: 21.MAY.2024 13:48:04

LTE CA band 5B , 5MHz+10MHz Bandwidth,16QAM (99% BW)

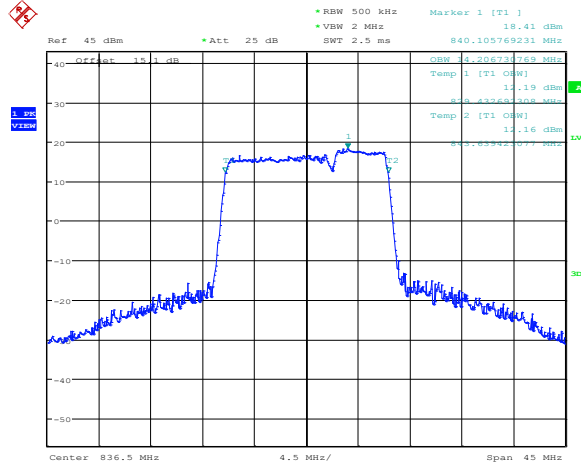


Date: 21.MAY.2024 13:48:28

LTE CA band 5B, 10MHz+5MHz(99%)

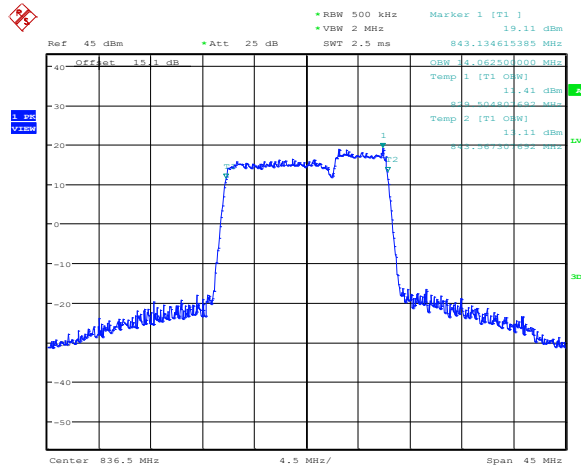
| Frequency (MHz) | Occupied Bandwidth (99%) (MHz) | |
|-----------------|--------------------------------|--------|
| | QPSK | 16QAM |
| 836.5 | 14.207 | 14.062 |

LTE CA band 5B , 10MHz+5MHz Bandwidth,QPSK (99% BW)



Date: 21.MAY.2024 13:49:51

LTE CA band 5B , 10MHz+5MHz Bandwidth,16QAM (99% BW)

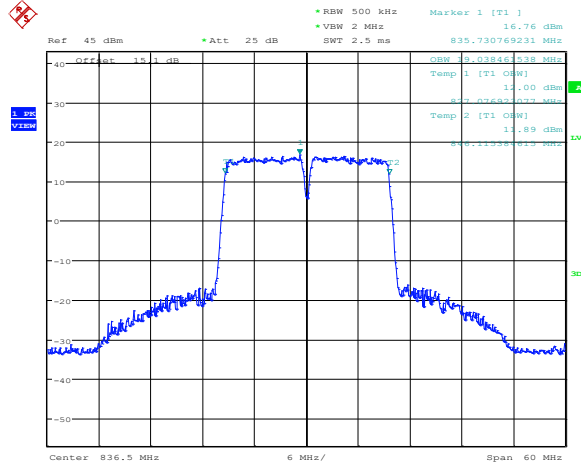


Date: 21.MAY.2024 13:50:15

LTE CA band 5B, 10MHz+10MHz(99%)

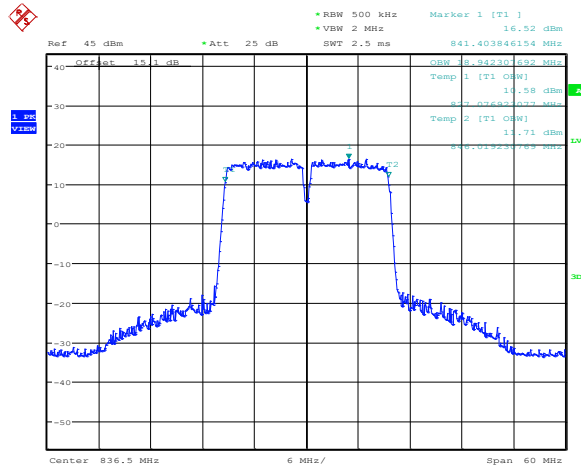
| Frequency (MHz) | Occupied Bandwidth (99%) (MHz) | |
|-----------------|--------------------------------|--------|
| | QPSK | 16QAM |
| 836.5 | 19.038 | 18.942 |

LTE CA band 5B , 10MHz+10MHz Bandwidth,QPSK (99% BW)



Date: 21.MAY.2024 13:51:15

LTE CA band 5B , 10MHz+10MHz Bandwidth,16QAM (99% BW)



Date: 21.MAY.2024 13:51:39

Note: Expanded measurement uncertainty is $U = 3428 \text{ Hz}$, $k = 2$.

A.5 Emission Bandwidth

The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power. Table below lists the measured -26dBc BW. Spectrum analyzer plots are included on the following pages.

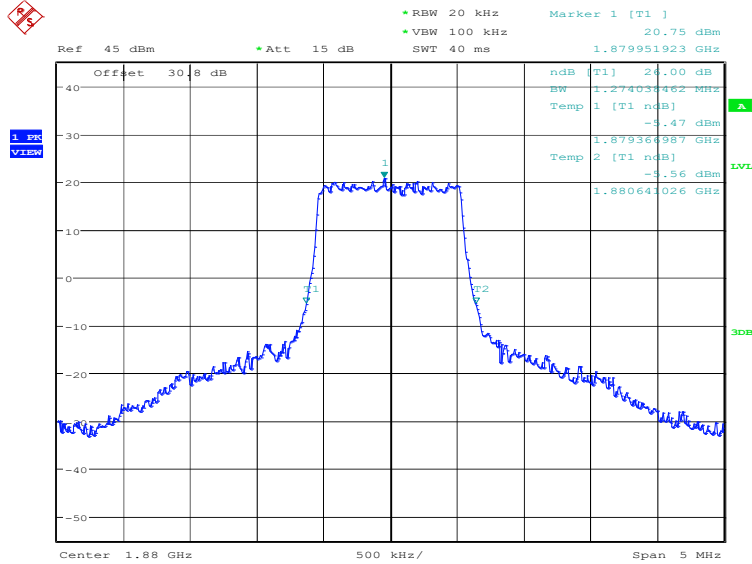
The measurement method is from ANSI C63.26:

- a) The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The span range for the spectrum analyzer shall be wide enough to see sufficient roll off of the signal to make the measurement.
- b) The nominal RBW shall be in the range of 1% to 5% of the anticipated OBW, and the VBW shall be set $\geq 3 \times$ RBW.
- c) Set the reference level of the instrument as required to prevent the signal amplitude from exceeding the maximum spectrum analyzer input mixer level for linear operation.
- d) The dynamic range of the spectrum analyzer at the selected RBW shall be more than 10 dB below the target “-X dB” requirement, i.e., if the requirement calls for measuring the -26 dB OBW, the spectrum analyzer noise floor at the selected RBW shall be at least 36 dB below the reference level.
- e) Set spectrum analyzer detection mode to peak, and the trace mode to max hold.

LTE band 2, 1.4MHz (-26dBc)

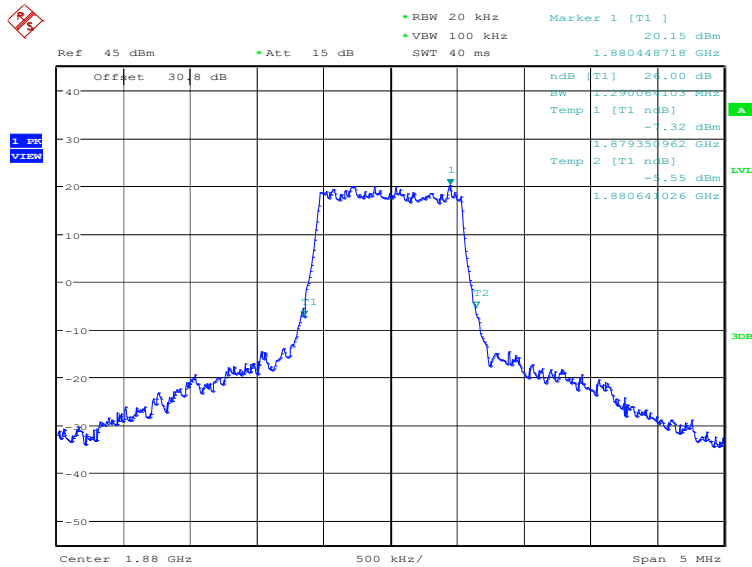
| Frequency(MHz) | Emission Bandwidth (-26dBc)(kHz) | |
|----------------|----------------------------------|---------|
| 1880.0 | QPSK | 16QAM |
| | 1274.04 | 1290.06 |

LTE band 2, 1.4MHz Bandwidth, QPSK (-26dBc BW)



Date: 15.MAY.2024 11:16:36

LTE band 2, 1.4MHz Bandwidth, 16QAM (-26dBc BW)

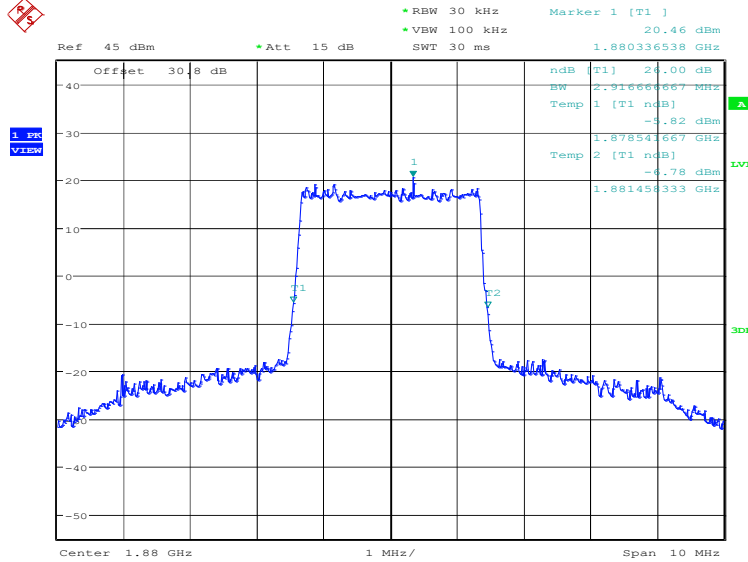


Date: 15.MAY.2024 11:17:16

LTE band 2, 3MHz (-26dBc)

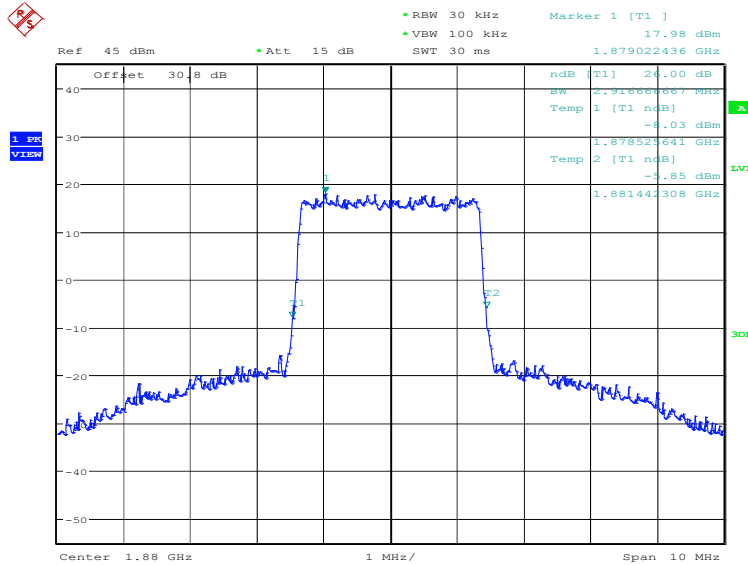
| Frequency(MHz) | Emission Bandwidth (-26dBc)(kHz) | |
|----------------|----------------------------------|---------|
| 1880.0 | QPSK | 16QAM |
| | 2916.67 | 2916.67 |

LTE band 2, 3MHz Bandwidth, QPSK (-26dBc BW)



Date: 15.MAY.2024 11:17:58

LTE band 2, 3MHz Bandwidth, 16QAM (-26dBc BW)

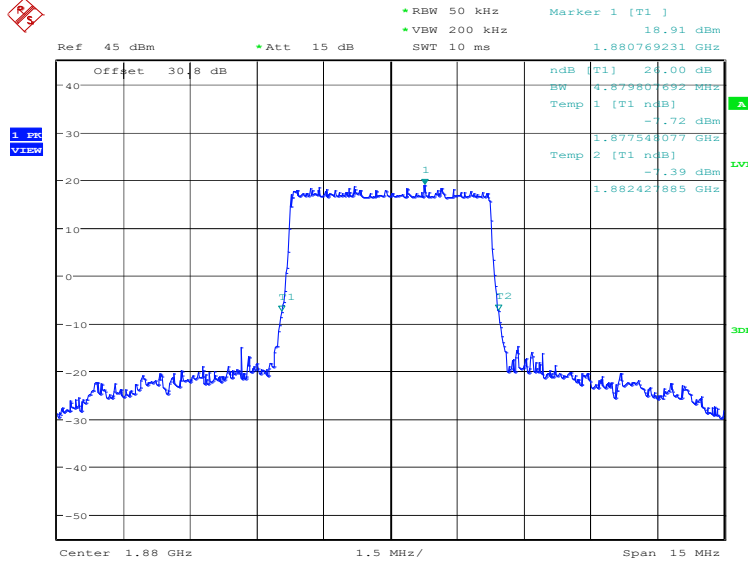


Date: 15.MAY.2024 11:18:38

LTE band 2, 5MHz (-26dBc)

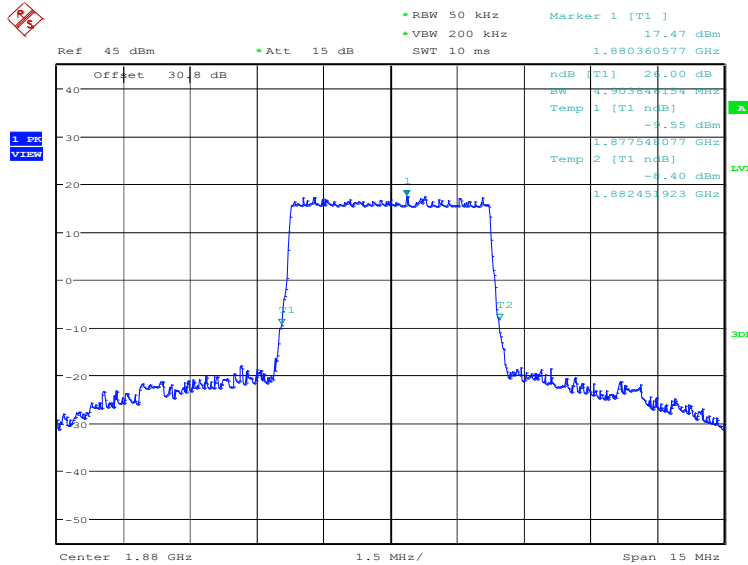
| Frequency(MHz) | Emission Bandwidth (-26dBc)(kHz) | |
|----------------|----------------------------------|---------|
| 1880.0 | QPSK | 16QAM |
| | 4879.81 | 4903.85 |

LTE band 2, 5MHz Bandwidth, QPSK (-26dBc BW)



Date: 15.MAY.2024 11:19:20

LTE band 2, 5MHz Bandwidth, 16QAM (-26dBc BW)

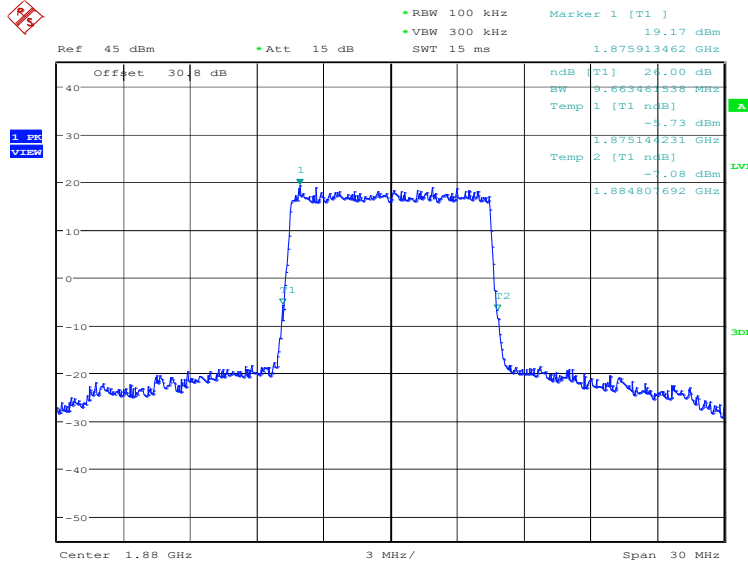


Date: 15.MAY.2024 11:20:00

LTE band 2, 10MHz (-26dBc)

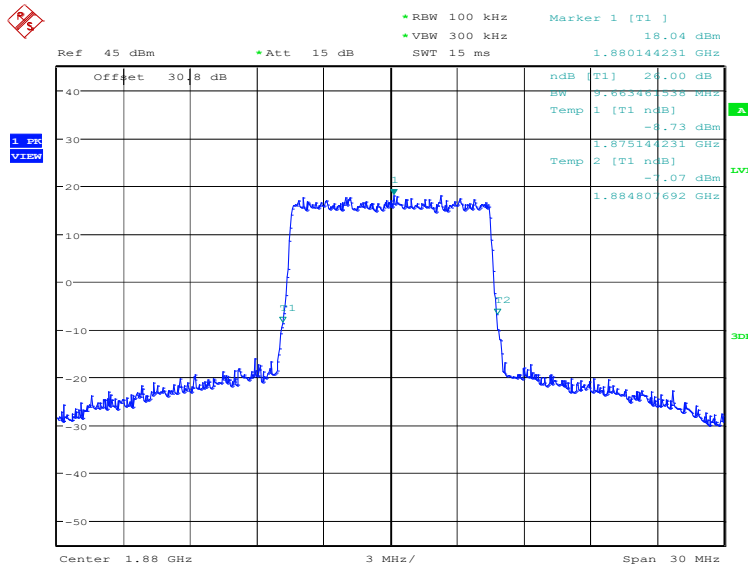
| Frequency(MHz) | Emission Bandwidth (-26dBc)(kHz) | |
|----------------|----------------------------------|---------|
| 1880.0 | QPSK | 16QAM |
| | 9663.46 | 9663.46 |

LTE band 2, 10MHz Bandwidth, QPSK (-26dBc BW)



Date: 15.MAY.2024 11:20:42

LTE band 2, 10MHz Bandwidth, 16QAM (-26dBc BW)

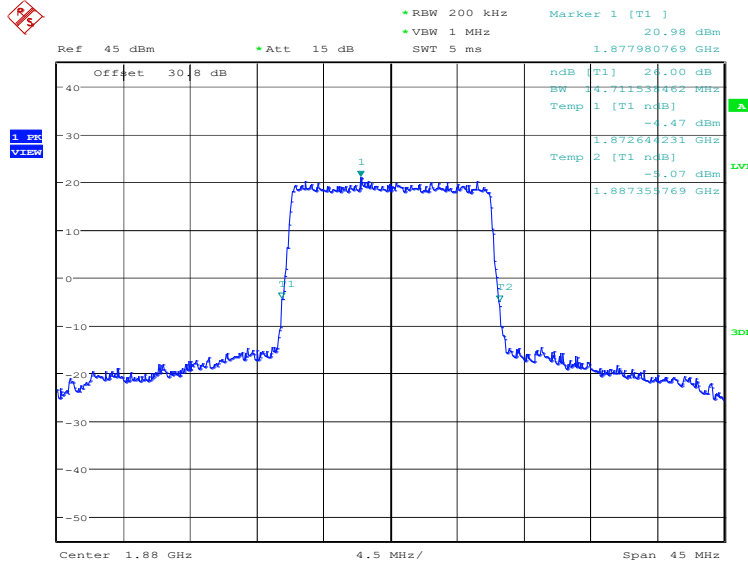


Date: 15.MAY.2024 11:21:23

LTE band 2, 15MHz (-26dBc)

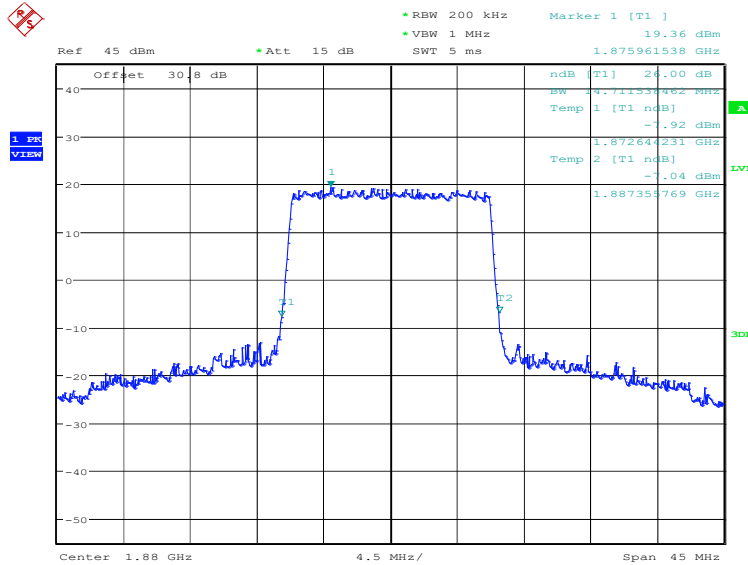
| Frequency(MHz) | Emission Bandwidth (-26dBc)(kHz) | |
|----------------|----------------------------------|----------|
| 1880.0 | QPSK | 16QAM |
| | 14711.54 | 14711.54 |

LTE band 2, 15MHz Bandwidth, QPSK (-26dBc BW)



Date: 15.MAY.2024 11:22:05

LTE band 2, 15MHz Bandwidth, 16QAM (-26dBc BW)

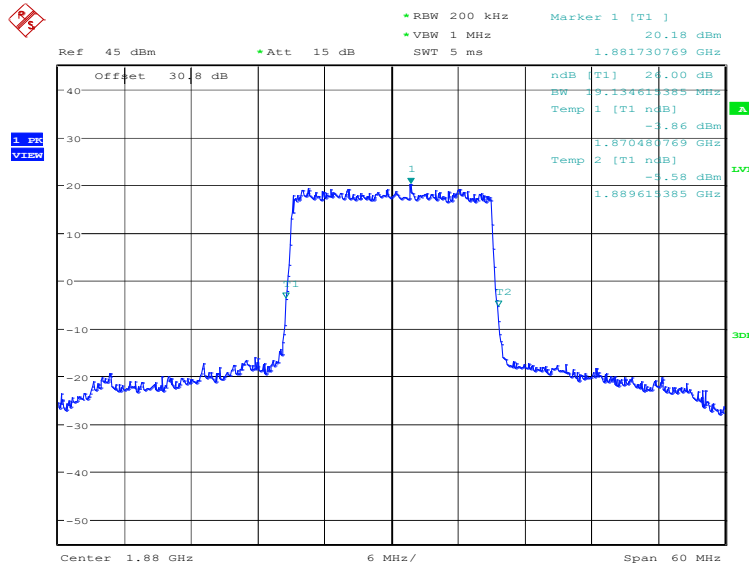


Date: 15.MAY.2024 11:22:45

LTE band 2, 20MHz (-26dBc)

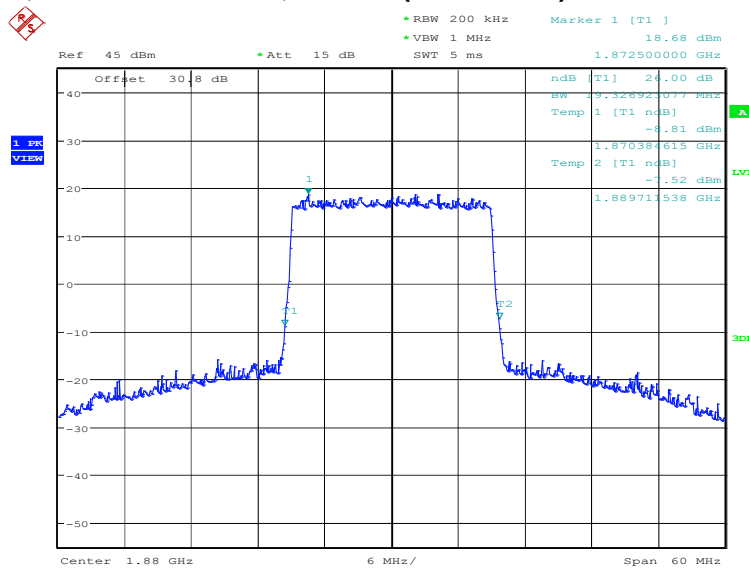
| Frequency(MHz) | Emission Bandwidth (-26dBc)(kHz) | |
|----------------|----------------------------------|----------|
| 1880.0 | QPSK | 16QAM |
| | 19134.62 | 19326.92 |

LTE band 2, 20MHz Bandwidth, QPSK (-26dBc BW)



Date: 15.MAY.2024 11:23:27

LTE band 2, 20MHz Bandwidth, 16QAM (-26dBc BW)

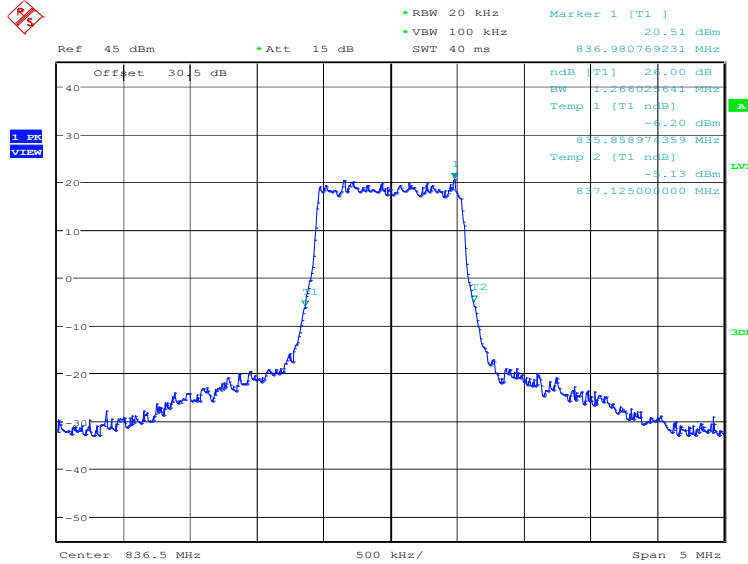


Date: 15.MAY.2024 11:24:07

LTE band 5, 1.4MHz (-26dBc)

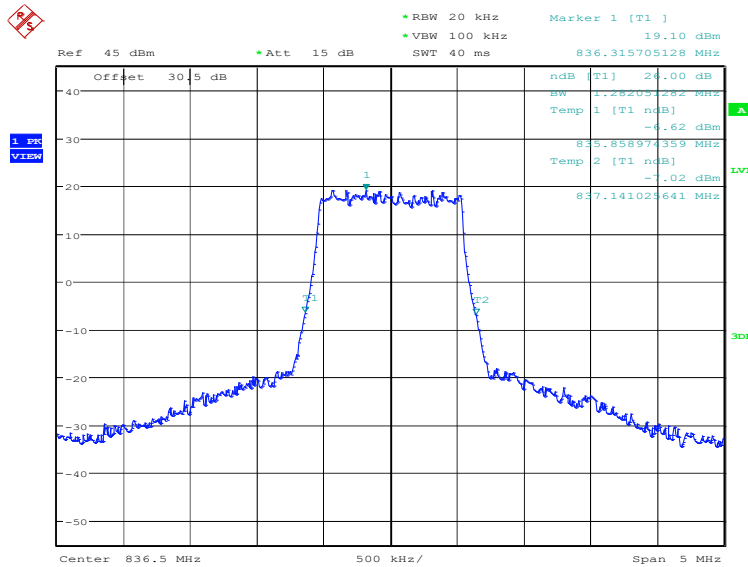
| Frequency(MHz) | Emission Bandwidth (-26dBc)(kHz) | |
|----------------|----------------------------------|---------|
| 836.5 | QPSK | 16QAM |
| | 1266.03 | 1282.05 |

LTE band 5, 1.4MHz Bandwidth, QPSK (-26dBc BW)



Date: 15.MAY.2024 14:10:55

LTE band 5, 1.4MHz Bandwidth, 16QAM (-26dBc BW)

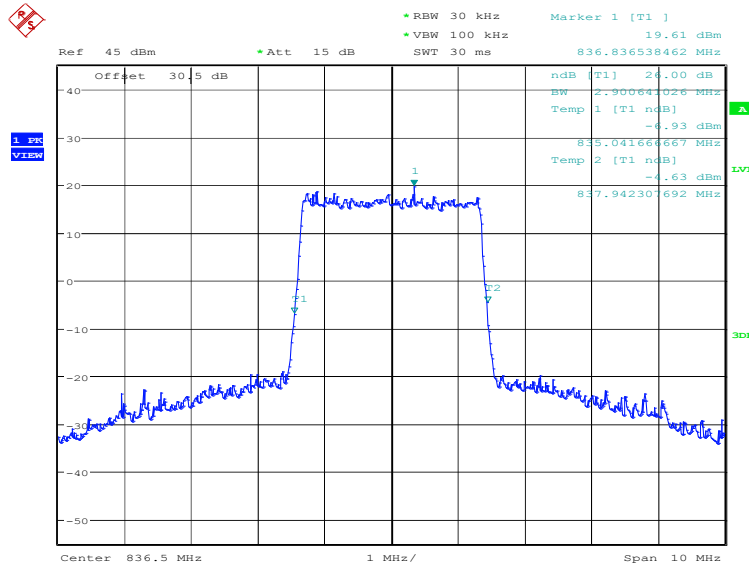


Date: 15.MAY.2024 14:11:35

LTE band 5, 3MHz (-26dBc)

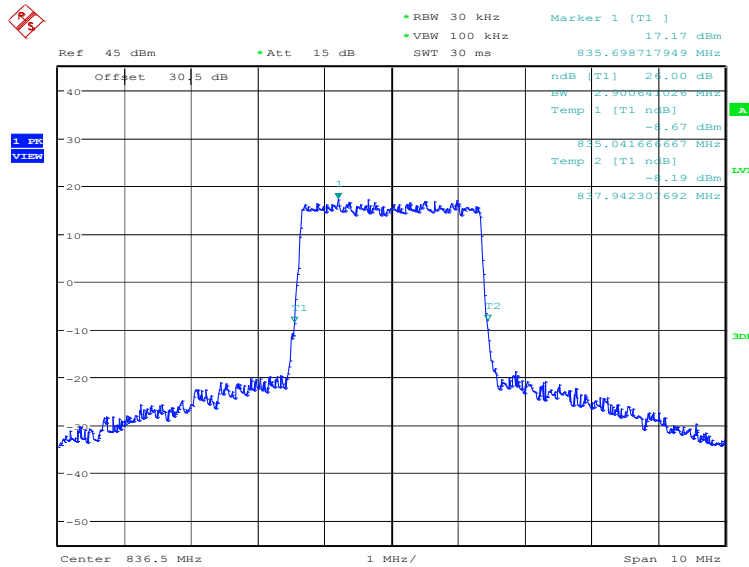
| Frequency(MHz) | Emission Bandwidth (-26dBc)(kHz) | |
|----------------|----------------------------------|---------|
| 836.5 | QPSK | 16QAM |
| | 2900.64 | 2900.64 |

LTE band 5, 3MHz Bandwidth, QPSK (-26dBc BW)



Date: 15.MAY.2024 14:12:17

LTE band 5, 3MHz Bandwidth, 16QAM (-26dBc BW)

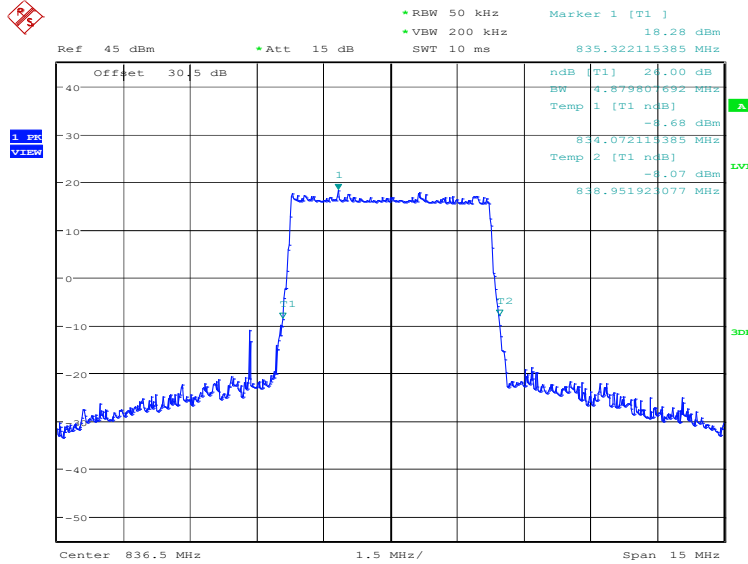


Date: 15.MAY.2024 14:12:58

LTE band 5, 5MHz (-26dBc)

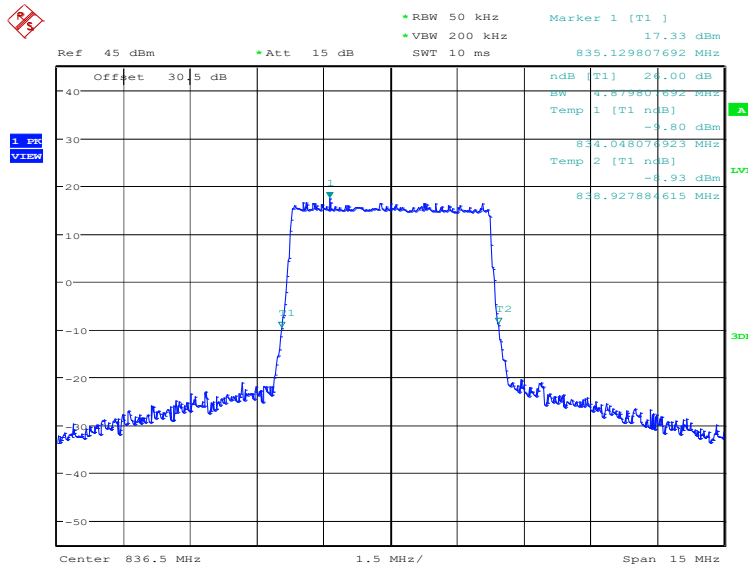
| Frequency(MHz) | Emission Bandwidth (-26dBc)(kHz) | |
|----------------|----------------------------------|---------|
| 836.5 | QPSK | 16QAM |
| | 4879.81 | 4879.81 |

LTE band 5, 5MHz Bandwidth, QPSK (-26dBc BW)



Date: 15.MAY.2024 14:13:39

LTE band 5, 5MHz Bandwidth, 16QAM (-26dBc BW)

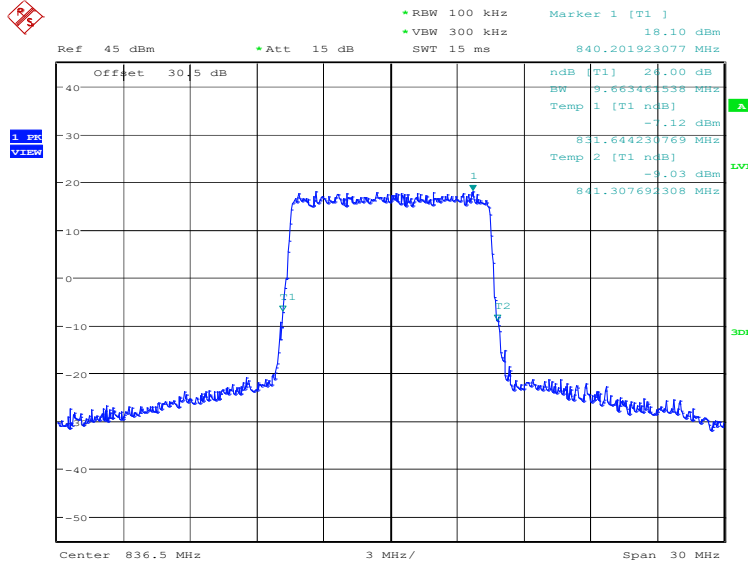


Date: 15.MAY.2024 14:14:20

LTE band 5, 10MHz (-26dBc)

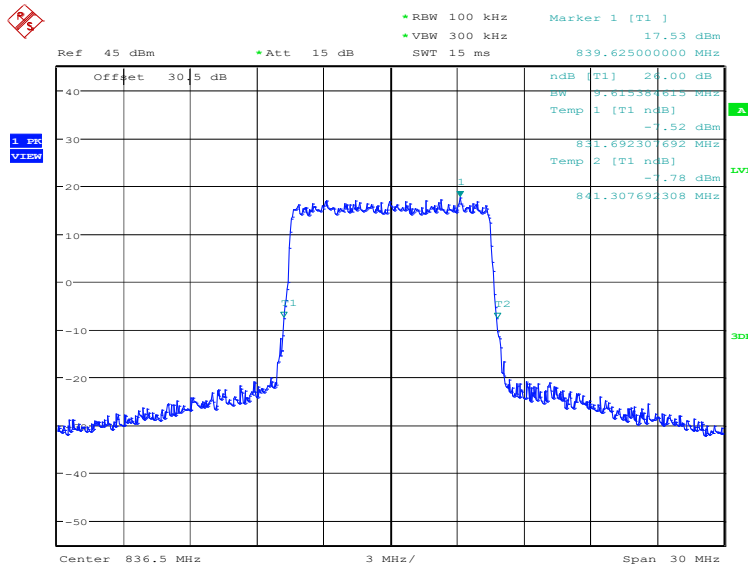
| Frequency(MHz) | Emission Bandwidth (-26dBc)(kHz) | |
|----------------|----------------------------------|---------|
| 836.5 | QPSK | 16QAM |
| | 9663.46 | 9615.38 |

LTE band 5, 10MHz Bandwidth, QPSK (-26dBc BW)



Date: 15.MAY.2024 14:15:02

LTE band 5, 10MHz Bandwidth, 16QAM (-26dBc BW)

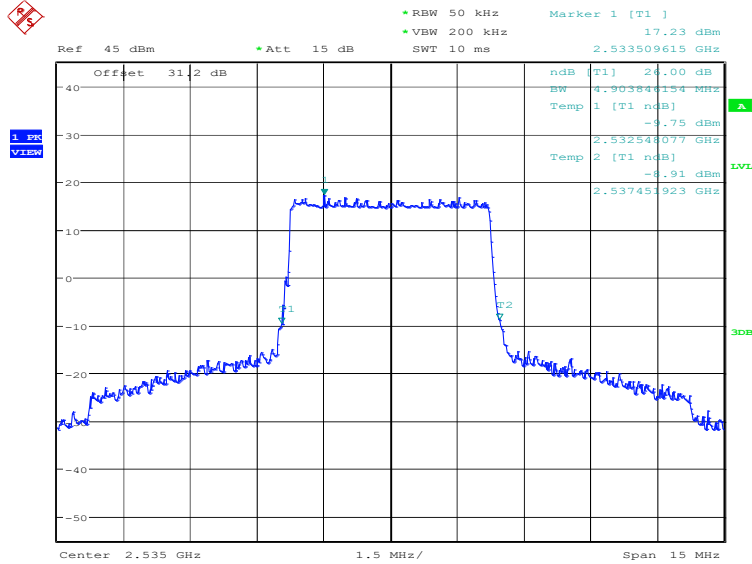


Date: 15.MAY.2024 14:15:42

LTE band 7, 5MHz (-26dBc)

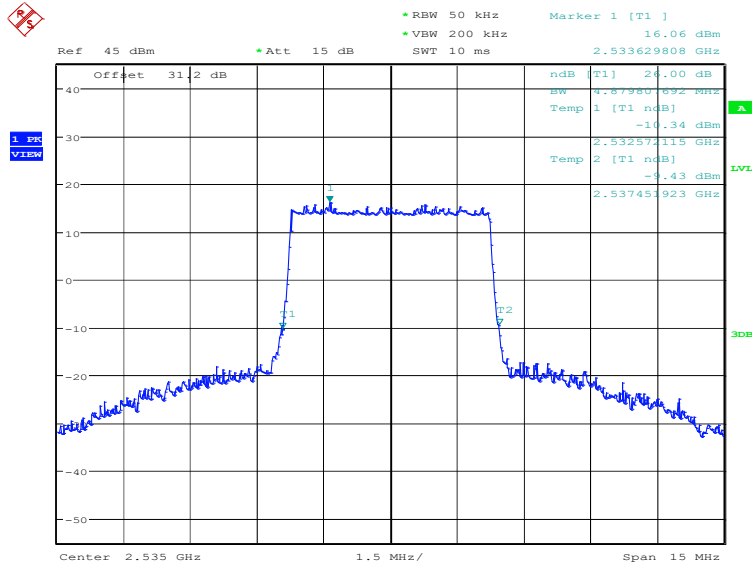
| Frequency(MHz) | Emission Bandwidth (-26dBc)(kHz) | |
|----------------|----------------------------------|---------|
| 2535.0 | QPSK | 16QAM |
| | 4903.85 | 4879.81 |

LTE band 7, 5MHz Bandwidth, QPSK (-26dBc BW)



Date: 15.MAY.2024 11:24:51

LTE band 7, 5MHz Bandwidth,16QAM (-26dBc BW)

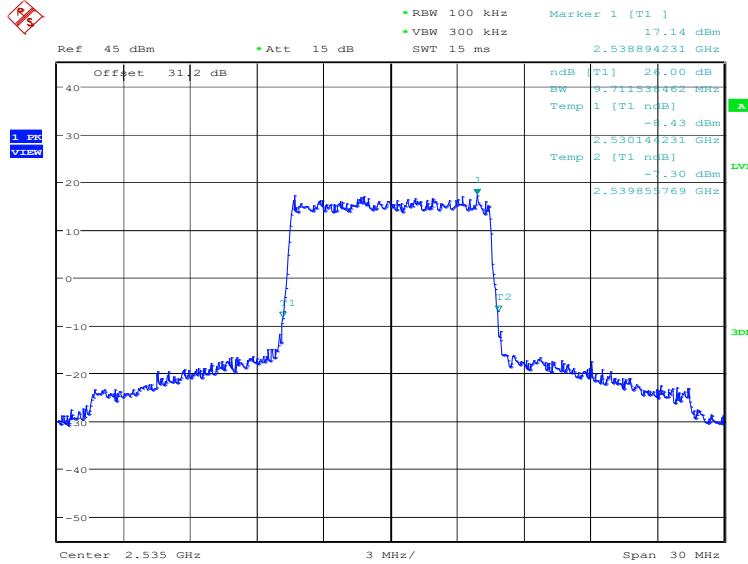


Date: 15.MAY.2024 11:25:31

LTE band 7, 10MHz (-26dBc)

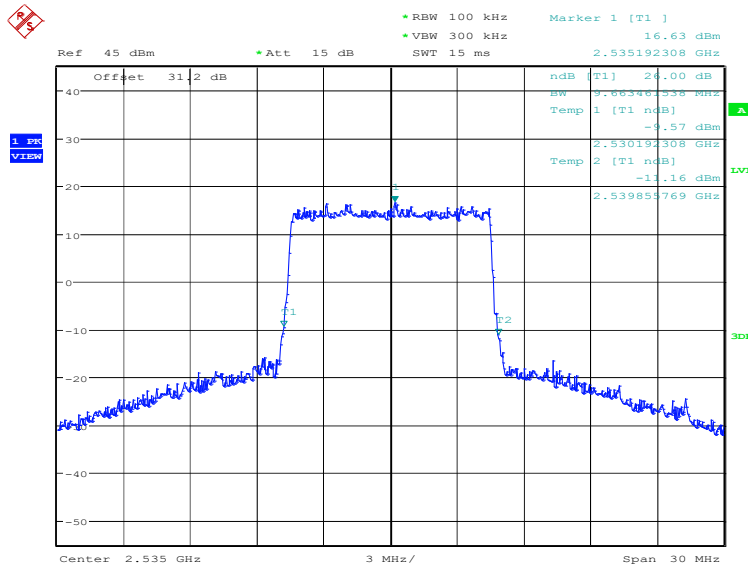
| Frequency(MHz) | Emission Bandwidth (-26dBc)(kHz) | |
|----------------|----------------------------------|---------|
| 2535.0 | QPSK | 16QAM |
| | 9711.54 | 9663.46 |

LTE band 7, 10MHz Bandwidth, QPSK (-26dBc BW)



Date: 15.MAY.2024 11:26:13

LTE band 7, 10MHz Bandwidth, 16QAM (-26dBc BW)

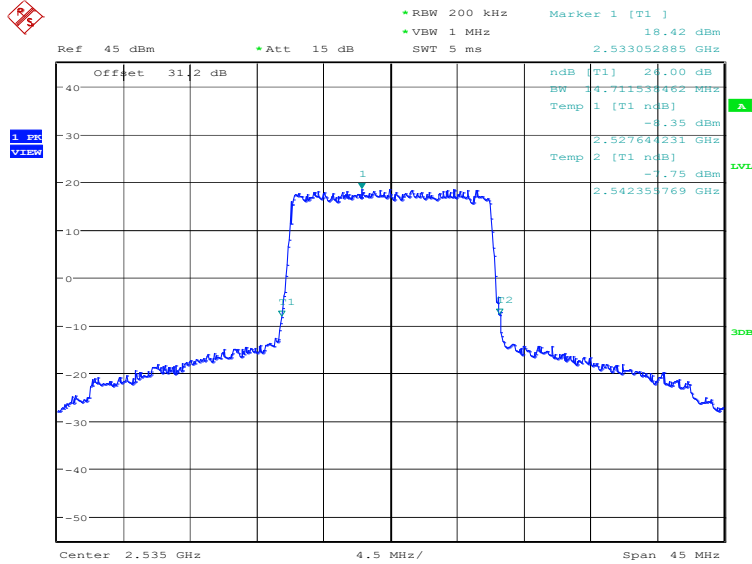


Date: 15.MAY.2024 11:26:53

LTE band 7, 15MHz (-26dBc)

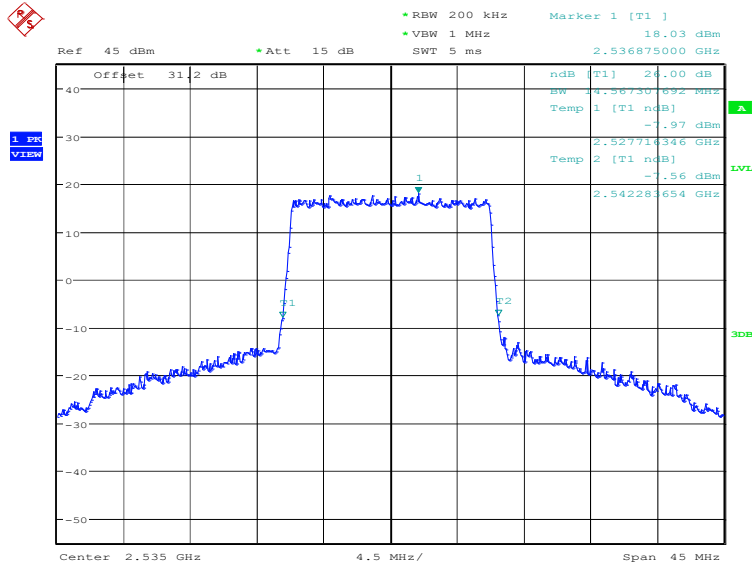
| Frequency(MHz) | Emission Bandwidth (-26dBc)(kHz) | |
|----------------|----------------------------------|----------|
| 2535.0 | QPSK | 16QAM |
| | 14711.54 | 14567.31 |

LTE band 7, 15MHz Bandwidth, QPSK (-26dBc BW)



Date: 15.MAY.2024 11:27:35

LTE band 7, 15MHz Bandwidth, 16QAM (-26dBc BW)

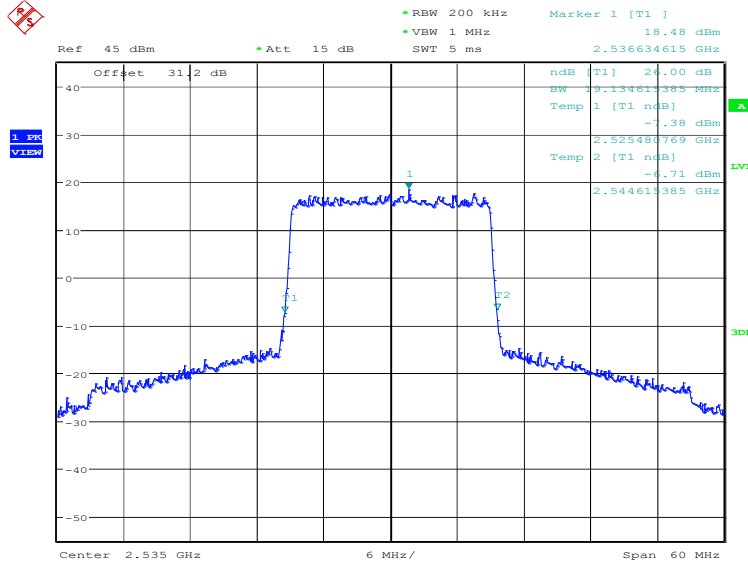


Date: 15.MAY.2024 11:28:15

LTE band 7, 20MHz (-26dBc)

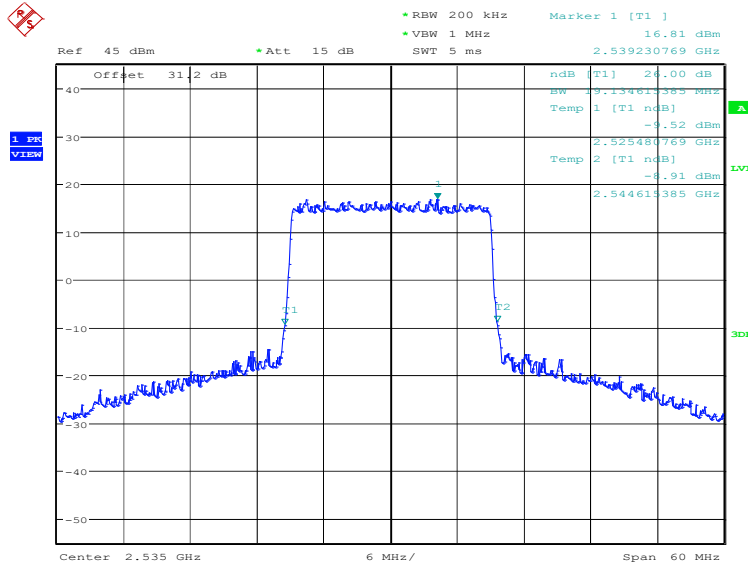
| Frequency(MHz) | Emission Bandwidth (-26dBc)(kHz) | |
|----------------|----------------------------------|----------|
| 2535.0 | QPSK | 16QAM |
| | 19134.62 | 19134.62 |

LTE band 7, 20MHz Bandwidth, QPSK (-26dBc BW)



Date: 15.MAY.2024 11:28:58

LTE band 7, 20MHz Bandwidth, 16QAM (-26dBc BW)

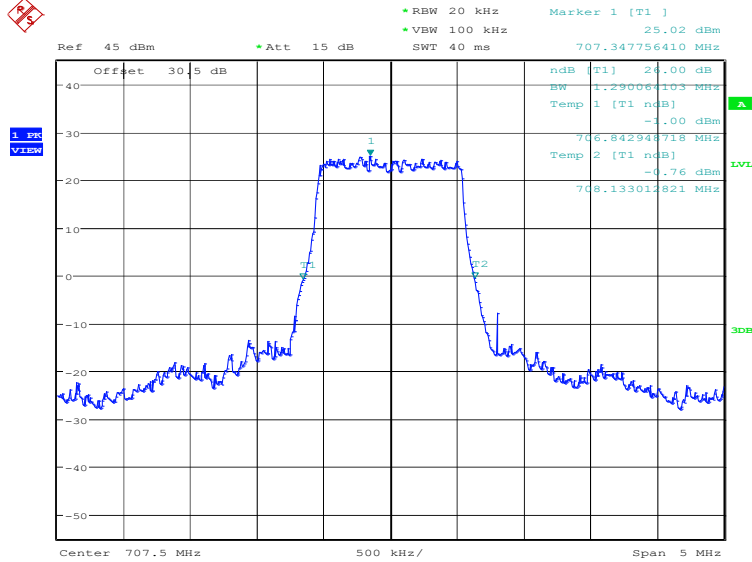


Date: 15.MAY.2024 11:29:38

LTE band 12, 1.4MHz (-26dBc)

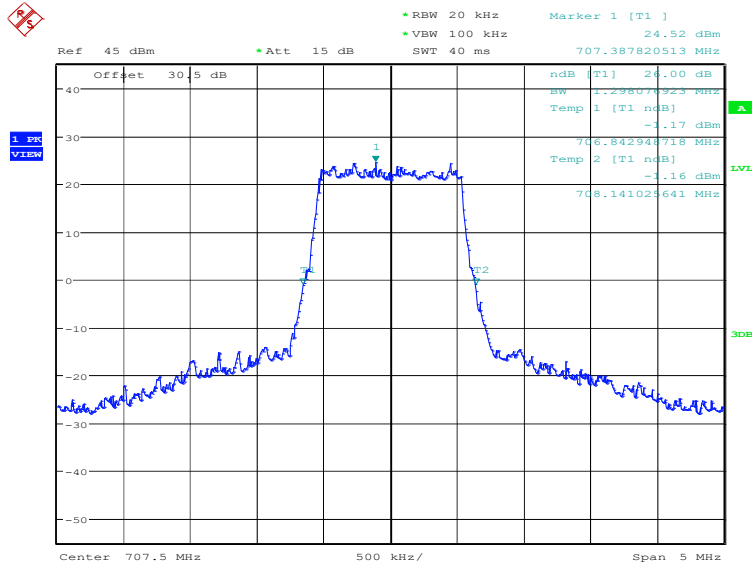
| Frequency(MHz) | Emission Bandwidth (-26dBc)(kHz) | |
|----------------|----------------------------------|---------|
| 707.5 | QPSK | 16QAM |
| | 1290.06 | 1298.08 |

LTE band 12, 1.4MHz Bandwidth, QPSK (-26dBc BW)



Date: 15.MAY.2024 14:16:25

LTE band 12, 1.4MHz Bandwidth, 16QAM (-26dBc BW)

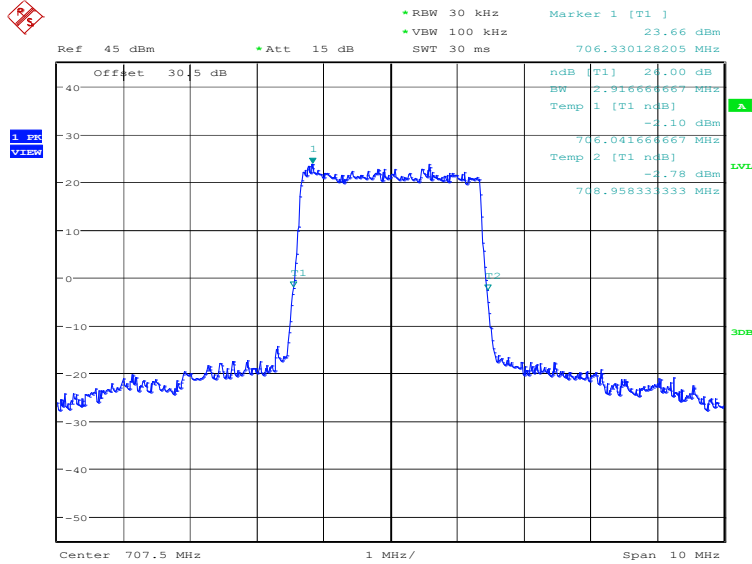


Date: 15.MAY.2024 14:17:06

LTE band 12, 3MHz (-26dBc)

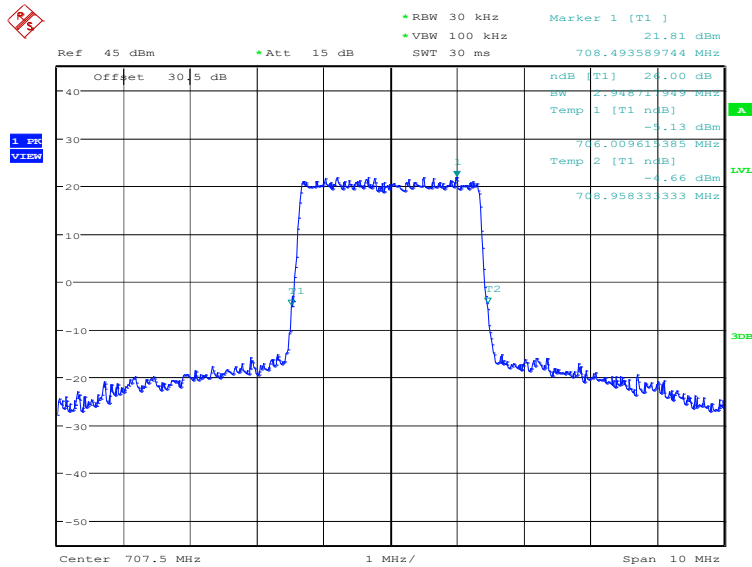
| Frequency(MHz) | Emission Bandwidth (-26dBc)(kHz) | |
|----------------|----------------------------------|---------|
| 707.5 | QPSK | 16QAM |
| | 2916.67 | 2948.72 |

LTE band 12, 3MHz Bandwidth, QPSK (-26dBc BW)



Date: 15.MAY.2024 14:17:48

LTE band 12, 3MHz Bandwidth, 16QAM (-26dBc BW)

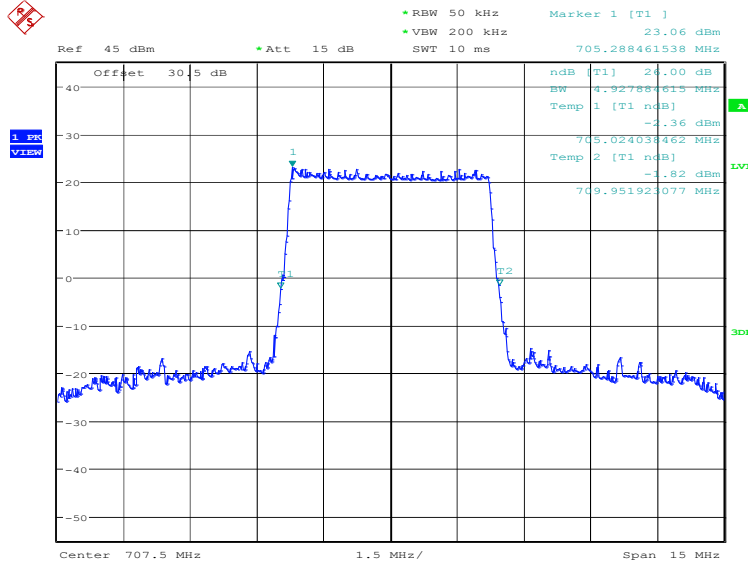


Date: 15.MAY.2024 14:18:28

LTE band 12, 5MHz (-26dBc)

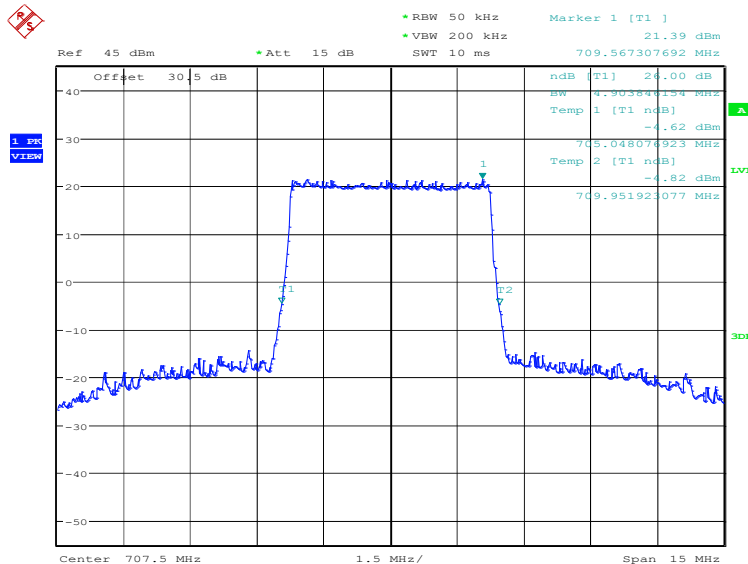
| Frequency(MHz) | Emission Bandwidth (-26dBc)(kHz) | |
|----------------|----------------------------------|---------|
| 707.5 | QPSK | 16QAM |
| | 4927.88 | 4903.85 |

LTE band 12, 5MHz Bandwidth, QPSK (-26dBc BW)



Date: 15.MAY.2024 14:19:10

LTE band 12, 5MHz Bandwidth, 16QAM (-26dBc BW)

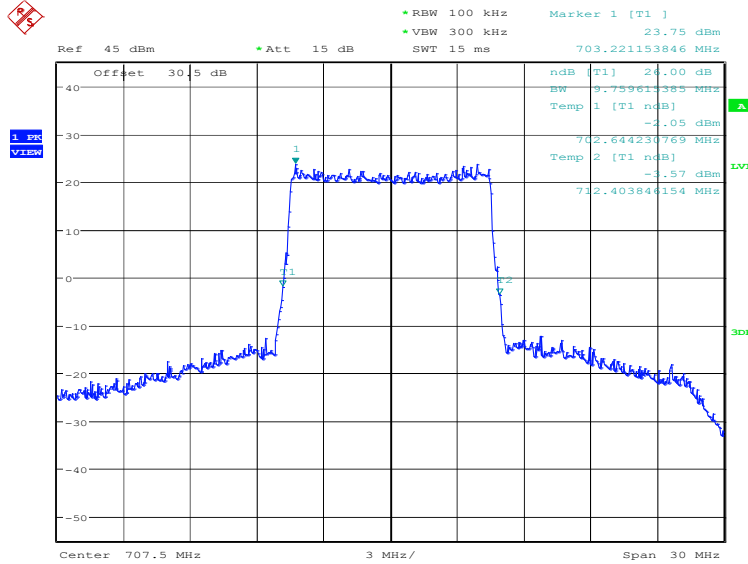


Date: 15.MAY.2024 14:19:50

LTE band 12, 10MHz (-26dBc)

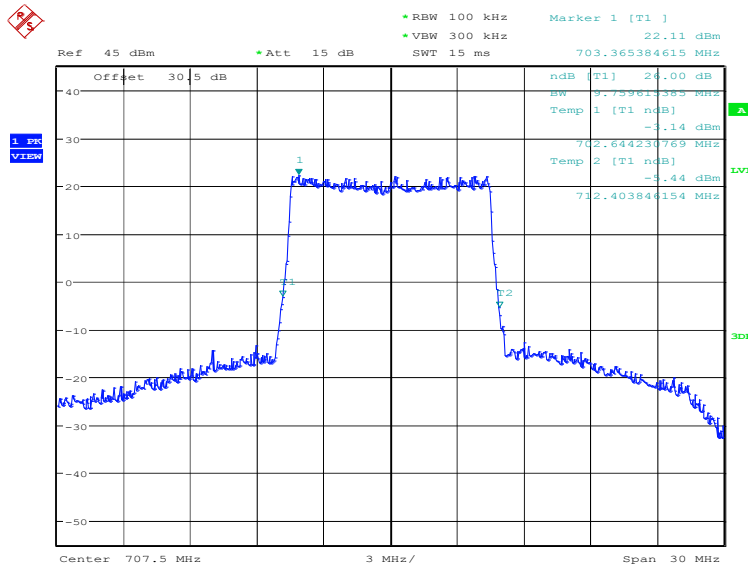
| Frequency(MHz) | Emission Bandwidth (-26dBc)(kHz) | |
|----------------|----------------------------------|---------|
| 707.5 | QPSK | 16QAM |
| | 9759.62 | 9759.62 |

LTE band 12, 10MHz Bandwidth, QPSK (-26dBc BW)



Date: 15.MAY.2024 14:20:32

LTE band 12, 10MHz Bandwidth, 16QAM (-26dBc BW)

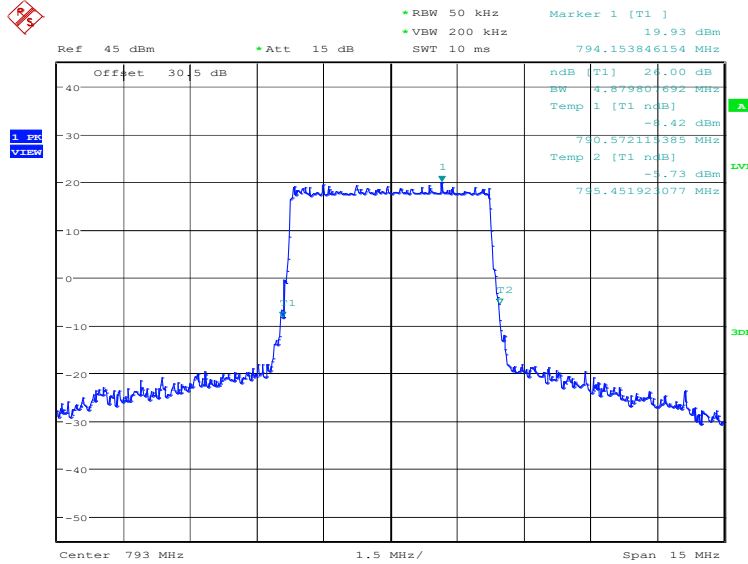


Date: 15.MAY.2024 14:21:12

LTE band 14, 5MHz (-26dBc)

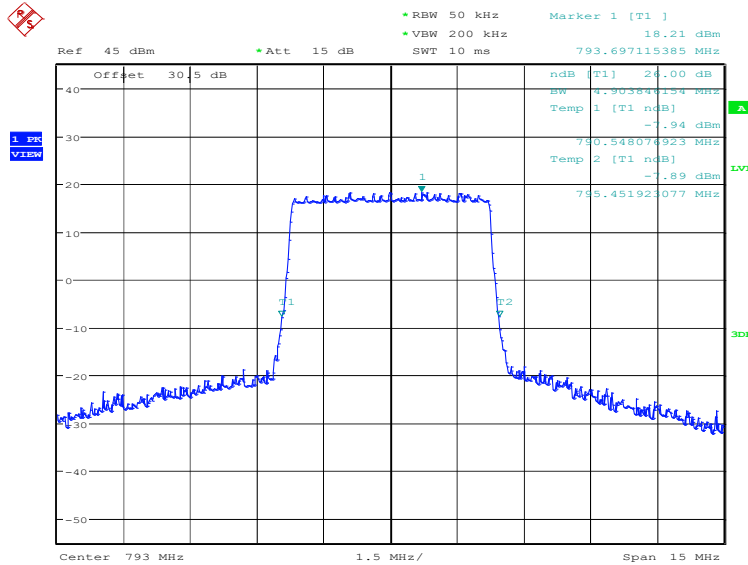
| Frequency(MHz) | Emission Bandwidth (-26dBc)(kHz) | |
|----------------|----------------------------------|---------|
| 793.0 | QPSK | 16QAM |
| | 4879.81 | 4903.85 |

LTE band 14, 5MHz Bandwidth, QPSK (-26dBc BW)



Date: 15.MAY.2024 14:21:56

LTE band 14, 5MHz Bandwidth, 16QAM (-26dBc BW)

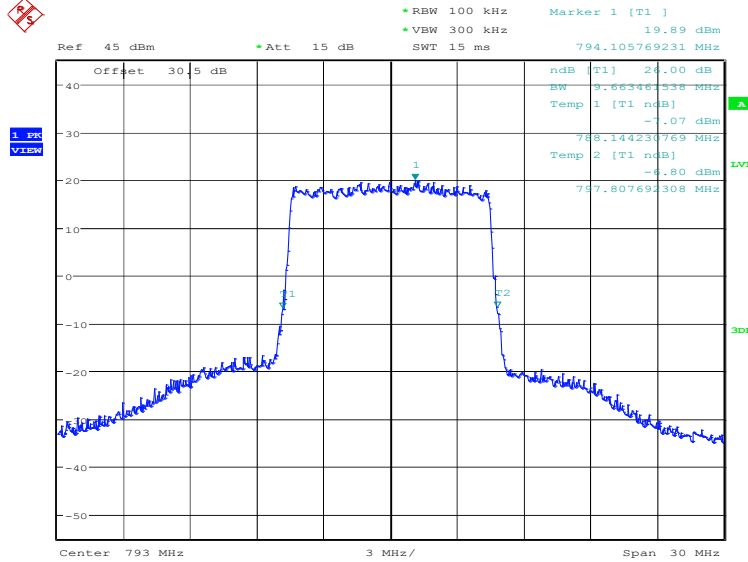


Date: 15.MAY.2024 14:22:36

LTE band 14, 10MHz (-26dBc)

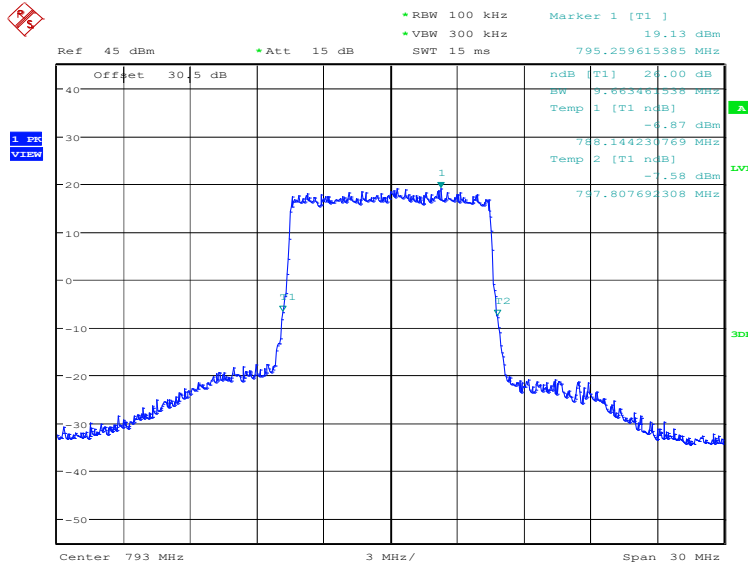
| Frequency(MHz) | Emission Bandwidth (-26dBc)(kHz) | |
|----------------|----------------------------------|---------|
| 793.0 | QPSK | 16QAM |
| | 9663.46 | 9663.46 |

LTE band 14, 10MHz Bandwidth, QPSK (-26dBc BW)



Date: 15.MAY.2024 14:23:18

LTE band 14, 10MHz Bandwidth,16QAM (-26dBc BW)

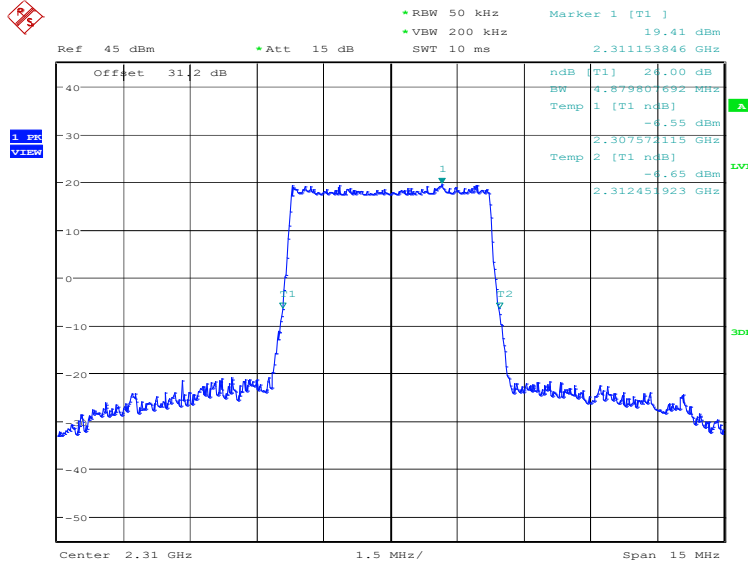


Date: 15.MAY.2024 14:23:58

LTE band 30, 5MHz (-26dBc)

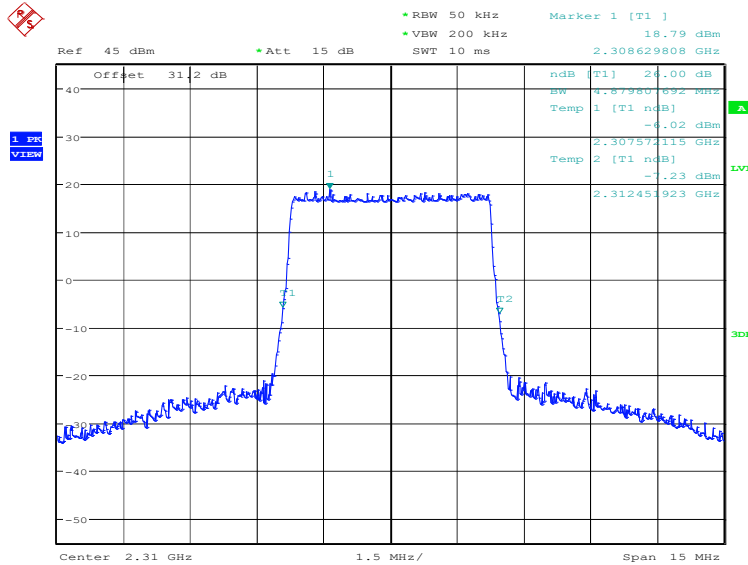
| Frequency(MHz) | Emission Bandwidth (-26dBc)(kHz) | |
|----------------|----------------------------------|---------|
| 2310.0 | QPSK | 16QAM |
| | 4879.81 | 4879.81 |

LTE band 30, 5MHz Bandwidth, QPSK (-26dBc BW)



Date: 17.MAY.2024 13:36:43

LTE band 30, 5MHz Bandwidth, 16QAM (-26dBc BW)

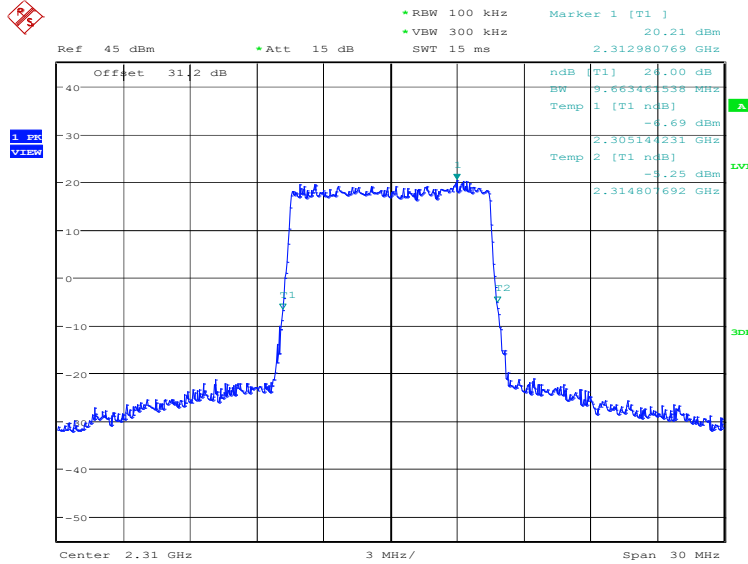


Date: 17.MAY.2024 13:37:23

LTE band 30, 10MHz (-26dBc)

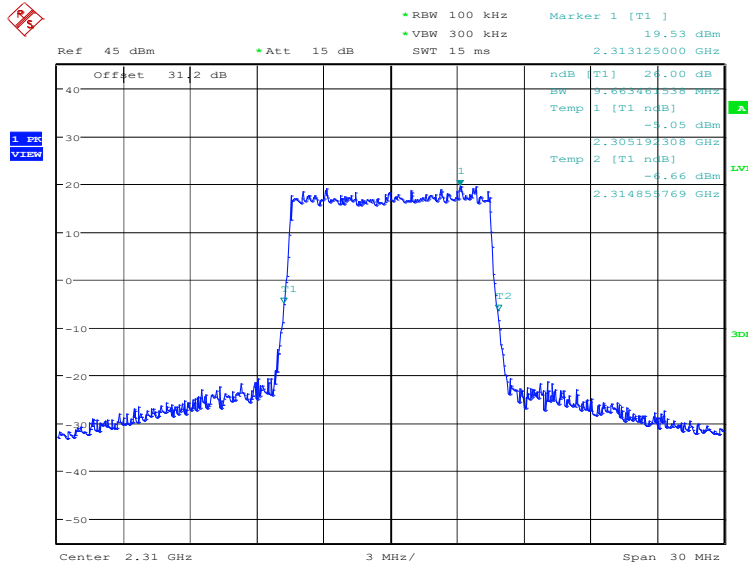
| Frequency(MHz) | Emission Bandwidth (-26dBc)(kHz) | |
|----------------|----------------------------------|---------|
| 2310.0 | QPSK | 16QAM |
| | 9663.46 | 9663.46 |

LTE band 30, 10MHz Bandwidth, QPSK (-26dBc BW)



Date: 17.MAY.2024 13:38:05

LTE band 30, 10MHz Bandwidth,16QAM (-26dBc BW)

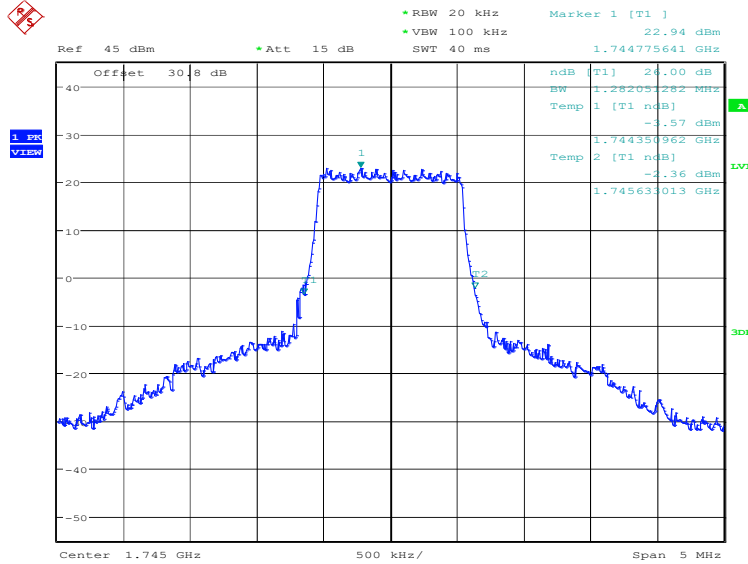


Date: 17.MAY.2024 13:38:45

LTE band 66, 1.4MHz (-26dBc)

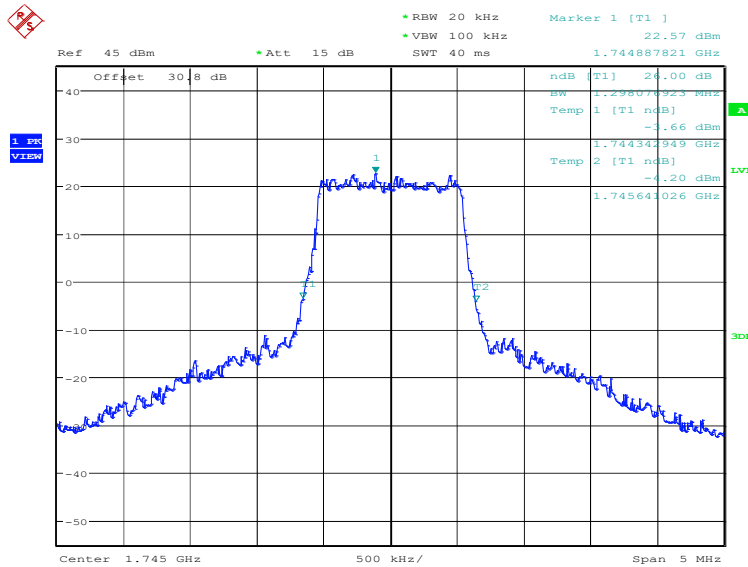
| Frequency(MHz) | Emission Bandwidth (-26dBc)(kHz) | |
|----------------|----------------------------------|---------|
| 1745.0 | QPSK | 16QAM |
| | 1282.05 | 1298.08 |

LTE band 66, 1.4MHz Bandwidth, QPSK (-26dBc BW)



Date: 15.MAY.2024 11:34:03

LTE band 66, 1.4MHz Bandwidth, 16QAM (-26dBc BW)

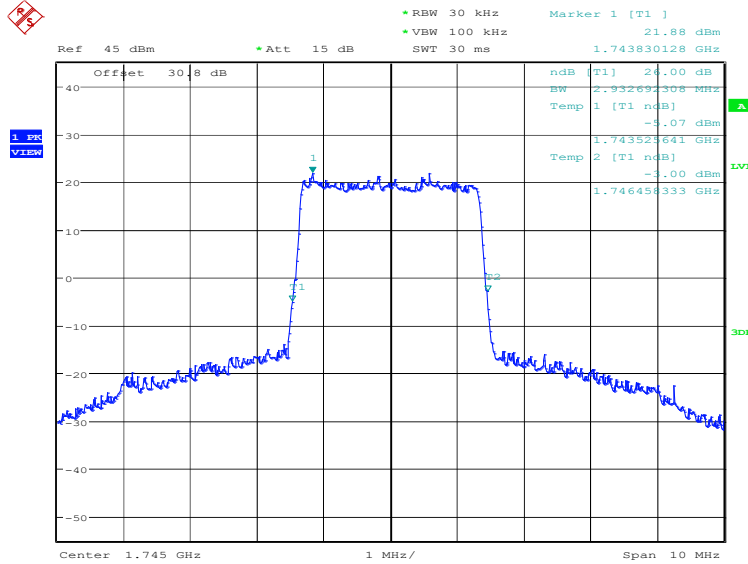


Date: 15.MAY.2024 11:34:43

LTE band 66, 3MHz (-26dBc)

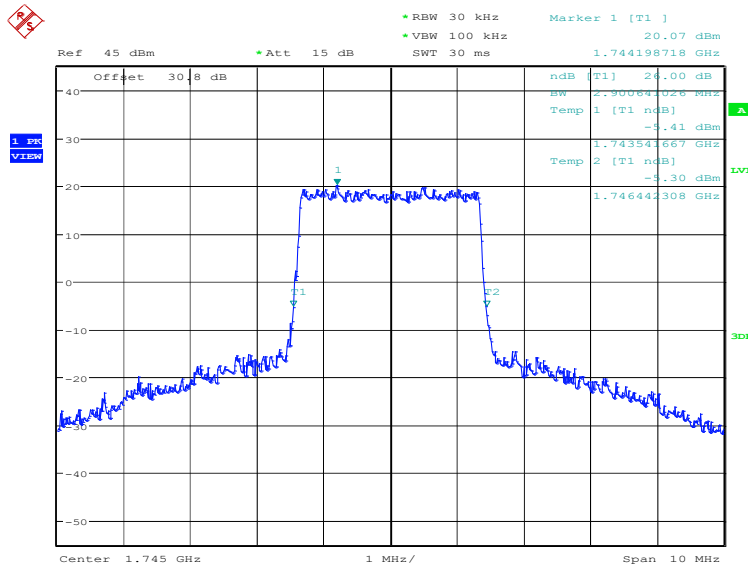
| Frequency(MHz) | Emission Bandwidth (-26dBc)(kHz) | |
|----------------|----------------------------------|---------|
| 1745.0 | QPSK | 16QAM |
| | 2932.69 | 2900.64 |

LTE band 66, 3MHz Bandwidth, QPSK (-26dBc BW)



Date: 15.MAY.2024 11:35:25

LTE band 66, 3MHz Bandwidth, 16QAM (-26dBc BW)

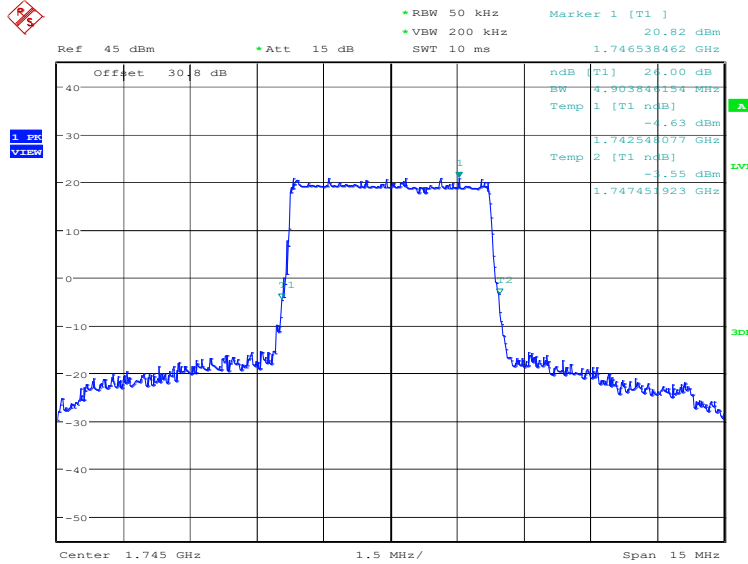


Date: 15.MAY.2024 11:36:05

LTE band 66, 5MHz (-26dBc)

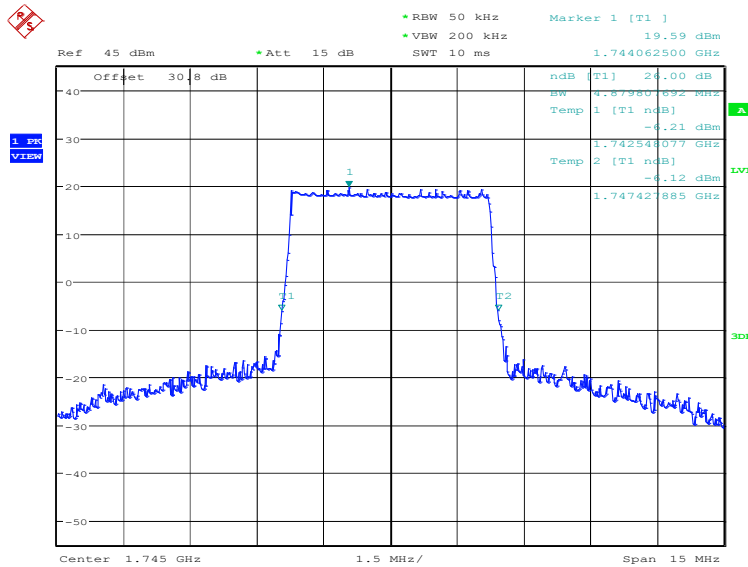
| Frequency(MHz) | Emission Bandwidth (-26dBc)(kHz) | |
|----------------|----------------------------------|---------|
| 1745.0 | QPSK | 16QAM |
| | 4903.85 | 4879.81 |

LTE band 66, 5MHz Bandwidth, QPSK (-26dBc BW)



Date: 15.MAY.2024 11:36:48

LTE band 66, 5MHz Bandwidth, 16QAM (-26dBc BW)

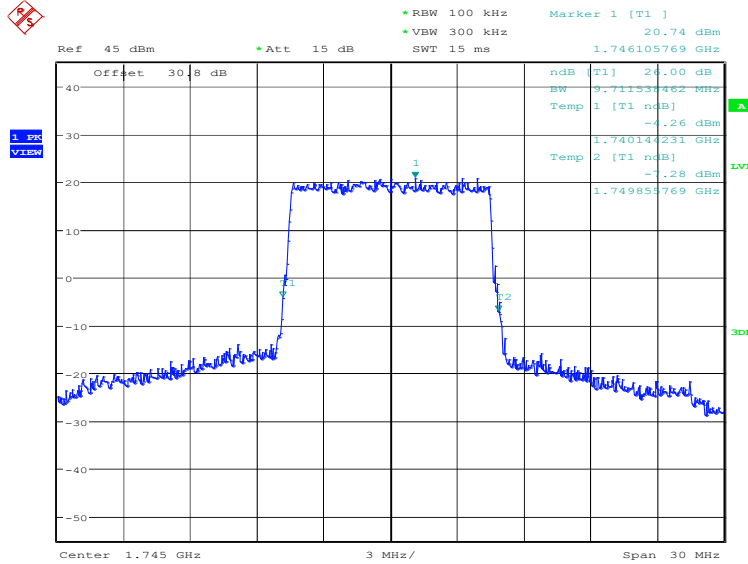


Date: 15.MAY.2024 11:37:28

LTE band 66, 10MHz (-26dBc)

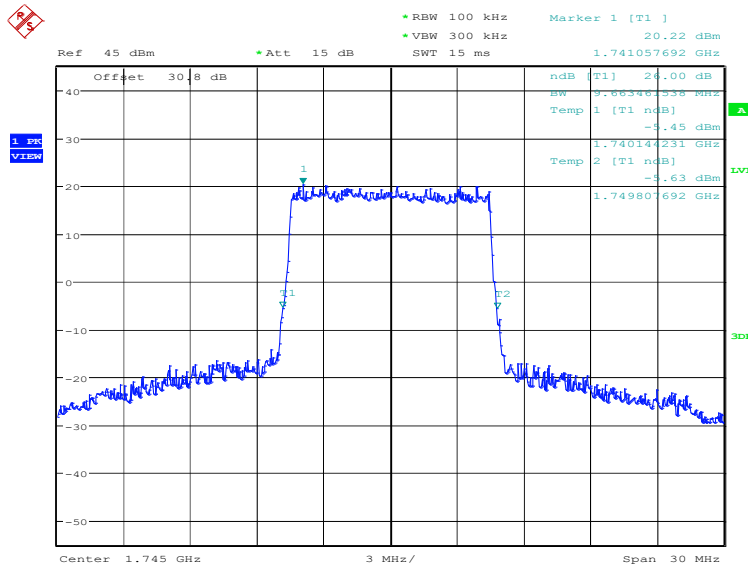
| Frequency(MHz) | Emission Bandwidth (-26dBc)(kHz) | |
|----------------|----------------------------------|---------|
| 1745.0 | QPSK | 16QAM |
| | 9711.54 | 9663.46 |

LTE band 66, 10MHz Bandwidth, QPSK (-26dBc BW)



Date: 15.MAY.2024 11:38:10

LTE band 66, 10MHz Bandwidth, 16QAM (-26dBc BW)

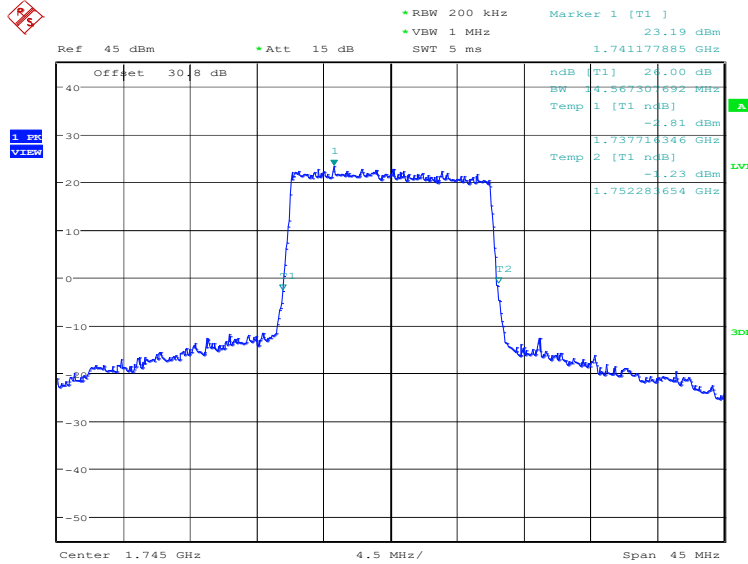


Date: 15.MAY.2024 11:38:51

LTE band 66, 15MHz (-26dBc)

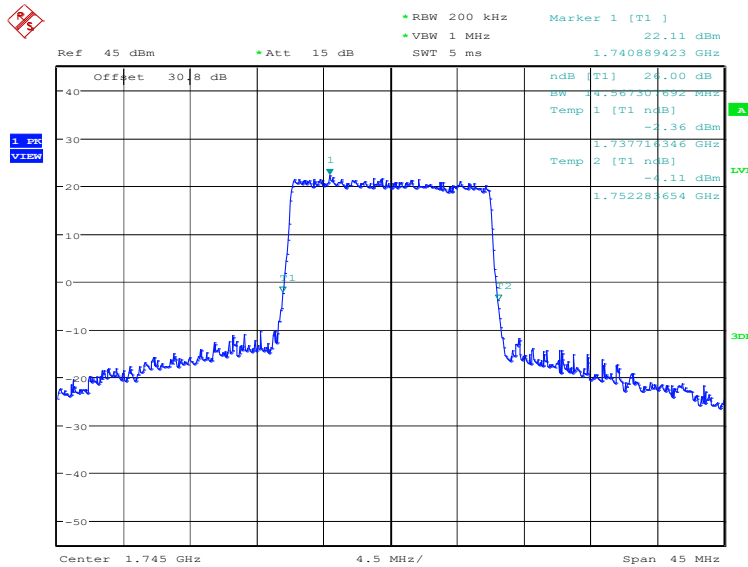
| Frequency(MHz) | Emission Bandwidth (-26dBc)(kHz) | |
|----------------|----------------------------------|----------|
| 1745.0 | QPSK | 16QAM |
| | 14567.31 | 14567.31 |

LTE band 66, 15MHz Bandwidth, QPSK (-26dBc BW)



Date: 15.MAY.2024 11:39:33

LTE band 66, 15MHz Bandwidth, 16QAM (-26dBc BW)

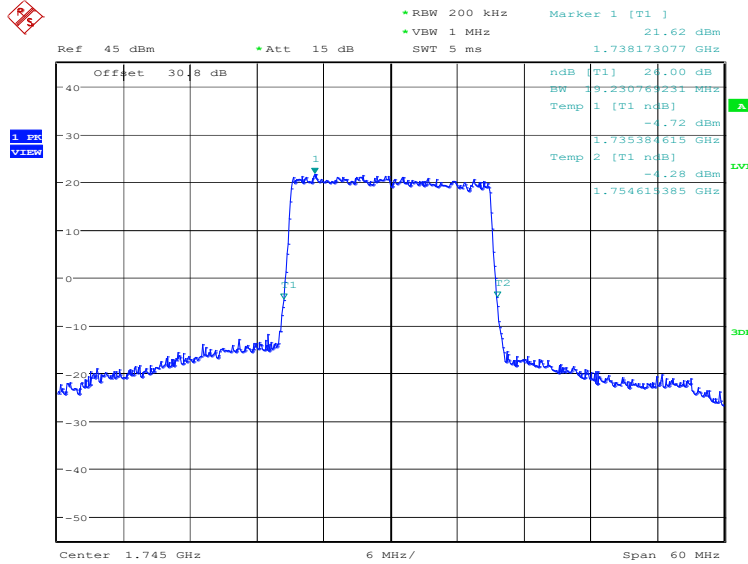


Date: 15.MAY.2024 11:40:13

LTE band 66, 20MHz (-26dBc)

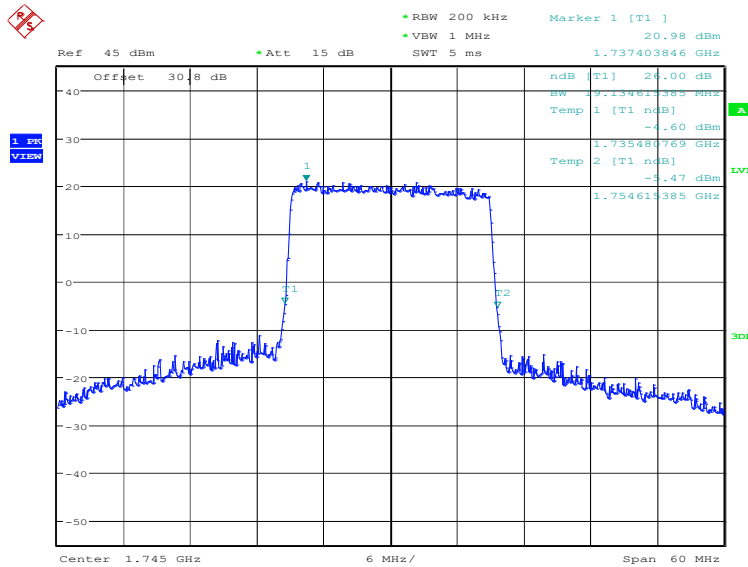
| Frequency(MHz) | Emission Bandwidth (-26dBc)(kHz) | |
|----------------|----------------------------------|----------|
| 1745.0 | QPSK | 16QAM |
| | 19230.77 | 19134.62 |

LTE band 66, 20MHz Bandwidth, QPSK (-26dBc BW)



Date: 15.MAY.2024 11:40:55

LTE band 66, 20MHz Bandwidth, 16QAM (-26dBc BW)

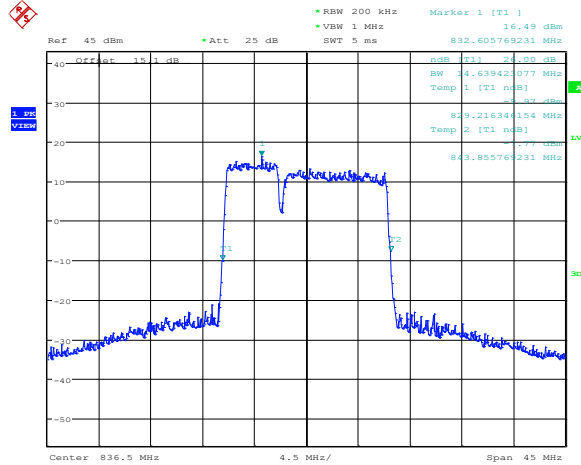


Date: 15.MAY.2024 11:41:36

LTE CA band 5B, 5MHz+10MHz(-26dBc)

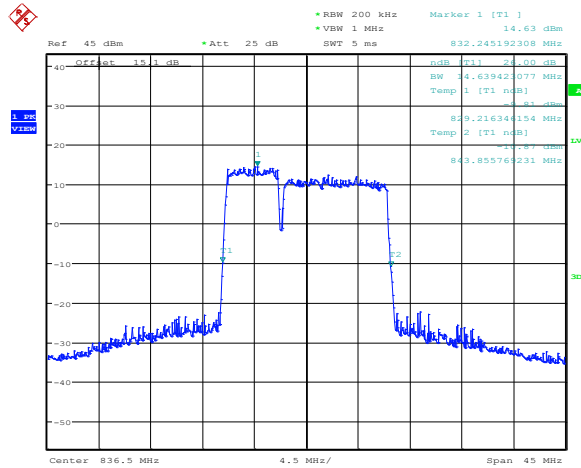
| Frequency (MHz) | Emission Bandwidth (-26dBc) (MHz) | |
|-----------------|-----------------------------------|--------|
| | QPSK | 16QAM |
| 836.5 | 14.639 | 14.639 |

LTE CA band 5B , 5MHz+10MHz Bandwidth,QPSK (-26dBc BW)



Date: 21.MAY.2024 13:53:11

LTE CA band 5B , 5MHz+10MHz Bandwidth,16QAM (-26dBc BW)

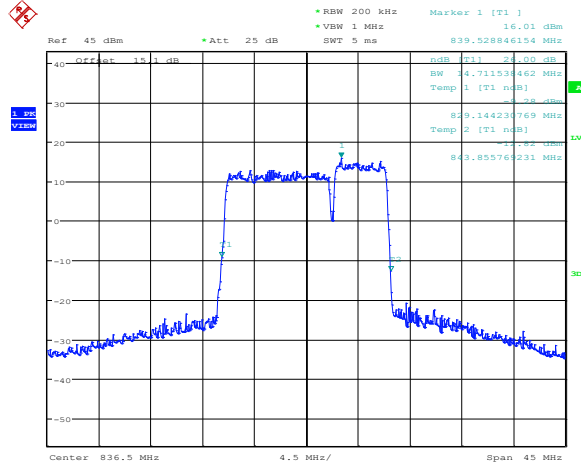


Date: 21.MAY.2024 13:53:35

LTE CA band 5B, 10MHz+5MHz(-26dBc)

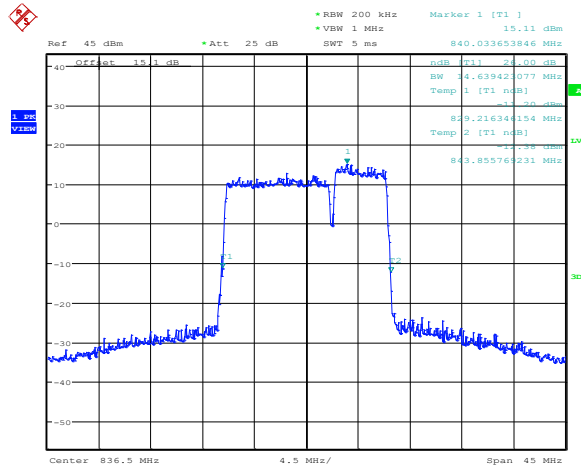
| Frequency (MHz) | Emission Bandwidth (-26dBc) (MHz) | |
|-----------------|-----------------------------------|--------|
| | QPSK | 16QAM |
| 836.5 | 14.712 | 14.639 |

LTE CA band 5B , 10MHz+5MHz Bandwidth,QPSK (-26dBc BW)



Date: 21.MAY.2024 13:54:36

LTE CA band 5B , 10MHz+5MHz Bandwidth,16QAM (-26dBc BW)

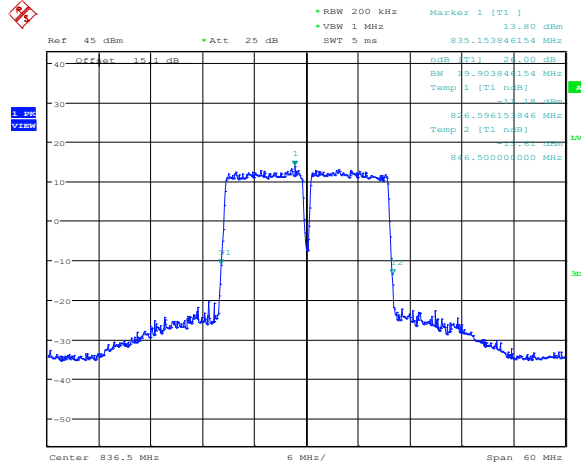


Date: 21.MAY.2024 13:55:00

LTE CA band 5B, 10MHz+10MHz(-26dBc)

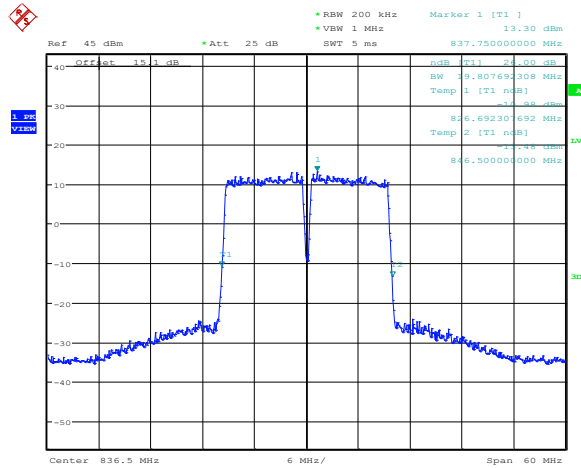
| Frequency (MHz) | Emission Bandwidth (-26dBc) (MHz) | |
|-----------------|-----------------------------------|--------|
| | QPSK | 16QAM |
| 836.5 | 19.904 | 19.808 |

LTE CA band 5B , 10MHz+10MHz Bandwidth,QPSK (-26dBc BW)



Date: 21.MAY.2024 13:55:59

LTE CA band 5B , 10MHz+10MHz Bandwidth,16QAM (-26dBc BW)



Date: 21.MAY.2024 13:56:23

Note: Expanded measurement uncertainty is $U = 3428 \text{ Hz}$, $k = 2$.

A.6 Band Edge Compliance

A.6.1 Measurement limit

Part 22.917, Part 24.238 and Part 27.53(h) specify that 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.

Part 27.53(m) specifies 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.

Part 27.53(g) states 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.

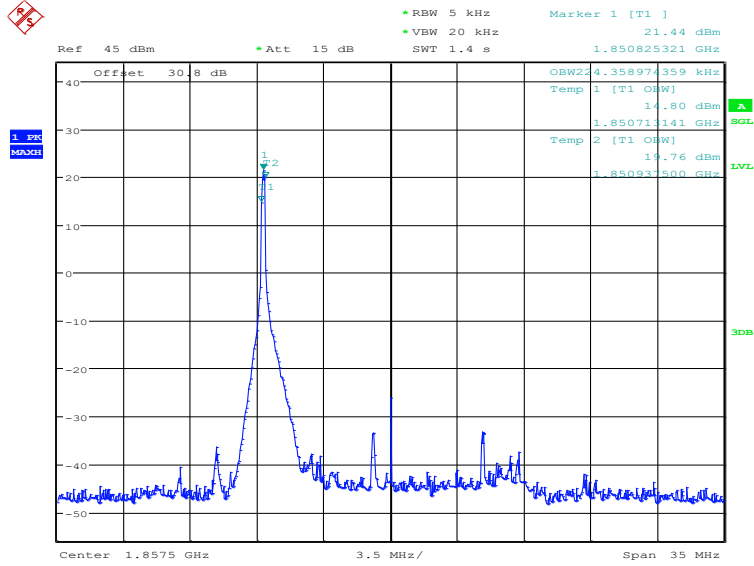
Part 27.53(a) states for mobile and portable stations operating in the 2305–2315 MHz and 2350–2360 MHz bands: By a factor of not less than: $43 + 10 \log(P)$ dB on all frequencies between 2305 and 2320 MHz and on all frequencies between 2345 and 2360 MHz that are outside the licensed band(s) of operation, not less than $55 + 10 \log(P)$ dB on all frequencies between 2320 and 2324 MHz and on all frequencies between 2341 and 2345 MHz, not less than $61 + 10 \log(P)$ dB on all frequencies between 2324 and 2328 MHz and on all frequencies between 2337 and 2341 MHz, and not less than $67 + 10 \log(P)$ dB on all frequencies between 2328 and 2337MHz; By a factor of not less than $43 + 10 \log(P)$ dB on all frequencies between 2300 and 2305 MHz, $55 + 10 \log(P)$ dB on all frequencies between 2296 and 2300MHz, $61 + 10 \log(P)$ dB on all frequencies between 2292 and 2296 MHz, $67 + 10 \log(P)$ dB on all frequencies between 2288 and 2292 MHz, and $70 + 10 \log(P)$ dB below 2288 MHz; By a factor of not less than $43 + 10 \log(P)$ dB on all frequencies between 2360 and 2365 MHz, and not less than $70 + 10 \log(P)$ dB above 2365 MHz.

Part 90.543 states that for operations in the 758–768 MHz and the 788–798 MHz bands, the power of any emission outside the 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, in accordance with the following: (1) On all frequencies between 769–775 MHz and 799–805 MHz, by a factor not less than $76 + 10 \log(P)$ dB in a 6.25 kHz band segment, for base and fixed stations. (2) On all frequencies between 769–775 MHz and 799–805 MHz, by a factor not less than $65 + 10 \log(P)$ dB in a 6.25 kHz band segment, for mobile and portable stations. (3) On any



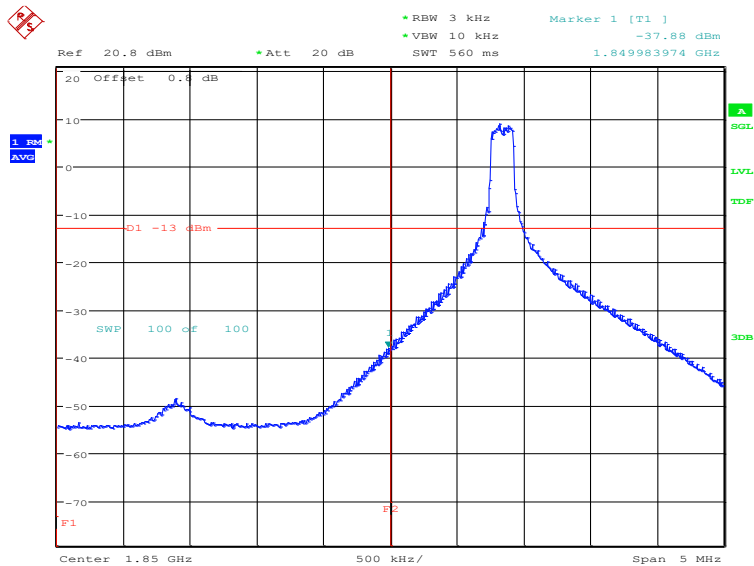
frequency between 775–788 MHz, above 805 MHz, and below 758 MHz, by at least $43 + 10 \log (P)$ dB. (4) Compliance with the provisions of paragraphs (e)(1) and (2) of this section is based on the use of measurement instrumentation such that the reading taken with any resolution bandwidth setting should be adjusted to indicate spectral energy in a 6.25 kHz segment. (5) Compliance with the provisions of paragraph (e)(3) of this section is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. However, in the 100 kHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of 30 kHz may be employed.

A.6.2 Measurement result
Only the worst case result is given below
LTE band 2
OBW: 1RB-low_offset



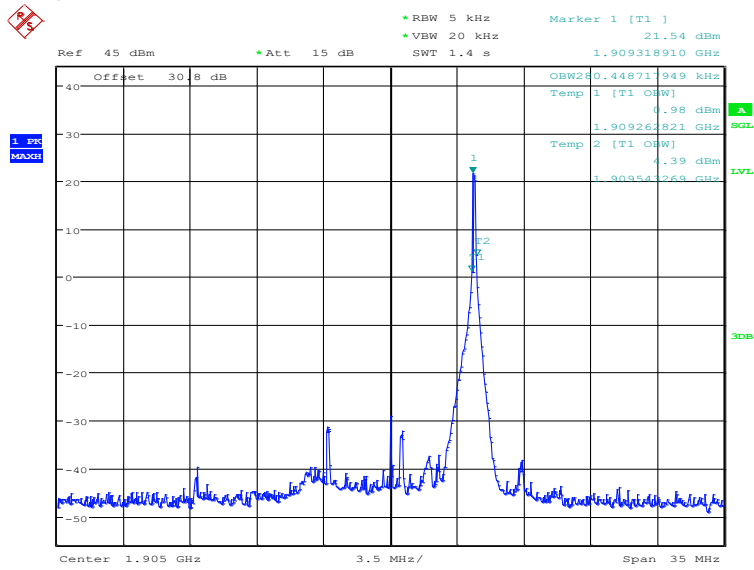
Date: 25.JUN.2024 09:03:57

LOW BAND EDGE BLOCK-1RB-low_offset



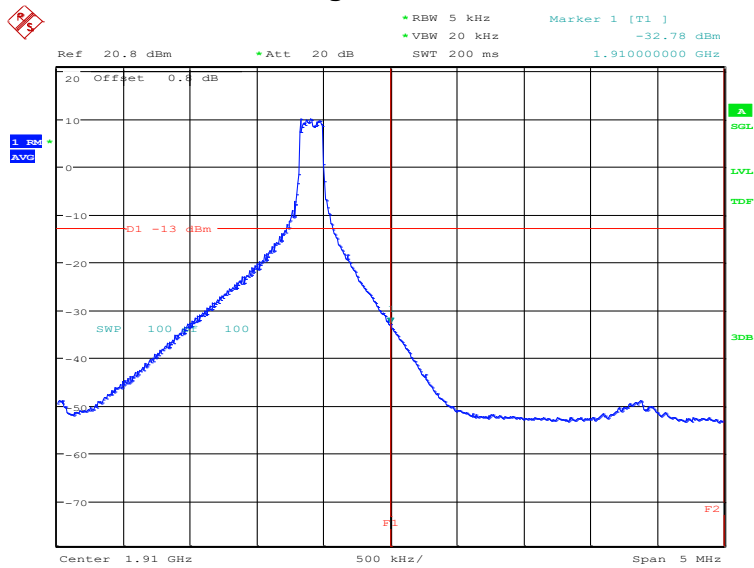
Date: 25.JUN.2024 09:05:12

OBW: 1RB-high_offset



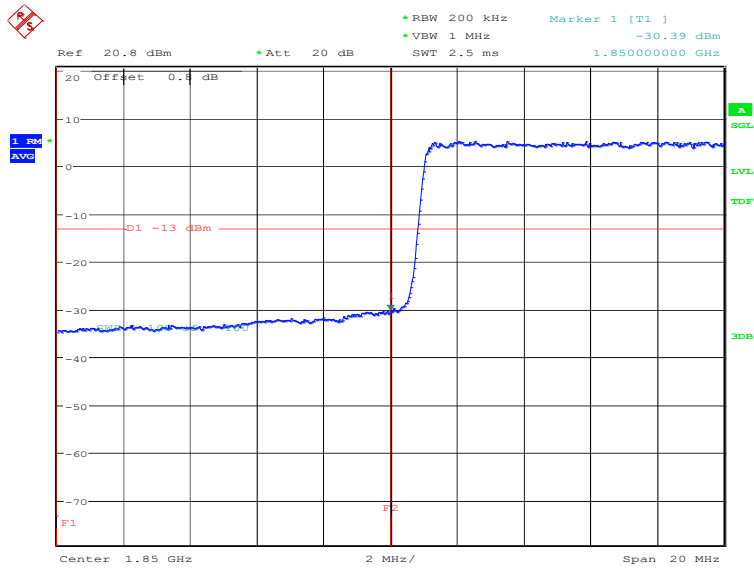
Date: 25.JUN.2024 09:06:47

HIGH BAND EDGE BLOCK-1RB-high_offset



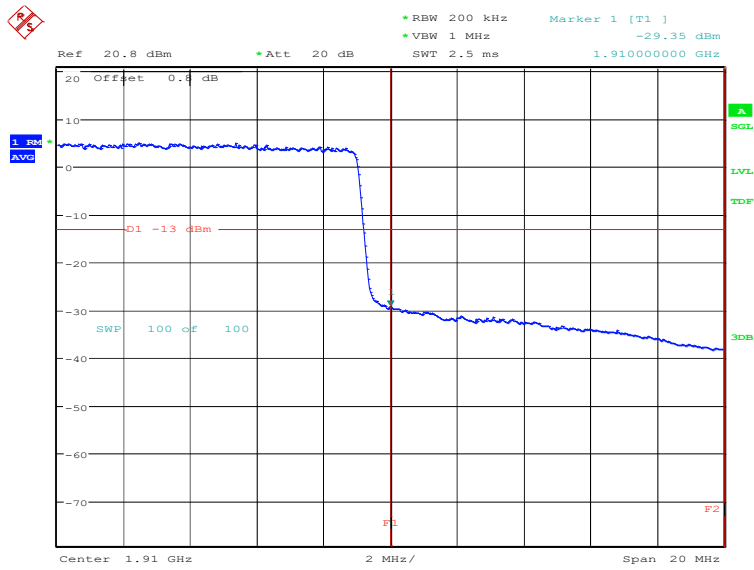
Date: 25.JUN.2024 09:08:01

LOW BAND EDGE BLOCK-20MHz-100%RB



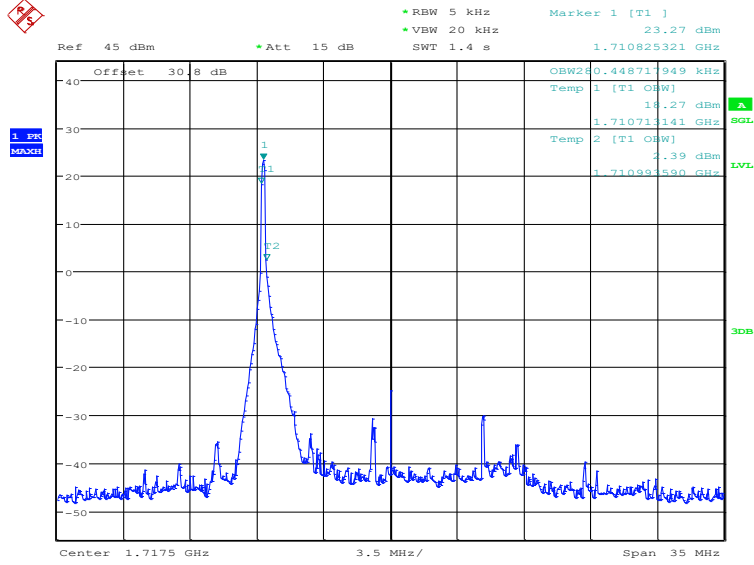
Date: 15.MAY.2024 11:43:39

HIGH BAND EDGE BLOCK-20MHz-100%RB



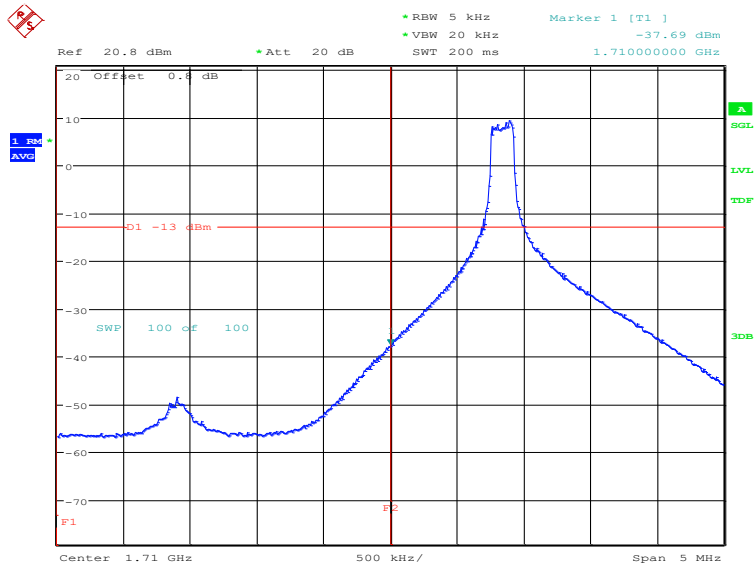
Date: 15.MAY.2024 11:45:11

LTE band 4
OBW: 1RB-low_offset



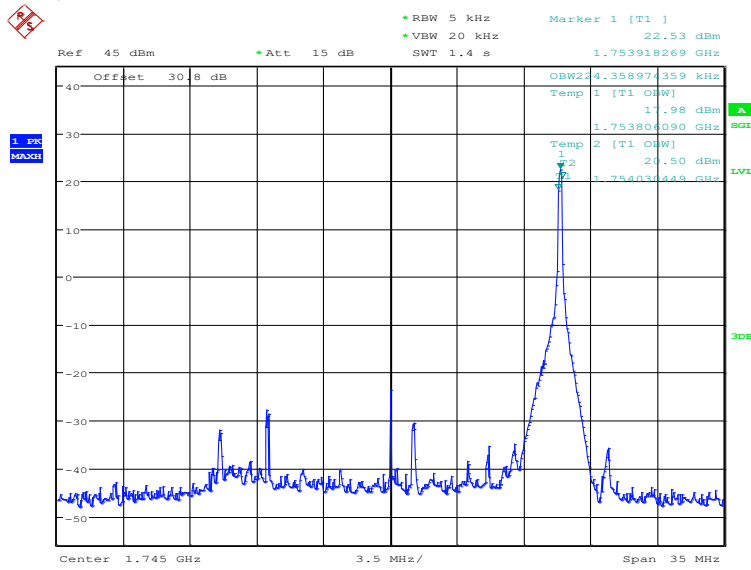
Date: 25.JUN.2024 09:08:42

LOW BAND EDGE BLOCK-1RB-low_offset



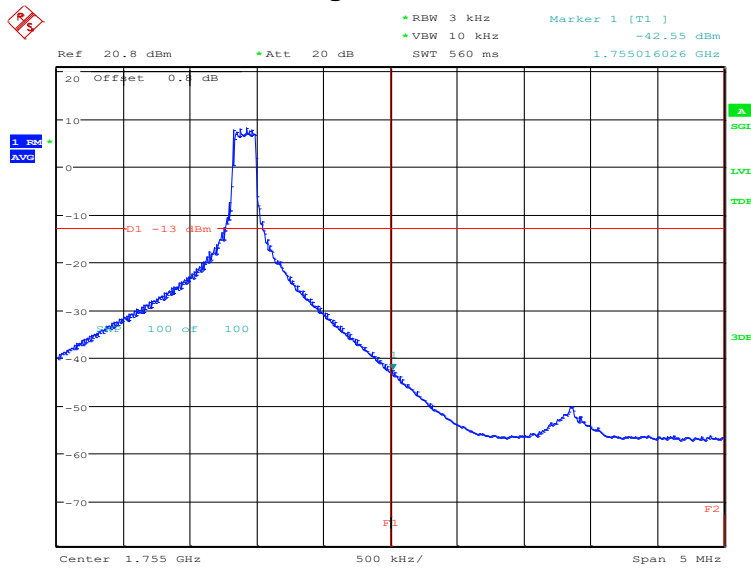
Date: 25.JUN.2024 09:09:56

OBW: 1RB-high_offset



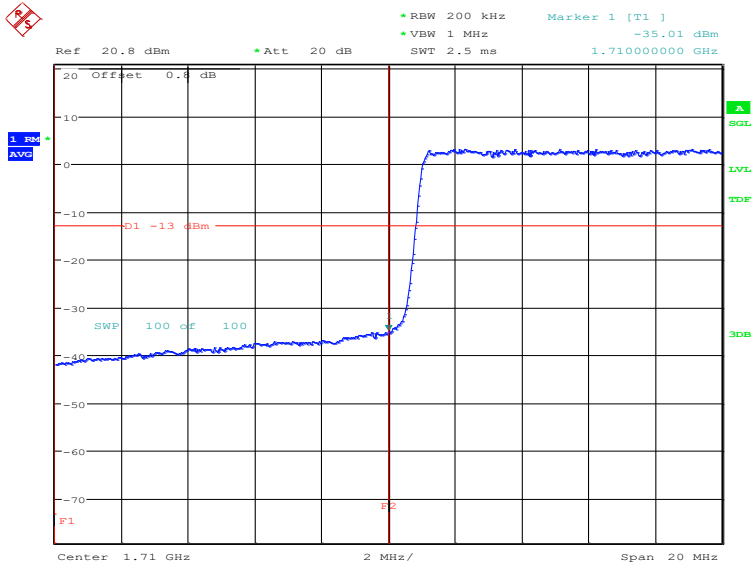
Date: 25.JUN.2024 09:12:08

HIGH BAND EDGE BLOCK-1RB-high_offset



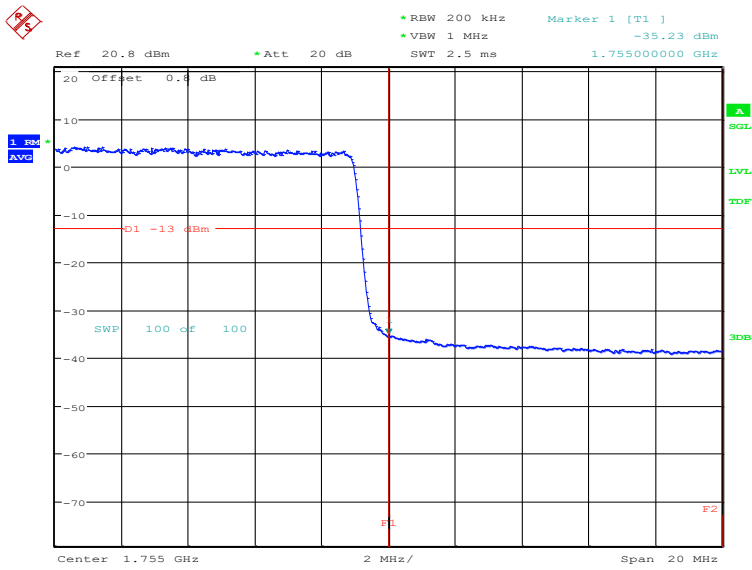
Date: 25.JUN.2024 09:13:22

LOW BAND EDGE BLOCK-20MHz-100%RB



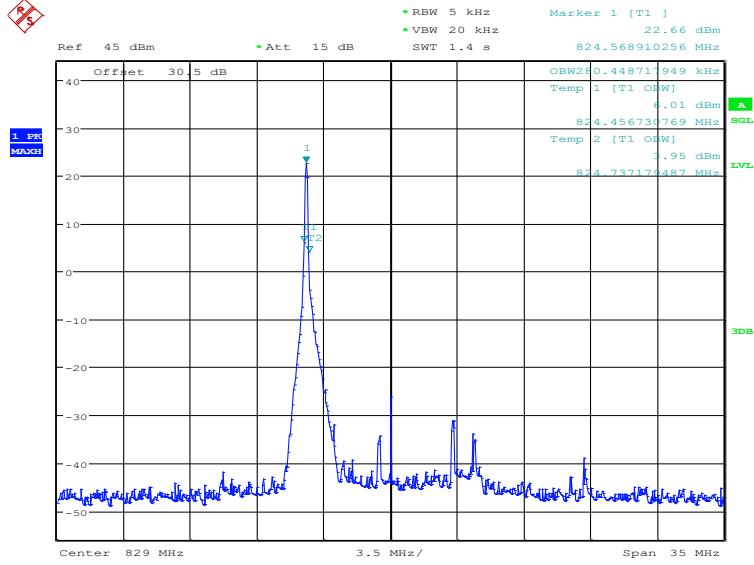
Date: 25.JUN.2024 09:10:33

HIGH BAND EDGE BLOCK-20MHz-100%RB



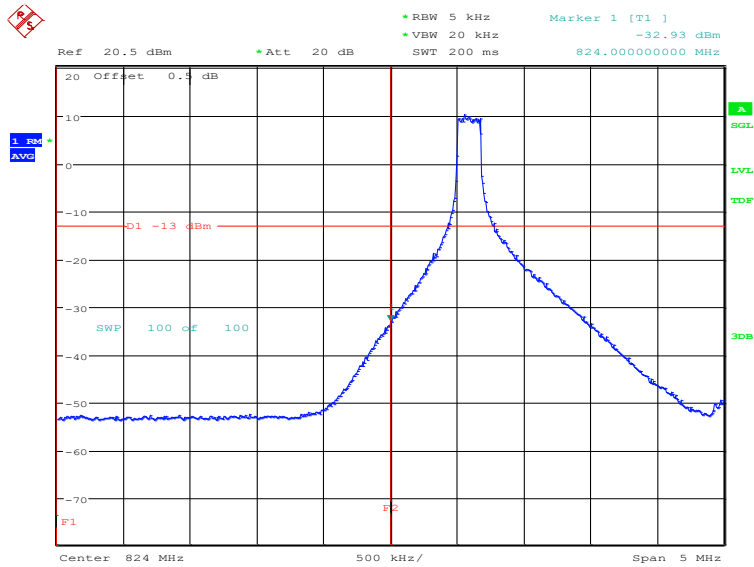
Date: 25.JUN.2024 09:13:56

LTE band 5
OBW: 1RB-low_offset



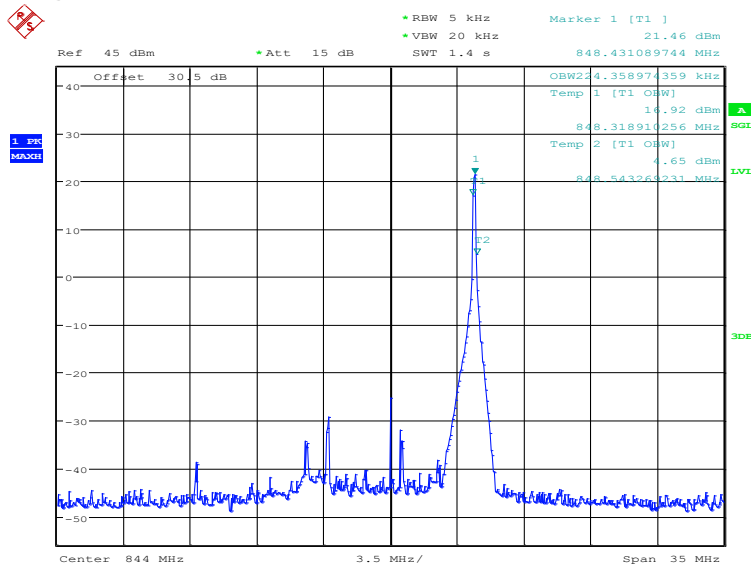
Date: 25.JUN.2024 09:52:32

LOW BAND EDGE BLOCK-1RB-low_offset



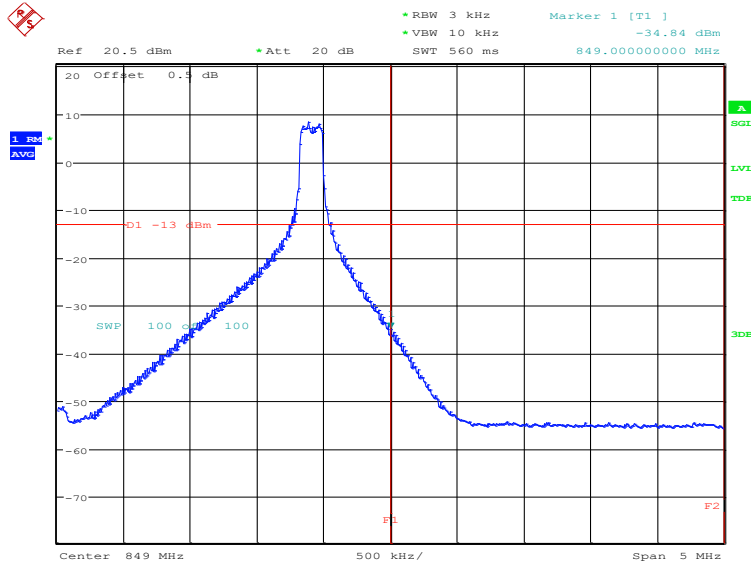
Date: 25.JUN.2024 09:53:46

OBW: 1RB-high_offset



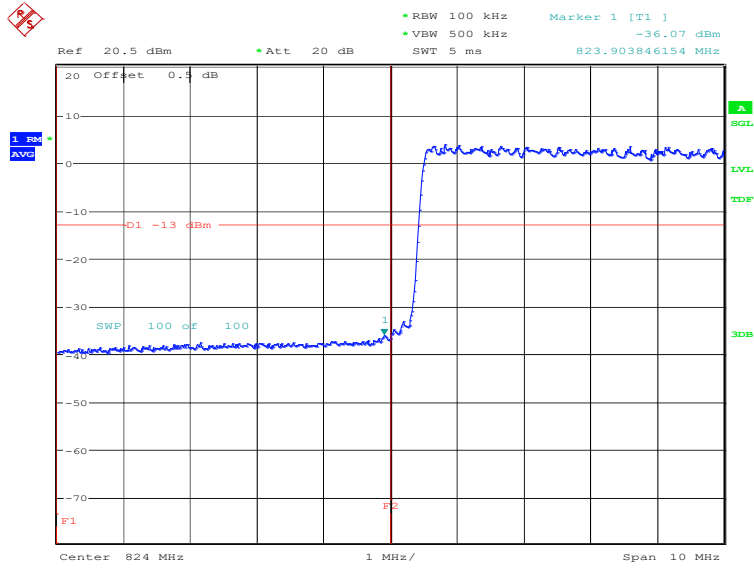
Date: 25.JUN.2024 09:54:22

HIGH BAND EDGE BLOCK-1RB-high_offset



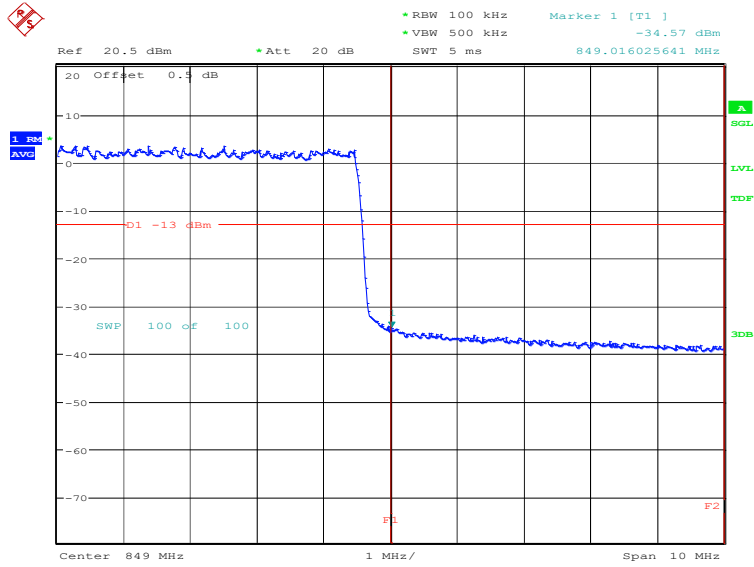
Date: 25.JUN.2024 09:55:36

LOW BAND EDGE BLOCK-10MHz-100%RB



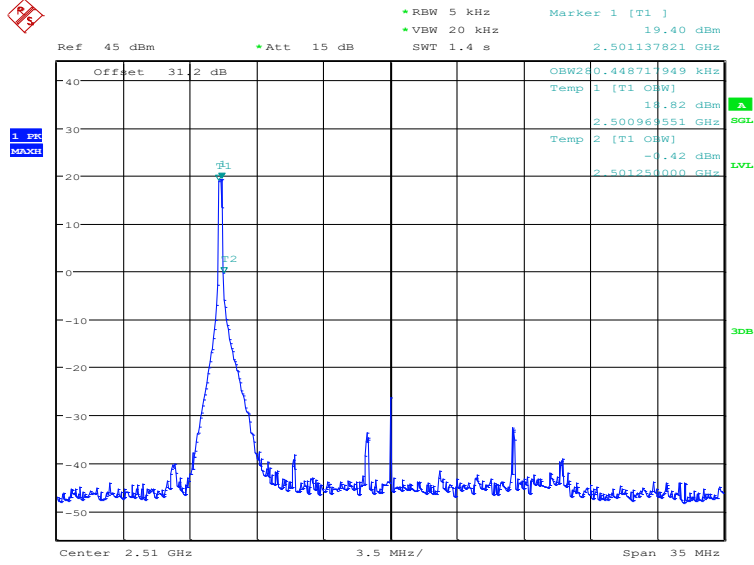
Date: 15.MAY.2024 14:25:11

HIGH BAND EDGE BLOCK-10MHz-100%RB



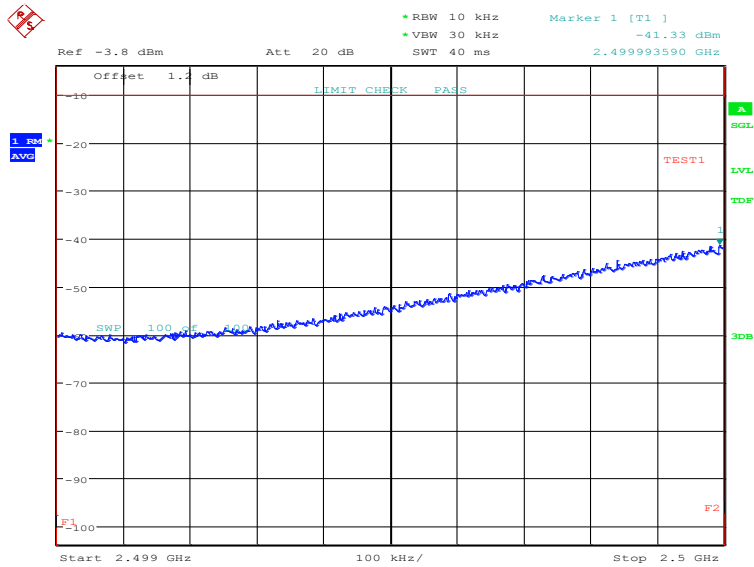
Date: 15.MAY.2024 14:26:43

LTE band 7
OBW: 1RB-low_offset

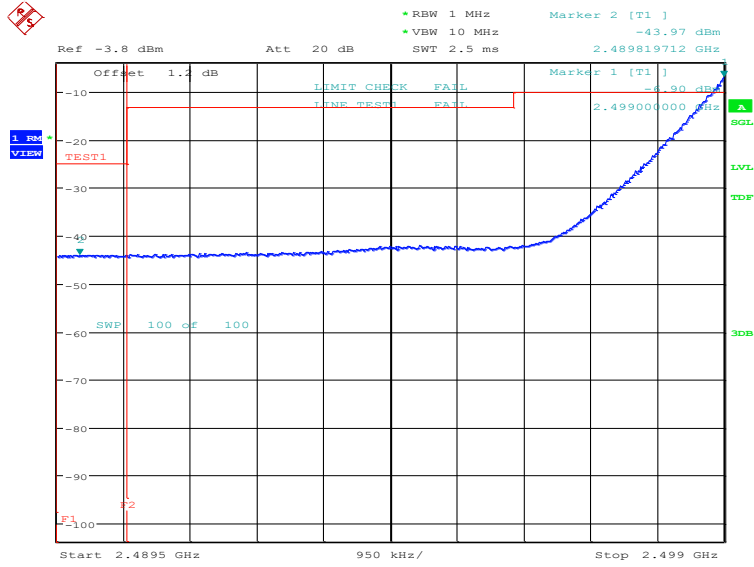


Date: 25.JUN.2024 09:15:31

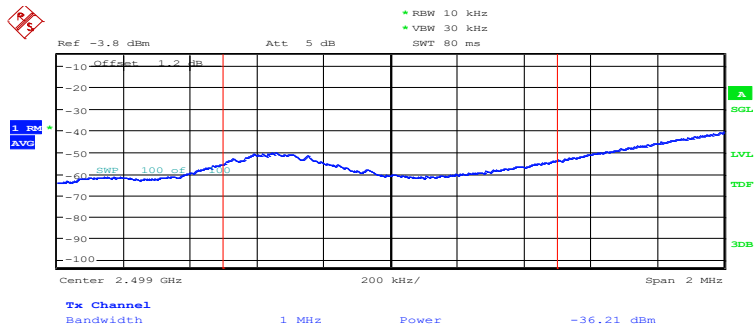
LOW BAND EDGE BLOCK-1RB-low_offset



Date: 25.JUN.2024 09:16:52

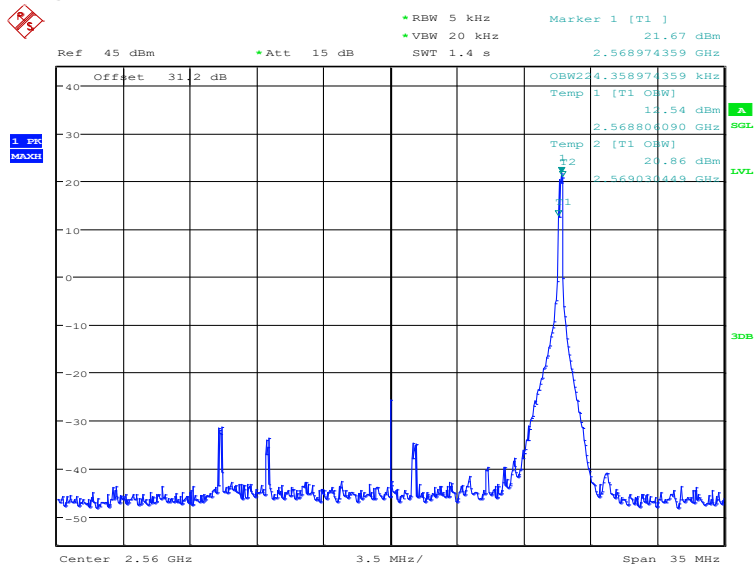


Date: 25.JUN.2024 09:18:42



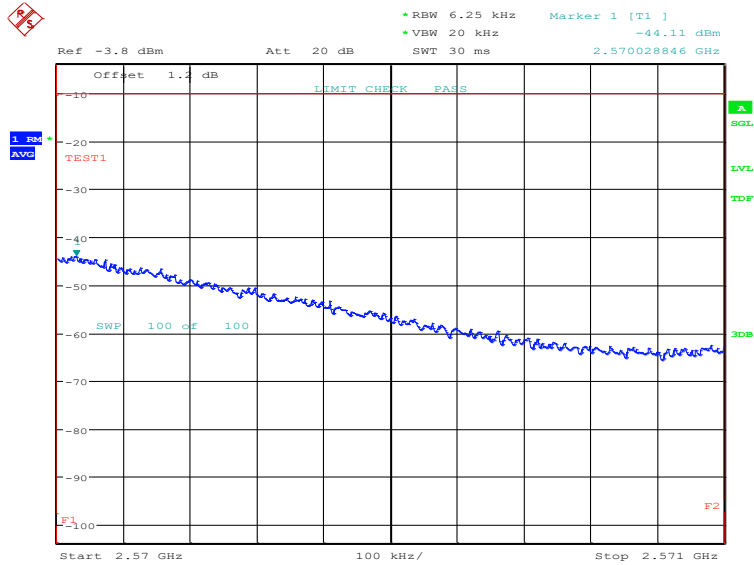
Date: 25.JUN.2024 09:19:10

OBW: 1RB-high_offset

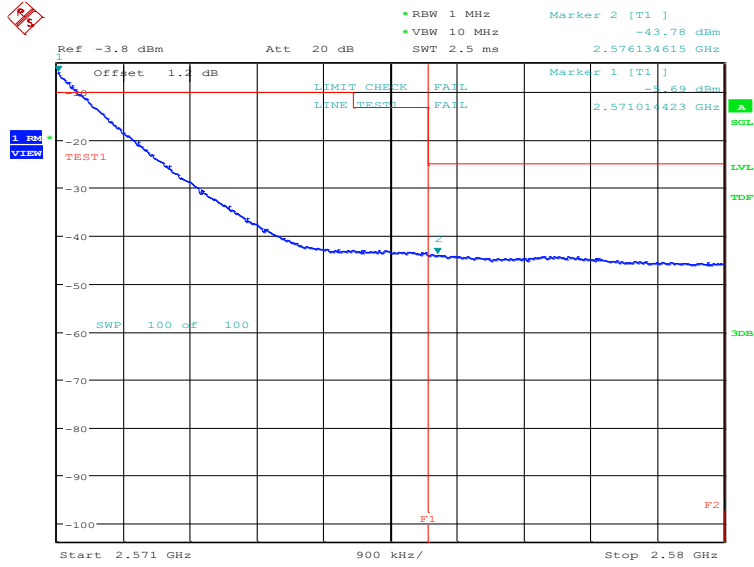


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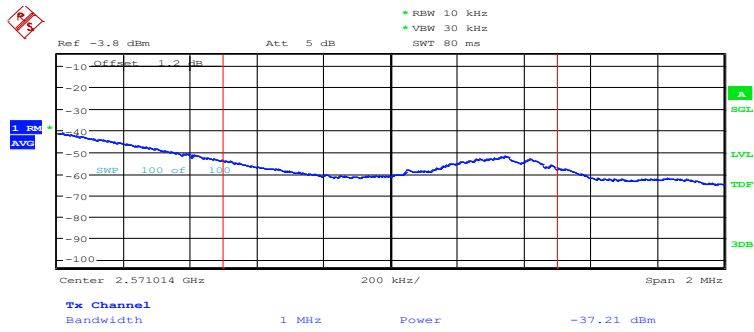
HIGH BAND EDGE BLOCK-1RB-high_offset



Date: 25.JUN.2024 09:21:06

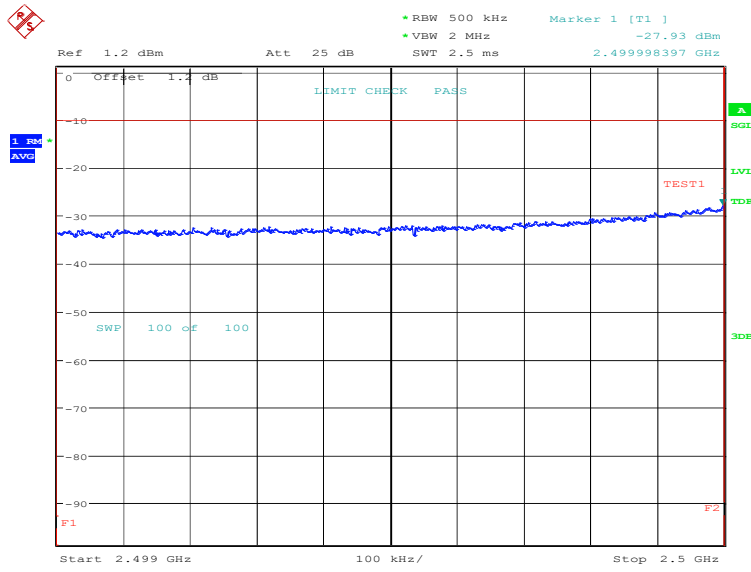


Date: 25.JUN.2024 09:22:56

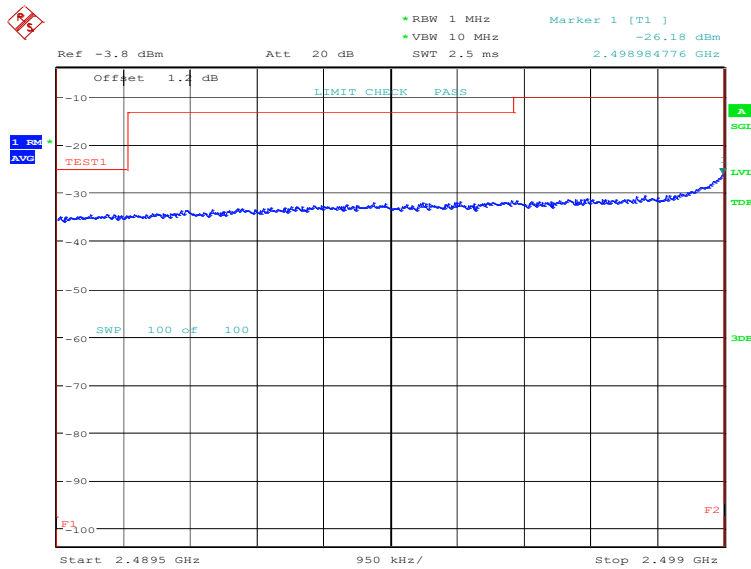


Date: 25.JUN.2024 09:23:24

LOW BAND EDGE BLOCK-20MHz-100%RB

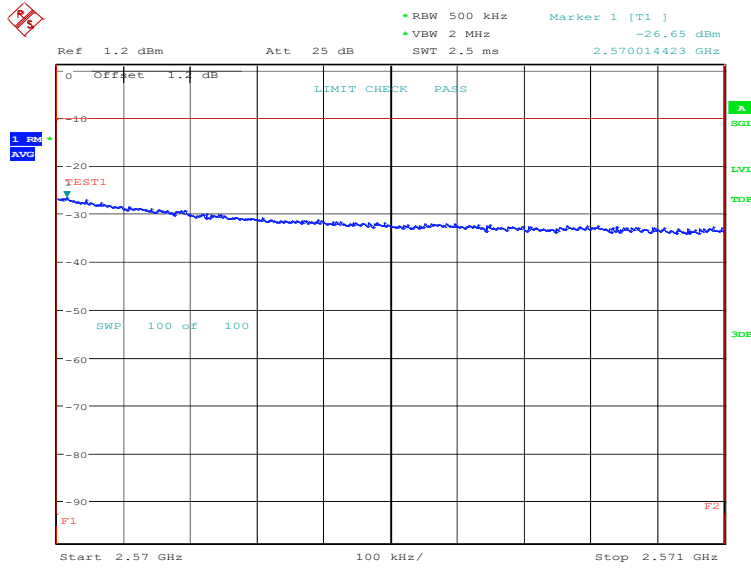


Date: 15.MAY.2024 11:48:10

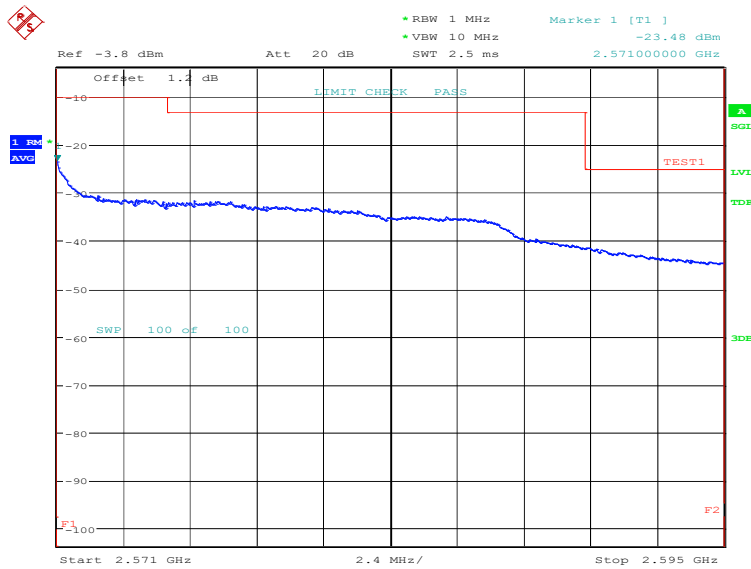


Date: 15.MAY.2024 11:49:51

HIGH BAND EDGE BLOCK-20MHz-100%RB

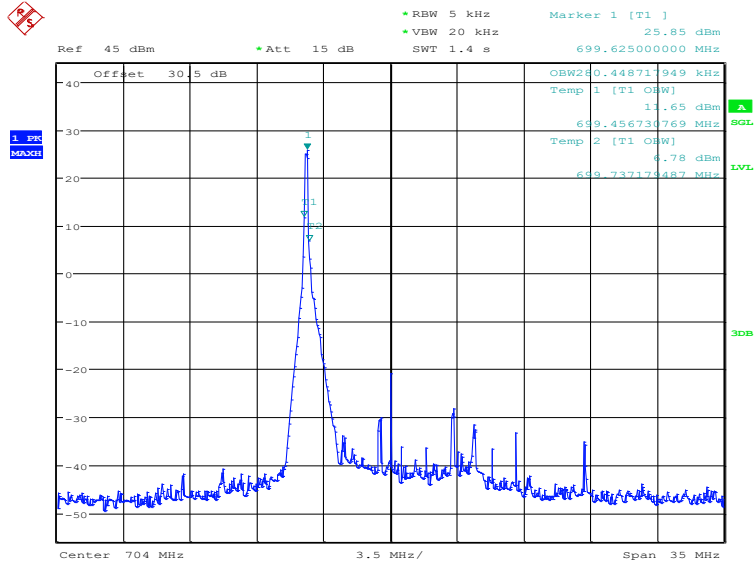


Date: 15.MAY.2024 11:52:50



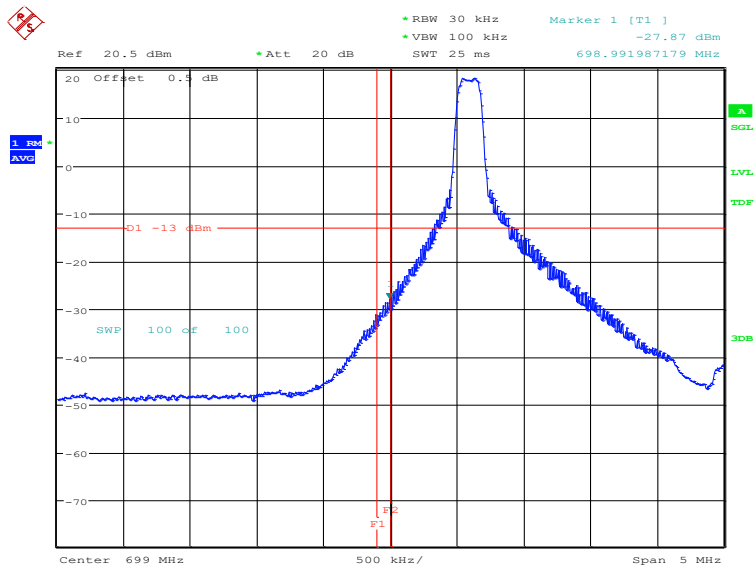
Date: 15.MAY.2024 11:54:31

LTE band 12
OBW: 1RB-low_offset



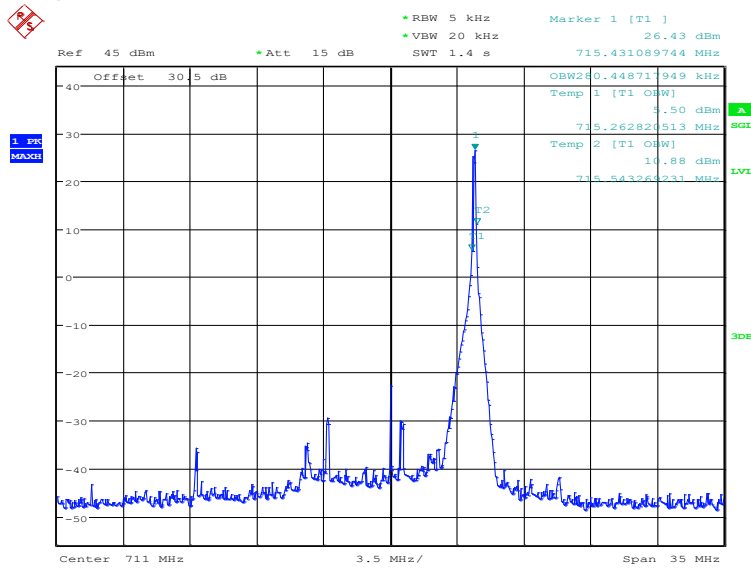
Date: 25.JUN.2024 09:56:14

LOW BAND EDGE BLOCK-1RB-low_offset



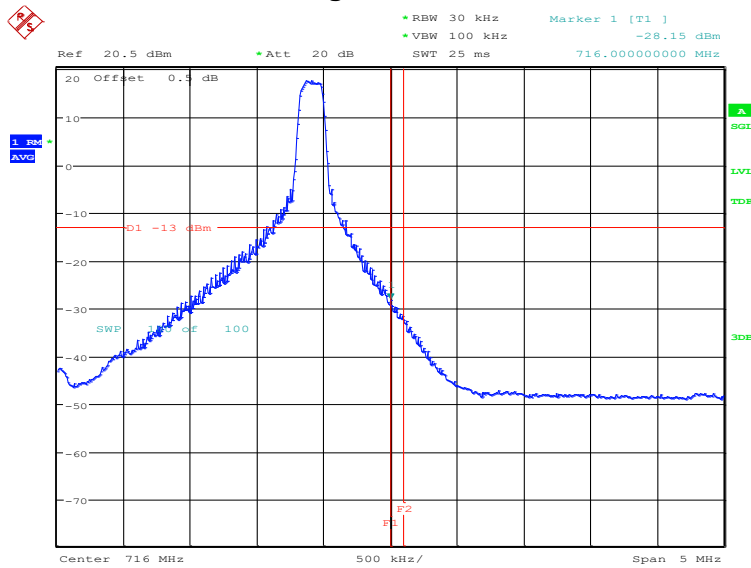
Date: 25.JUN.2024 09:56:34

OBW: 1RB-high_offset



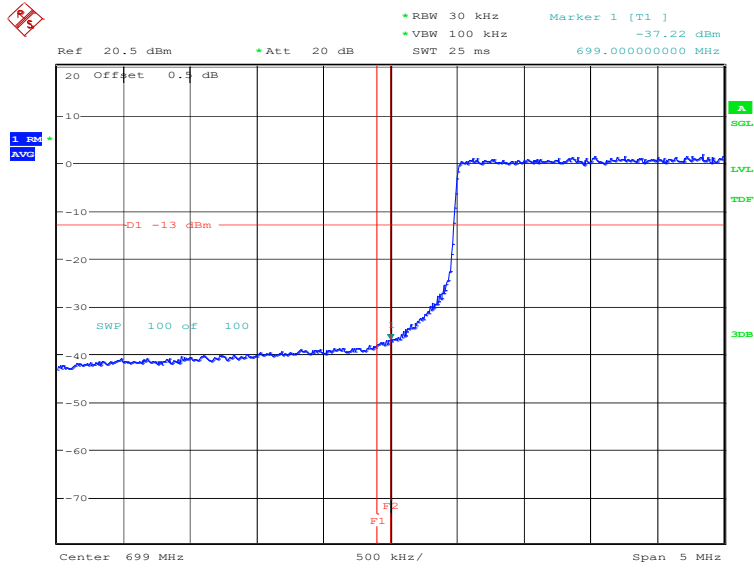
Date: 25.JUN.2024 09:57:10

HIGH BAND EDGE BLOCK-1RB-high_offset



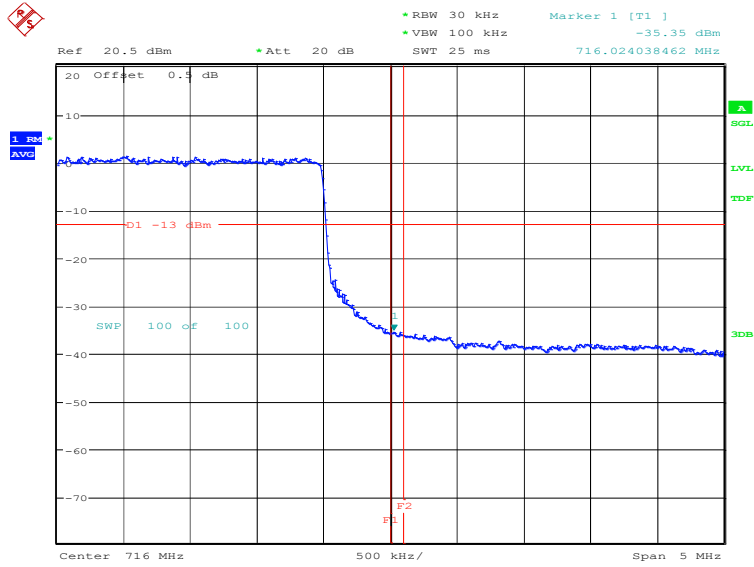
Date: 25.JUN.2024 09:57:29

LOW BAND EDGE BLOCK-10MHz-100%RB



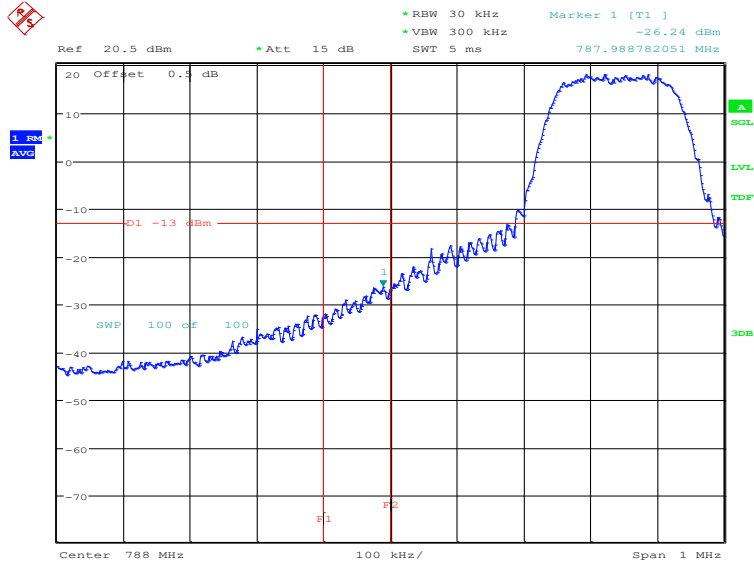
Date: 15.MAY.2024 14:28:16

HIGH BAND EDGE BLOCK-10MHz-100%RB



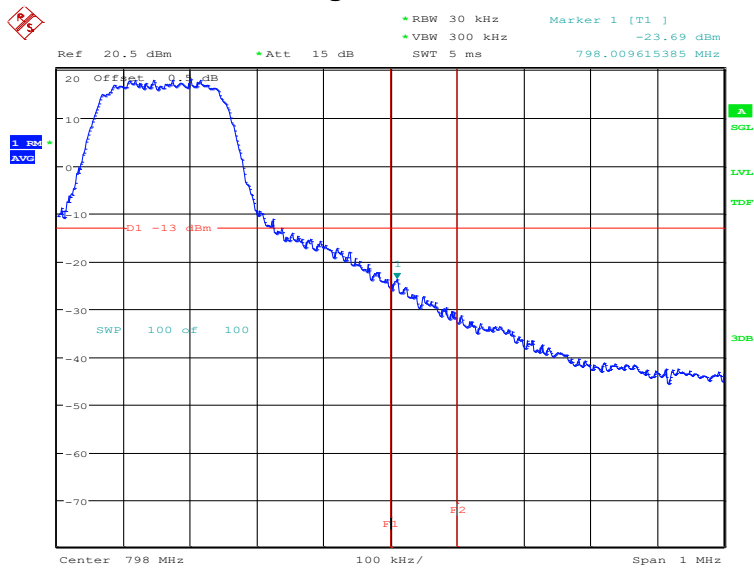
Date: 15.MAY.2024 14:29:48

LTE band 14
LOW BAND EDGE BLOCK-1RB-low_offset



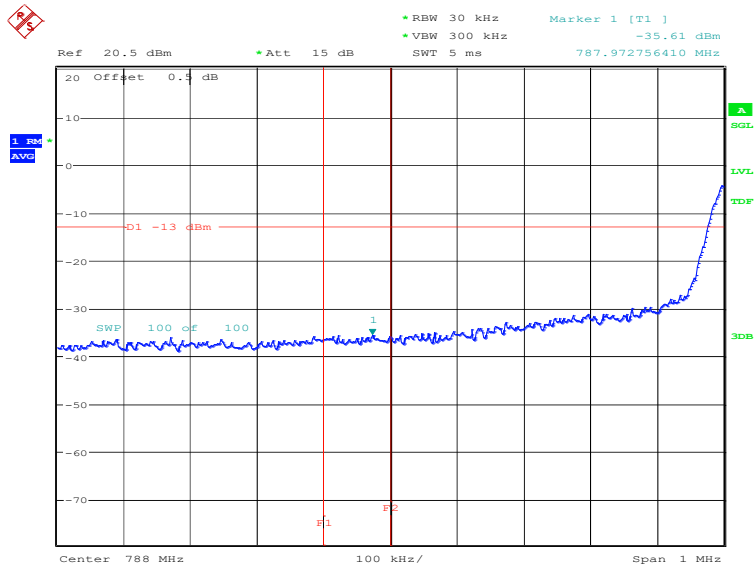
Date: 25.JUN.2024 10:10:09

HIGH BAND EDGE BLOCK-1RB-high_offset



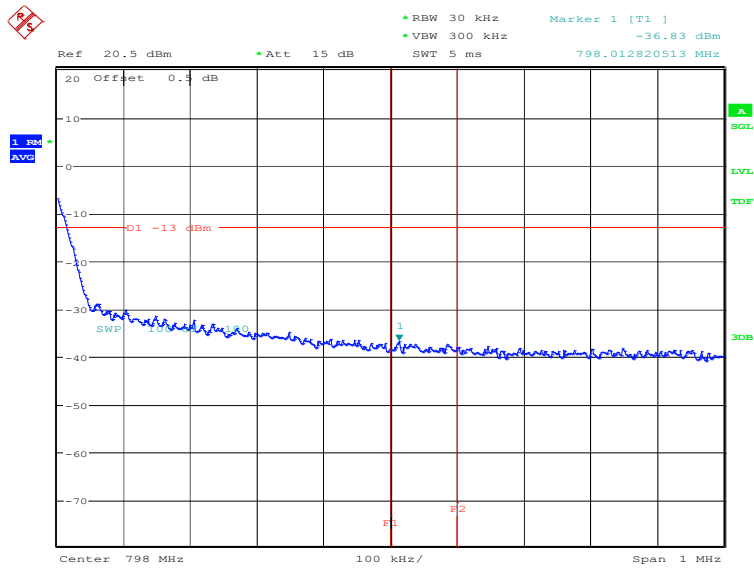
Date: 25.JUN.2024 10:26:50

LOW BAND EDGE BLOCK-10MHz-100%RB



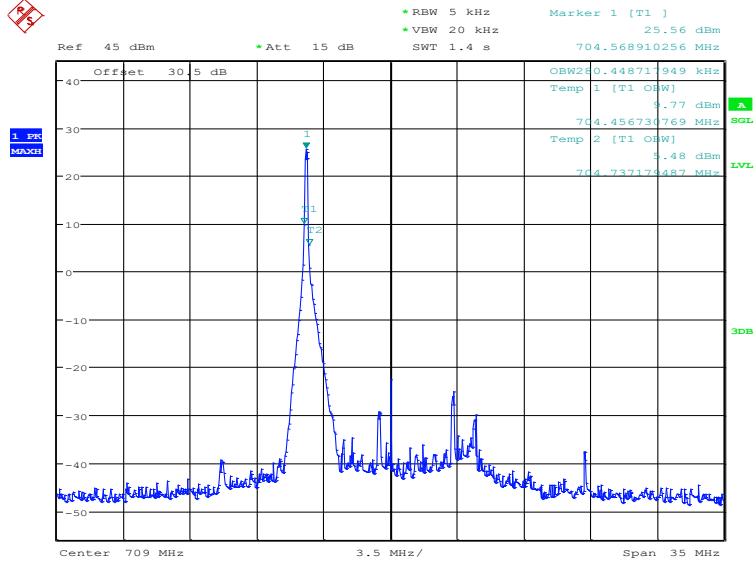
Date: 15.MAY.2024 14:56:10

HIGH BAND EDGE BLOCK-10MHz-100%RB



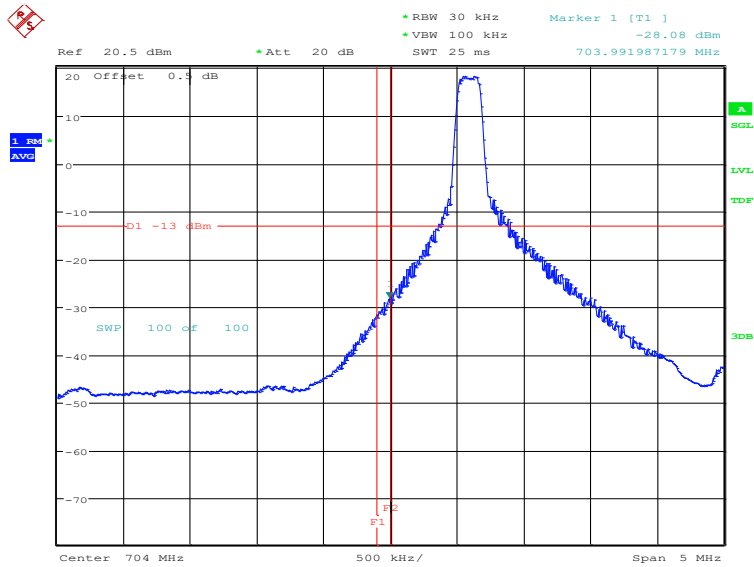
Date: 15.MAY.2024 14:57:45

LTE band 17
OBW: 1RB-low_offset



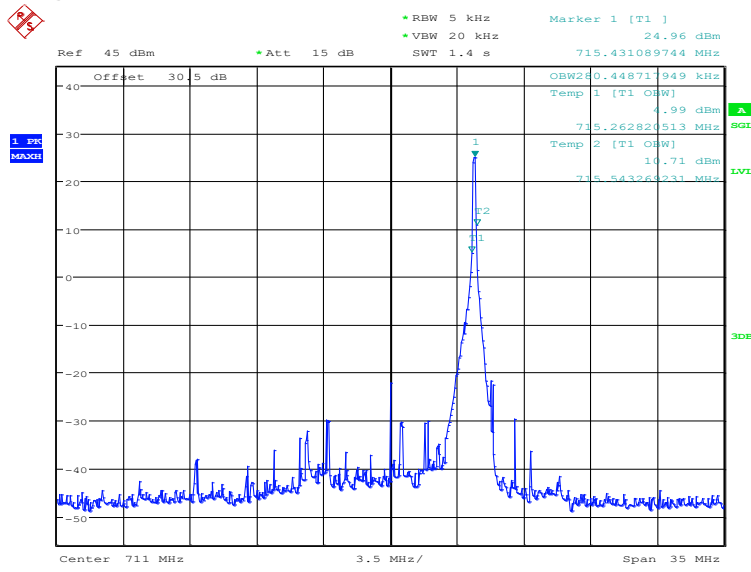
Date: 25.JUN.2024 09:58:07

LOW BAND EDGE BLOCK-1RB-low_offset



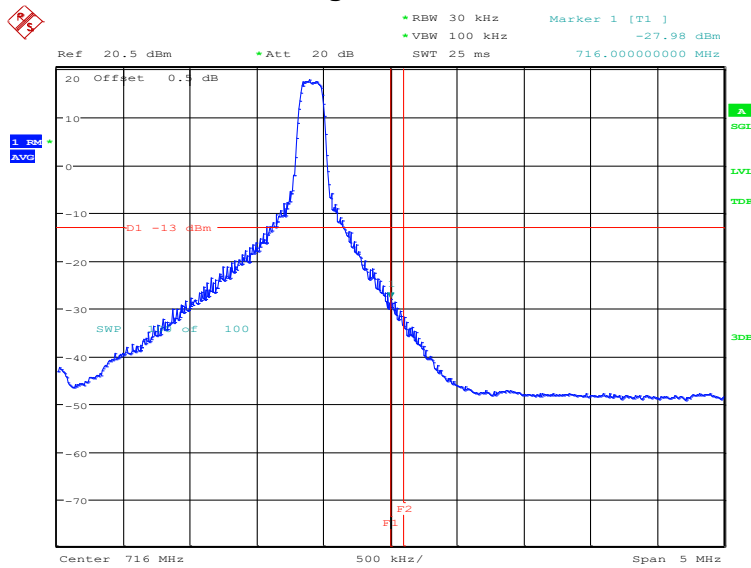
Date: 25.JUN.2024 09:58:27

OBW: 1RB-high_offset



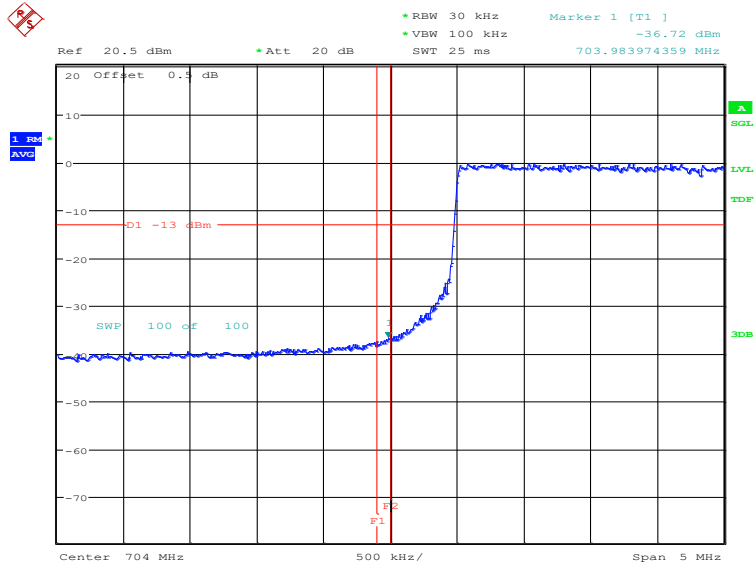
Date: 25.JUN.2024 10:00:34

HIGH BAND EDGE BLOCK-1RB-high_offset



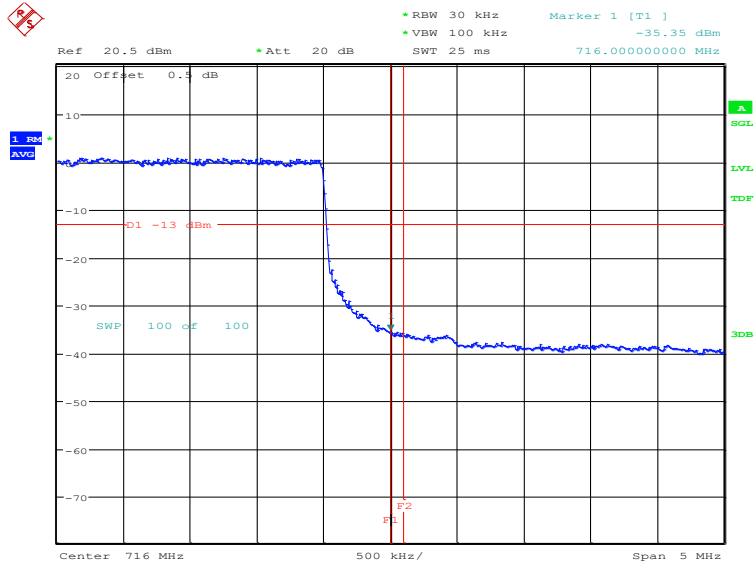
Date: 25.JUN.2024 10:00:54

LOW BAND EDGE BLOCK-10MHz-100%RB



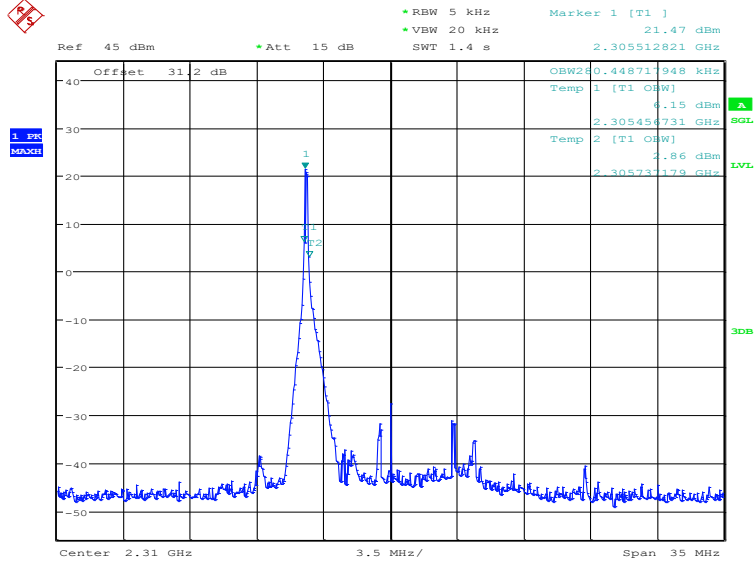
Date: 25.JUN.2024 09:59:01

HIGH BAND EDGE BLOCK-10MHz-100%RB



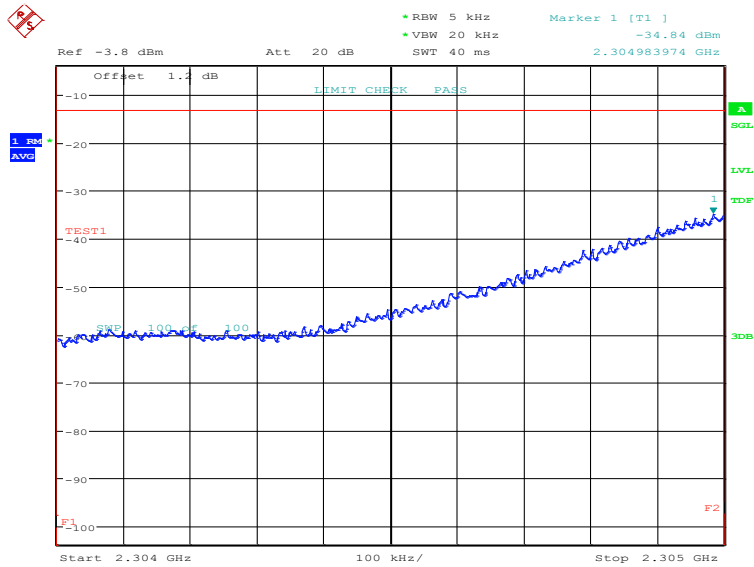
Date: 25.JUN.2024 10:01:28

LTE band 30
OBW: 1RB-low_offset

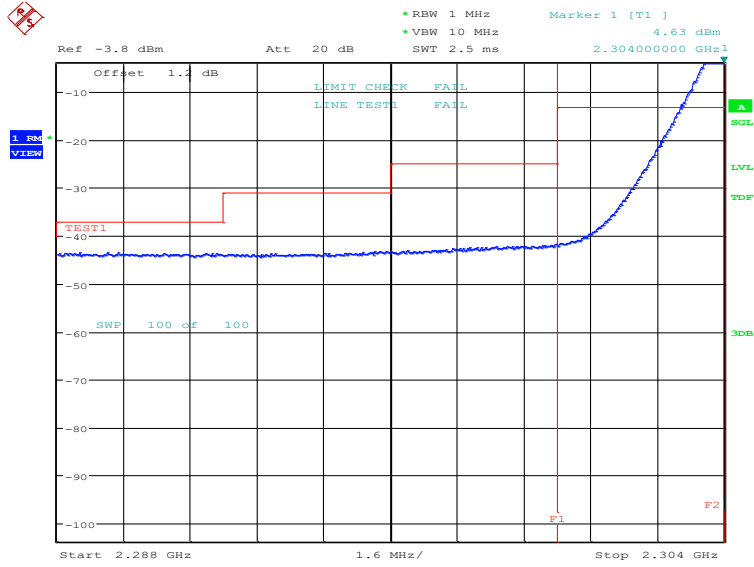


Date: 25.JUN.2024 09:24:56

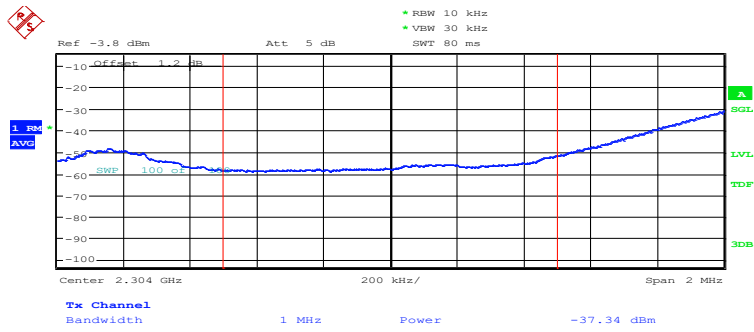
LOW BAND EDGE BLOCK-1RB-low_offset



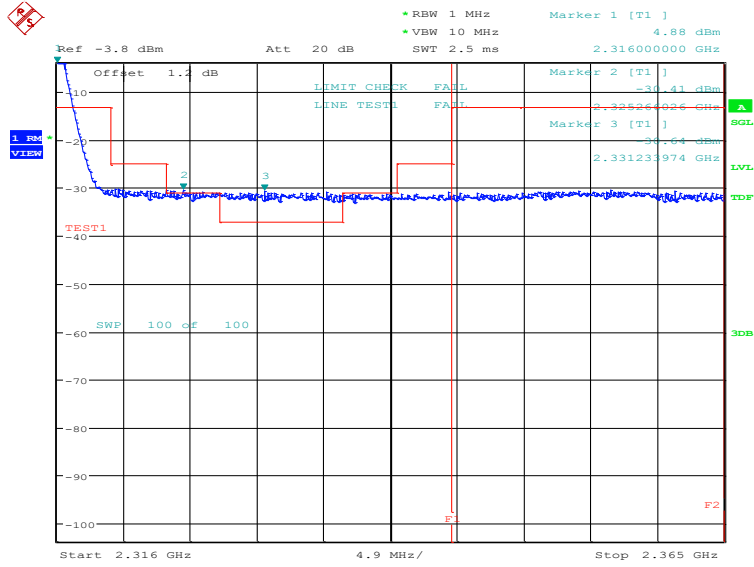
Date: 25.JUN.2024 09:26:17



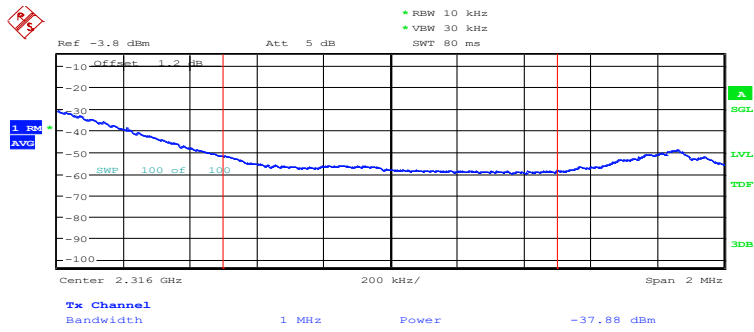
Date: 25.JUN.2024 09:28:09



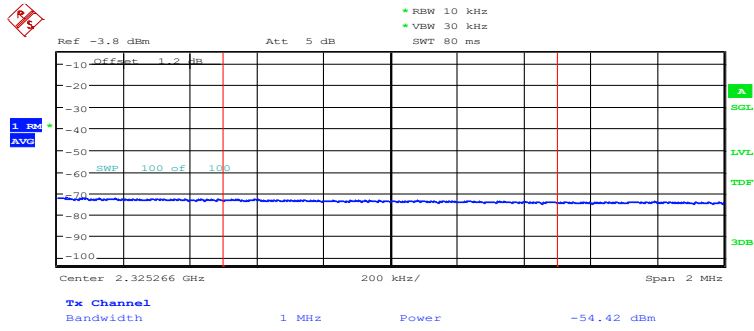
Date: 25.JUN.2024 09:28:37



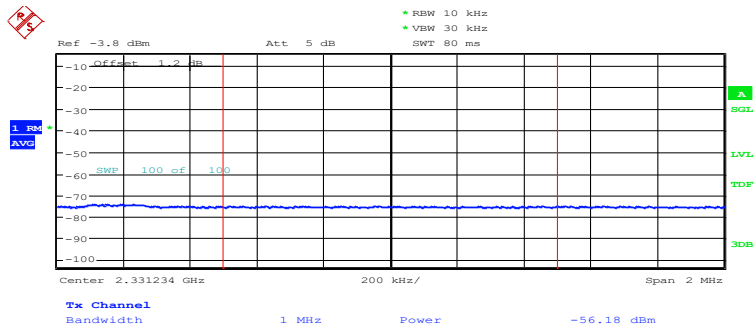
Date: 25.JUN.2024 09:32:41



Date: 25.JUN.2024 09:33:09

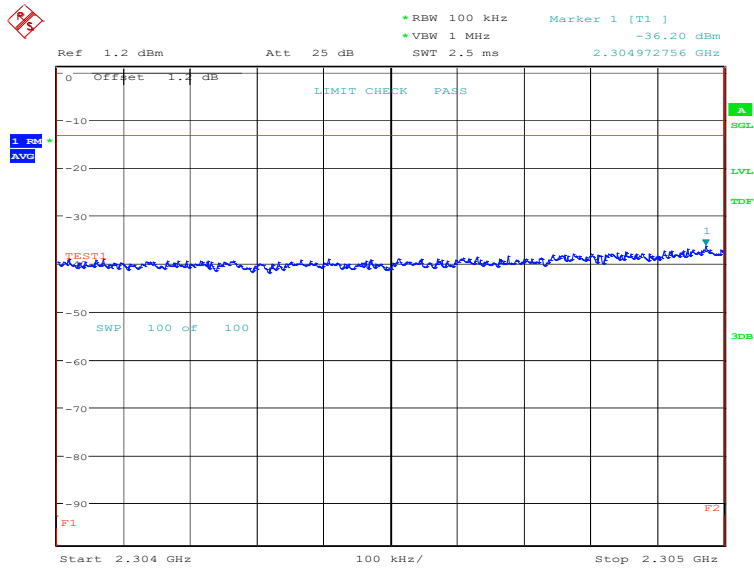


Date: 25.JUN.2024 09:33:35

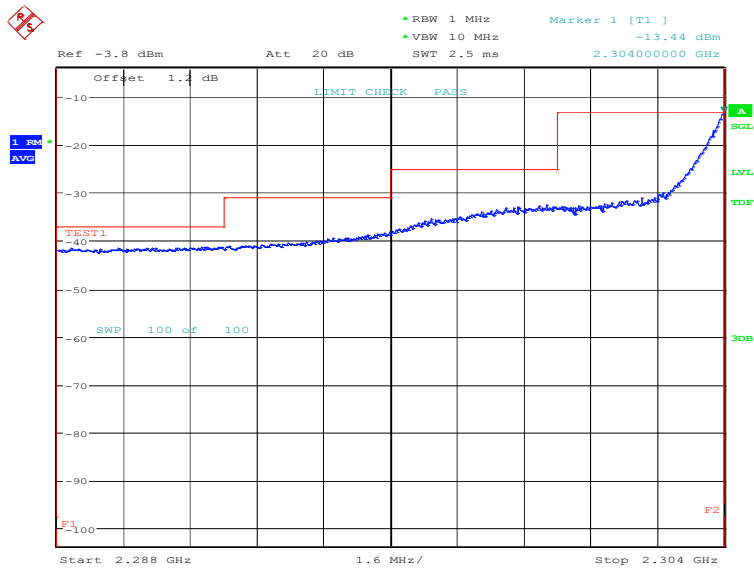


Date: 25.JUN.2024 09:34:01

LOW BAND EDGE BLOCK-10MHz-100%RB

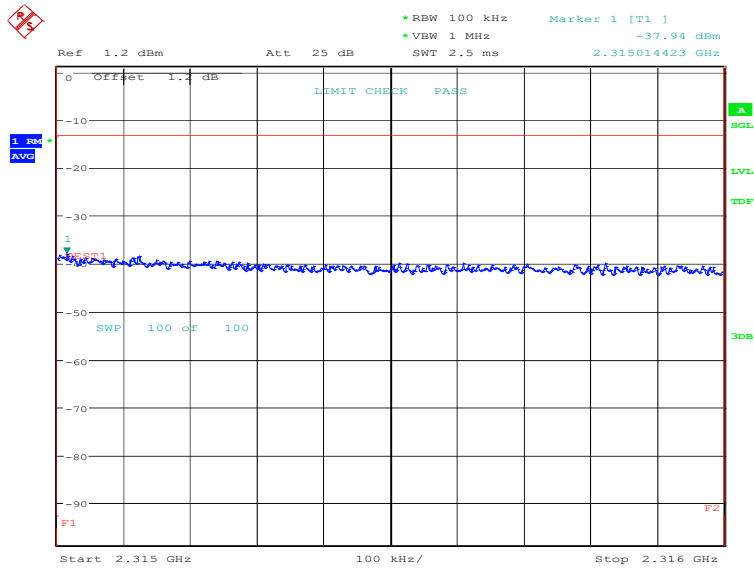


Date: 17.MAY.2024 13:42:02

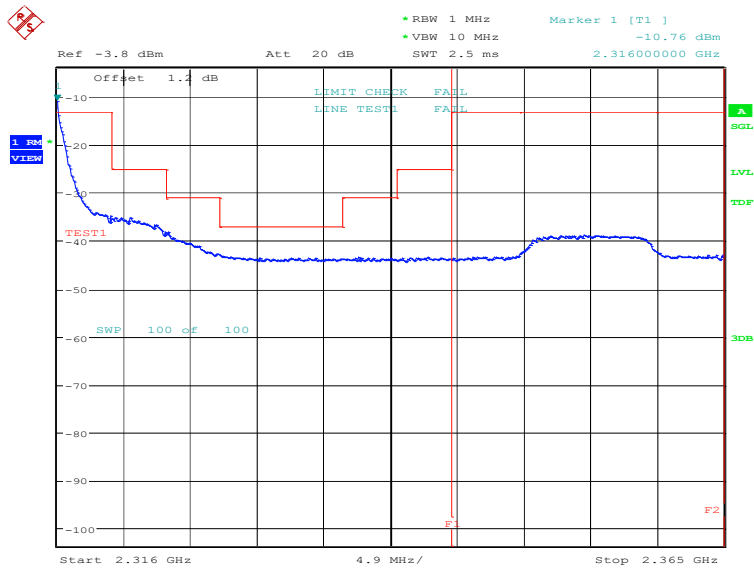


Date: 17.MAY.2024 13:43:43

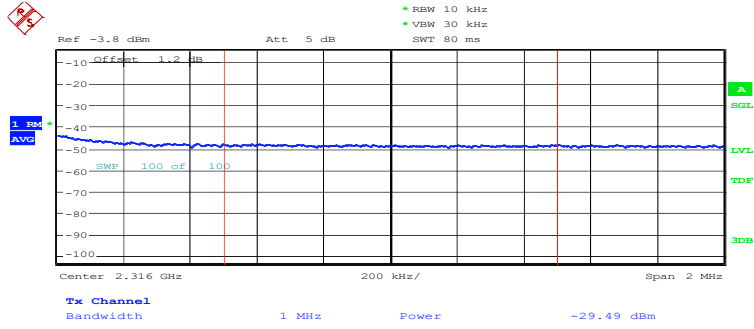
HIGH BAND EDGE BLOCK-10MHz-100%RB



Date: 17.MAY.2024 13:46:41

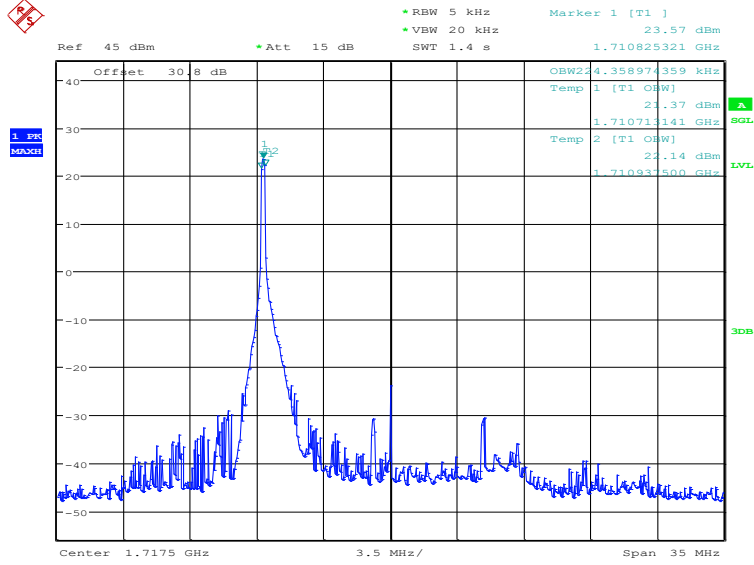


Date: 17.MAY.2024 13:48:41



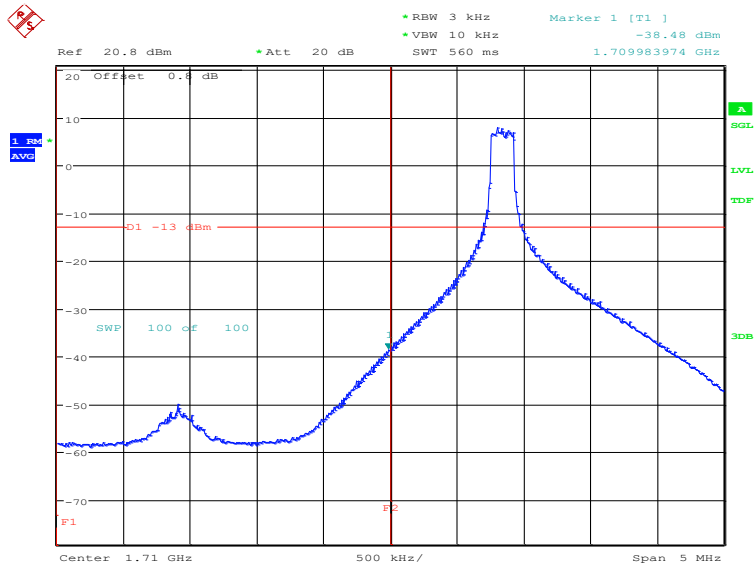
Date: 17.MAY.2024 13:49:09

LTE band 66
OBW: 1RB-low_offset



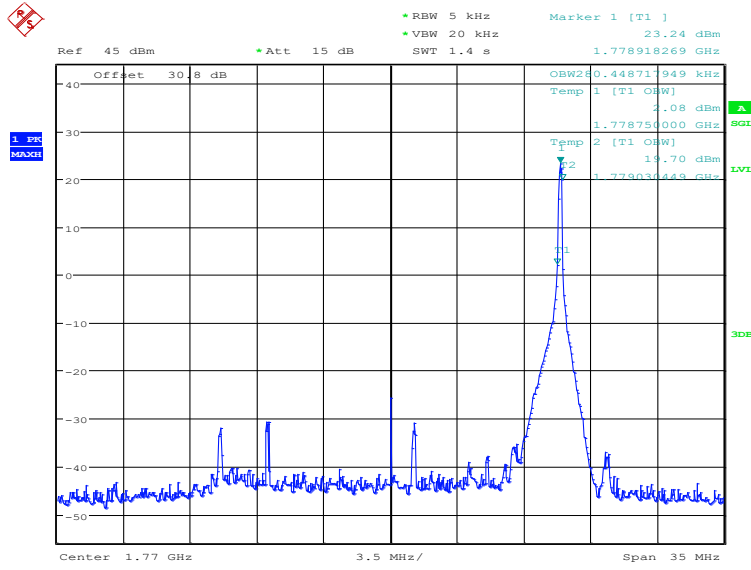
Date: 25.JUN.2024 09:34:40

LOW BAND EDGE BLOCK-1RB-low_offset



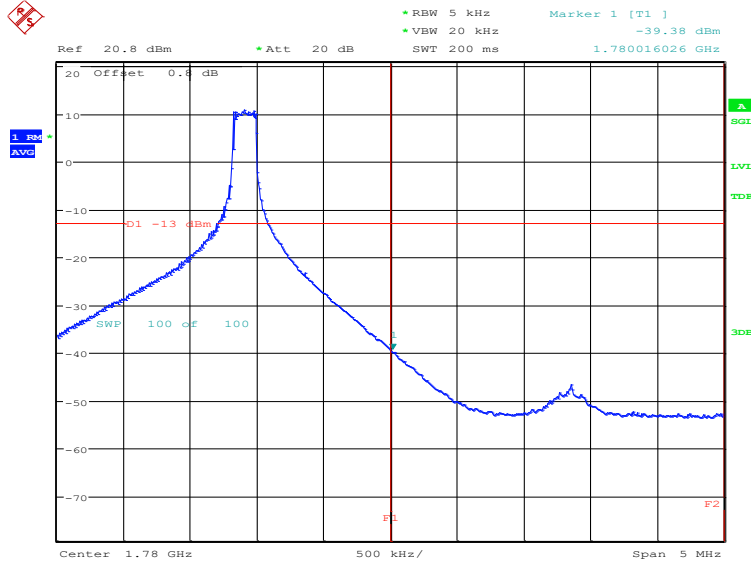
Date: 25.JUN.2024 09:35:54

OBW: 1RB-high_offset



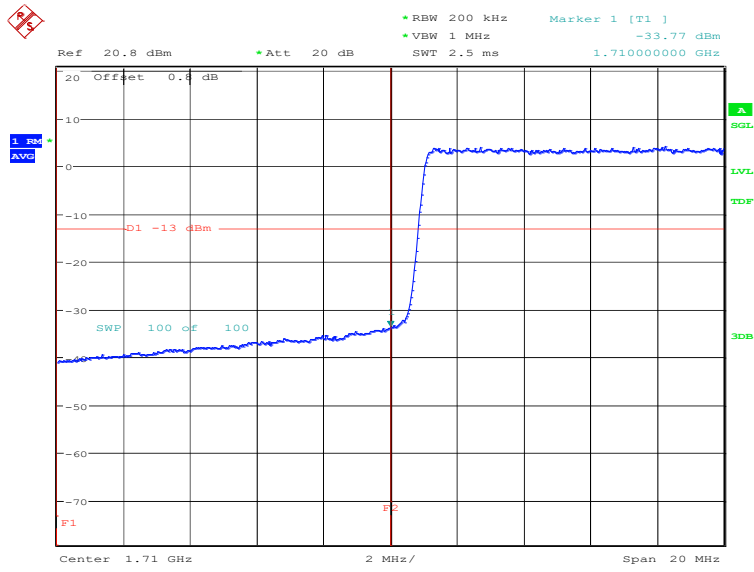
Date: 25.JUN.2024 09:36:32

HIGH BAND EDGE BLOCK-1RB-high_offset



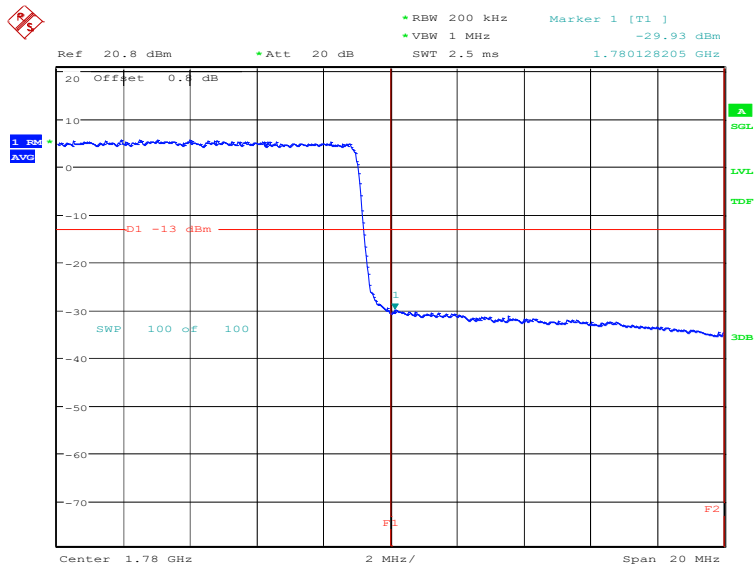
Date: 25.JUN.2024 09:37:47

LOW BAND EDGE BLOCK-20MHz-100%RB



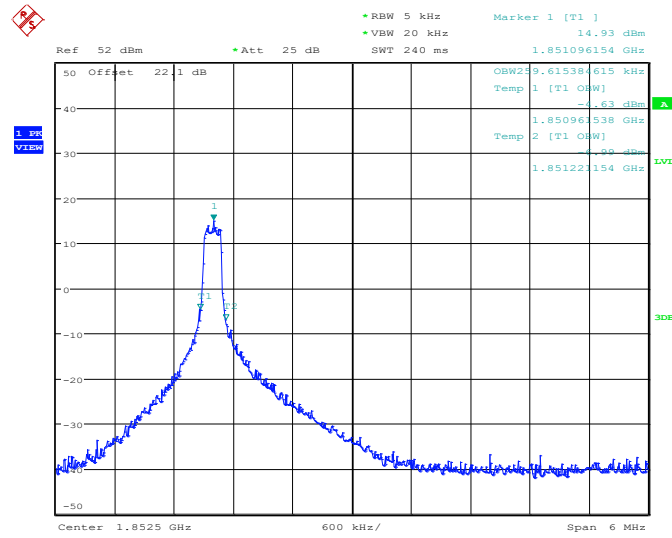
Date: 15.MAY.2024 12:07:49

HIGH BAND EDGE BLOCK-20MHz-100%RB



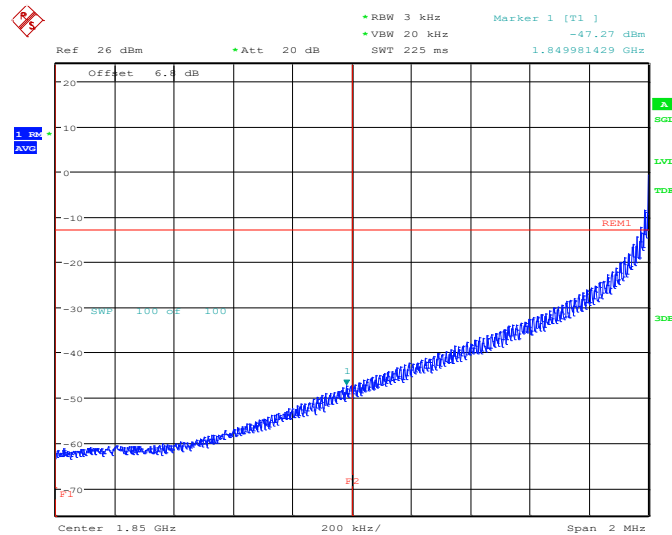
Date: 15.MAY.2024 12:09:22

LTE band 2@CA 2A-5A
OBW: 1RB-LOW_offset



Date: 17.MAY.2024 10:48:14

LOW BAND EDGE BLOCK-1RB-LOW_offset



Date: 17.MAY.2024 10:49:17