



Appendix F for BT LE Test Data

Product Name: Magnetic Bluetooth headphone amplifier

Test Model: Tea

Environmental Conditions

| | |
|--------------------|--------------------------------------------------------------------------------------|
| Temperature: | 22.3° C |
| Relative Humidity: | 52.4% |
| ATM Pressure: | 100.0 kPa |
| Test Engineer: |  |
| Supervised by: |  |





F.1 RF Output Power

Test Result

BT LE

| Test Condition | TestMode | Antenna | Channel | EIRP[dBm] | Limit[dBm] | Verdict |
|----------------|----------|---------|---------|-----------|------------|---------|
| NTNV | BLE_1M | Ant1 | 2402 | 7.90 | 20 | PASS |
| | | | 2440 | 8.22 | 20 | PASS |
| | | | 2480 | 8.59 | 20 | PASS |

| Test Condition | TestMode | Antenna | Channel | EIRP[dBm] | Limit[dBm] | Verdict |
|----------------|----------|---------|---------|-----------|------------|---------|
| NTLV | BLE_1M | Ant1 | 2402 | 7.83 | 20 | PASS |
| | | | 2440 | 8.04 | 20 | PASS |
| | | | 2480 | 8.48 | 20 | PASS |

| Test Condition | TestMode | Antenna | Channel | EIRP[dBm] | Limit[dBm] | Verdict |
|----------------|----------|---------|---------|-----------|------------|---------|
| NTHV | BLE_1M | Ant1 | 2402 | 6.82 | 20 | PASS |
| | | | 2440 | 7.13 | 20 | PASS |
| | | | 2480 | 7.47 | 20 | PASS |

***Note: 20 bursts had been captured for power measurement.

BT 2LE

| Test Condition | TestMode | Antenna | Channel | EIRP[dBm] | Limit[dBm] | Verdict |
|----------------|----------|---------|---------|-----------|------------|---------|
| NTNV | BLE_2M | Ant3 | 2402 | 7.84 | 20 | PASS |
| | | | 2440 | 8.17 | 20 | PASS |
| | | | 2480 | 8.53 | 20 | PASS |

| Test Condition | TestMode | Antenna | Channel | EIRP[dBm] | Limit[dBm] | Verdict |
|----------------|----------|---------|---------|-----------|------------|---------|
| NTLV | BLE_2M | Ant3 | 2402 | 7.62 | 20 | PASS |
| | | | 2440 | 8.09 | 20 | PASS |
| | | | 2480 | 8.42 | 20 | PASS |

| Test Condition | TestMode | Antenna | Channel | EIRP[dBm] | Limit[dBm] | Verdict |
|----------------|----------|---------|---------|-----------|------------|---------|
| NTHV | BLE_2M | Ant3 | 2402 | 6.74 | 20 | PASS |
| | | | 2440 | 7.04 | 20 | PASS |
| | | | 2480 | 7.45 | 20 | PASS |

***Note: 20 bursts had been captured for power measurement.





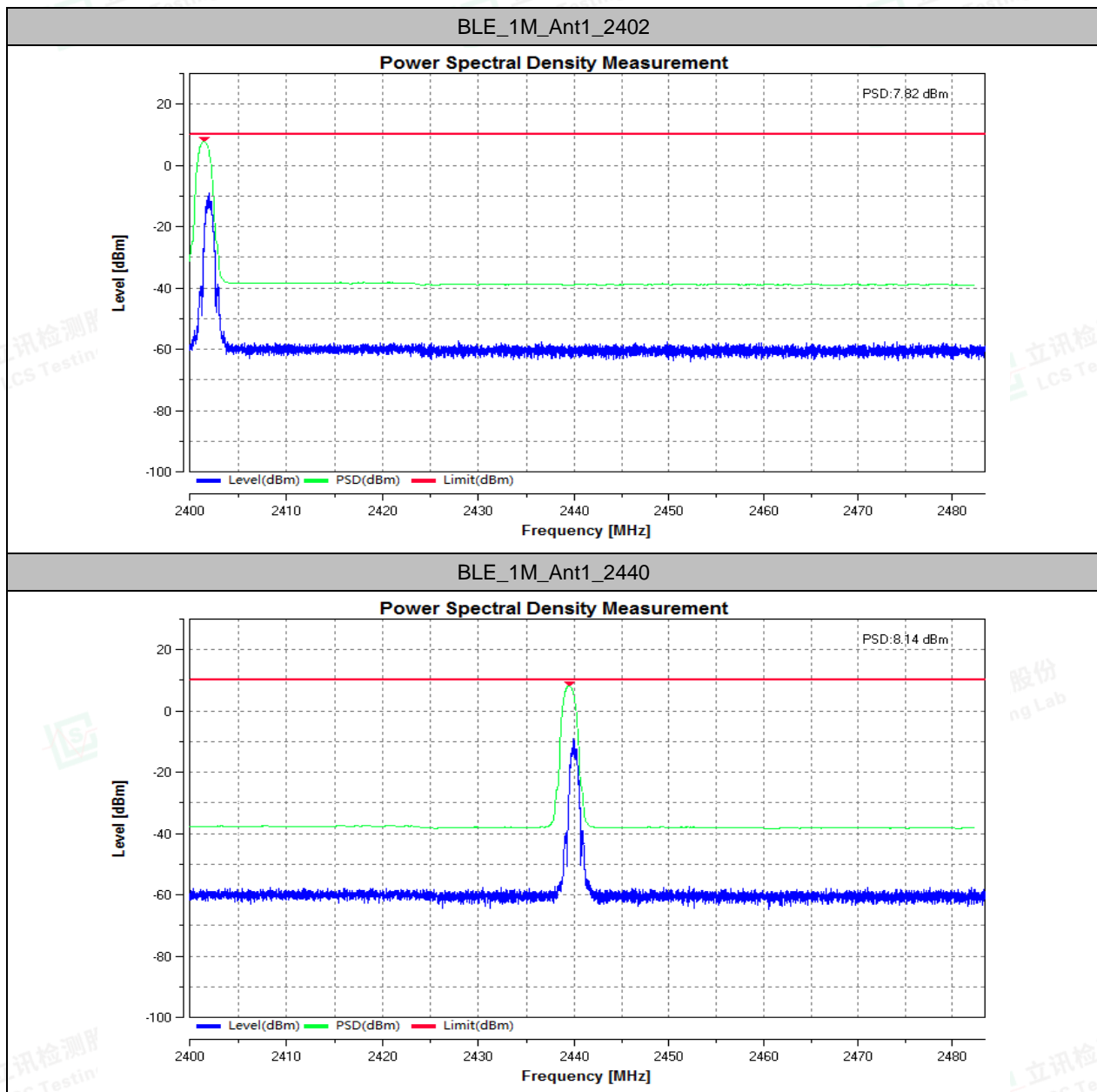
F.2 Power Spectral Density

Test Result

BT LE

| TestMode | Antenna | Channel | PSD[dBm/MHz] | Limit[dBm/MHz] | Verdict |
|----------|---------|---------|--------------|----------------|---------|
| BLE_1M | Ant1 | 2402 | 7.82 | 10 | PASS |
| | | 2440 | 8.14 | 10 | PASS |
| | | 2480 | 8.52 | 10 | PASS |

Test Graphs

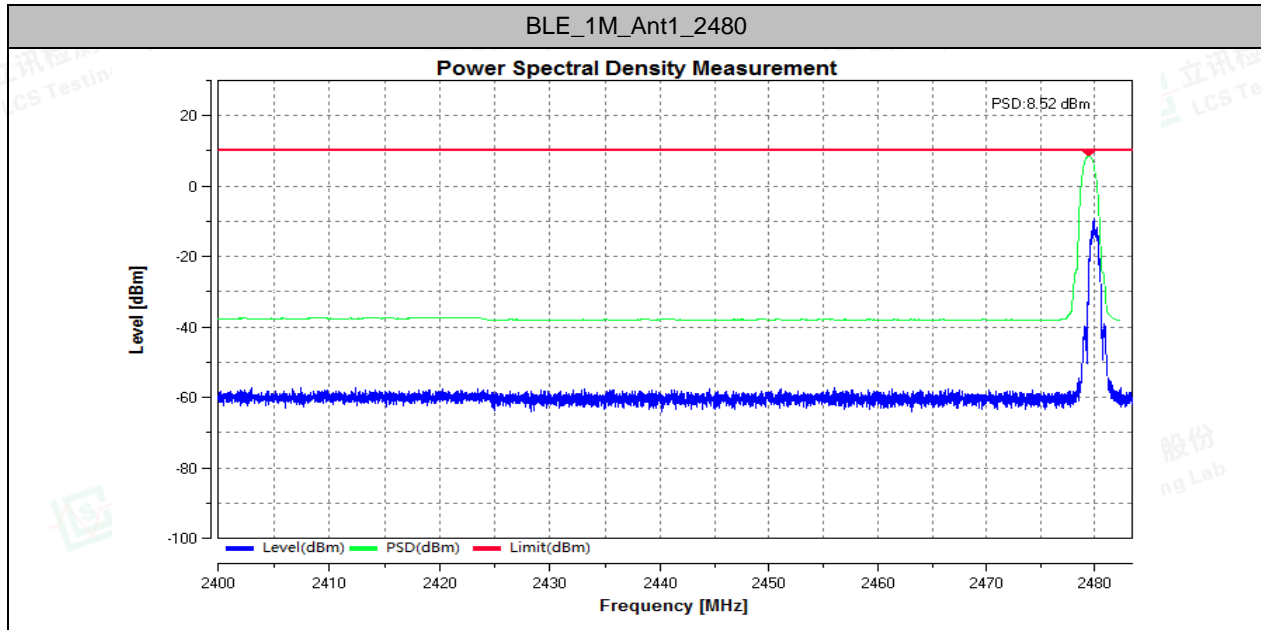


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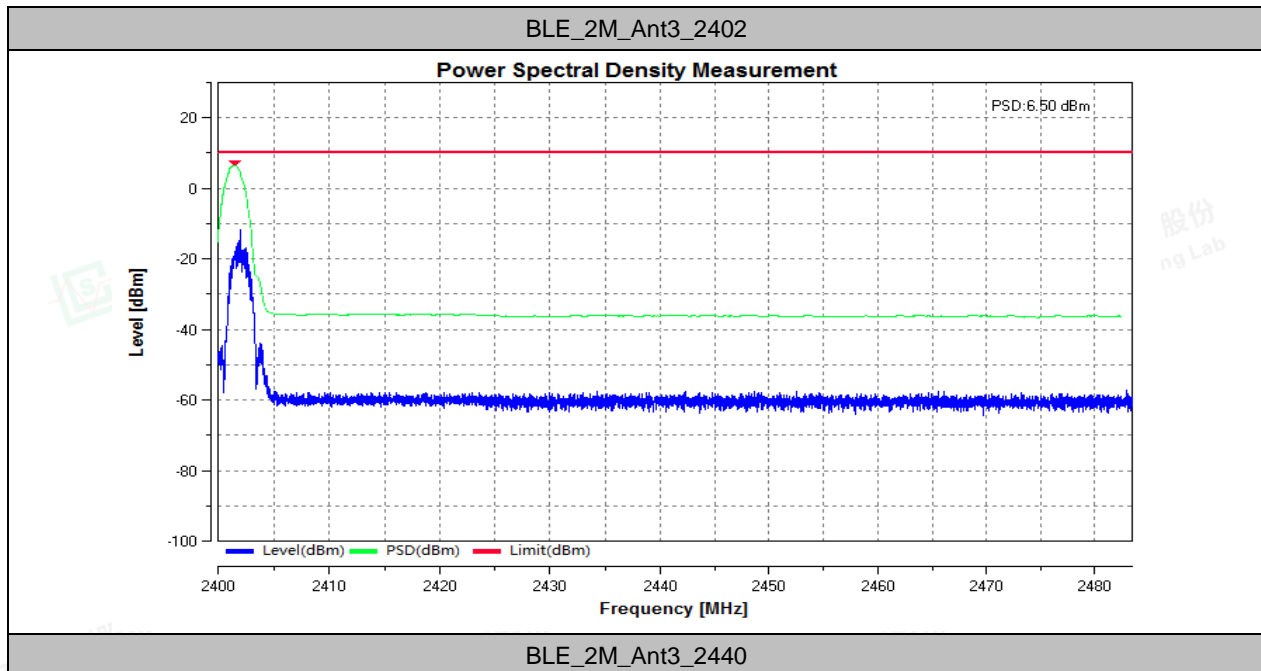
Scan code to check authenticity



BT 2LE

| TestMode | Antenna | Channel | PSD[dBm/MHz] | Limit[dBm/MHz] | Verdict |
|----------|---------|---------|--------------|----------------|---------|
| BLE_2M | Ant3 | 2402 | 6.50 | 10 | PASS |
| | | 2440 | 6.84 | 10 | PASS |
| | | 2480 | 7.20 | 10 | PASS |

Test Graphs

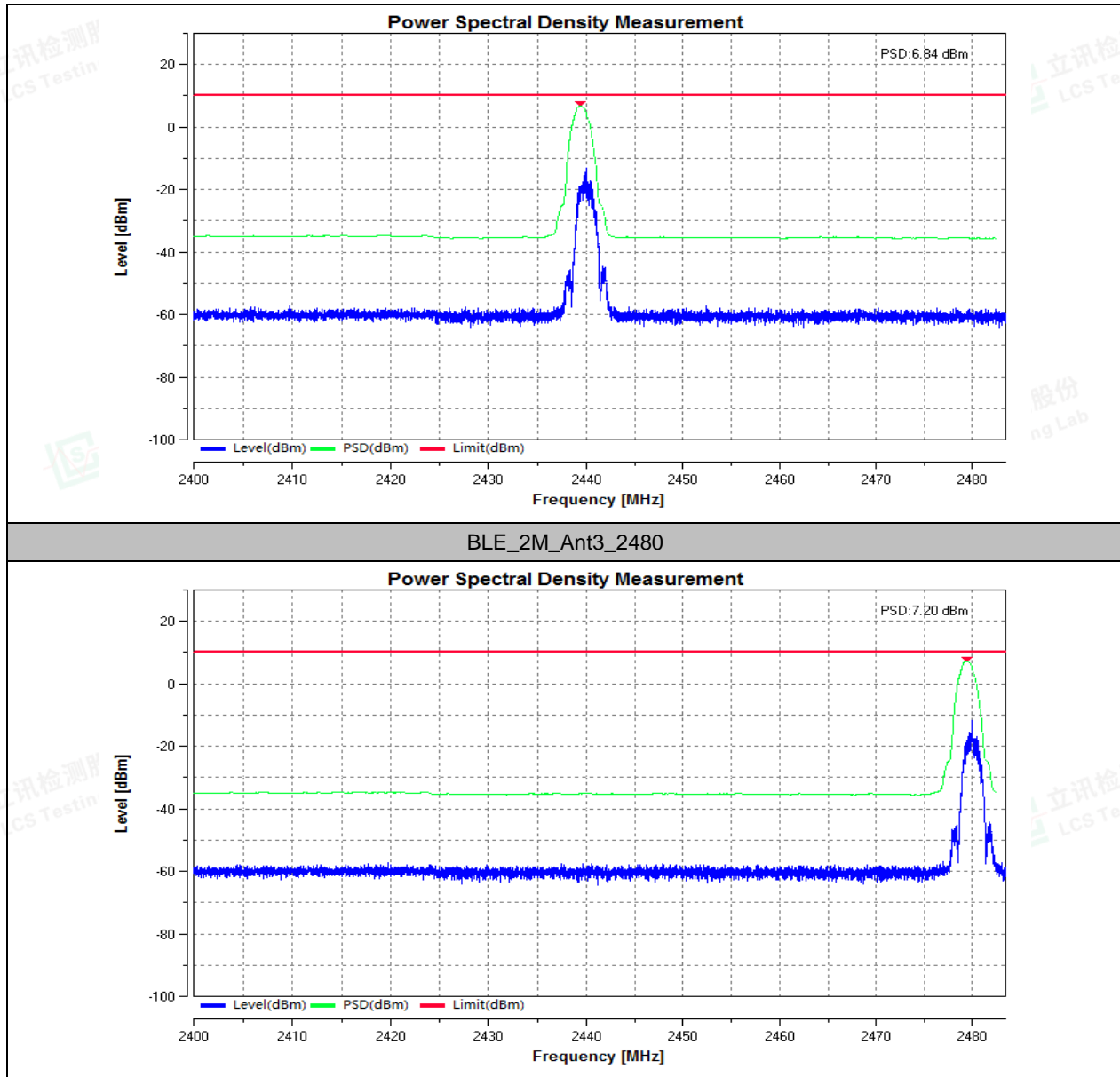


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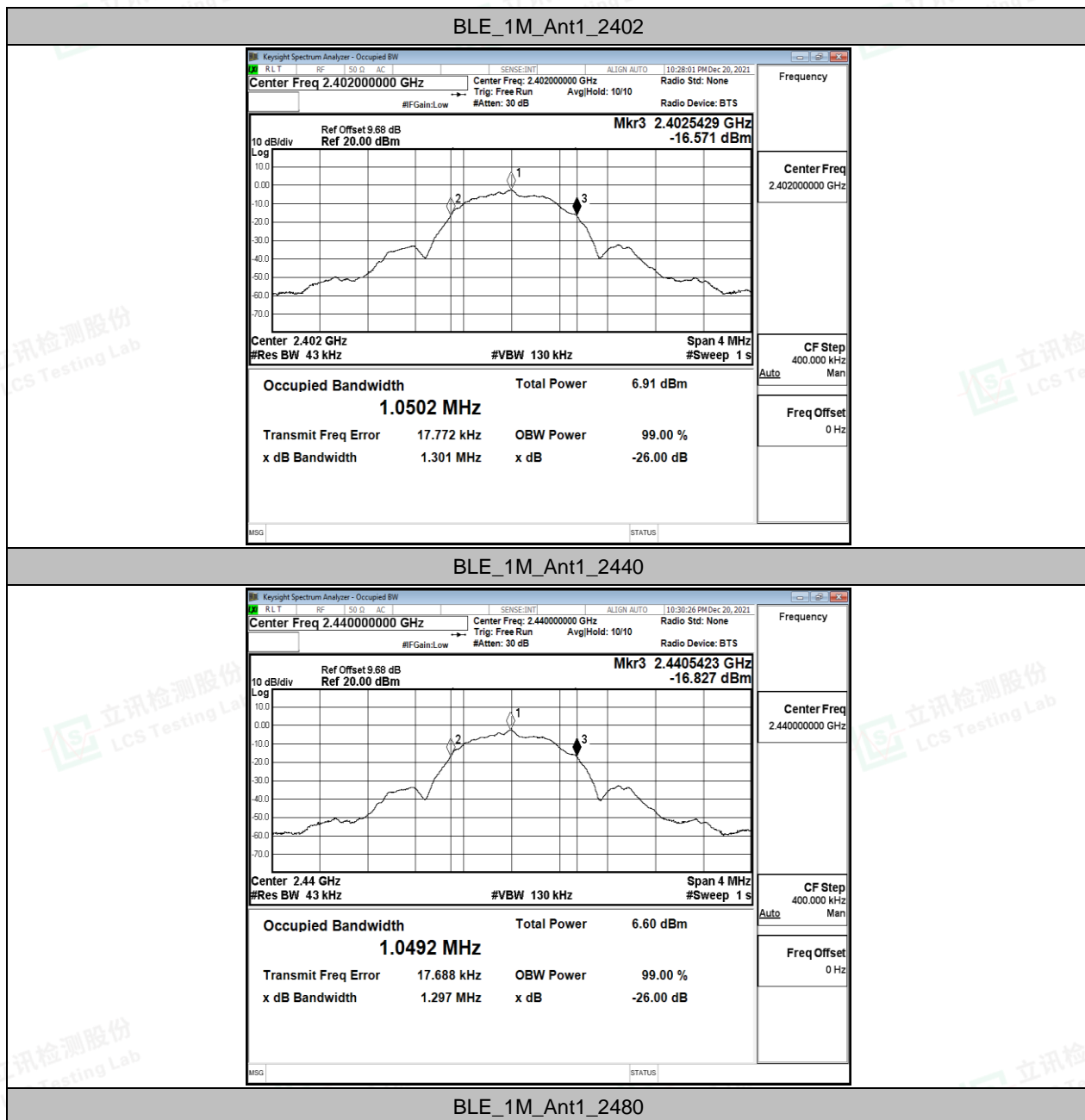
F.3 Occupied Channel Bandwidth

Test Result

BT LE

| TestMode | Antenna | Channel | OCB[MHz] | FL[MHz] | FH[MHz] | Limit[MHz] | Verdict |
|----------|---------|---------|----------|-----------|-----------|----------------|---------|
| BLE_1M | Ant1 | 2402 | 1.0502 | 2401.4927 | 2402.5429 | 2400 to 2483.5 | PASS |
| | | 2440 | 1.0492 | 2439.4931 | 2440.5423 | 2400 to 2483.5 | PASS |
| | | 2480 | 1.0474 | 2479.4935 | 2480.5409 | 2400 to 2483.5 | PASS |

Test Graphs

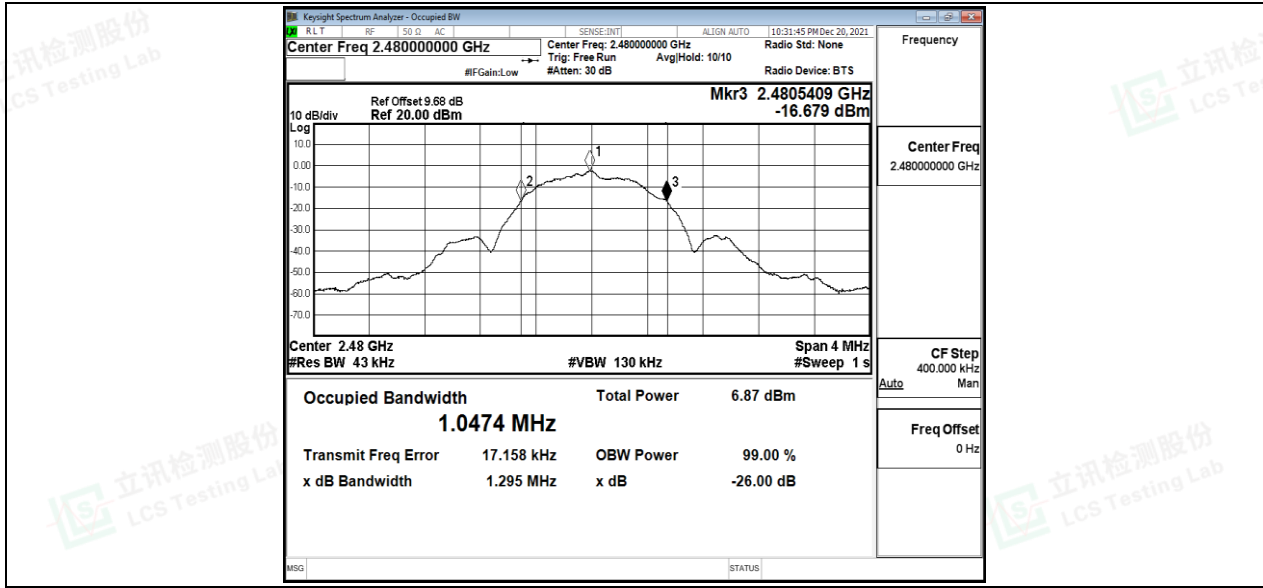


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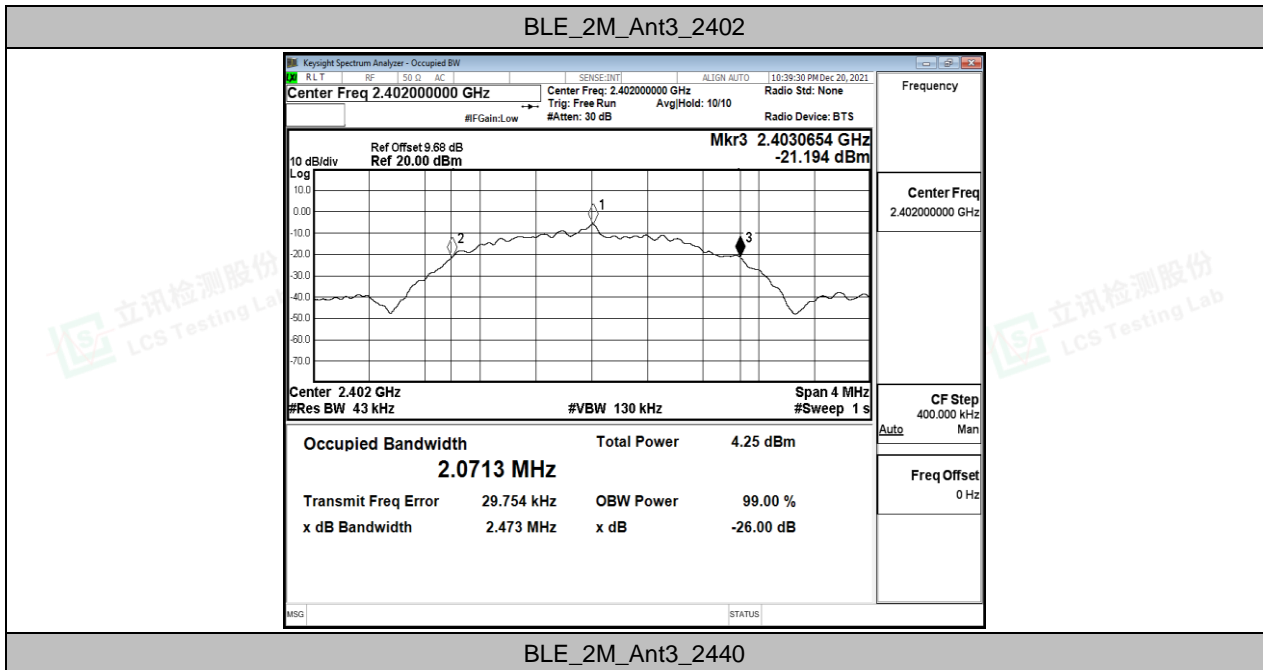
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BT 2LE

| TestMode | Antenna | Channel | OCB[MHz] | FL[MHz] | FH[MHz] | Limit[MHz] | Verdict |
|----------|---------|---------|----------|-----------|-----------|----------------|---------|
| BLE_2M | Ant3 | 2402 | 2.0713 | 2400.9941 | 2403.0654 | 2400 to 2483.5 | PASS |
| | | 2440 | 2.0711 | 2438.9955 | 2441.0666 | 2400 to 2483.5 | PASS |
| | | 2480 | 2.0685 | 2478.9959 | 2481.0644 | 2400 to 2483.5 | PASS |

Test Graphs

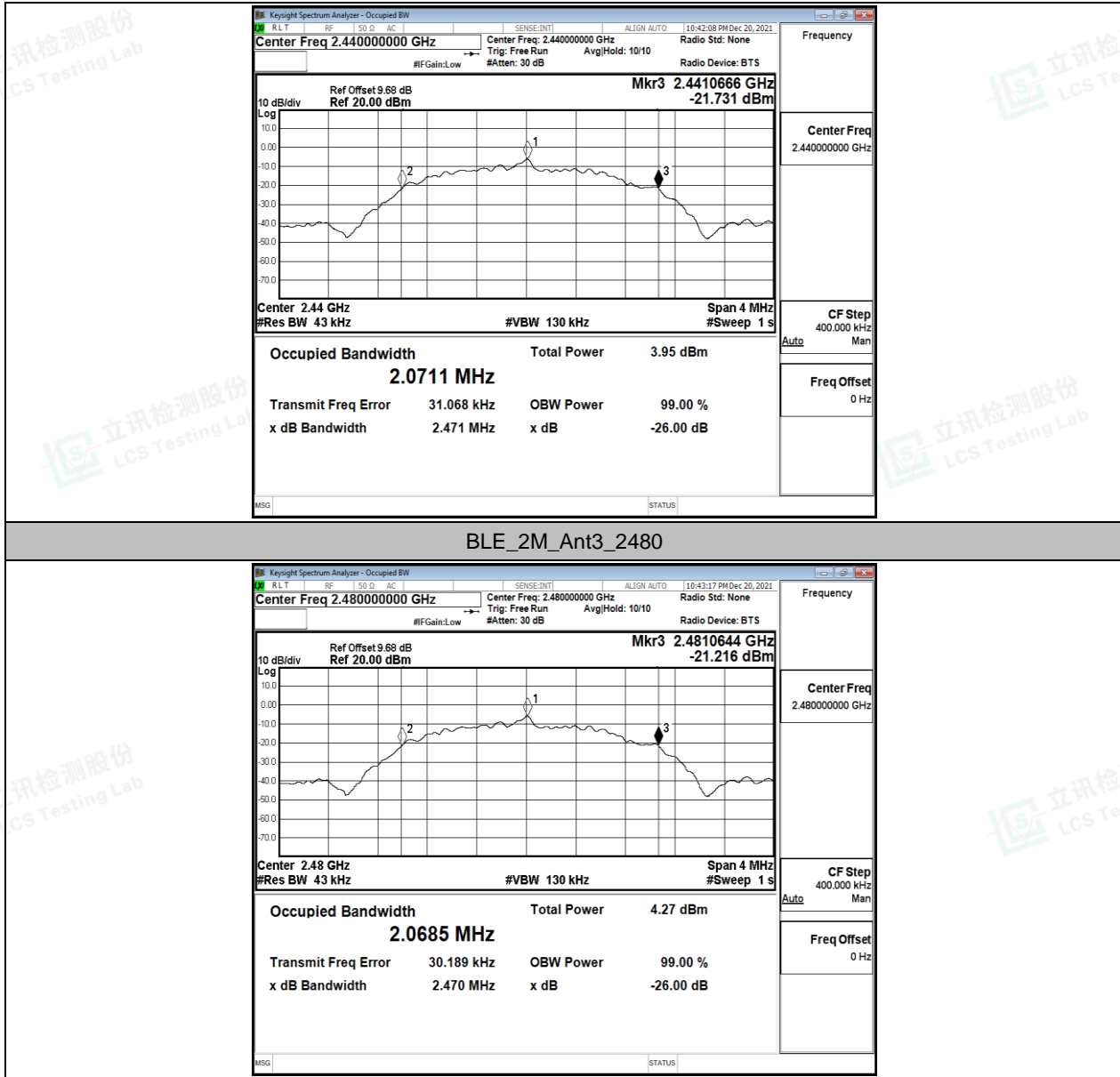


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F.4 Transmitter Unwanted Emissions In The Out-Of-BandDomain

Test Result

BT LE

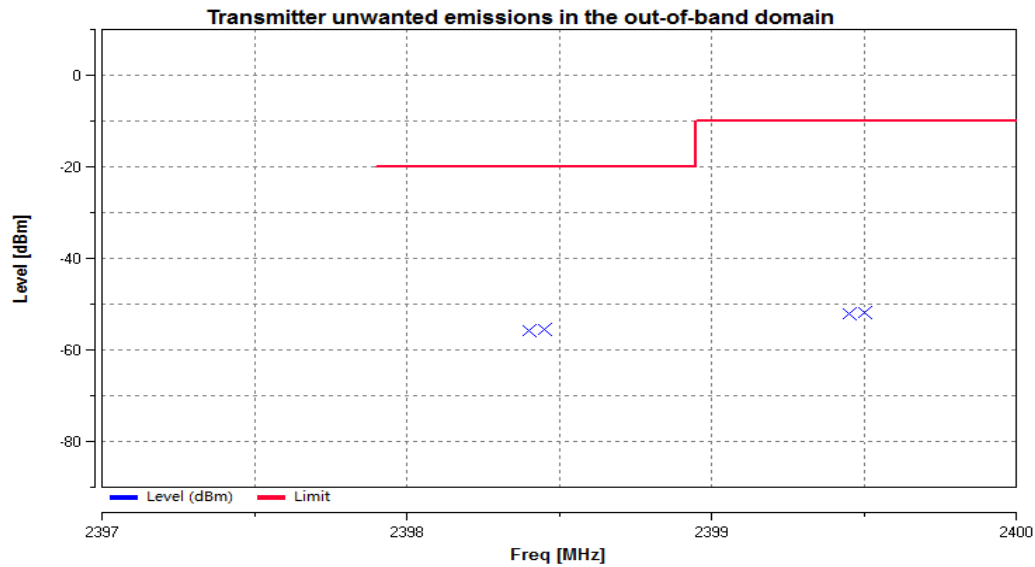
| TestMode | Antenna | Channel | Freq. [MHz] | Level[dBm] | Limit[dBm] | Verdict |
|----------|---------|---------|-------------|------------|------------|---------|
| BLE_1M | Ant1 | 2402 | 2398.3996 | -55.75 | -20.00 | PASS |
| | | | 2398.4498 | -55.63 | -20.00 | PASS |
| | | | 2399.4498 | -52.16 | -10.00 | PASS |
| | | | 2399.5 | -51.80 | -10.00 | PASS |
| | | | 2484 | -60.12 | -10.00 | PASS |
| | | | 2484.0502 | -60.17 | -10.00 | PASS |
| | | | 2485.0502 | -60.11 | -20.00 | PASS |
| | | | 2485.1004 | -60.09 | -20.00 | PASS |
| | | 2480 | 2398.4052 | -60.06 | -20.00 | PASS |
| | | | 2398.4526 | -60.05 | -20.00 | PASS |
| | | | 2399.4526 | -60.14 | -10.00 | PASS |
| | | | 2399.5 | -60.08 | -10.00 | PASS |
| | | | 2484 | -56.35 | -10.00 | PASS |
| | | | 2484.0474 | -56.39 | -10.00 | PASS |
| | | | 2485.0474 | -57.39 | -20.00 | PASS |
| | | | 2485.0948 | -57.46 | -20.00 | PASS |



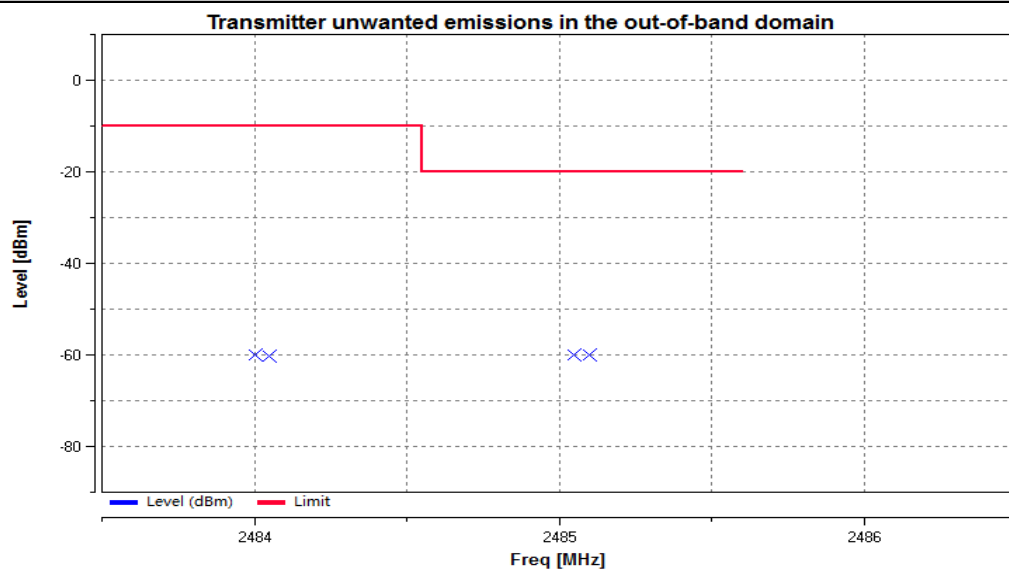


Test Graphs

BLE_1M_Ant1_2402_2400MHz-2BW to 2400MHz



BLE_1M_Ant1_2402_2483.5MHz to 2483.5MHz+2BW



BLE_1M_Ant1_2480_2400MHz-2BW to 2400MHz

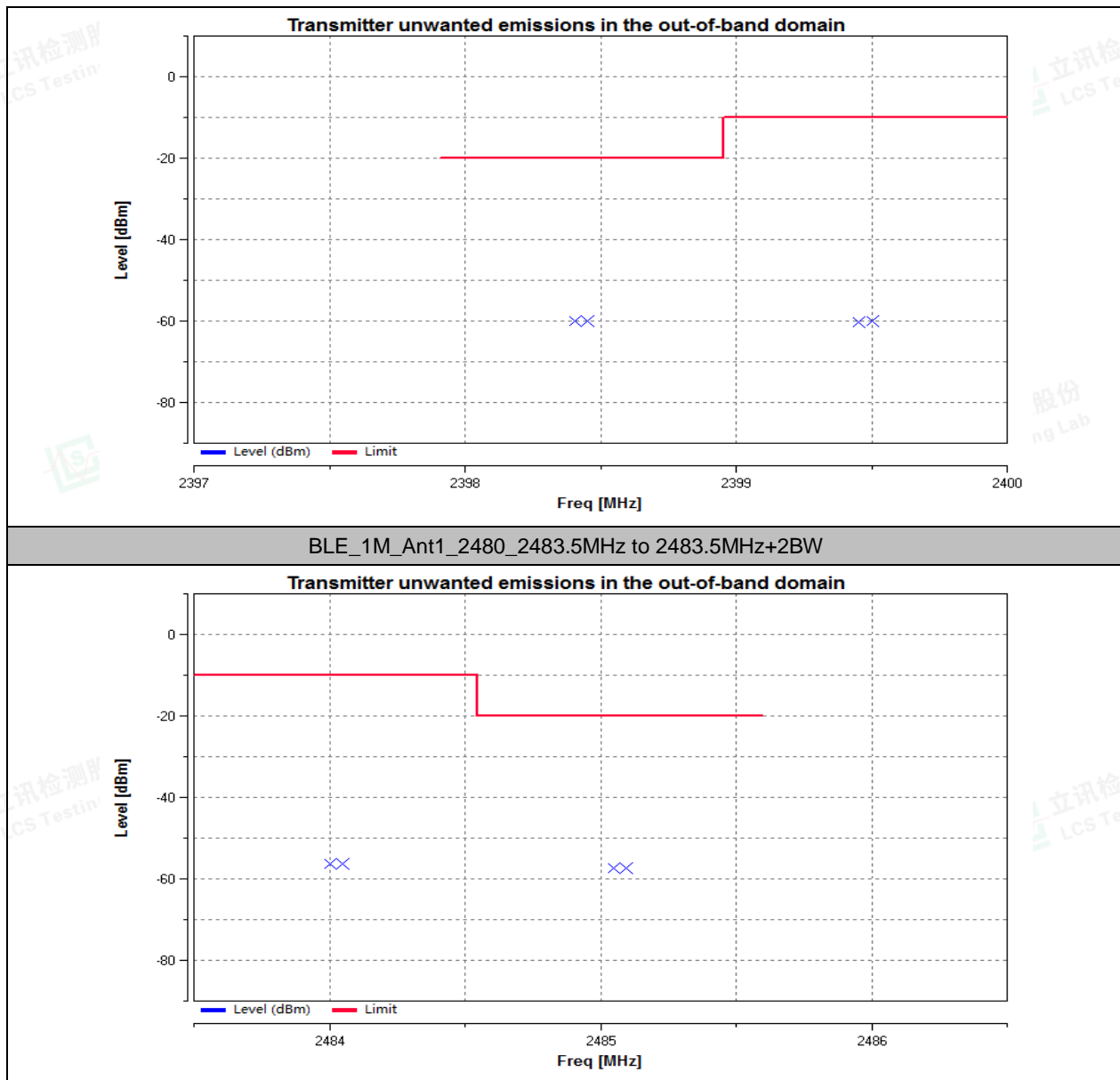


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BT 2LE

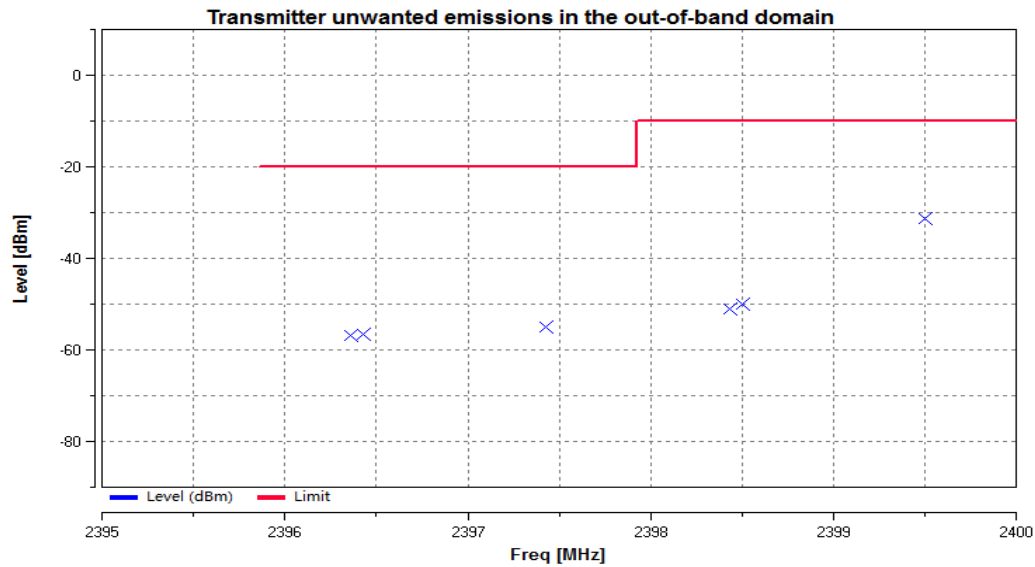
| TestMode | Antenna | Channel | Freq. [MHz] | Level[dBm] | Limit[dBm] | Verdict |
|----------|---------|---------|-------------|------------|------------|---------|
| BLE_2M | Ant3 | 2402 | 2396.3574 | -56.83 | -20.00 | PASS |
| | | | 2396.4287 | -56.66 | -20.00 | PASS |
| | | | 2397.4287 | -54.93 | -20.00 | PASS |
| | | | 2398.4287 | -50.99 | -10.00 | PASS |
| | | | 2398.5 | -50.03 | -10.00 | PASS |
| | | | 2399.5 | -31.40 | -10.00 | PASS |
| | | | 2484 | -60.34 | -10.00 | PASS |
| | | | 2485 | -60.14 | -10.00 | PASS |
| | | | 2485.0713 | -60.11 | -10.00 | PASS |
| | | | 2486.0713 | -59.60 | -20.00 | PASS |
| | | | 2487.0713 | -60.14 | -20.00 | PASS |
| | | | 2487.1426 | -60.07 | -20.00 | PASS |
| | | 2480 | 2396.363 | -60.19 | -20.00 | PASS |
| | | | 2396.4315 | -60.15 | -20.00 | PASS |
| | | | 2397.4315 | -60.33 | -20.00 | PASS |
| | | | 2398.4315 | -60.21 | -10.00 | PASS |
| | | | 2398.5 | -60.30 | -10.00 | PASS |
| | | | 2399.5 | -60.30 | -10.00 | PASS |
| | | | 2484 | -54.53 | -10.00 | PASS |
| | | | 2485 | -57.53 | -10.00 | PASS |
| | | | 2485.0685 | -57.61 | -10.00 | PASS |
| | | | 2486.0685 | -58.67 | -20.00 | PASS |
| | | | 2487.0685 | -59.19 | -20.00 | PASS |
| | | | 2487.137 | -59.17 | -20.00 | PASS |



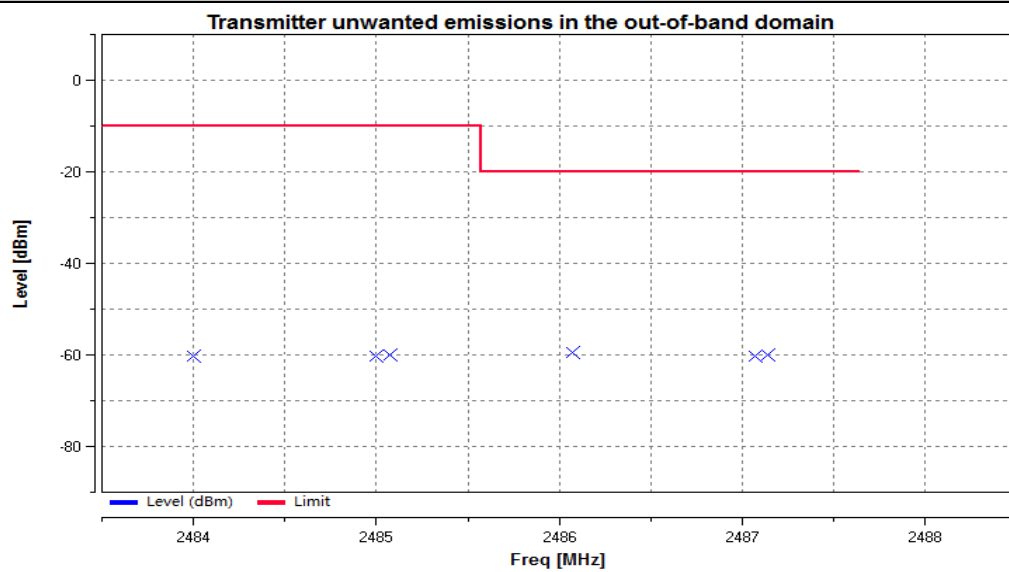


Test Graphs

BLE_2M_Ant3_2402_2400MHz-2BW to 2400MHz



BLE_2M_Ant3_2402_2483.5MHz to 2483.5MHz+2BW



BLE_2M_Ant3_2480_2400MHz-2BW to 2400MHz

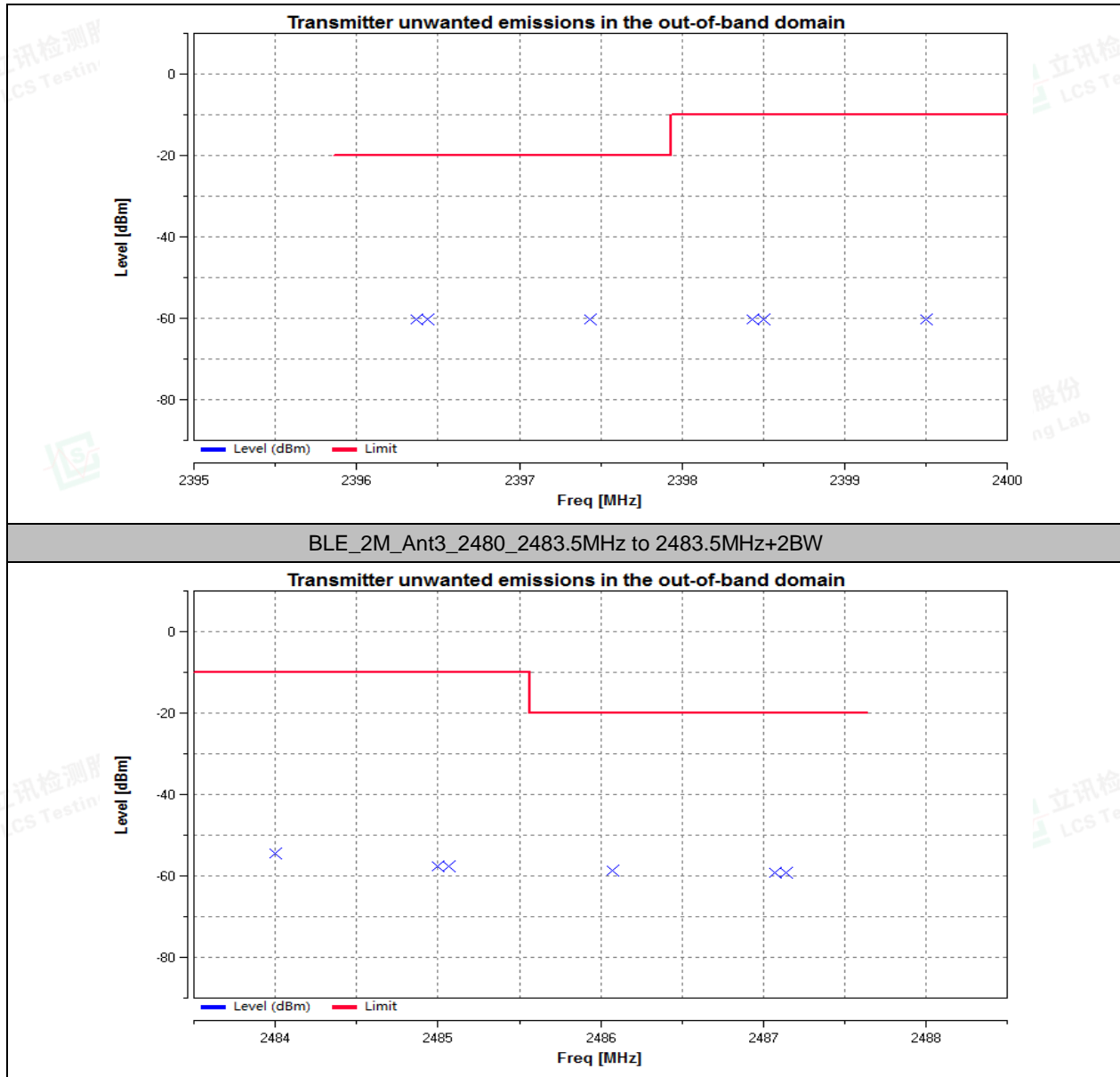


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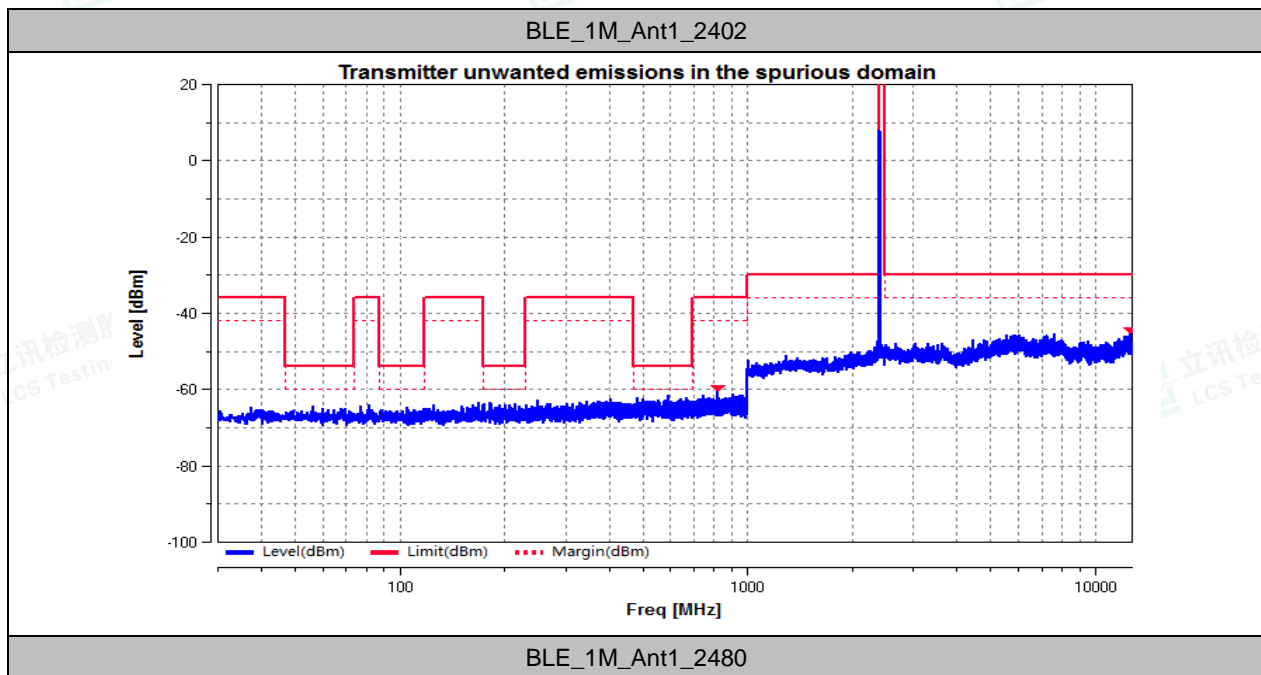
F.5 Transmitter unwanted emissions in the spurious domain

Test Result-Pre-scan

BT LE

| TestMode | Antenna | Channel | Freq. [MHz] | Level[dBm] | Limit[dBm] | Verdict |
|----------|---------|---------|-------------|------------|------------|---------|
| BLE_1M | Ant1 | 2402 | 821.52 | -60.66 | -36 | PASS |
| | | | 12597.25 | -45.45 | -30 | PASS |
| | | 2480 | 898.27 | -60.94 | -36 | PASS |
| | | | 5654.47 | -44.57 | -30 | PASS |

Test Graphs-Pre-scan

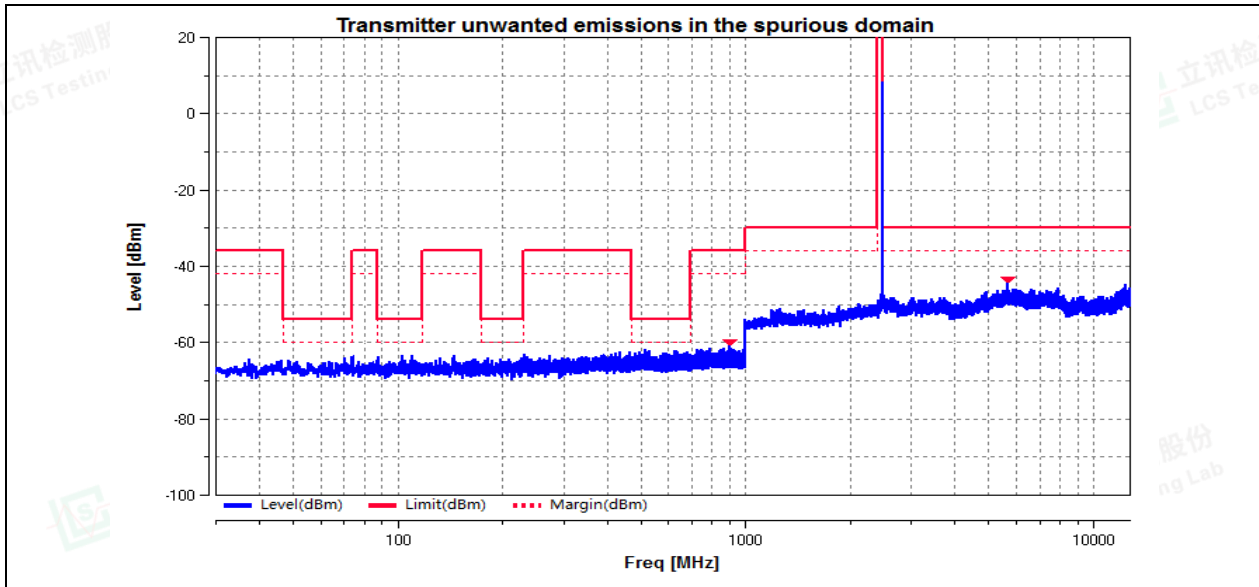


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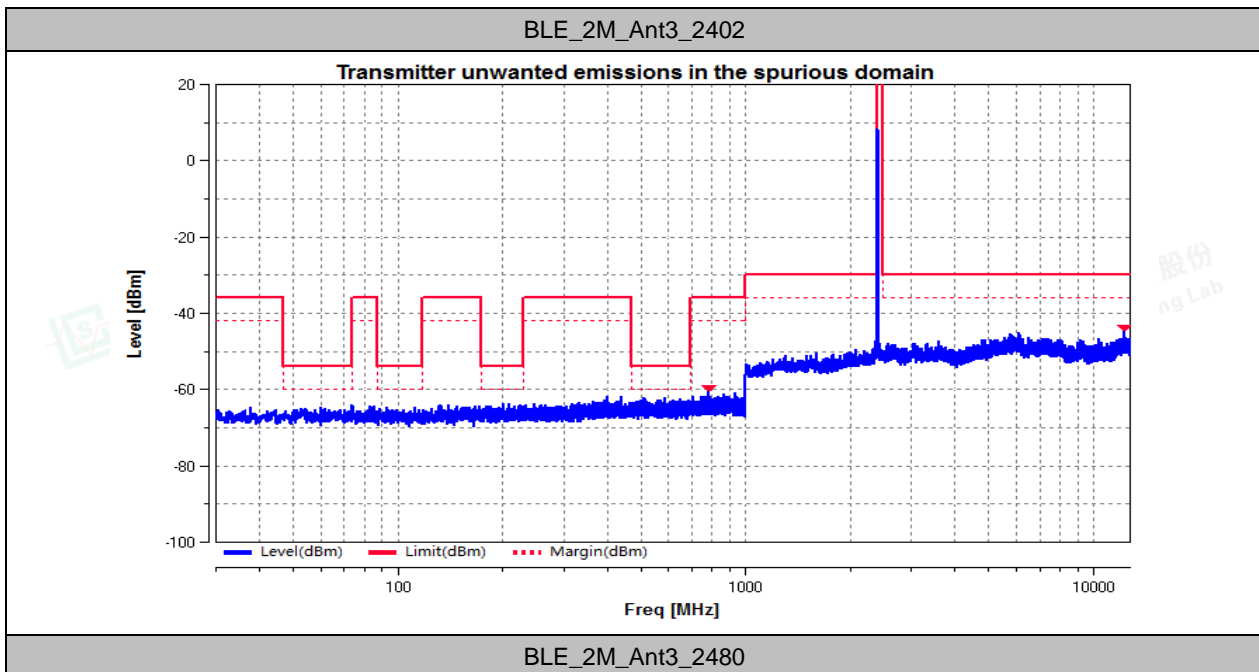
Scan code to check authenticity



BT 2LE

| TestMode | Antenna | Channel | Freq. [MHz] | Level[dBm] | Limit[dBm] | Verdict |
|----------|---------|---------|-------------|------------|------------|---------|
| BLE_2M | Ant3 | 2402 | 786.84 | -60.4 | -36 | PASS |
| | | | 12296.16 | -44.75 | -30 | PASS |
| | | 2480 | 930.89 | -61.11 | -36 | PASS |
| | | | 2487.84 | -43.9 | -30 | PASS |

Test Graphs-Pre-scan

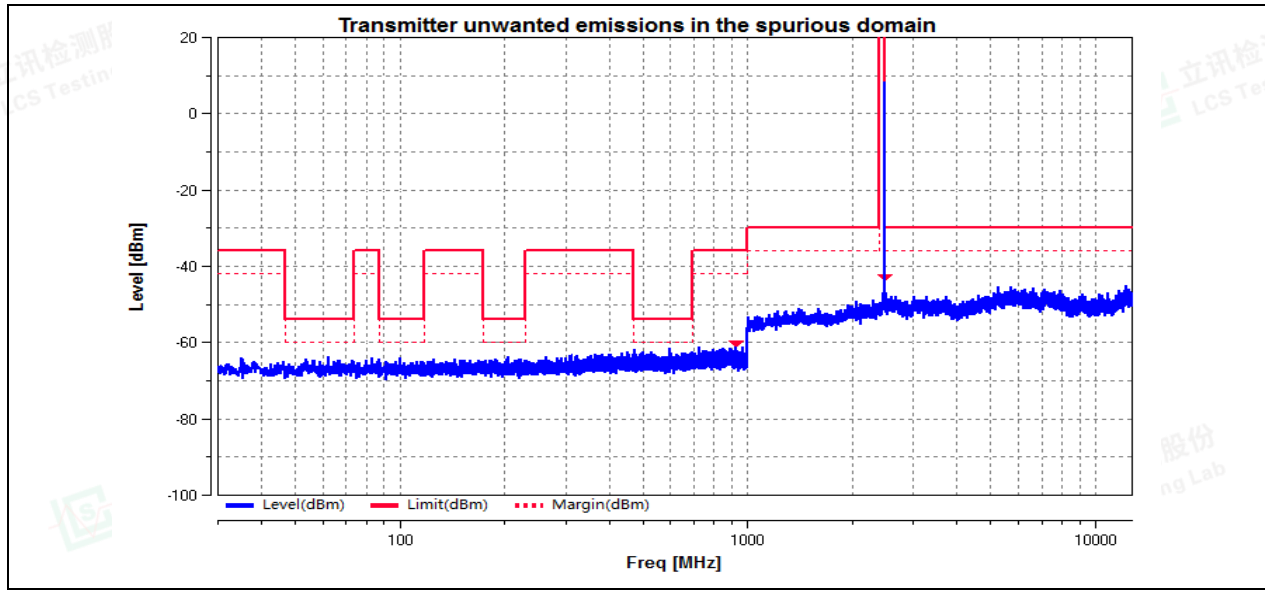


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F.6 Receiver spurious emissions

Test Result-Pre-scan

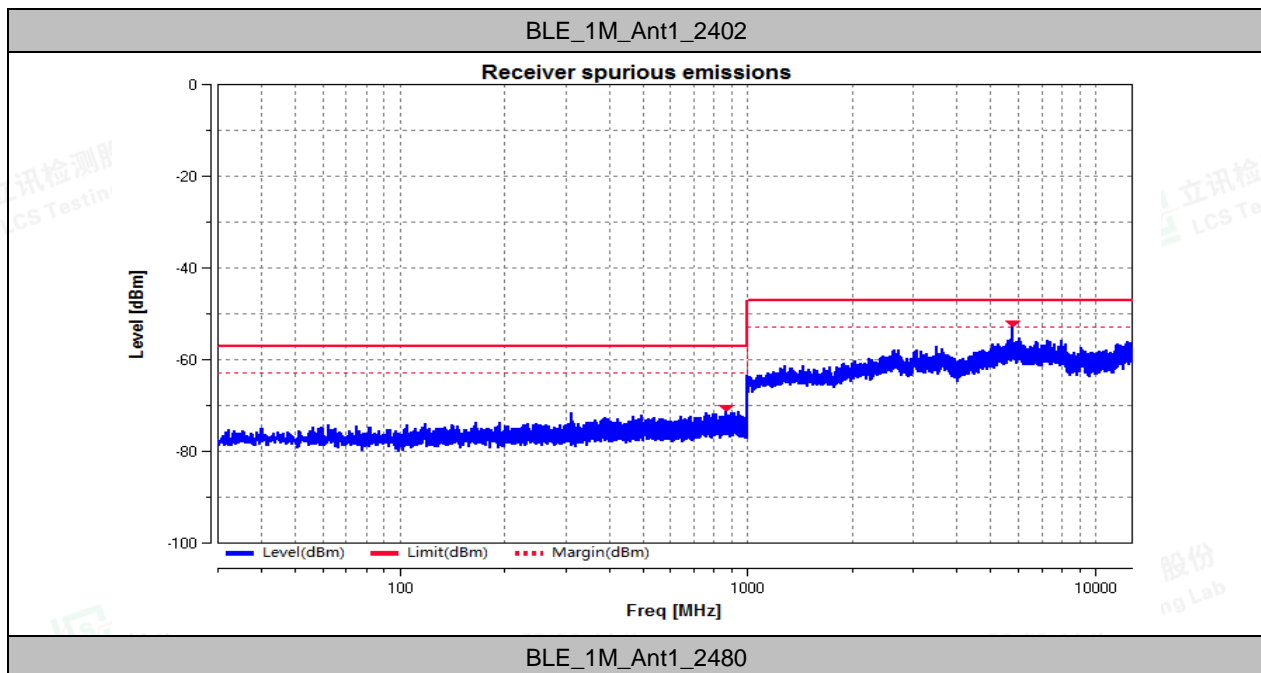
BT LE

| TestMode | Antenna | Channel | Freq. [MHz] | Level[dBm] | Limit[dBm] | Verdict |
|----------|---------|---------|-------------|------------|------------|-----------------|
| BLE_1M | Ant1 | 2402 | 5760.22 | -52.83 | -47 | See table below |
| | | 2480 | 5760.22 | -52.29 | -47 | See table below |

Test Result- Emissions identified during the pre-scan

| TestMode | Antenna | Channel | Freq. [MHz] | Level[dBm] | Limit[dBm] | Verdict |
|----------|---------|---------|-------------|------------|------------|---------|
| BLE_1M | Ant1 | 2402 | 5760.22 | -74.68 | -47 | PASS |
| | | 2480 | 5760.22 | -79.80 | -47 | PASS |

Test Graphs-Pre-scan

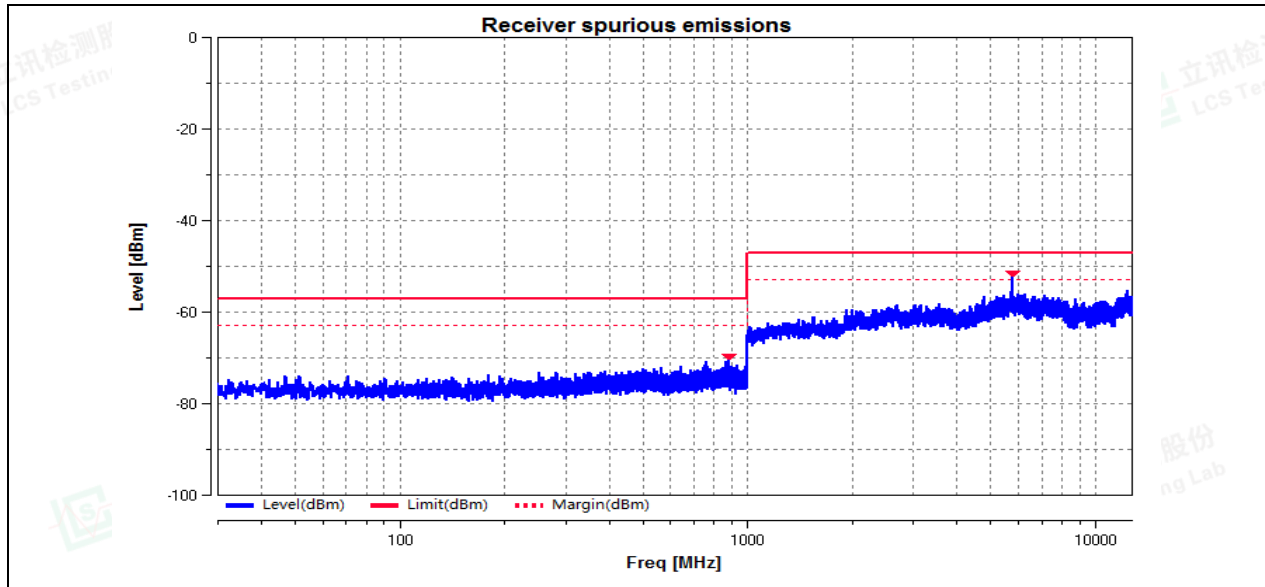


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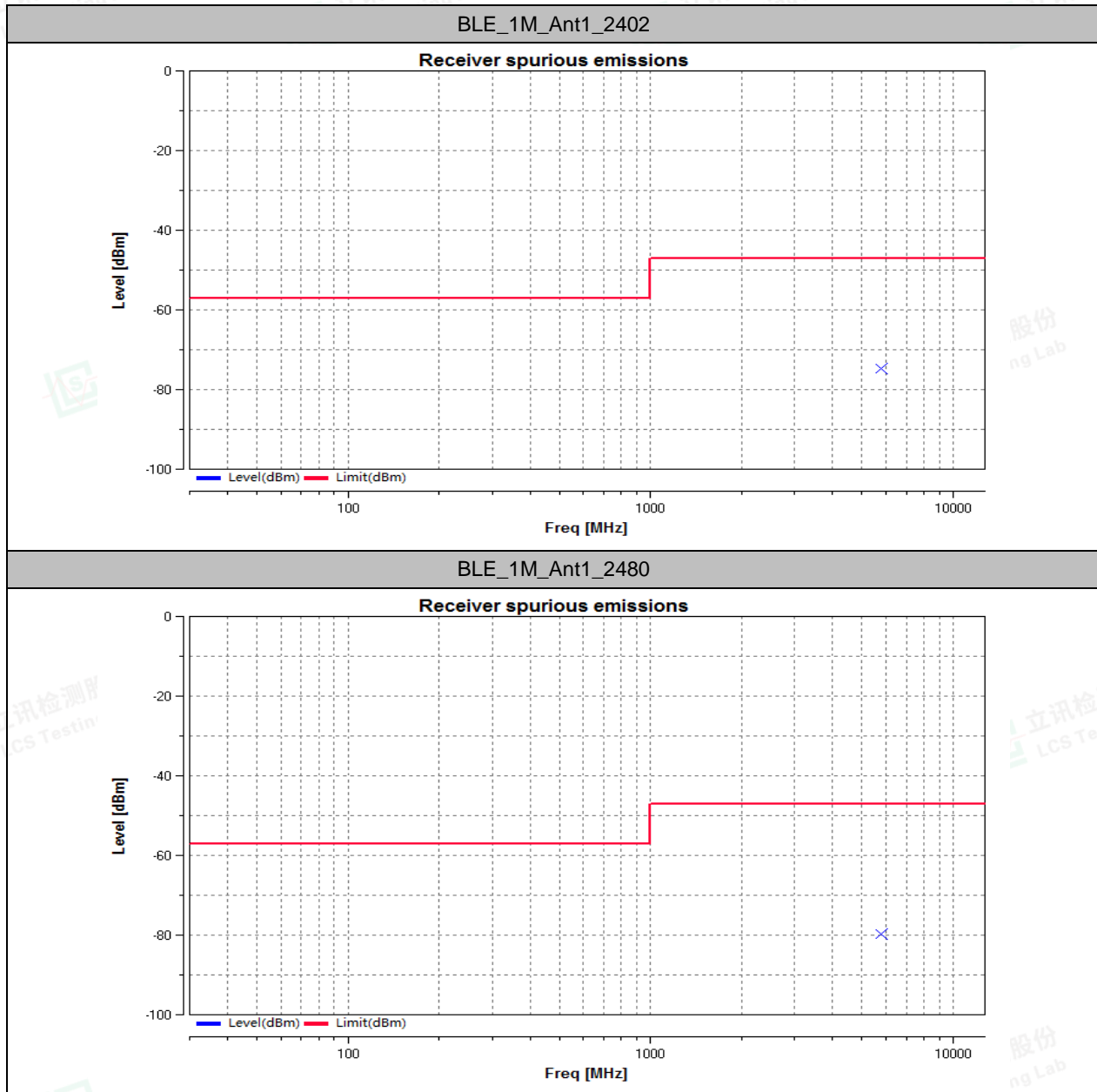
Add: Room 101, 201, Building A and Room 301, Building C, Juji Industrial Park, Yabianxueziwei, Shajing Street, Bao'an District, Shenzhen, Guangdong, China

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Test Graphs- Emissions identified during the pre-scan



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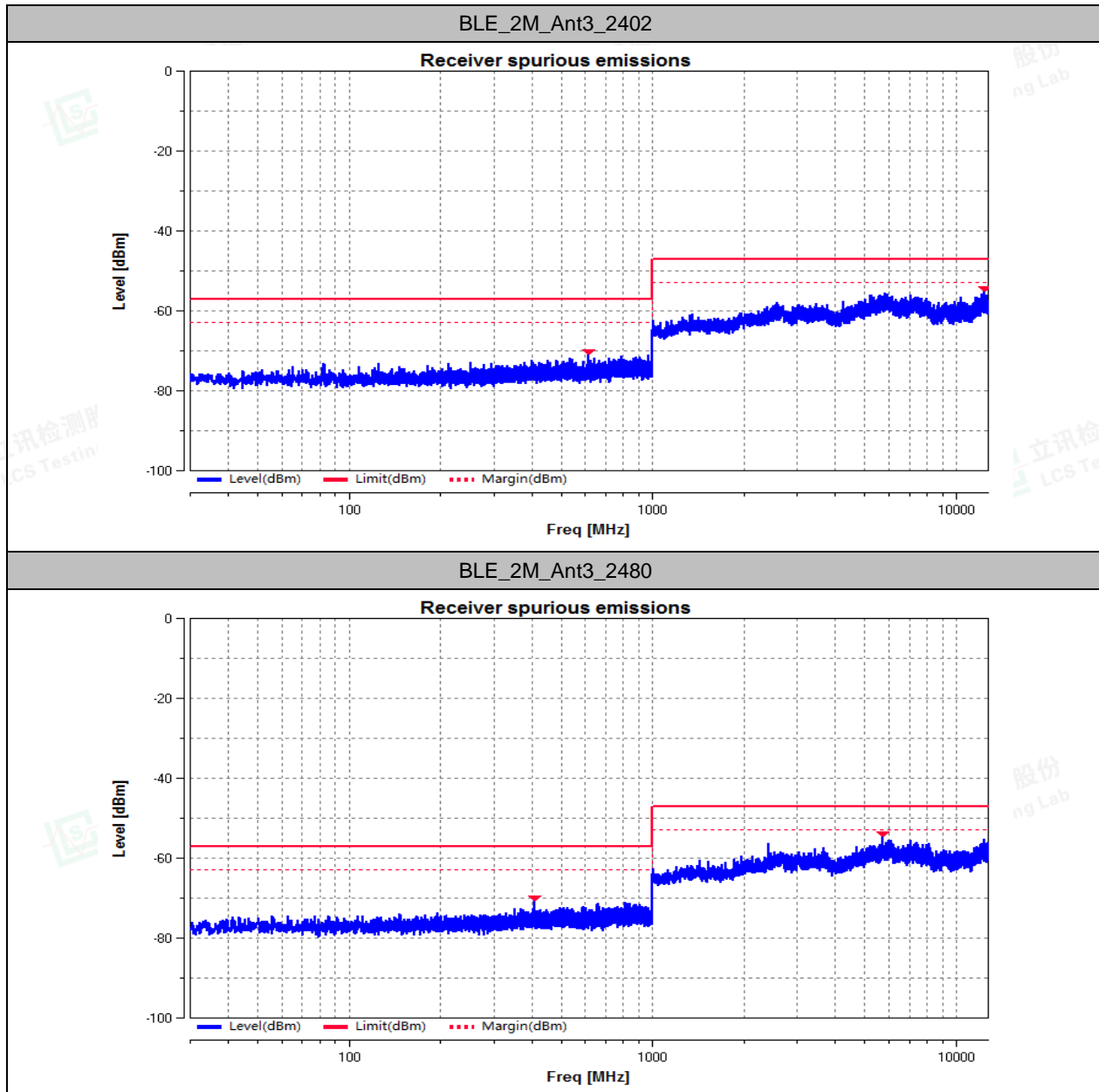
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BT 2LE

| TestMode | Antenna | Channel | Freq. [MHz] | Level[dBm] | Limit[dBm] | Verdict |
|----------|---------|---------|-------------|------------|------------|---------|
| BLE_2M | Ant3 | 2402 | 613.46 | -71.13 | -57.00 | PASS |
| | | | 12360.78 | -55.25 | -47.00 | PASS |
| | | 2480 | 407.57 | -70.84 | -57.00 | PASS |
| | | | 5723.5 | -54.8 | -47.00 | PASS |

Test Graphs-Pre-scan



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F.7 Receiver Blocking

BT LE

| Test Mode | Test Channel (MHz) | Wanted Signal Mean Power from Companion Device (dBm) | Blocking Signal Frequency (MHz) | Blocking Signal Power (dBm) | | Type of Blocking Signal | PER(%) | | Test Result |
|-----------|--------------------|------------------------------------------------------|---------------------------------|-----------------------------|-------|-------------------------|------------|-------|-------------|
| | | | | Test Value | Limit | | Test Value | Limit | |
| BLE | 2402 | -59 | 2380 | -25 | ≥-34 | CW | 6.58 | 10 | Pass |
| | | | 2504 | -33 | ≥-34 | CW | 4.66 | 10 | Pass |
| | | | 2300 | -23 | ≥-34 | CW | 6.97 | 10 | Pass |
| | | | 2584 | -26 | ≥-34 | CW | 6.71 | 10 | Pass |
| | 2480 | -59 | 2380 | -24 | ≥-34 | CW | 5.31 | 10 | Pass |
| | | | 2504 | -24 | ≥-34 | CW | 3.95 | 10 | Pass |
| | | | 2300 | -29 | ≥-34 | CW | 3.32 | 10 | Pass |
| | | | 2584 | -23 | ≥-34 | CW | 6.84 | 10 | Pass |

BT 2LE

| Test Mode | Test Channel (MHz) | Wanted Signal Mean Power from Companion Device (dBm) | Blocking Signal Frequency (MHz) | Blocking Signal Power (dBm) | | Type of Blocking Signal | PER(%) | | Test Result |
|-----------|--------------------|------------------------------------------------------|---------------------------------|-----------------------------|-------|-------------------------|------------|-------|-------------|
| | | | | Test Value | Limit | | Test Value | Limit | |
| BLE | 2402 | -59 | 2380 | -29 | ≥-34 | CW | 6.88 | 10 | Pass |
| | | | 2504 | -30 | ≥-34 | CW | 3.20 | 10 | Pass |
| | | | 2300 | -31 | ≥-34 | CW | 6.50 | 10 | Pass |
| | | | 2584 | -22 | ≥-34 | CW | 6.53 | 10 | Pass |
| | 2480 | -59 | 2380 | -25 | ≥-34 | CW | 4.85 | 10 | Pass |
| | | | 2504 | -33 | ≥-34 | CW | 3.61 | 10 | Pass |
| | | | 2300 | -23 | ≥-34 | CW | 5.05 | 10 | Pass |
| | | | 2584 | -24 | ≥-34 | CW | 4.10 | 10 | Pass |



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