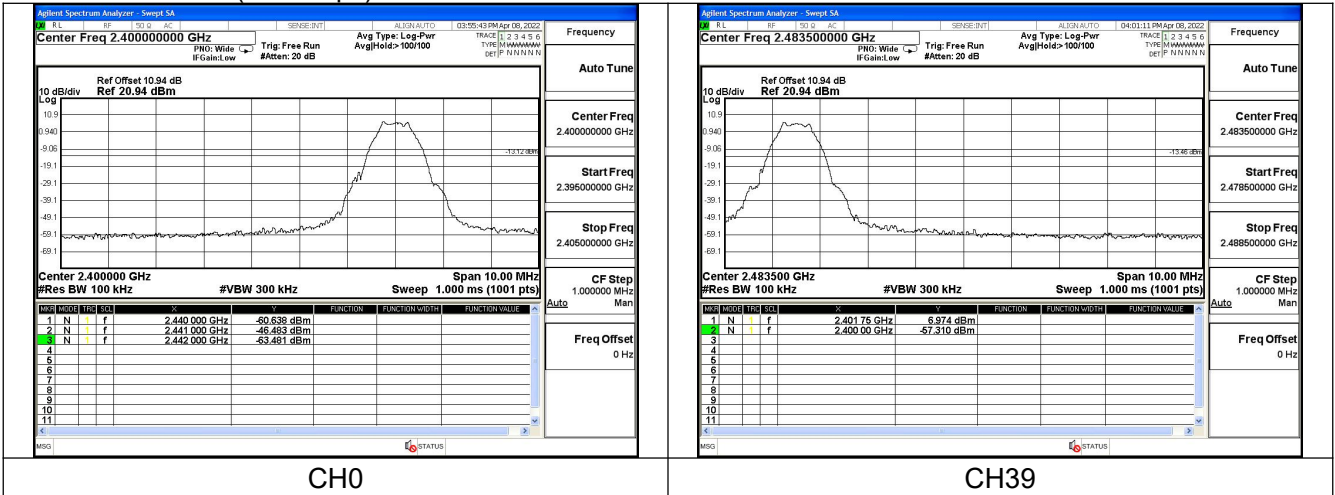
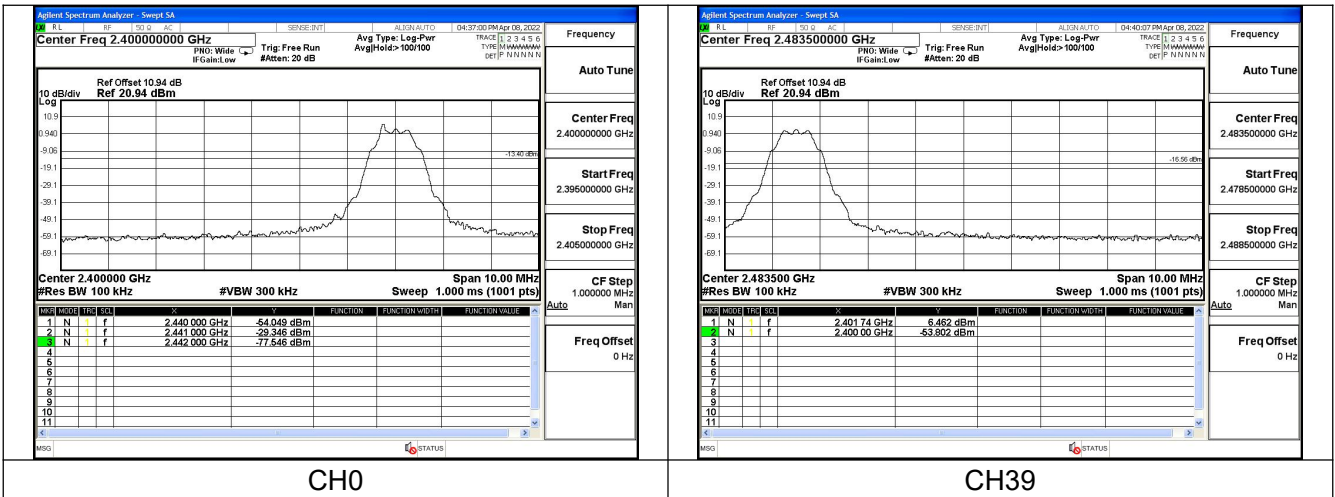


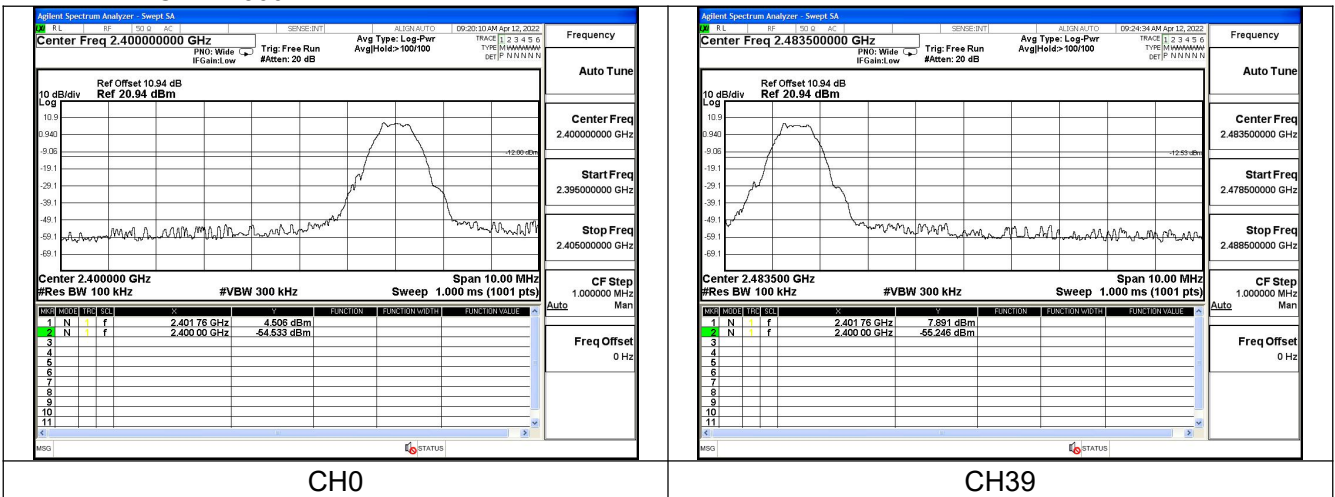
6 Band Edge measurement
Test Mode: GFSK (LE 1Mbps)



Test Mode: Coded 125K



Test Mode: Coded 500K



APPENDIX B – TEST DATA OF RADIATED EMISSION

Radiated Emissions Band Edge-BLE

The measurement results are obtained as described below:

Measure Level = Reading Level + Cable loss + Antenna factor Sample calculation:
(90.20 dBuV/m) = (56.20 dB μ V) + (8.90 dB) + (25.10 dB), the corresponding frequency is 2402MHz.

● LE-1Mbps

Carrier Frequency (MHz): 2402

Channel No.: 0

Test Mode: GFSK (LE-1Mbps)

Detector: Peak

| Frequency (MHz) | Reading Level (dBuV) | Measure Level (dBuV/m) | Over Limit (dB) | Limit (dBuV/m) | Cable Loss (dB) | Antenna Factor (dB) |
|-----------------|----------------------|------------------------|-----------------|----------------|-----------------|---------------------|
| 2402.0 | 56.20 | 90.20 | N/A | N/A | 8.90 | 25.10 |
| 2390.0 | 10.70 | 44.70 | -29.30 | 74.00 | 8.90 | 25.10 |

Detector: Average

| Frequency (MHz) | Reading Level (dBuV) | Measure Level (dBuV/m) | Over Limit (dB) | Limit (dBuV/m) | Cable Loss (dB) | Antenna Factor (dB) |
|-----------------|----------------------|------------------------|-----------------|----------------|-----------------|---------------------|
| 2402.0 | 42.40 | 76.40 | N/A | N/A | 8.90 | 25.10 |
| 2390.0 | -0.50 | 33.50 | -20.50 | 54.00 | 8.90 | 25.10 |

Carrier Frequency (MHz): 2480

Channel No.: 39

Test Mode: GFSK (LE-1Mbps)

Detector: Peak

| Frequency (MHz) | Reading Level (dBuV) | Measure Level (dBuV/m) | Over Limit (dB) | Limit (dBuV/m) | Cable Loss (dB) | Antenna Factor (dB) |
|-----------------|----------------------|------------------------|-----------------|----------------|-----------------|---------------------|
| 2480.0 | 67.70 | 101.70 | N/A | N/A | 8.90 | 25.10 |
| 2483.5 | 17.70 | 51.70 | -22.30 | 74.00 | 8.90 | 25.10 |

Detector: Average

| Frequency (MHz) | Reading Level (dBuV) | Measure Level (dBuV/m) | Over Limit (dB) | Limit (dBuV/m) | Cable Loss (dB) | Antenna Factor (dB) |
|-----------------|----------------------|------------------------|-----------------|----------------|-----------------|---------------------|
| 2480.0 | 40.30 | 74.30 | N/A | N/A | 8.90 | 25.10 |
| 2483.5 | -8.10 | 25.90 | -28.10 | 54.00 | 8.90 | 25.10 |

● **LE-2Mbps**

Carrier Frequency (MHz): 2402

Channel No.: 0

Test Mode: GFSK (LE-2Mbps)

Detector: Peak

| Frequency (MHz) | Reading Level (dBuV) | Measure Level (dBuV/m) | Over Limit (dB) | Limit (dBuV/m) | Cable Loss (dB) | Antenna Factor (dB) |
|-----------------|----------------------|------------------------|-----------------|----------------|-----------------|---------------------|
| 2402.0 | 58.50 | 92.50 | N/A | N/A | 8.90 | 25.10 |
| 2390.0 | 19.20 | 53.20 | -20.80 | 74.00 | 8.90 | 25.10 |

Detector: Average

| Frequency (MHz) | Reading Level (dBuV) | Measure Level (dBuV/m) | Over Limit (dB) | Limit (dBuV/m) | Cable Loss (dB) | Antenna Factor (dB) |
|-----------------|----------------------|------------------------|-----------------|----------------|-----------------|---------------------|
| 2402.0 | 43.30 | 77.30 | N/A | N/A | 8.90 | 25.10 |
| 2390.0 | -9.20 | 24.80 | -29.20 | 54.00 | 8.90 | 25.10 |

Carrier Frequency (MHz): 2480

Channel No.: 39

Test Mode: GFSK (LE-2Mbps)

Detector: Peak

| Frequency (MHz) | Reading Level (dBuV) | Measure Level (dBuV/m) | Over Limit (dB) | Limit (dBuV/m) | Cable Loss (dB) | Antenna Factor (dB) |
|-----------------|----------------------|------------------------|-----------------|----------------|-----------------|---------------------|
| 2480.0 | 60.80 | 94.80 | N/A | N/A | 8.90 | 25.10 |
| 2483.5 | 19.70 | 53.70 | -20.30 | 74.00 | 8.90 | 25.10 |

Detector: Average

| Frequency (MHz) | Reading Level (dBuV) | Measure Level (dBuV/m) | Over Limit (dB) | Limit (dBuV/m) | Cable Loss (dB) | Antenna Factor (dB) |
|-----------------|----------------------|------------------------|-----------------|----------------|-----------------|---------------------|
| 2480.0 | 43.80 | 77.80 | N/A | N/A | 8.90 | 25.10 |
| 2483.5 | -1.50 | 32.50 | -21.50 | 54.00 | 8.90 | 25.10 |

Radiated Emissions Data-BLE

Sample Calculations:

Determining Spurious Emissions Levels

A “reference path loss” is established and the A_{Rpl} is the attenuation of “reference path loss”, and including the gain of receive antenna, the gain of the preamplifier, the cable loss. The measurement results are obtained as described below:

Below 1GHz:

$$\text{QuasiPeak} = \text{Reading Value} + A_{Rpl}$$

Above 1GHz:

MaxPeak=Reading MaxPeak + A_{Rpl}

OR

Average=Reading Average + A_{Rpl}

Sample calculation: (0.60 dB μ V/m) = (24.50 dB μ V) + (-23.90 dB/m), the corresponding frequency is 141.65MHz.

The worst case attitude: The mobile lay down.

Spurious Radiated Emissions below 30MHz:

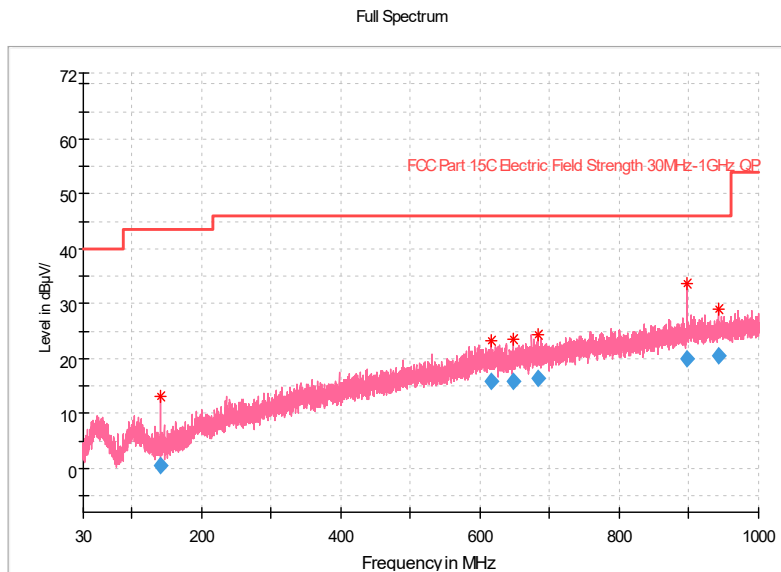
There were no emissions from 9kHz to 30MHz found within 20dB of the limit. Thus, the test result was not reported according to §15.31 (o).

● LE-1Mbps

Spurious Radiated Emissions from 30MHz to 1GHz:

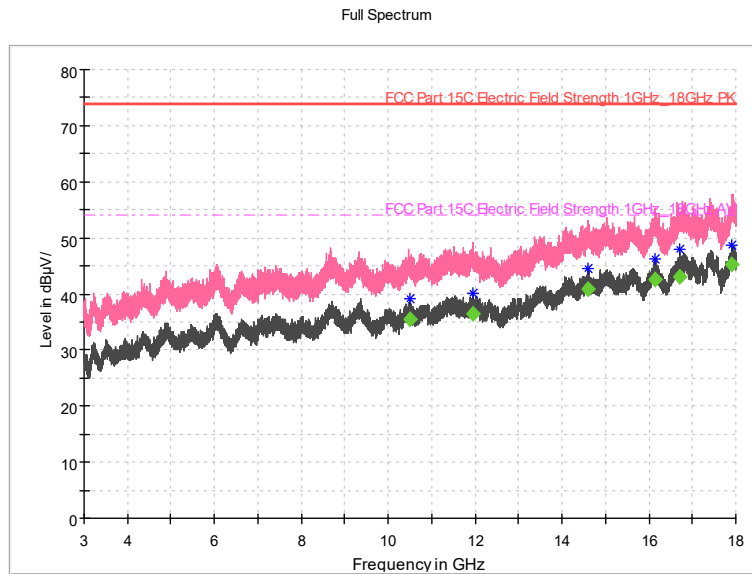
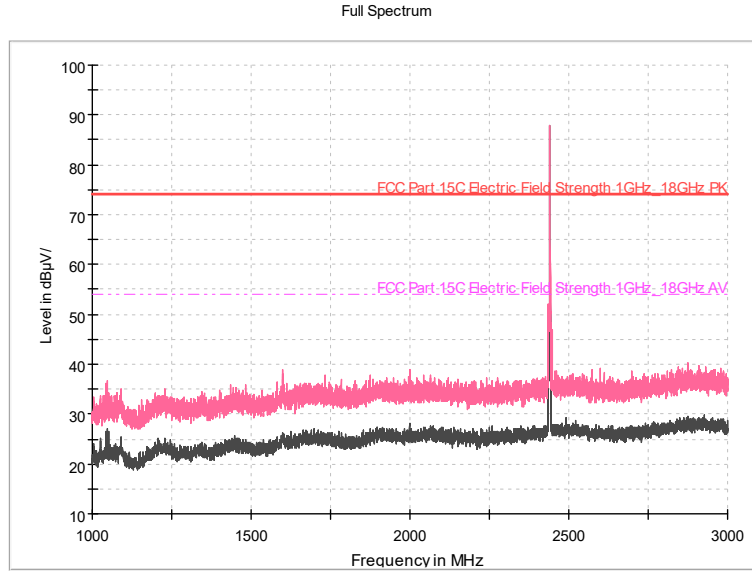
GFSK:

CH Middle (No.19)

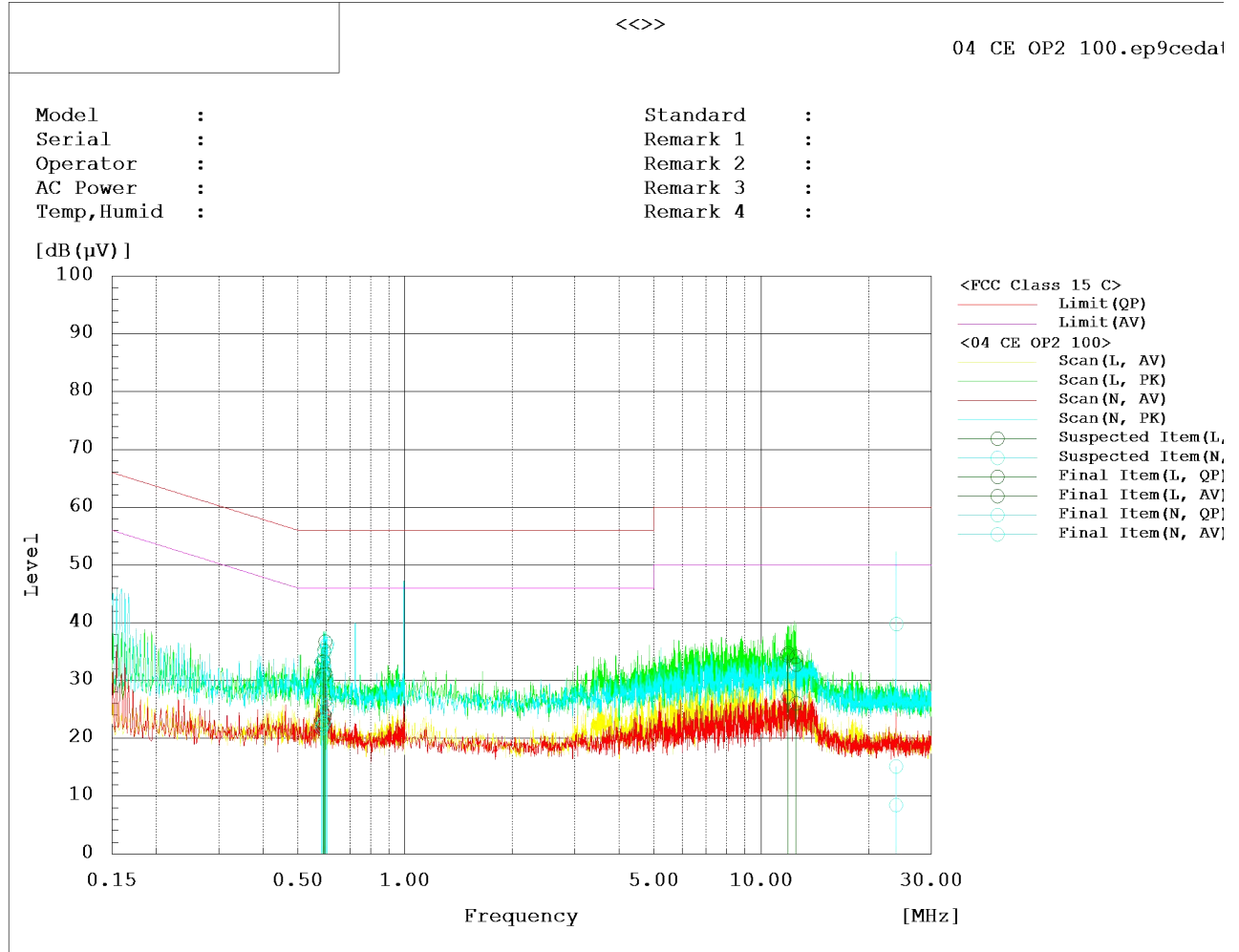


| Frequency (MHz) | Reading (dBuV) | QuasiPeak (dBuV/m) | Limit (dBuV/m) | Margin (dB) | A _{Rpl} (dB) | Polarity |
|-----------------|----------------|--------------------|----------------|-------------|-----------------------|----------|
| 141.65 | 24.50 | 0.60 | 43.50 | 42.90 | -23.90 | Vertical |
| 615.01 | 23.70 | 15.80 | 46.00 | 30.20 | -7.90 | Vertical |
| 647.60 | 23.54 | 15.74 | 46.00 | 30.26 | -7.80 | Vertical |
| 683.59 | 23.56 | 16.36 | 46.00 | 29.64 | -7.20 | Vertical |
| 896.79 | 22.92 | 19.92 | 46.00 | 26.08 | -3.00 | Vertical |
| 941.70 | 22.99 | 20.49 | 46.00 | 25.51 | -2.50 | Vertical |

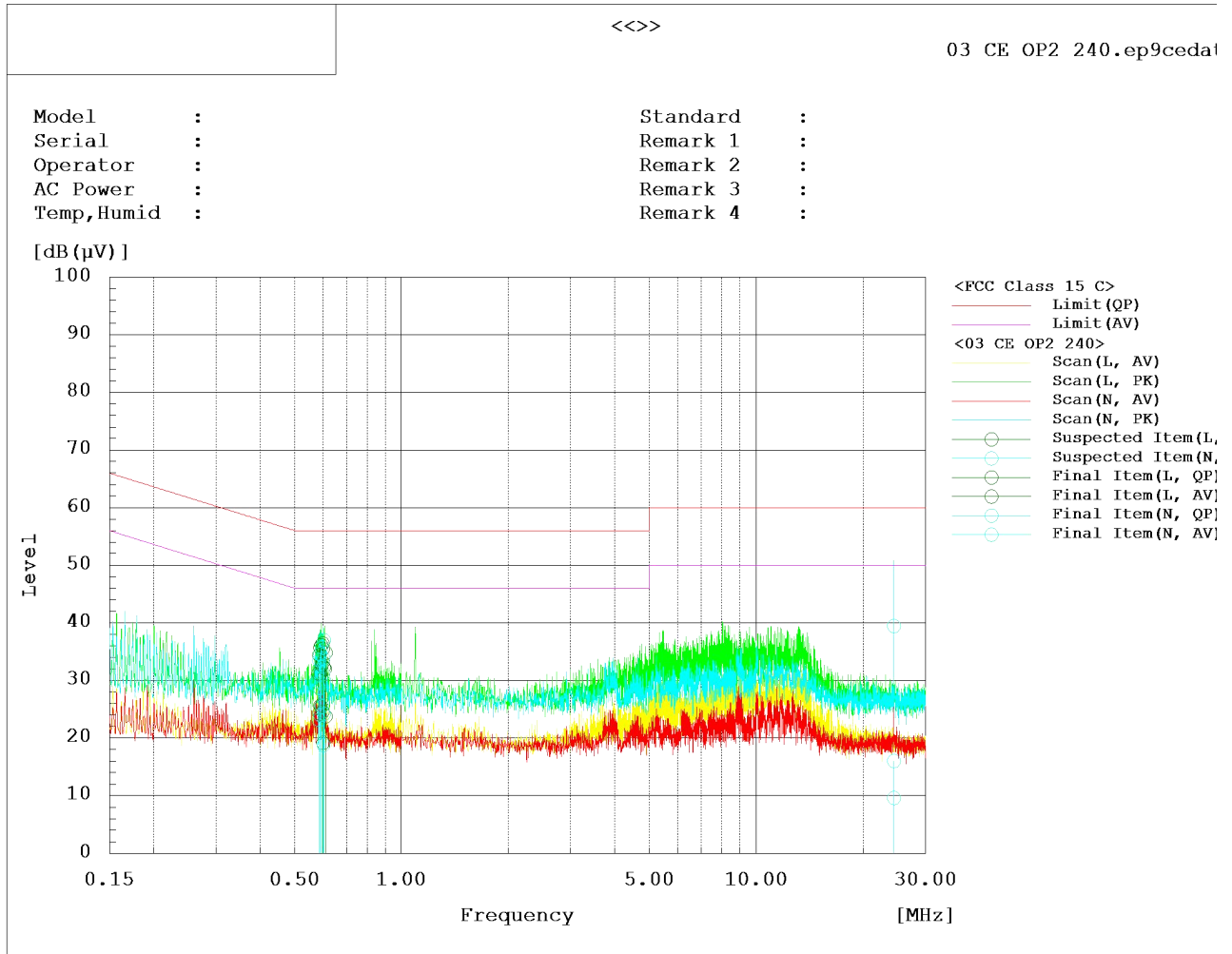
● LE-1Mbps
Spurious Radiated Emissions from 1GHz to 18GHz:
GFSK:
CH Middle (No.19)



| Frequency (MHz) | Reading MaxPeak (dBuV) | Reading Average (dBuV) | MaxPeak (dBuV/m) | Average (dBuV/m) | Limit (dBuV/m) | Margin (dB) | A _{RPI} (dB) | Polarity |
|-----------------|------------------------|------------------------|------------------|------------------|----------------|-------------|-----------------------|----------|
| 10496.50 | --- | 54.19 | --- | 35.39 | 54.00 | 18.61 | -18.80 | Vertical |
| 11937.50 | --- | 53.03 | --- | 36.53 | 54.00 | 17.47 | -16.50 | Vertical |
| 14607.50 | --- | 54.38 | --- | 40.88 | 54.00 | 13.12 | -13.50 | Vertical |
| 16155.00 | --- | 56.70 | --- | 42.60 | 54.00 | 11.40 | -14.10 | Vertical |
| 16693.00 | --- | 55.84 | --- | 43.04 | 54.00 | 10.96 | -12.80 | Vertical |
| 17919.50 | --- | 55.16 | --- | 45.36 | 54.00 | 8.64 | -9.80 | Vertical |



| Range | Frequency MHz | Line | Reading | | | Factor | Level | | | Limit | | | Margin | | | Pass /Fail | Remark | |
|-------|------------------|------|---------|-----|----|--------|-------|--------|----|-------|--------|----|--------|------|------|---------------|--------|----|
| | | | dB(μV) | | | | dB | dB(μV) | | | dB(μV) | | | dB | | | | |
| | | | QP | AV | PK | | | QP | AV | PK | QP | AV | PK | QP | AV | | | PK |
| Band1 | 0.58 | N | 13.1 | 2 | | 19.9 | 33 | 21.9 | | | 56 | 46 | | 23 | 24.1 | Pass | | |
| Band1 | 0.59 | N | 13.6 | 2.4 | | 19.9 | 33.5 | 22.3 | | | 56 | 46 | | 22.5 | 23.7 | Pass | | |
| Band1 | 0.59 | N | 15 | 3 | | 19.9 | 34.9 | 22.9 | | | 56 | 46 | | 21.1 | 23.1 | Pass | | |
| Band1 | 0.6 | N | 16.1 | 5.1 | | 19.9 | 36 | 25 | | | 56 | 46 | | 20 | 21 | Pass | | |
| Band1 | 0.6 | N | 16.5 | 5.8 | | 19.9 | 36.4 | 25.7 | | | 56 | 46 | | 19.6 | 20.3 | Pass | | |
| Band1 | 23.9 | N | -4.8 | -12 | | 20 | 15.2 | 8.5 | | | 60 | 50 | | 44.8 | 41.5 | Pass | | |
| Band1 | 0.58 | L | 13.3 | 3.2 | | 19.9 | 33.2 | 23.1 | | | 56 | 46 | | 22.8 | 22.9 | Pass | | |
| Band1 | 0.59 | L | 15.3 | 4.3 | | 19.9 | 35.2 | 24.2 | | | 56 | 46 | | 20.8 | 21.8 | Pass | | |
| Band1 | 0.59 | L | 13.5 | 2.5 | | 19.9 | 33.4 | 22.4 | | | 56 | 46 | | 22.6 | 23.6 | Pass | | |
| Band1 | 0.6 | L | 16.9 | 6.6 | | 19.9 | 36.8 | 26.5 | | | 56 | 46 | | 19.2 | 19.5 | Pass | | |
| Band1 | 11.9 | L | 14.7 | 7.2 | | 20 | 34.7 | 27.2 | | | 60 | 50 | | 25.3 | 22.8 | Pass | | |
| Band1 | 12.5 | L | 14.3 | 6.2 | | 19.9 | 34.2 | 26.1 | | | 60 | 50 | | 25.8 | 23.9 | Pass | | |



| Range | Frequency MHz | Line | Reading | | | Factor | Level | | | Limit | Limit | | | Margin | | | Pass /Fail | Remark | |
|-------|------------------|------|---------|------|----|--------|-------|--------|----|-------|--------|----|------|--------|----|------|---------------|--------|----|
| | | | dB(μV) | | | | dB | dB(μV) | | | dB(μV) | | | dB | | | | | |
| | | | QP | AV | PK | | | QP | AV | | PK | QP | AV | PK | QP | AV | | | PK |
| Band1 | 0.59 | L | 14.5 | 4.5 | | 19.9 | 34.4 | 24.4 | | 56 | 46 | | 21.6 | 21.6 | | Pass | | | |
| Band1 | 0.59 | L | 15.9 | 5.7 | | 19.9 | 35.8 | 25.6 | | 56 | 46 | | 20.2 | 20.4 | | Pass | | | |
| Band1 | 0.59 | L | 16.3 | 5.7 | | 19.9 | 36.2 | 25.6 | | 56 | 46 | | 19.8 | 20.4 | | Pass | | | |
| Band1 | 0.6 | L | 16.5 | 4.7 | | 19.9 | 36.4 | 24.6 | | 56 | 46 | | 19.6 | 21.4 | | Pass | | | |
| Band1 | 0.6 | L | 15.7 | -0.7 | | 19.9 | 35.6 | 19.2 | | 56 | 46 | | 20.4 | 26.8 | | Pass | | | |
| Band1 | 0.61 | L | 15 | 3.9 | | 19.9 | 34.9 | 23.8 | | 56 | 46 | | 21.1 | 22.2 | | Pass | | | |
| Band1 | 0.59 | N | 13.6 | 3.3 | | 19.9 | 33.5 | 23.2 | | 56 | 46 | | 22.5 | 22.8 | | Pass | | | |
| Band1 | 0.59 | N | 14.7 | 4.1 | | 19.9 | 34.6 | 24 | | 56 | 46 | | 21.4 | 22 | | Pass | | | |
| Band1 | 0.6 | N | 15.8 | 5.6 | | 19.9 | 35.7 | 25.5 | | 56 | 46 | | 20.3 | 20.5 | | Pass | | | |
| Band1 | 0.6 | N | 17.1 | 4.3 | | 19.9 | 37 | 24.2 | | 56 | 46 | | 19 | 21.8 | | Pass | | | |
| Band1 | 0.6 | N | 14 | -1.1 | | 19.9 | 33.9 | 18.8 | | 56 | 46 | | 22.1 | 27.2 | | Pass | | | |
| Band1 | 24.4 | N | -3.9 | -10 | | 20 | 16.1 | 9.6 | | 60 | 50 | | 43.9 | 40.4 | | Pass | | | |

---End of Test Report---