

1. Effective (Isotropic) Radiated Power Output Data

1.1 Test Result

1.1.1 PCS1900_EIRP

| Band: PCS1900 | | | | | | | | |
|---------------|---------|------------|-----------------|-----------------------|------------|------------|---------|---------|
| ENV | Mode | | Frequency (MHz) | Conducted Power (dBm) | Gain (dBi) | EIRP (dBm) | | Verdict |
| | Network | Subset | | | | Result | Limit | |
| NTNV | GSM | GSM | 1850.2 | 30.48 | 2.15 | 32.63 | <=33.01 | Pass |
| | | | 1880 | 30.29 | 2.15 | 32.44 | <=33.01 | Pass |
| | | | 1909.8 | 30.68 | 2.15 | 32.83 | <=33.01 | Pass |
| | EGPRS | 1 TX Slot | 1850.2 | 26.94 | 2.15 | 29.09 | <=33.01 | Pass |
| | | 2 TX Slots | 1850.2 | 26.74 | 2.15 | 28.89 | <=33.01 | Pass |
| | | 3 TX Slots | 1850.2 | 24.51 | 2.15 | 26.66 | <=33.01 | Pass |
| | | 4 TX Slots | 1850.2 | 23.79 | 2.15 | 25.94 | <=33.01 | Pass |
| | | 1 TX Slot | 1880 | 26.59 | 2.15 | 28.74 | <=33.01 | Pass |
| | | 2 TX Slots | 1880 | 26.23 | 2.15 | 28.38 | <=33.01 | Pass |
| | | 3 TX Slots | 1880 | 24.23 | 2.15 | 26.38 | <=33.01 | Pass |
| | | 4 TX Slots | 1880 | 23.47 | 2.15 | 25.62 | <=33.01 | Pass |
| | | 1 TX Slot | 1909.8 | 26.64 | 2.15 | 28.79 | <=33.01 | Pass |
| | | 2 TX Slots | 1909.8 | 26.29 | 2.15 | 28.44 | <=33.01 | Pass |
| | | 3 TX Slots | 1909.8 | 25.03 | 2.15 | 27.18 | <=33.01 | Pass |
| 4 TX Slots | 1909.8 | 23.43 | 2.15 | 25.58 | <=33.01 | Pass | | |

Note1: EIRP=Conducted Power+Antenna Gain

2. Frequency Stability

2.1 Test Result

2.1.1 PCS1900

| Band: PCS1900 | | | | | | | |
|---------------|-----------------|------------|---------------|------------------|-----------------------|-------|---------|
| Network | Frequency (MHz) | Temp. (°C) | Voltage (VDC) | Freq. Error (Hz) | Freq. vs. Rated (ppm) | | Verdict |
| | | | | | Result | Limit | |
| GSM | 1850.2 | 20 | 3.4 | 1.071 | 0.0006 | / | Pass |
| | | | 3.8 | 1.086 | 0.0006 | / | Pass |
| | | | 4.2 | 8.716 | 0.0047 | / | Pass |
| | | -30 | 3.8 | 4.737 | 0.0026 | / | Pass |
| | | -20 | 3.8 | 5.433 | 0.0029 | / | Pass |
| | | -10 | 3.8 | 10.115 | 0.0055 | / | Pass |
| | | 0 | 3.8 | 6.331 | 0.0034 | / | Pass |
| | | 10 | 3.8 | 7.872 | 0.0043 | / | Pass |
| | | 30 | 3.8 | 1.987 | 0.0011 | / | Pass |
| | | 40 | 3.8 | 3.099 | 0.0017 | / | Pass |
| | 50 | 3.8 | 9.852 | 0.0053 | / | Pass | |
| | 1880 | 20 | 3.4 | 10.710 | 0.0057 | / | Pass |
| | | | 3.8 | 6.321 | 0.0034 | / | Pass |
| | | | 4.2 | 10.071 | 0.0054 | / | Pass |
| | | -30 | 3.8 | 9.171 | 0.0049 | / | Pass |
| | | -20 | 3.8 | 6.331 | 0.0034 | / | Pass |
| | | -10 | 3.8 | 8.559 | 0.0046 | / | Pass |
| | | 0 | 3.8 | 0.959 | 0.0005 | / | Pass |
| | | 10 | 3.8 | 9.748 | 0.0052 | / | Pass |
| | | 30 | 3.8 | 9.577 | 0.0051 | / | Pass |
| | | 40 | 3.8 | 5.894 | 0.0031 | / | Pass |
| | 50 | 3.8 | 9.986 | 0.0053 | / | Pass | |
| | 1909.8 | 20 | 3.4 | 13.450 | 0.0070 | / | Pass |
| | | | 3.8 | 8.028 | 0.0042 | / | Pass |
| | | | 4.2 | 9.586 | 0.0050 | / | Pass |
| | | -30 | 3.8 | 6.144 | 0.0032 | / | Pass |
| | | -20 | 3.8 | 9.979 | 0.0052 | / | Pass |
| | | -10 | 3.8 | 12.598 | 0.0066 | / | Pass |
| | | 0 | 3.8 | 9.232 | 0.0048 | / | Pass |
| | | 10 | 3.8 | 9.500 | 0.0050 | / | Pass |
| 30 | | 3.8 | 12.700 | 0.0066 | / | Pass | |
| 40 | | 3.8 | 6.932 | 0.0036 | / | Pass | |
| 50 | 3.8 | 5.132 | 0.0027 | / | Pass | | |
| EGPRS | 1850.2 | 20 | 3.4 | 26.758 | 0.0145 | / | Pass |
| | | | 3.8 | 26.854 | 0.0145 | / | Pass |
| | | | 4.2 | 29.146 | 0.0158 | / | Pass |
| | | -30 | 3.8 | 23.416 | 0.0127 | / | Pass |
| | | -20 | 3.8 | 23.263 | 0.0126 | / | Pass |
| | | -10 | 3.8 | 27.600 | 0.0149 | / | Pass |
| | | 0 | 3.8 | 26.280 | 0.0142 | / | Pass |
| | | 10 | 3.8 | 23.196 | 0.0125 | / | Pass |
| | | 30 | 3.8 | 23.136 | 0.0125 | / | Pass |
| | | 40 | 3.8 | 22.042 | 0.0119 | / | Pass |
| | 50 | 3.8 | 21.397 | 0.0116 | / | Pass | |
| | 1880 | 20 | 3.4 | 26.616 | 0.0142 | / | Pass |
| | | | 3.8 | 22.964 | 0.0122 | / | Pass |
| | | | 4.2 | 23.300 | 0.0124 | / | Pass |
| | | -30 | 3.8 | 20.802 | 0.0111 | / | Pass |

| | | | | | | | |
|--|--------|-----|--------|--------|--------|------|------|
| | | -20 | 3.8 | 26.569 | 0.0141 | / | Pass |
| | | -10 | 3.8 | 29.510 | 0.0157 | / | Pass |
| | | 0 | 3.8 | 28.188 | 0.0150 | / | Pass |
| | | 10 | 3.8 | 26.866 | 0.0143 | / | Pass |
| | | 30 | 3.8 | 20.778 | 0.0111 | / | Pass |
| | | 40 | 3.8 | 28.676 | 0.0153 | / | Pass |
| | 50 | 3.8 | 22.386 | 0.0119 | / | Pass | |
| | 1909.8 | 20 | 3.4 | 25.996 | 0.0136 | / | Pass |
| | | | 3.8 | 27.514 | 0.0144 | / | Pass |
| | | | 4.2 | 23.797 | 0.0125 | / | Pass |
| | | -30 | 3.8 | 27.824 | 0.0146 | / | Pass |
| | | -20 | 3.8 | 28.413 | 0.0149 | / | Pass |
| | | -10 | 3.8 | 24.146 | 0.0126 | / | Pass |
| | | 0 | 3.8 | 27.404 | 0.0143 | / | Pass |
| | | 10 | 3.8 | 29.732 | 0.0156 | / | Pass |
| | | 30 | 3.8 | 26.601 | 0.0139 | / | Pass |
| | | 40 | 3.8 | 20.776 | 0.0109 | / | Pass |
| | | 50 | 3.8 | 27.263 | 0.0143 | / | Pass |

3. 99% & 26dB Bandwidth

3.1 Test Result

3.1.1 PCS1900_OBW

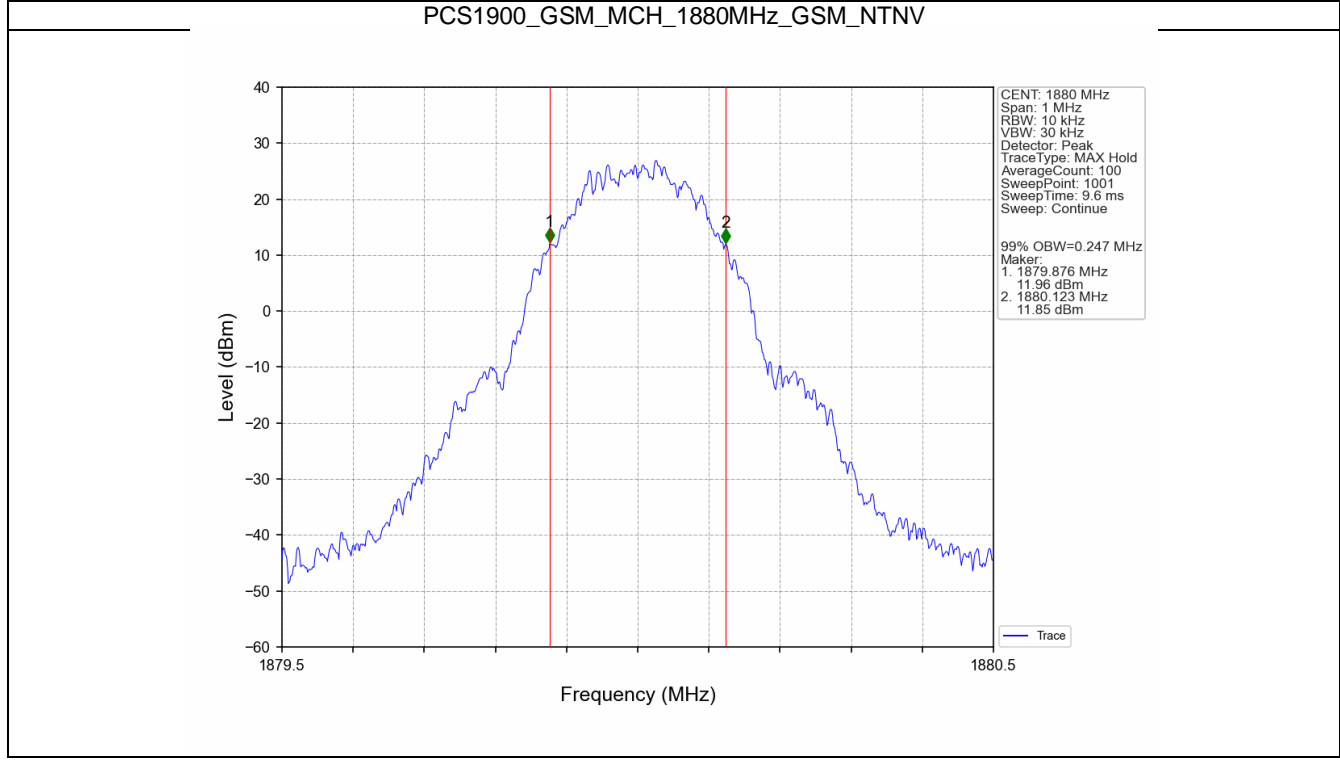
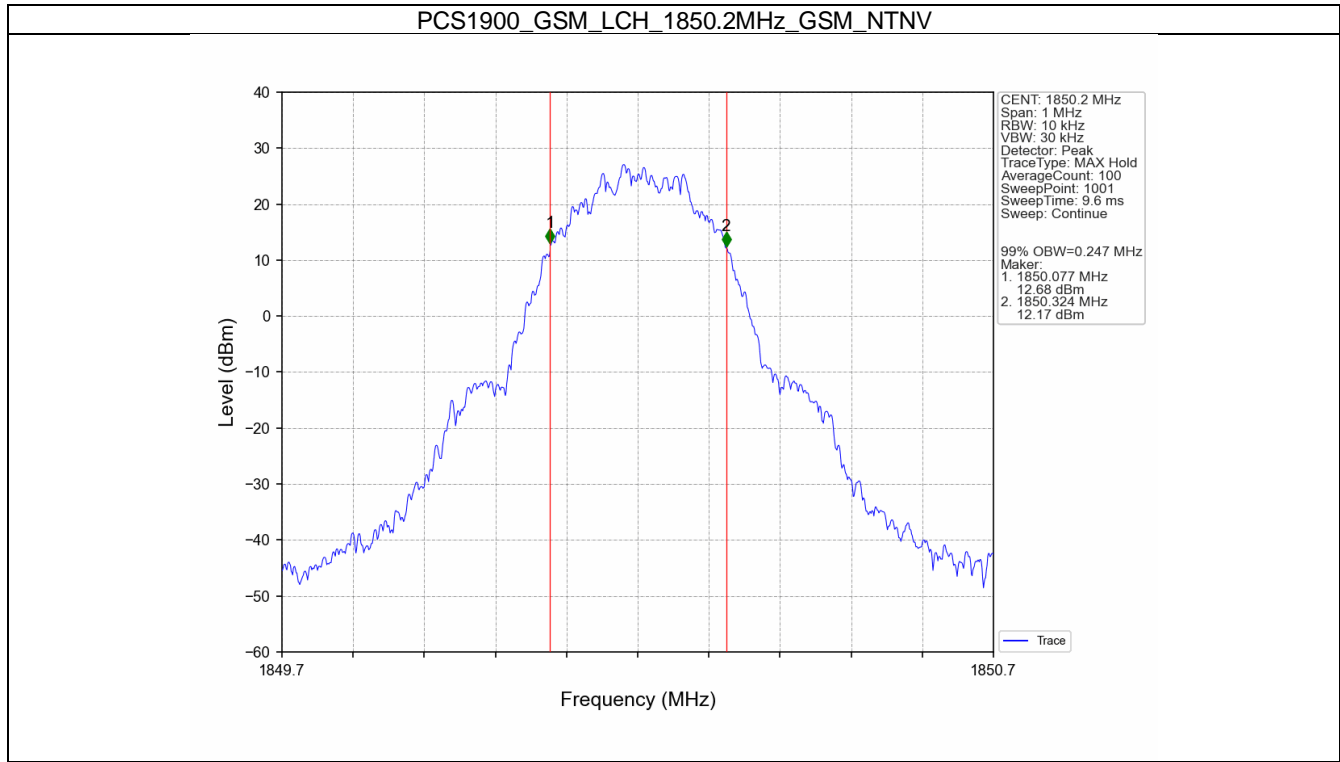
| Band: PCS1900 | | | | | | |
|---------------|---------|-----------|-----------------|------------------------------|-------|---------|
| ENV | Mode | | Frequency (MHz) | 99% Occupied Bandwidth (MHz) | | Verdict |
| | Network | Subset | | Result | Limit | |
| NTNV | GSM | GSM | 1850.2 | 0.247 | / | Pass |
| | | | 1880 | 0.247 | / | Pass |
| | | | 1909.8 | 0.244 | / | Pass |
| | EGPRS | 1 TX Slot | 1850.2 | 0.240 | / | Pass |
| | | | 1880 | 0.246 | / | Pass |
| | | | 1909.8 | 0.248 | / | Pass |

3.1.2 PCS1900_XDB

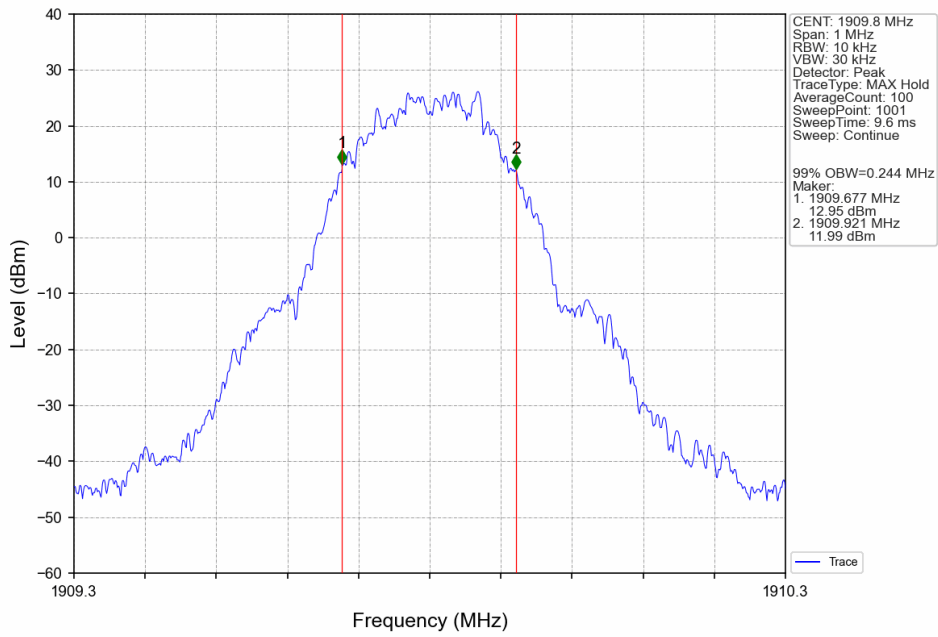
| Band: PCS1900 | | | | | | |
|---------------|---------|-----------|-----------------|----------------------|-------|---------|
| ENV | Mode | | Frequency (MHz) | 26dB Bandwidth (MHz) | | Verdict |
| | Network | Subset | | Result | Limit | |
| NTNV | GSM | GSM | 1850.2 | 0.314 | / | Pass |
| | | | 1880 | 0.317 | / | Pass |
| | | | 1909.8 | 0.319 | / | Pass |
| | EGPRS | 1 TX Slot | 1850.2 | 0.305 | / | Pass |
| | | | 1880 | 0.319 | / | Pass |
| | | | 1909.8 | 0.316 | / | Pass |

3.2 Test Graph

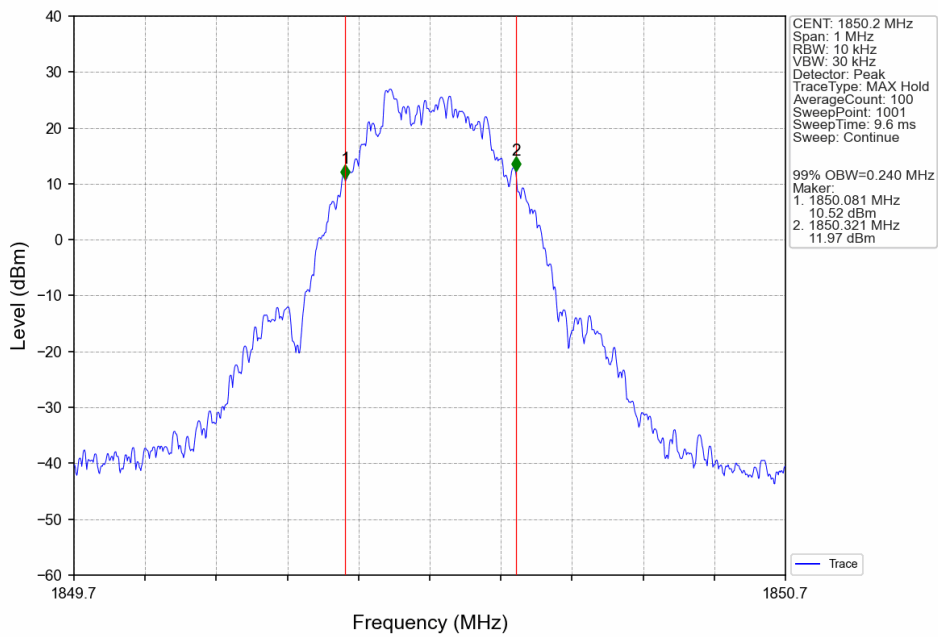
3.2.1 PCS1900_OBW



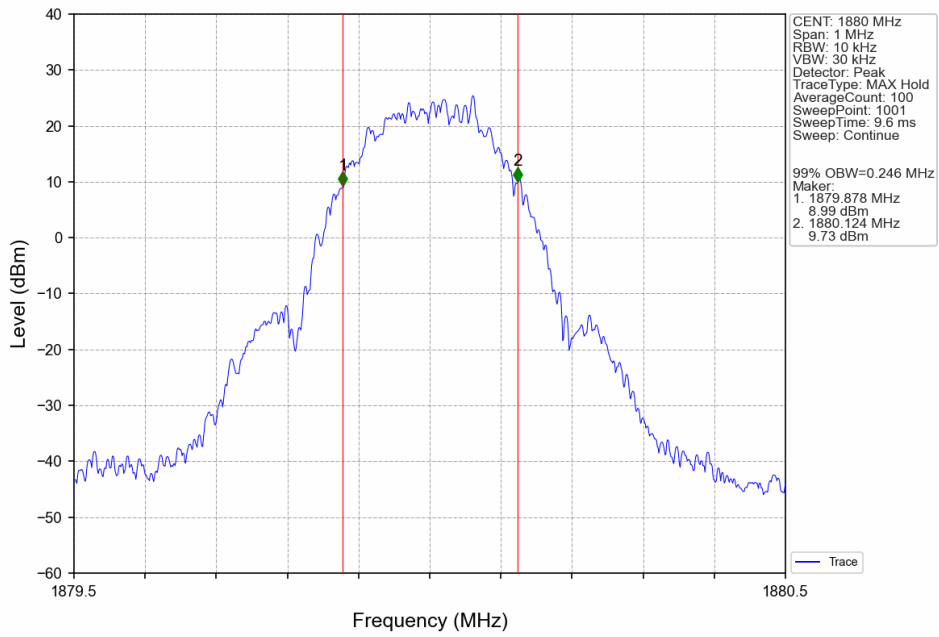
PCS1900_GSM_HCH_1909.8MHz_GSM_NTNV



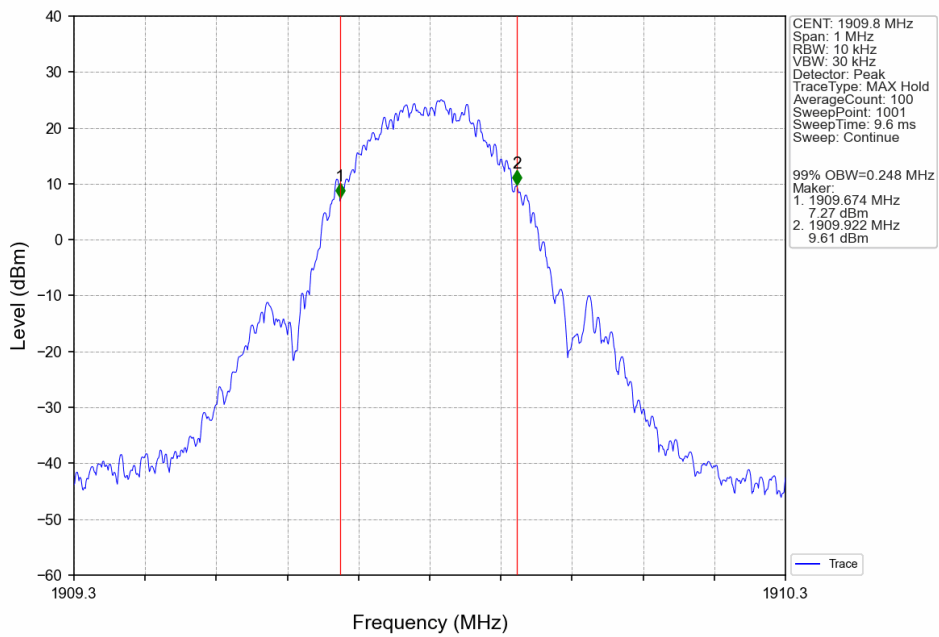
PCS1900_EGPRS_LCH_1850.2MHz_1 TX Slot_NTNV



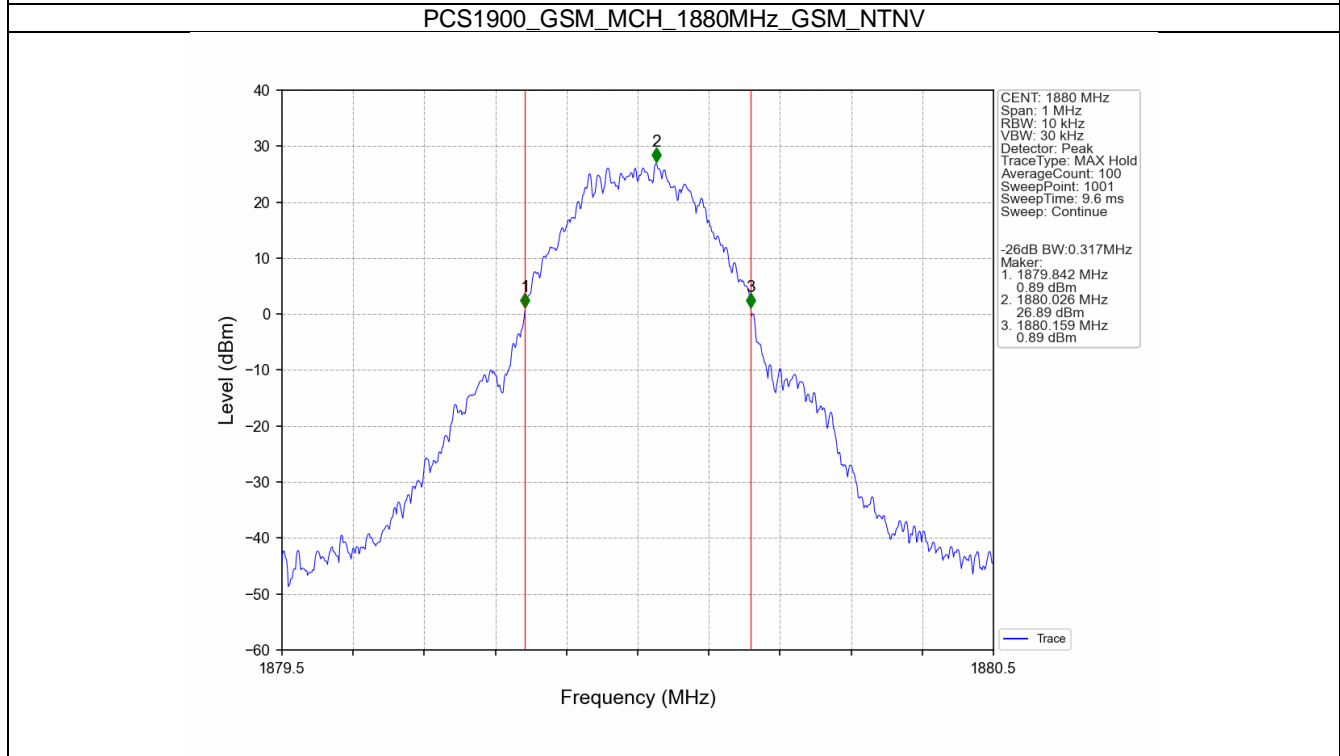
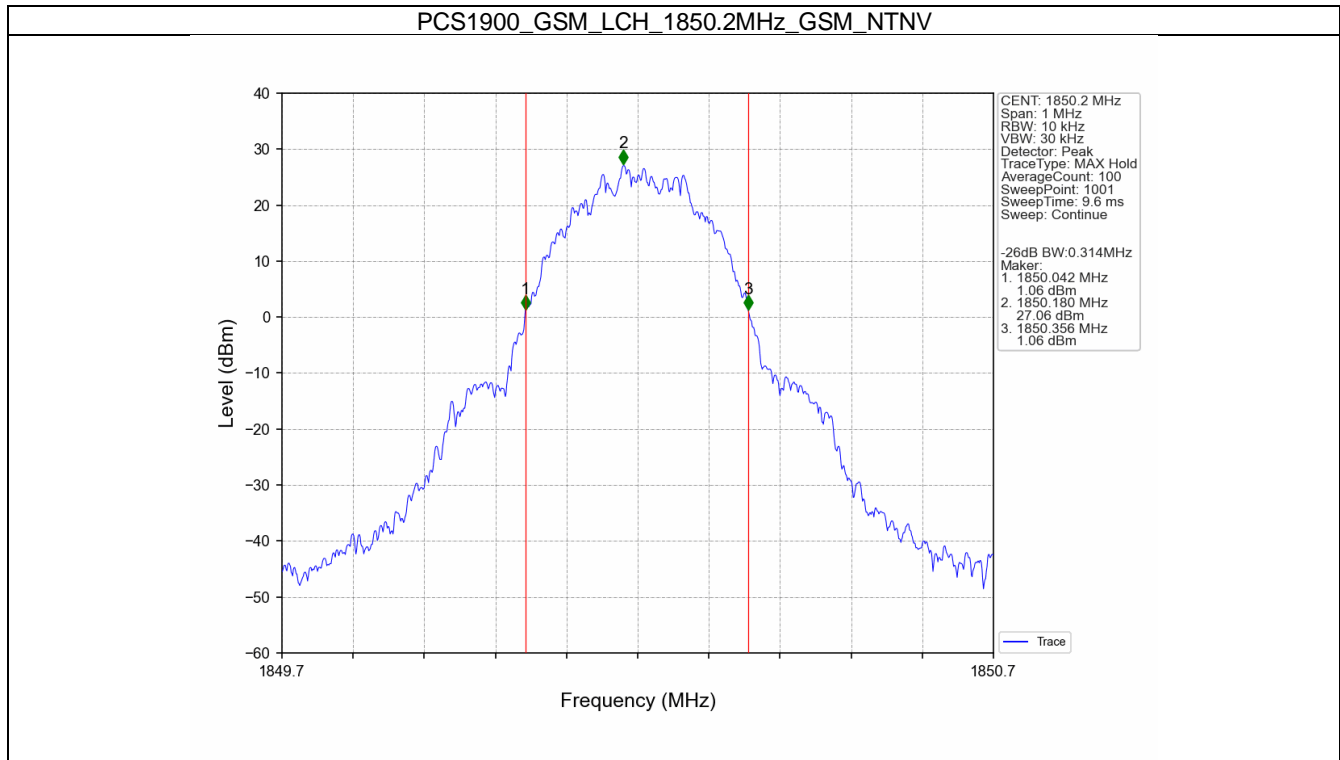
PCS1900_EGPRS_MCH_1880MHz_1 TX Slot_NTNV



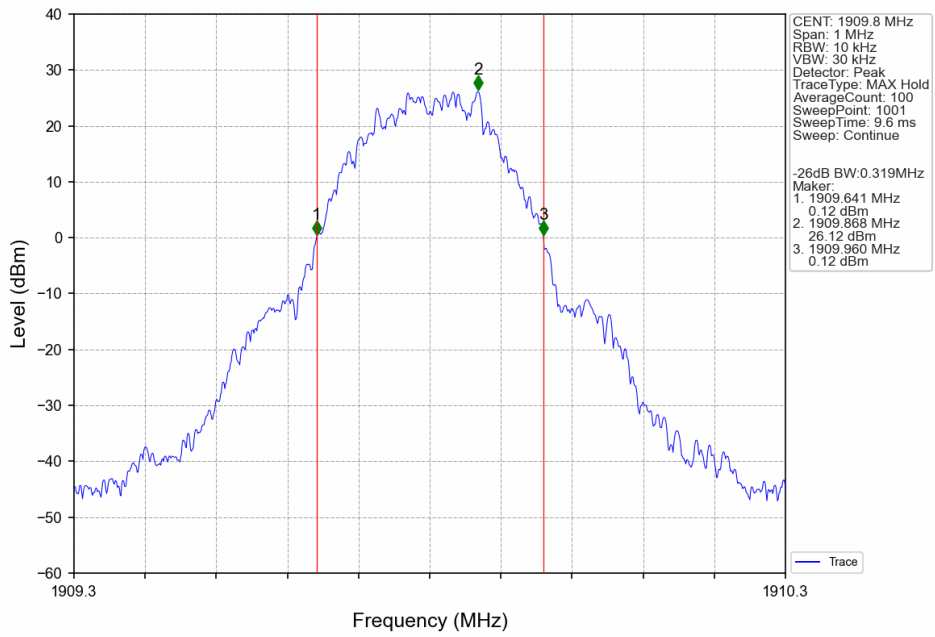
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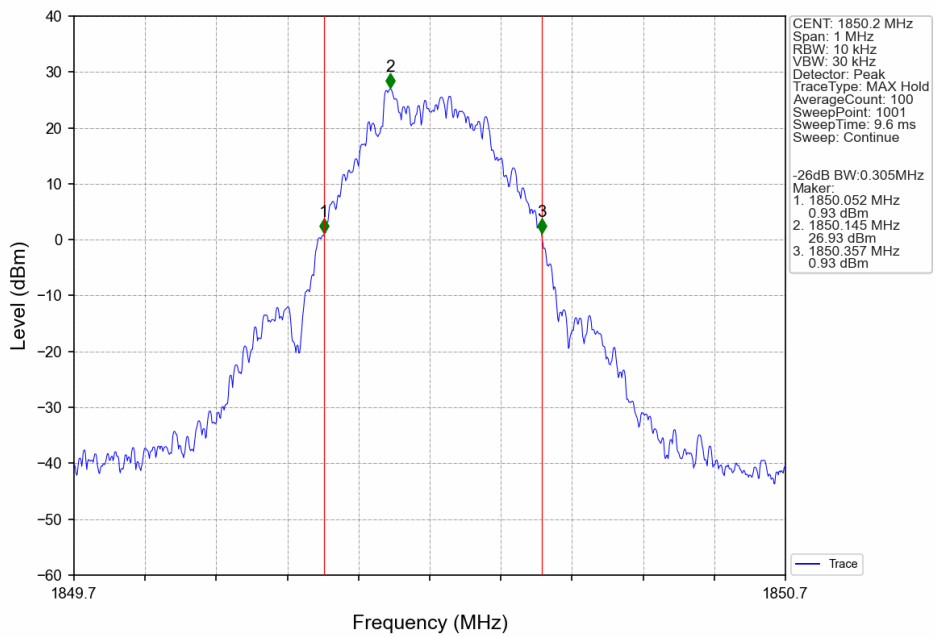
3.2.2 PCS1900_XDB



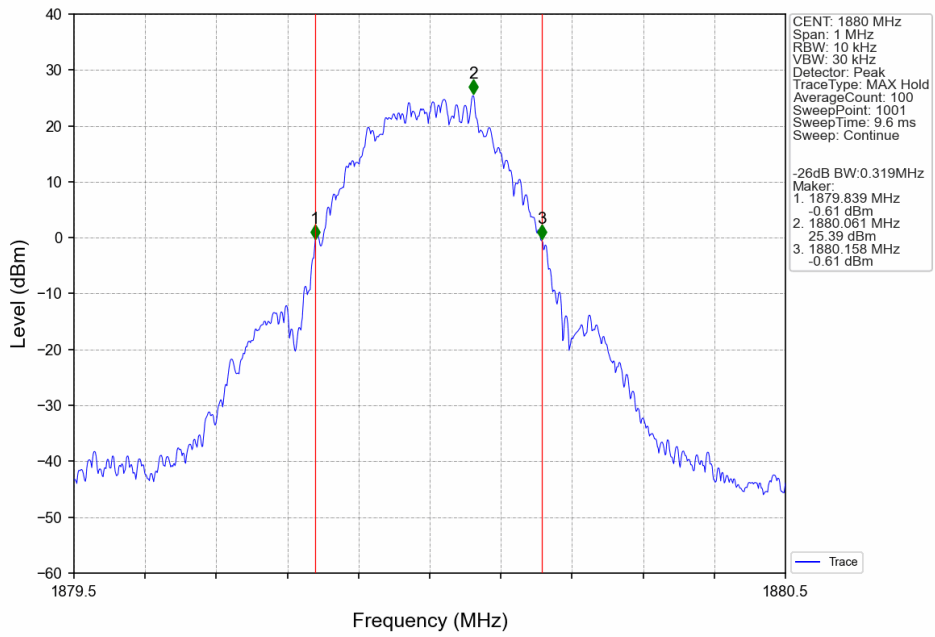
PCS1900_GSM_HCH_1909.8MHz_GSM_NTNV



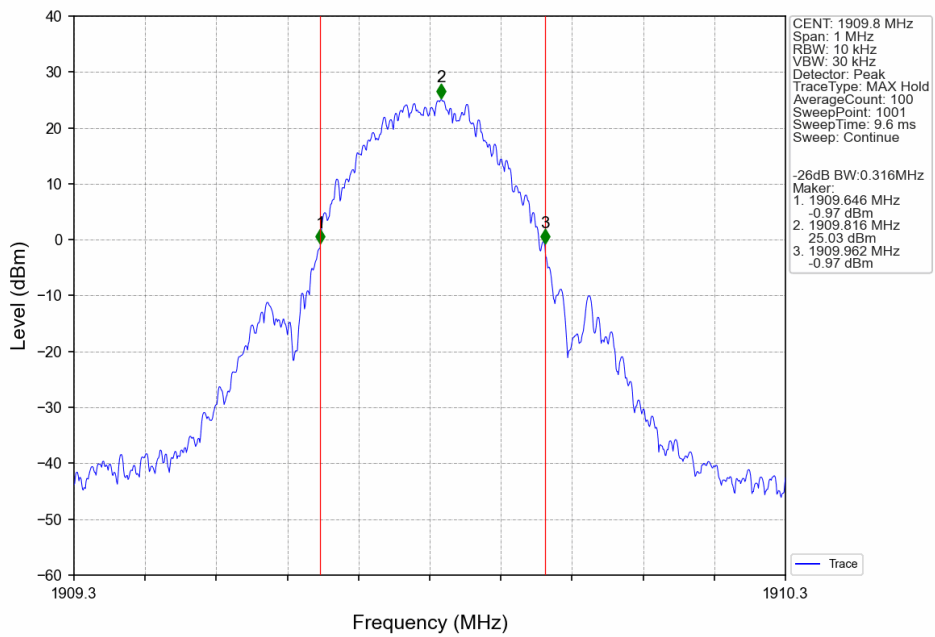
PCS1900_EGPRS_LCH_1850.2MHz_1 TX Slot_NTNV



PCS1900_EGPRS_MCH_1880MHz_1 TX Slot_NTNV



PCS1900_EGPRS_HCH_1909.8MHz_1 TX Slot_NTNV



4. Peak-Average Ratio

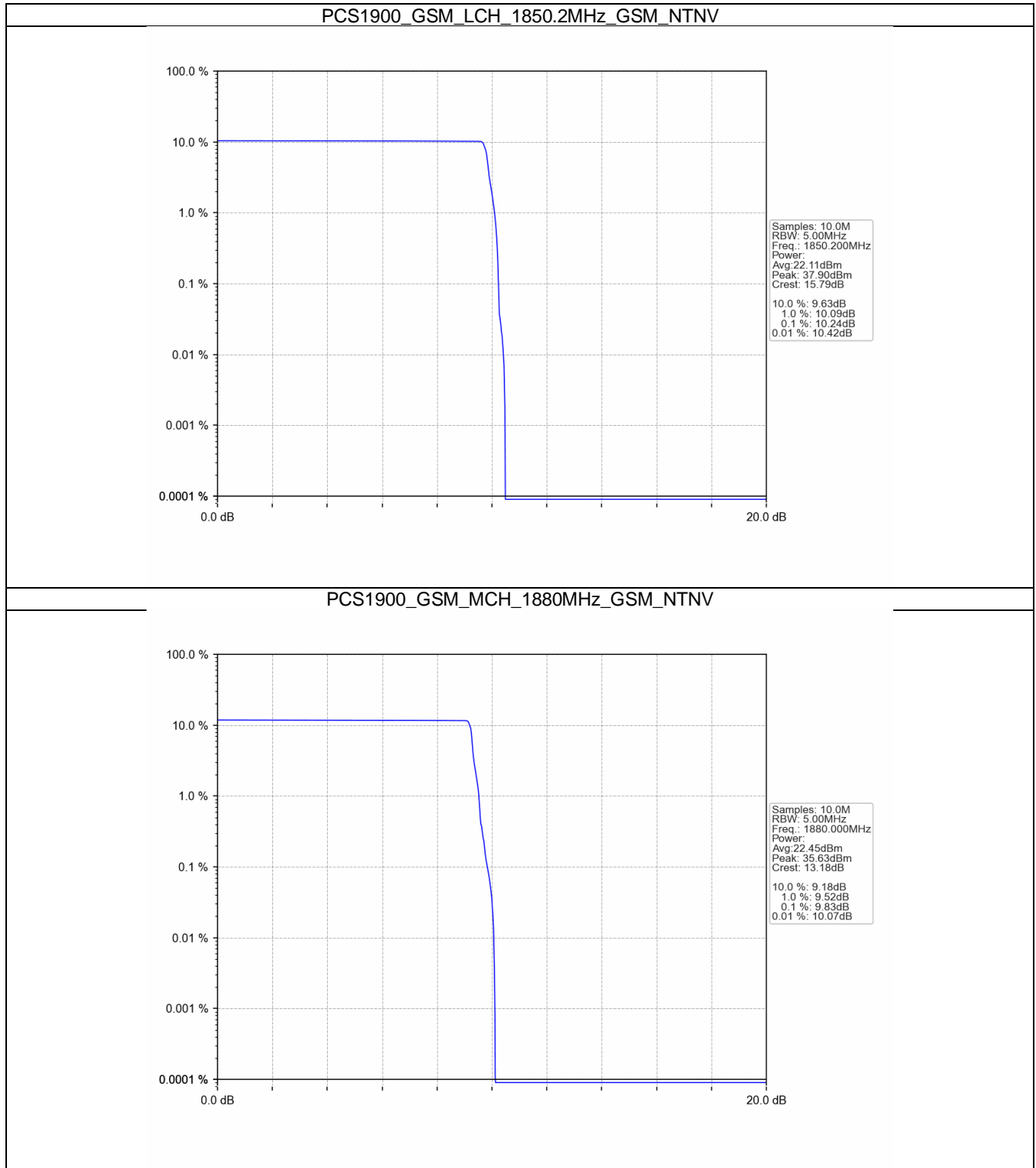
4.1 Test Result

4.1.1 PCS1900

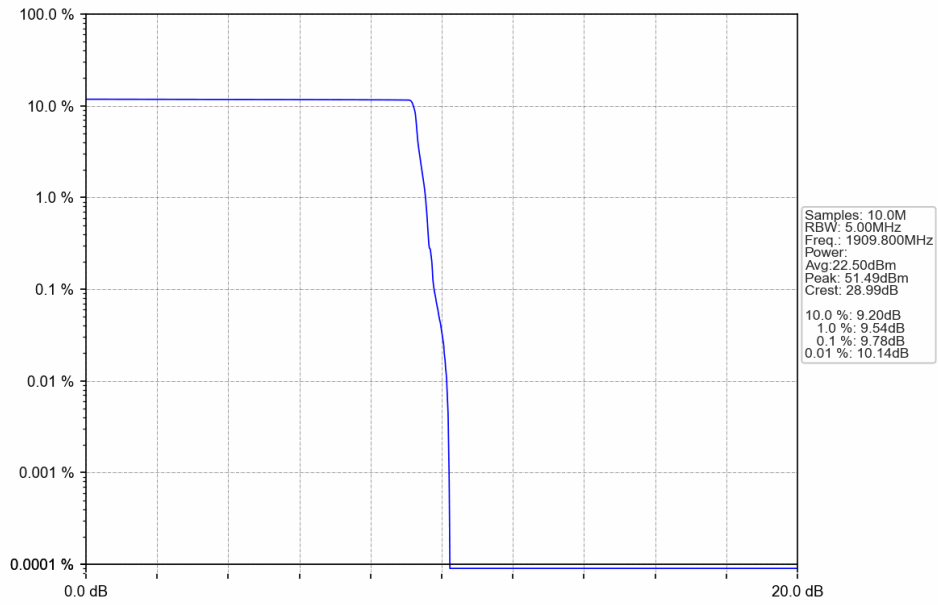
| Band: PCS1900 | | | | | | |
|---------------|---------|------------|-----------------|-------------------------|-------|---------|
| ENV | Mode | | Frequency (MHz) | Peak-Average Ratio (dB) | | Verdict |
| | Network | Subset | | Result | Limit | |
| NTNV | GSM | GSM | 1850.2 | 10.24 | <=13 | Pass |
| | | | 1880 | 9.83 | <=13 | Pass |
| | | | 1909.8 | 9.78 | <=13 | Pass |
| | EGPRS | 4 TX Slots | 1850.2 | 6.65 | <=13 | Pass |
| | | | 1880 | 6.97 | <=13 | Pass |
| | | | 1909.8 | 6.67 | <=13 | Pass |

4.2 Test Graph

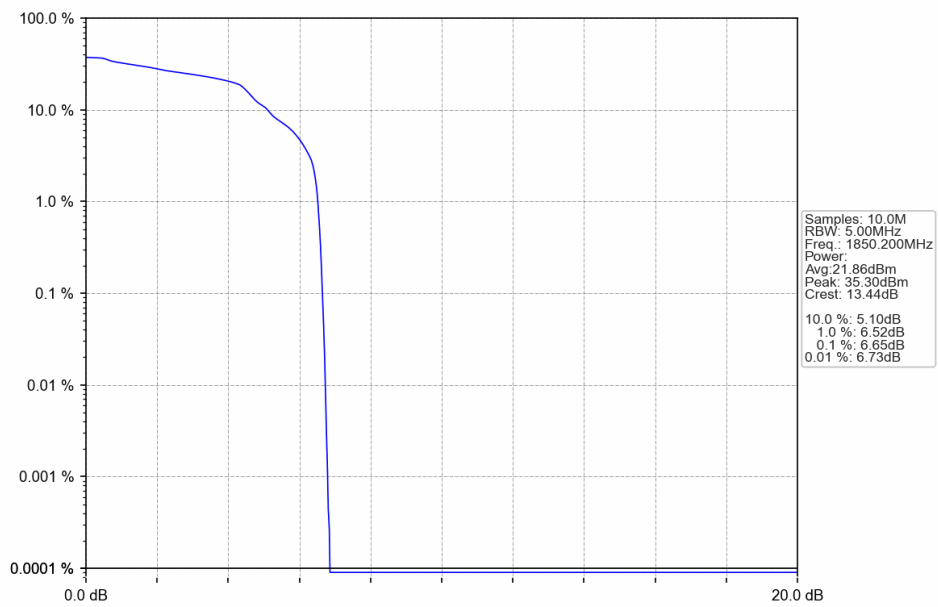
4.2.1 PCS1900



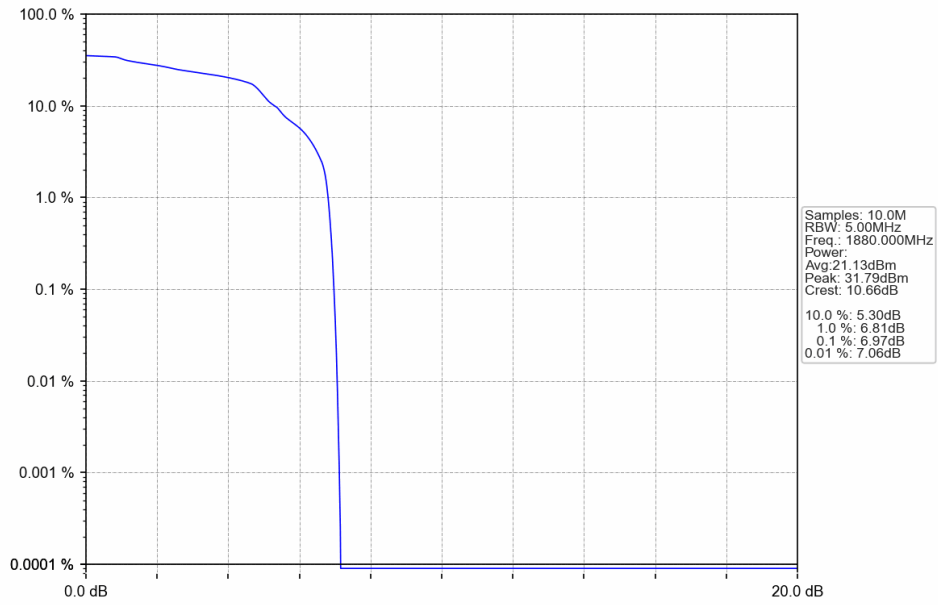
PCS1900_GSM_HCH_1909.8MHz_GSM_NTNV



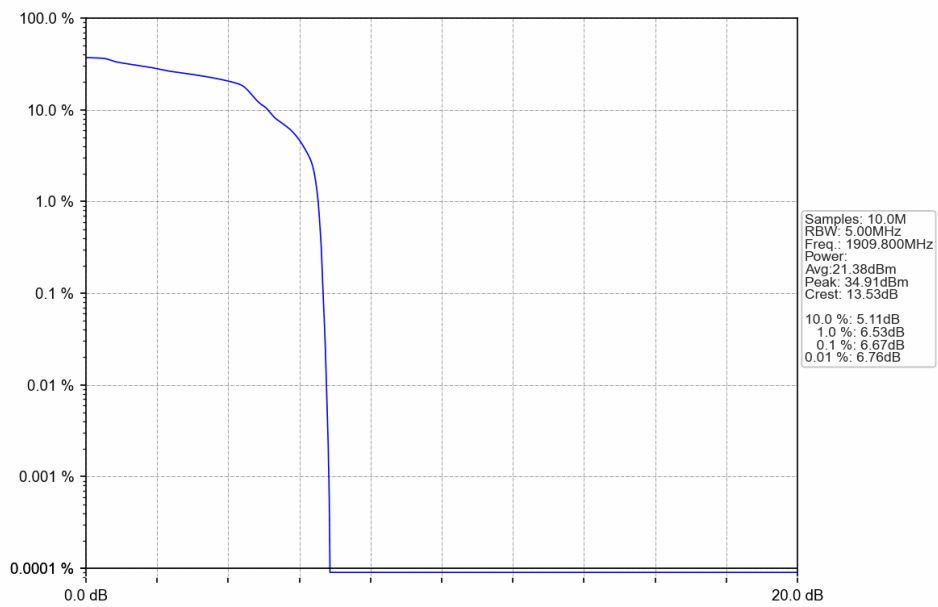
PCS1900_EGPRS_LCH_1850.2MHz_4 TX Slots_NTNV



PCS1900_EGPRS_MCH_1880MHz_4 TX Slots_NTNV



PCS1900_EGPRS_HCH_1909.8MHz_4 TX Slots_NTNV



5. Spurious Emission & Band Edges

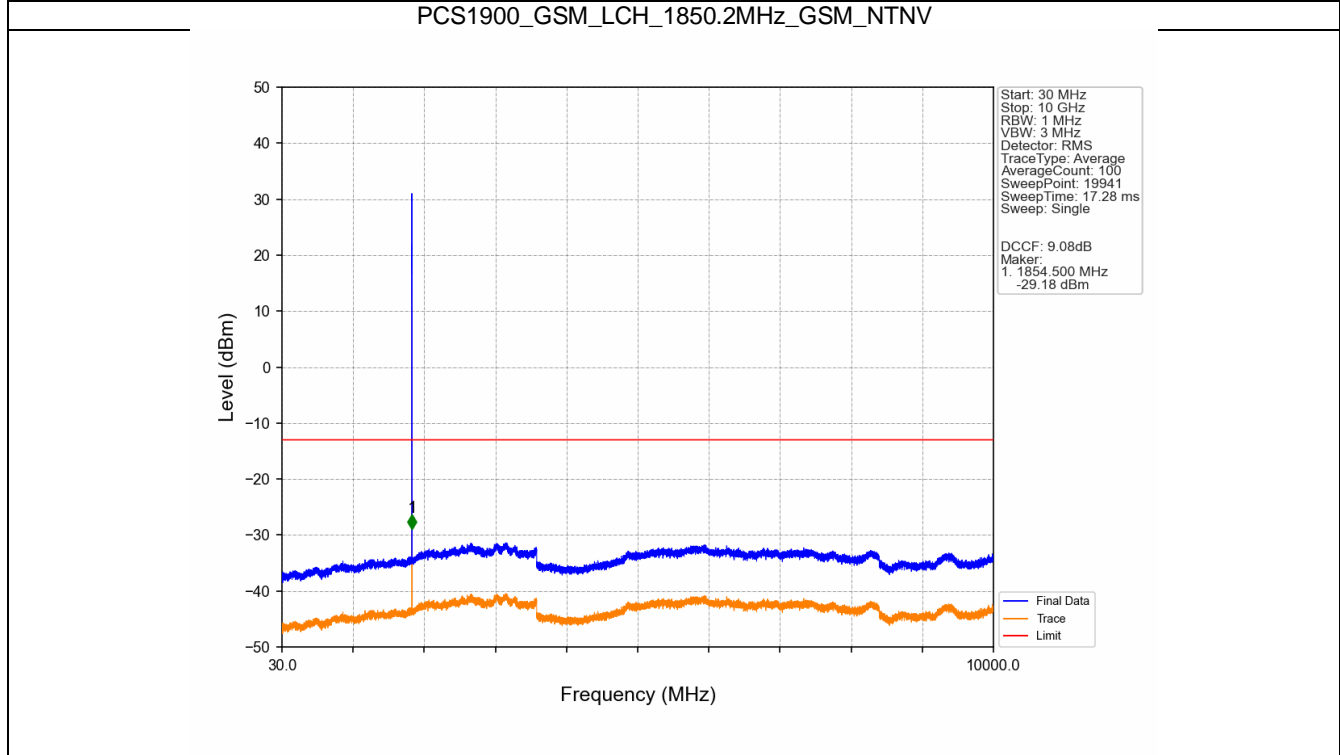
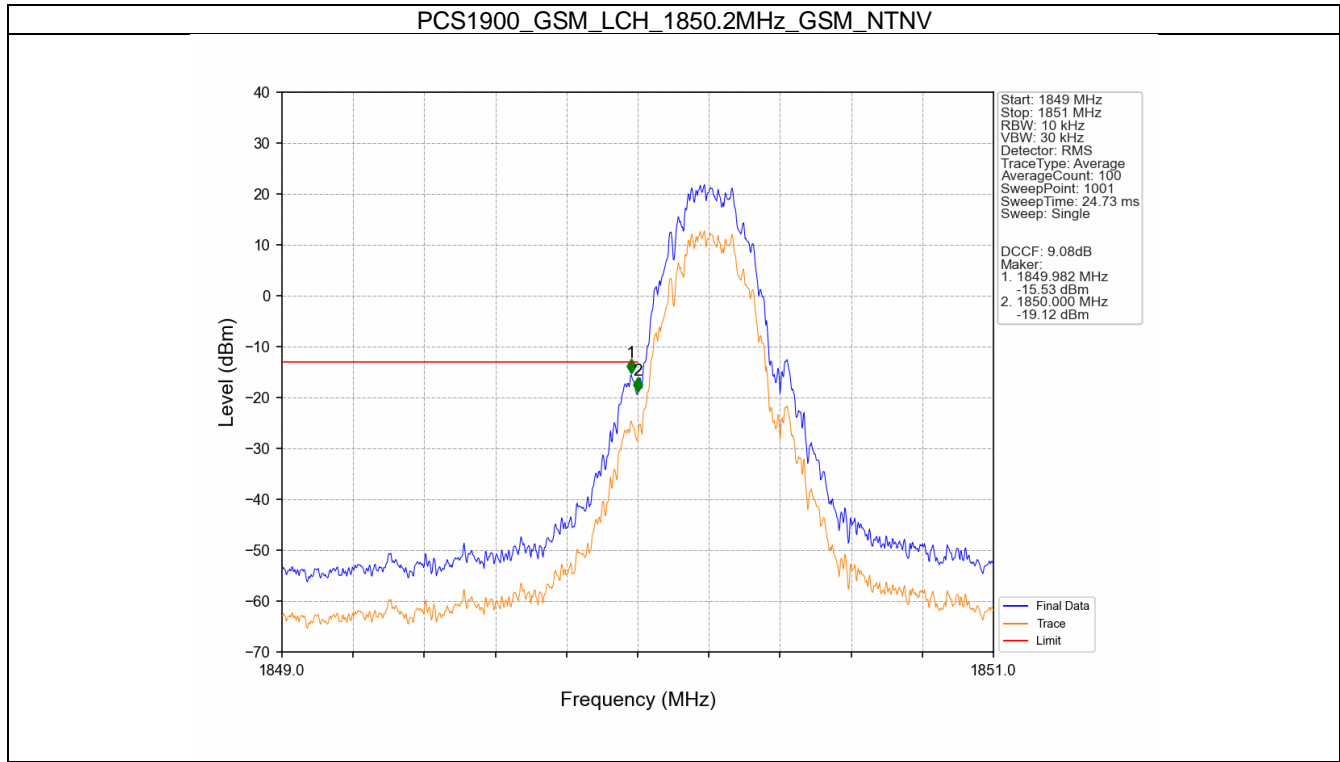
5.1 Test Result

5.1.1 PCS1900

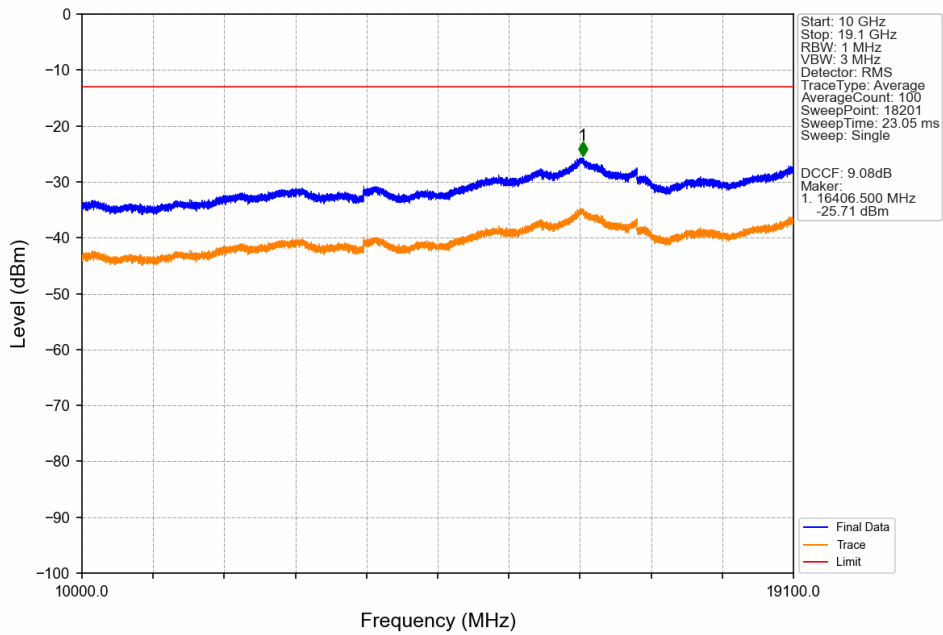
| Band: PCS1900 | | | | | | |
|---------------|---------|-----------|-----------------|---------------------|-------|---------|
| ENV | Mode | | Frequency (MHz) | Spurious Emission | | Verdict |
| | Network | Subset | | Result | Limit | |
| NTNV | GSM | GSM | 1850.2 | Refer To Test Graph | Pass | |
| | | | 1880 | Refer To Test Graph | Pass | |
| | | | 1909.8 | Refer To Test Graph | Pass | |
| | EGPRS | 1 TX Slot | 1850.2 | Refer To Test Graph | Pass | |
| | | | 1880 | Refer To Test Graph | Pass | |
| | | | 1909.8 | Refer To Test Graph | Pass | |

5.2 Test Graph

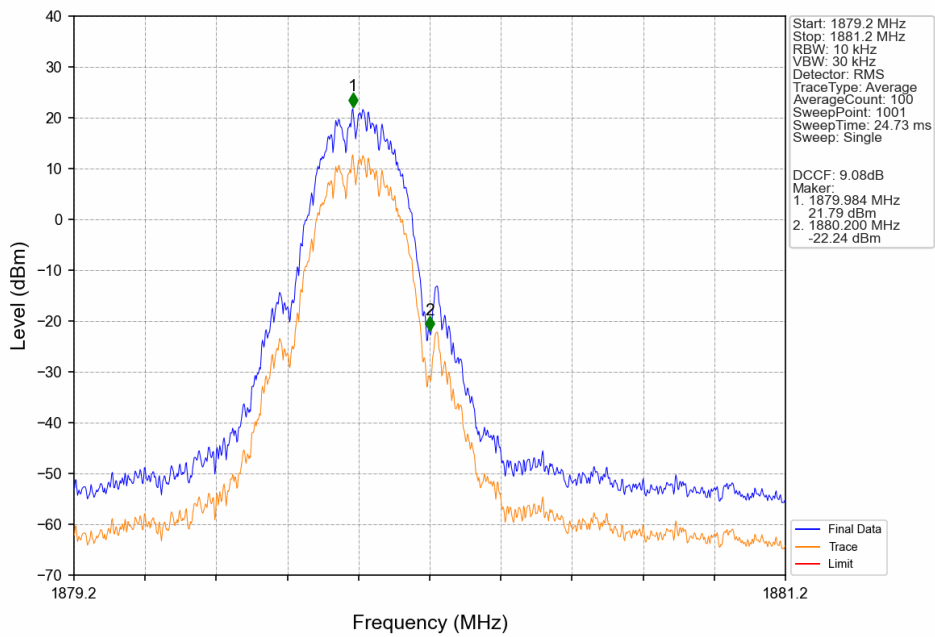
5.2.1 PCS1900



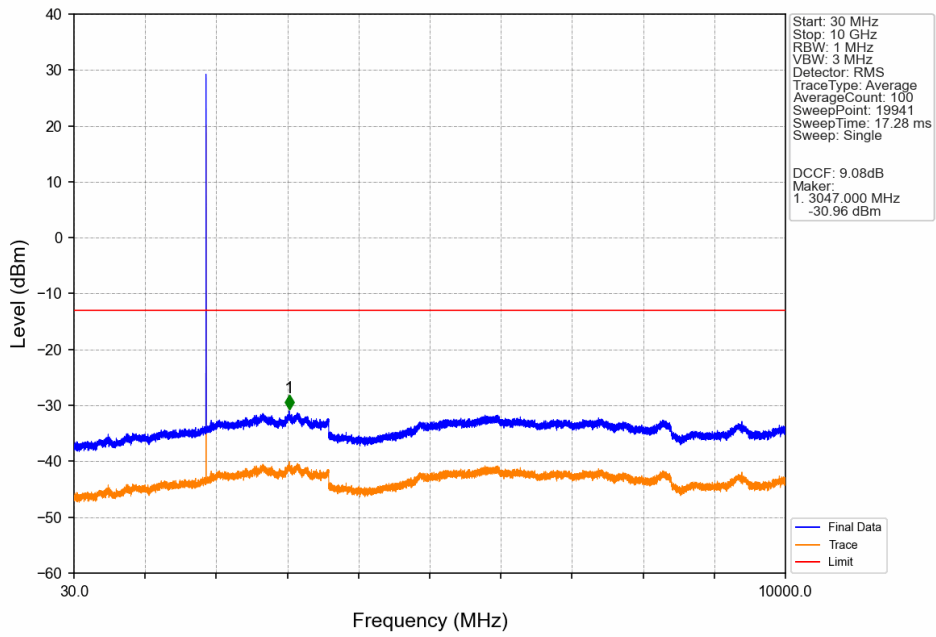
PCS1900_GSM_LCH_1850.2MHz_GSM_NTNV



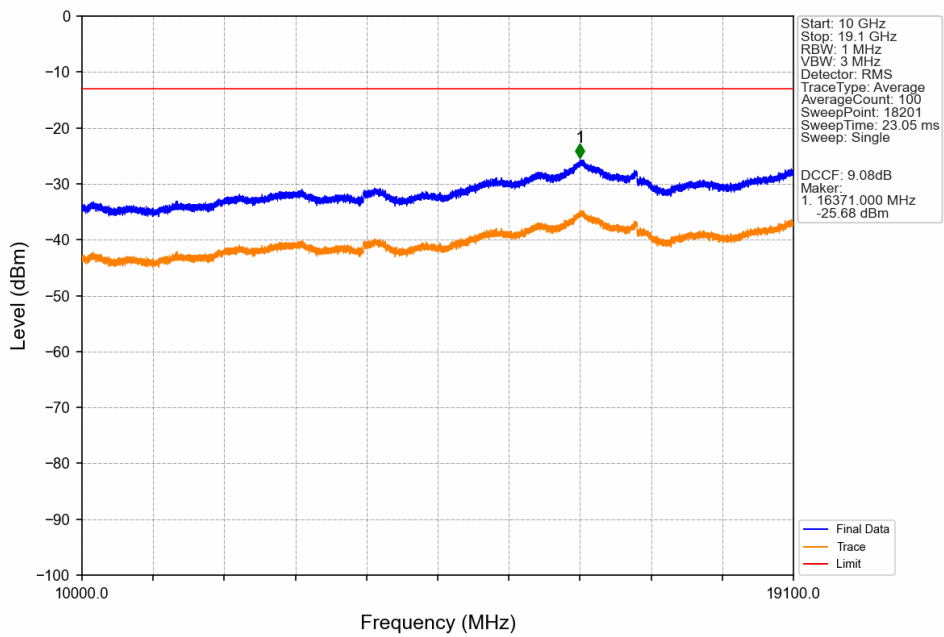
PCS1900_GSM_MCH_1880MHz_GSM_NTNV



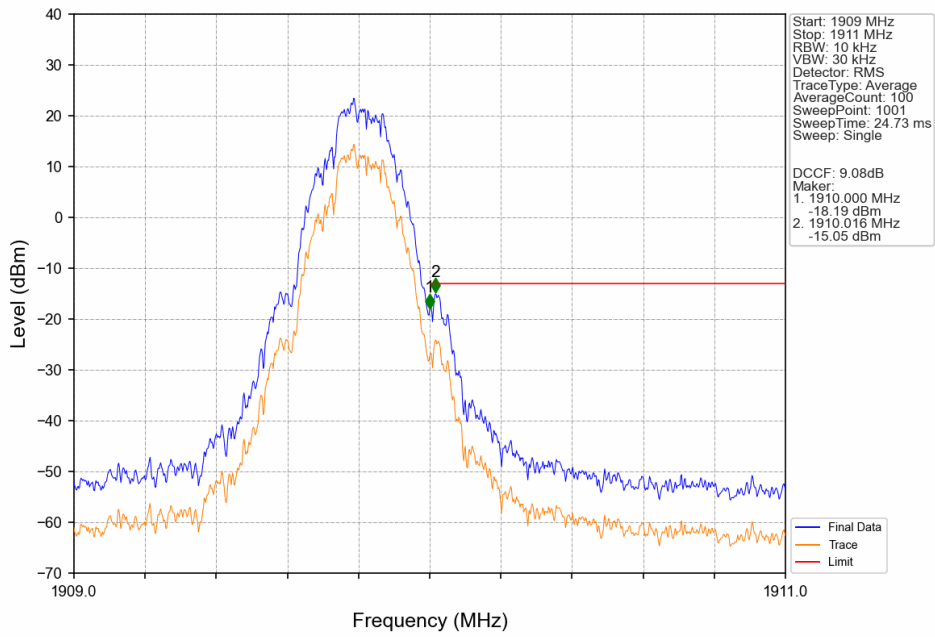
PCS1900_GSM_MCH_1880MHz_GSM_NTNV



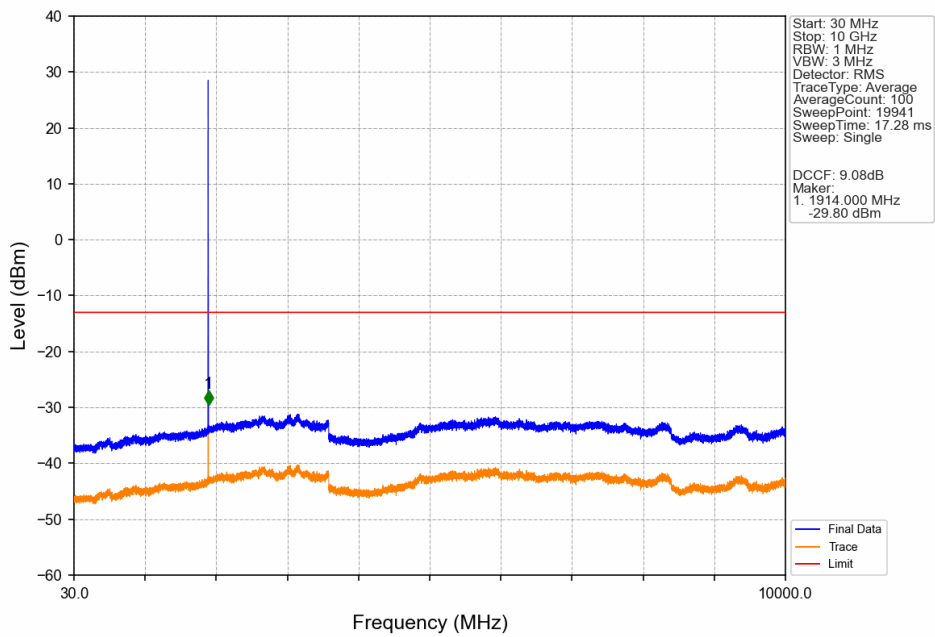
PCS1900_GSM_MCH_1880MHz_GSM_NTNV



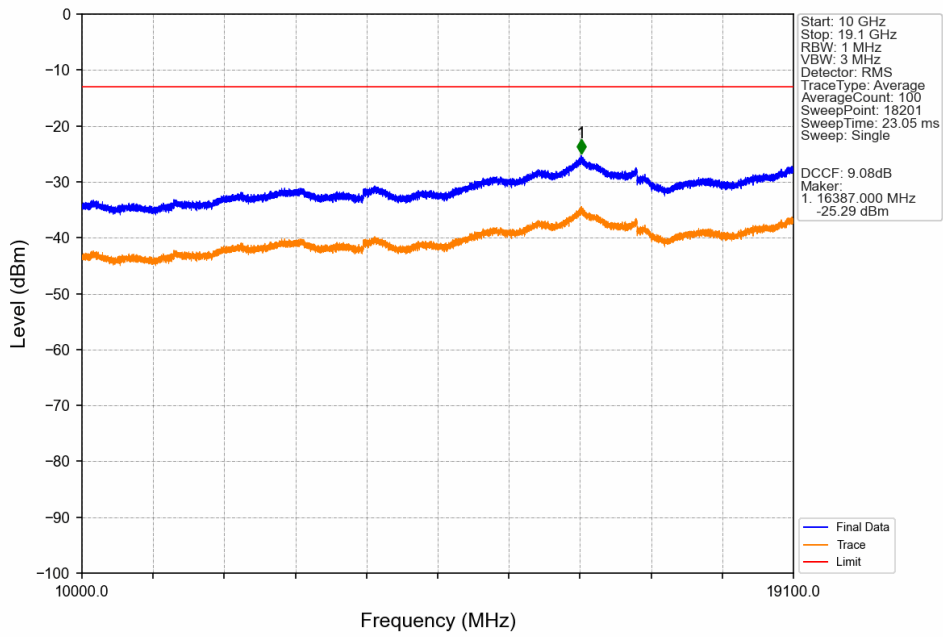
PCS1900_GSM_HCH_1909.8MHz_GSM_NTNV



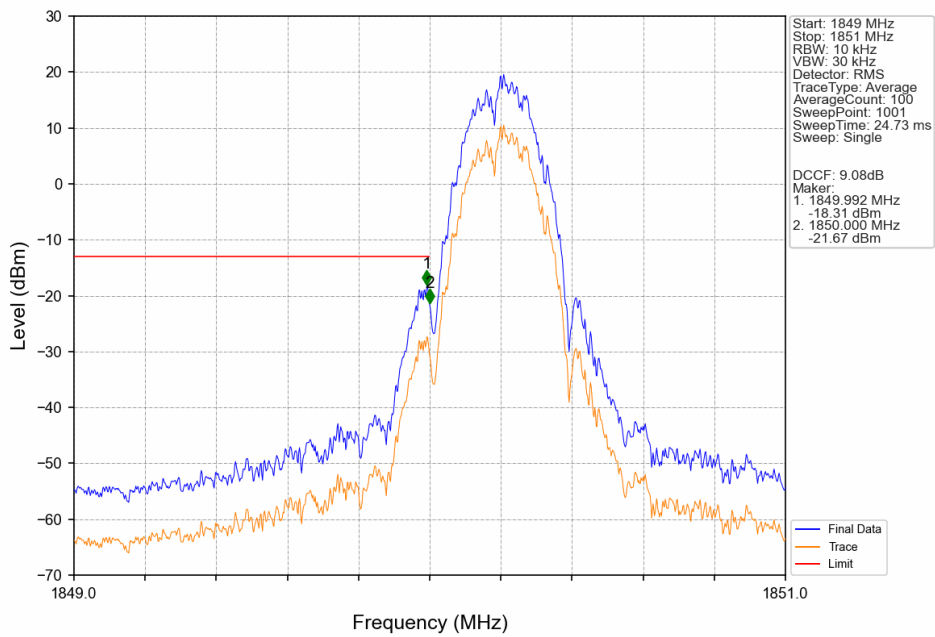
PCS1900_GSM_HCH_1909.8MHz_GSM_NTNV



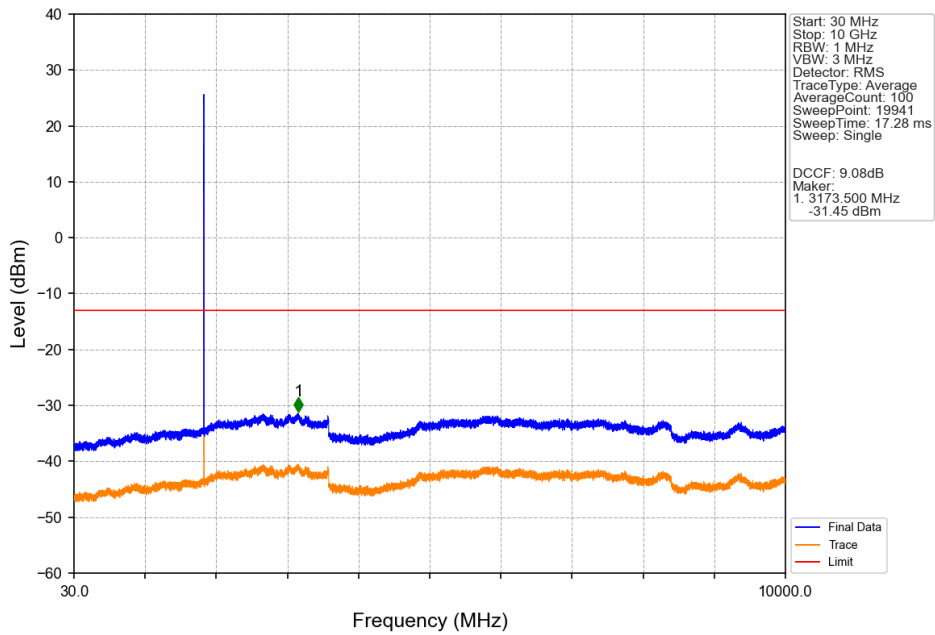
PCS1900_GSM_HCH_1909.8MHz_GSM_NTNV



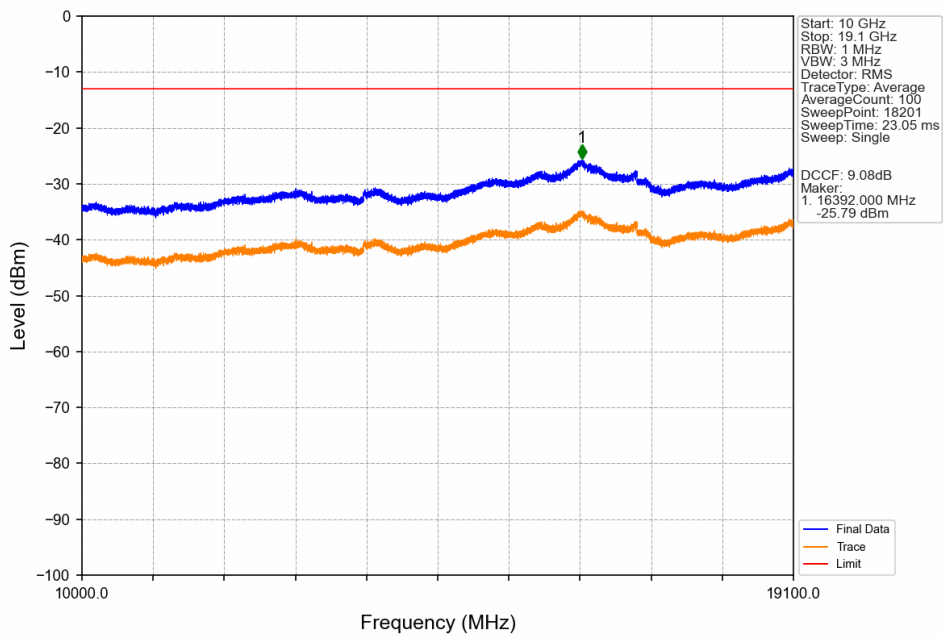
PCS1900_EGPRS_LCH_1850.2MHz_1 TX Slot_NTNV



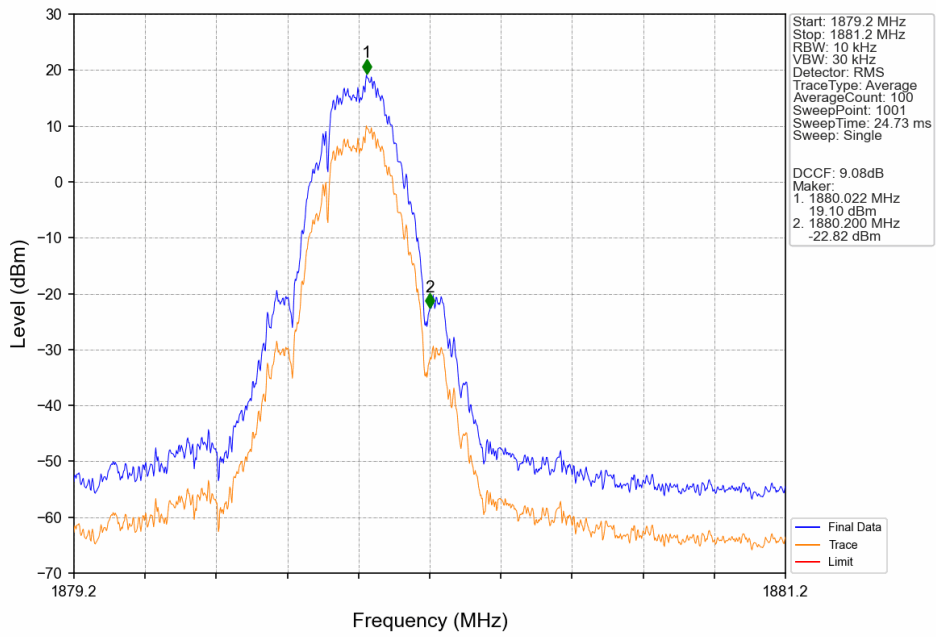
PCS1900_EGPRS_LCH_1850.2MHz_1 TX Slot_NTNV



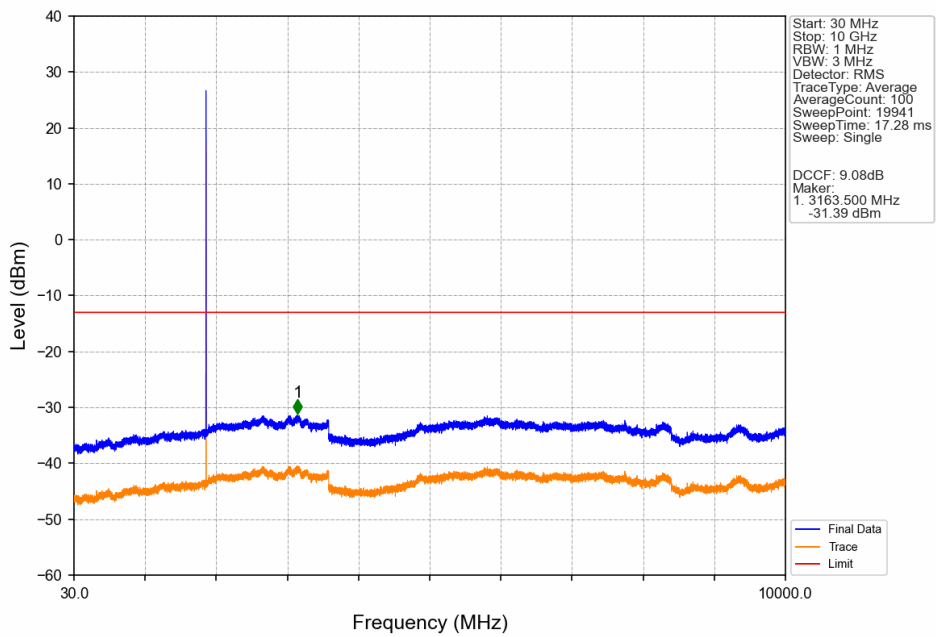
PCS1900_EGPRS_LCH_1850.2MHz_1 TX Slot_NTNV



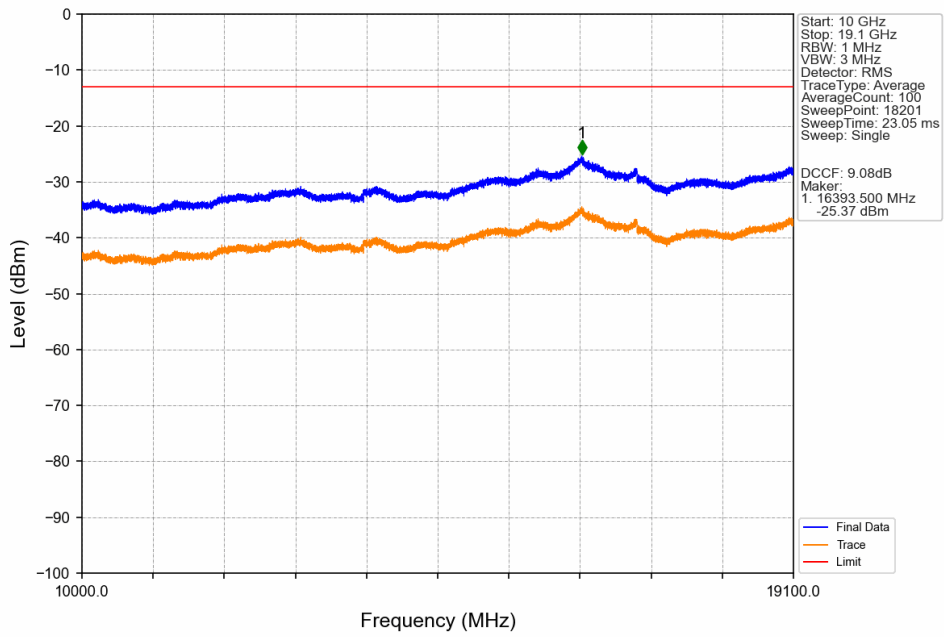
PCS1900_EGPRS_MCH_1880MHz_1 TX Slot_NTNV



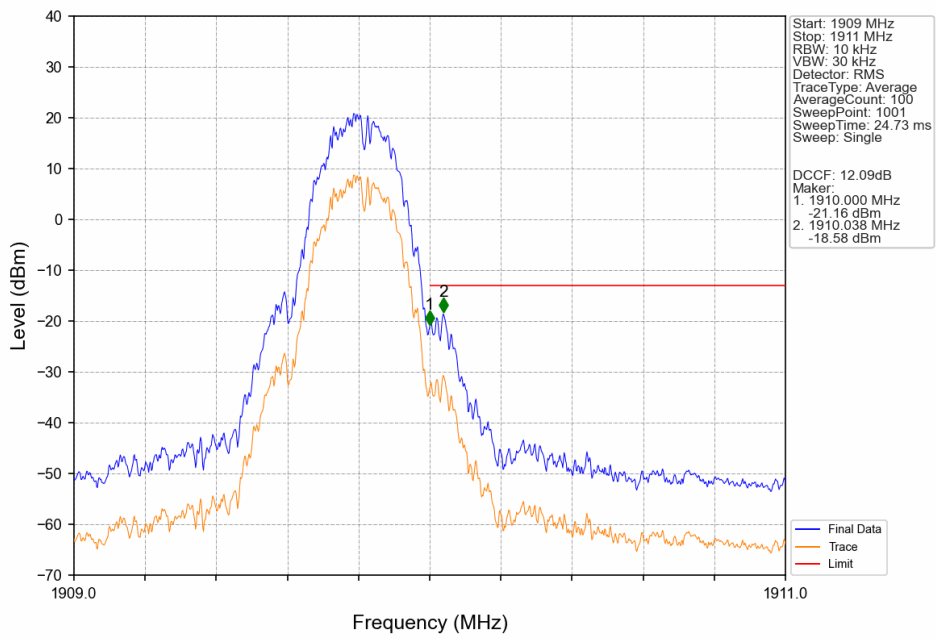
PCS1900_EGPRS_MCH_1880MHz_1 TX Slot_NTNV



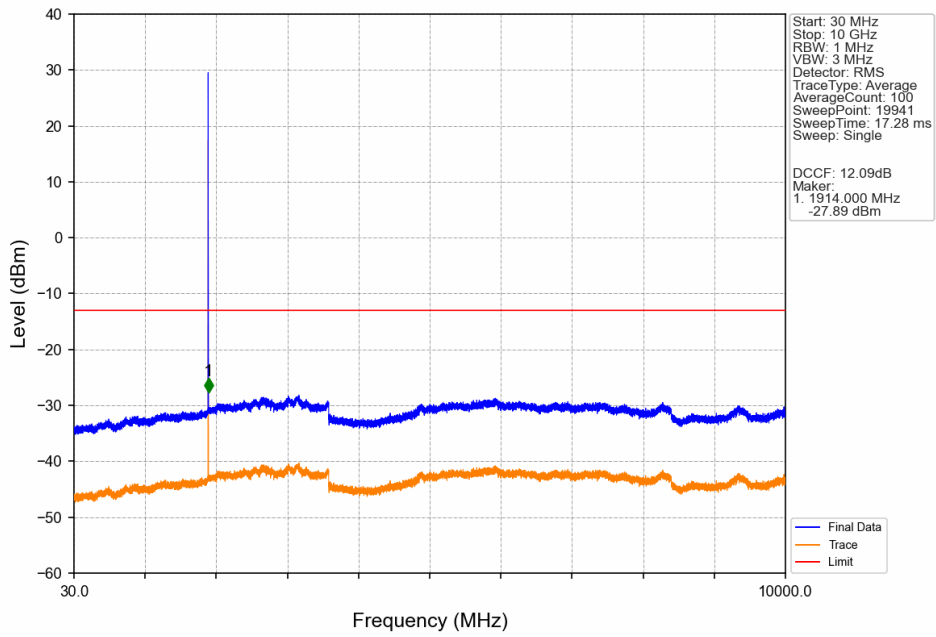
PCS1900_EGPRS_MCH_1880MHz_1 TX Slot_NTNV



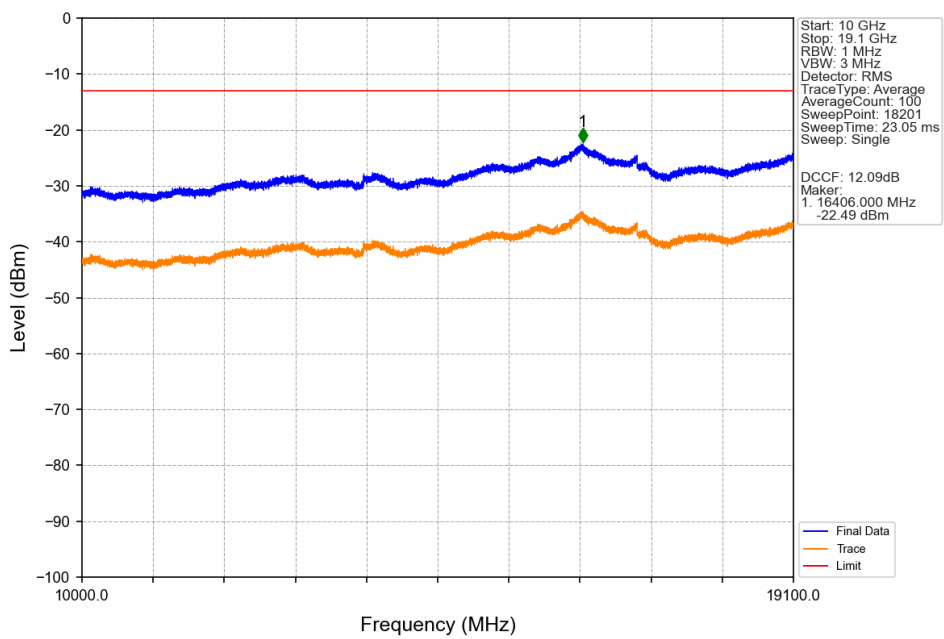
PCS1900_EGPRS_HCH_1909.8MHz_1 TX Slot_NTNV



PCS1900_EGPRS_HCH_1909.8MHz_1 TX Slot_NTNV



PCS1900_EGPRS_HCH_1909.8MHz_1 TX Slot_NTNV



6. Field Strength of Spurious Radiation

Test Band = GSM 1900_ TM1

Test Channel = Low

| Final Data List | | | | | | | | |
|-----------------|-----------------|----------------------|-------------|----------|-------------|-------------|-------------|------------|
| NO. | Frequency [MHz] | Reading [dB μ V] | Factor [dB] | AF[dB/m] | Level [dBm] | Limit [dBm] | Margin [dB] | Polarity |
| 1 | 3700.5 | 59.86 | -45.50 | 28.92 | -51.98 | -13.00 | 38.98 | Horizontal |
| 2 | 4894.5 | 42.97 | -45.53 | 31.23 | -66.59 | -13.00 | 53.59 | Horizontal |
| 3 | 5686.5 | 42.25 | -44.88 | 32.34 | -65.55 | -13.00 | 52.55 | Horizontal |
| 4 | 7401 | 43.32 | -43.41 | 36.12 | -59.22 | -13.00 | 46.22 | Horizontal |
| 5 | 8186.25 | 39.48 | -42.19 | 36.99 | -60.98 | -13.00 | 47.98 | Horizontal |
| 6 | 9409.5 | 40.04 | -39.87 | 37.32 | -57.77 | -13.00 | 44.77 | Horizontal |

| Final Data List | | | | | | | | |
|-----------------|-----------------|----------------------|-------------|----------|-------------|-------------|-------------|----------|
| NO. | Frequency [MHz] | Reading [dB μ V] | Factor [dB] | AF[dB/m] | Level [dBm] | Limit [dBm] | Margin [dB] | Polarity |
| 1 | 3700.5 | 53.32 | -45.50 | 28.92 | -58.52 | -13.00 | 45.52 | Vertical |
| 2 | 4433.25 | 43.14 | -45.78 | 30.44 | -67.46 | -13.00 | 54.46 | Vertical |
| 3 | 5550.75 | 46.67 | -45.15 | 32.31 | -61.43 | -13.00 | 48.43 | Vertical |
| 4 | 6721.5 | 42.25 | -43.89 | 34.50 | -62.40 | -13.00 | 49.40 | Vertical |
| 5 | 8862.75 | 40.01 | -41.24 | 36.58 | -59.91 | -13.00 | 46.91 | Vertical |
| 6 | 11420.25 | 34.87 | -37.36 | 38.81 | -58.94 | -13.00 | 45.94 | Vertical |

Test Band = GSM 1900_ TM1
Test Channel = Mid

| Final Data List | | | | | | | | |
|-----------------|-----------------|----------------|-------------|----------|-------------|-------------|-------------|------------|
| NO. | Frequency [MHz] | Reading [dBμV] | Factor [dB] | AF[dB/m] | Level [dBm] | Limit [dBm] | Margin [dB] | Polarity |
| 1 | 3759.75 | 57.58 | -45.75 | 29.02 | -54.42 | -13.00 | 41.42 | Horizontal |
| 2 | 4650 | 42.56 | -45.64 | 30.84 | -67.50 | -13.00 | 54.50 | Horizontal |
| 3 | 6152.25 | 42.33 | -44.61 | 32.92 | -64.62 | -13.00 | 51.62 | Horizontal |
| 4 | 7278 | 41.50 | -43.68 | 35.78 | -61.66 | -13.00 | 48.66 | Horizontal |
| 5 | 9157.5 | 37.48 | -40.29 | 36.82 | -61.26 | -13.00 | 48.26 | Horizontal |
| 6 | 11073.75 | 35.00 | -37.94 | 38.64 | -59.56 | -13.00 | 46.56 | Horizontal |

| Final Data List | | | | | | | | |
|-----------------|-----------------|----------------|-------------|----------|-------------|-------------|-------------|----------|
| NO. | Frequency [MHz] | Reading [dBμV] | Factor [dB] | AF[dB/m] | Level [dBm] | Limit [dBm] | Margin [dB] | Polarity |
| 1 | 3759.75 | 51.71 | -45.75 | 29.02 | -60.29 | -13.00 | 47.29 | Vertical |
| 2 | 4462.5 | 42.95 | -45.75 | 30.51 | -67.55 | -13.00 | 54.55 | Vertical |
| 3 | 5640 | 45.44 | -44.98 | 32.33 | -62.47 | -13.00 | 49.47 | Vertical |
| 4 | 7293 | 41.30 | -43.73 | 35.82 | -61.87 | -13.00 | 48.87 | Vertical |
| 5 | 9399.75 | 39.14 | -39.83 | 37.30 | -58.65 | -13.00 | 45.65 | Vertical |
| 6 | 12096.75 | 34.28 | -37.35 | 39.13 | -59.20 | -13.00 | 46.20 | Vertical |

Test Band = GSM 1900_ TM1
Test Channel = High

| Final Data List | | | | | | | | |
|-----------------|-----------------|----------------|-------------|----------|-------------|-------------|-------------|------------|
| NO. | Frequency [MHz] | Reading [dBμV] | Factor [dB] | AF[dB/m] | Level [dBm] | Limit [dBm] | Margin [dB] | Polarity |
| 1 | 3819.75 | 55.10 | -45.99 | 29.11 | -57.04 | -13.00 | 44.04 | Horizontal |
| 2 | 4594.5 | 42.58 | -45.67 | 30.75 | -67.60 | -13.00 | 54.60 | Horizontal |
| 3 | 5729.25 | 45.12 | -44.82 | 32.35 | -62.61 | -13.00 | 49.61 | Horizontal |
| 4 | 7246.5 | 41.54 | -43.57 | 35.69 | -61.60 | -13.00 | 48.60 | Horizontal |
| 5 | 9423.75 | 38.98 | -39.93 | 37.35 | -58.86 | -13.00 | 45.86 | Horizontal |
| 6 | 11403 | 34.73 | -37.37 | 38.80 | -59.10 | -13.00 | 46.10 | Horizontal |

| Final Data List | | | | | | | | |
|-----------------|-----------------|----------------|-------------|----------|-------------|-------------|-------------|----------|
| NO. | Frequency [MHz] | Reading [dBμV] | Factor [dB] | AF[dB/m] | Level [dBm] | Limit [dBm] | Margin [dB] | Polarity |
| 1 | 3819.75 | 55.97 | -45.99 | 29.11 | -56.17 | -13.00 | 43.17 | Vertical |
| 2 | 4747.5 | 42.49 | -45.57 | 31.00 | -67.35 | -13.00 | 54.35 | Vertical |
| 3 | 5729.25 | 44.77 | -44.82 | 32.35 | -62.96 | -13.00 | 49.96 | Vertical |
| 4 | 7578.75 | 40.57 | -42.97 | 36.51 | -61.15 | -13.00 | 48.15 | Vertical |
| 5 | 9549 | 40.85 | -39.96 | 37.60 | -56.77 | -13.00 | 43.77 | Vertical |
| 6 | 12950.25 | 33.58 | -37.22 | 39.39 | -59.52 | -13.00 | 46.52 | Vertical |

Remark:

1) The field strength is calculated by adding the Antenna Factor, Cable Factor & AMP. The basic equation with a sample calculation is as follows:

AF = Antenna Factor(dB/m)

Factor = Cable Factor(dB) - Preamplifier (dB)

Level = Reading Level + AF + Factor -95.26

Margin = Limit – Level

---End of Attachment---