

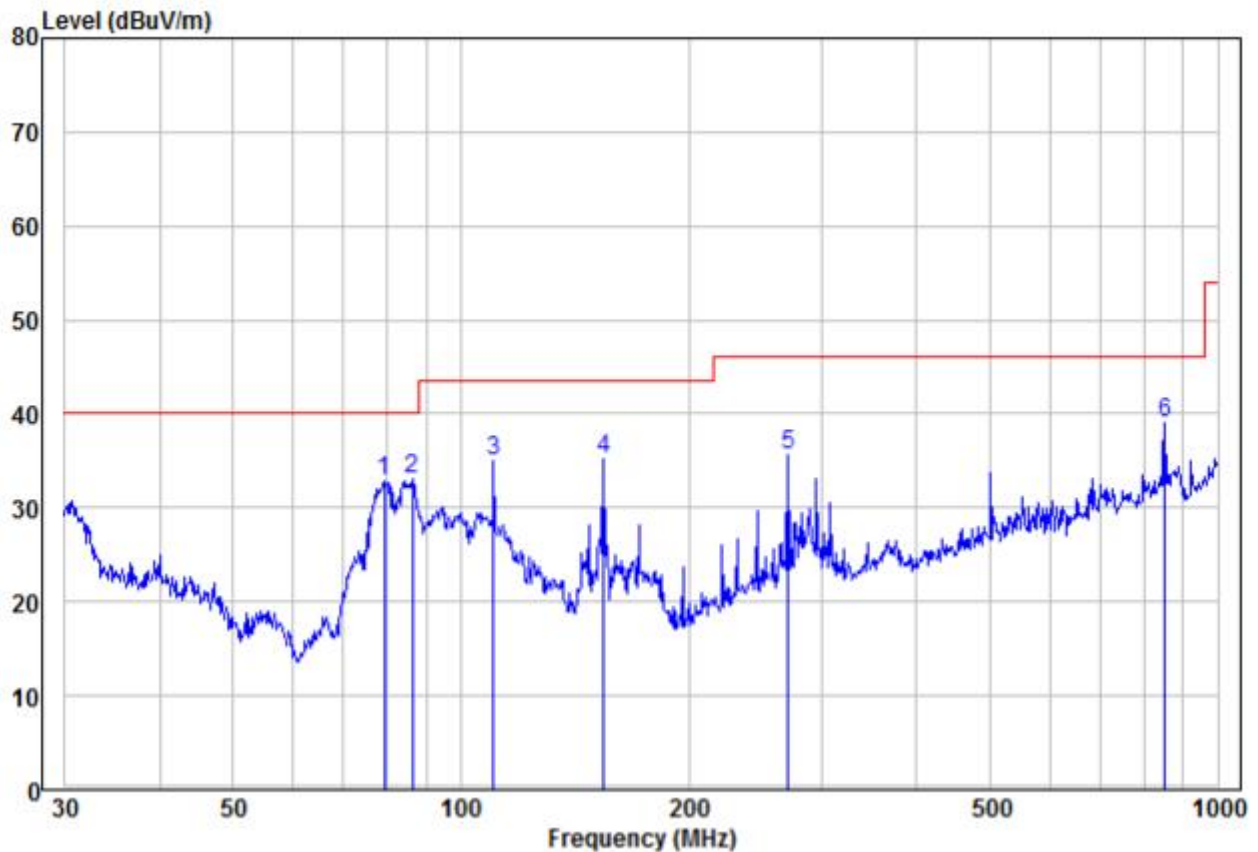
|                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                        | <p>d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.</p> <p>e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.</p> <p>f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.</p> <p>g. Test the EUT in the lowest channel (2402MHz), the middle channel (2441MHz), the Highest channel (2480MHz)</p> <p>h. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.</p> <p>i. Repeat above procedures until all frequencies measured was complete.</p> |
| Exploratory Test Mode: | Non-hopping transmitting mode with all kind of modulation and all kind of data type<br>Transmitting mode                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Final Test Mode:       | Only the worst case is recorded in the report.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Test Results:          | Pass                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

### 5.11.1 Radiated Emission below 1GHz

30MHz~1GHz

1#

Vertical



|      | Read<br>Freq | Level | Factor | Level  | Limit<br>Line | Over<br>Limit | Remark | Pol/Phase |
|------|--------------|-------|--------|--------|---------------|---------------|--------|-----------|
|      | MHz          | dBuV  | dB/m   | dBuV/m | dBuV/m        | dB            |        |           |
| 1    | 79.24        | 23.23 | 9.66   | 32.89  | 40.00         | -7.11         | Peak   | VERTICAL  |
| 2    | 86.20        | 23.07 | 9.93   | 33.00  | 40.00         | -7.00         | Peak   | VERTICAL  |
| 3    | 110.57       | 24.68 | 10.21  | 34.89  | 43.50         | -8.61         | Peak   | VERTICAL  |
| 4    | 154.28       | 27.01 | 8.18   | 35.19  | 43.50         | -8.31         | Peak   | VERTICAL  |
| 5    | 270.37       | 22.95 | 12.75  | 35.70  | 46.00         | -10.30        | Peak   | VERTICAL  |
| 6 pp | 851.04       | 15.00 | 24.04  | 39.04  | 46.00         | -6.96         | Peak   | VERTICAL  |

Remark:

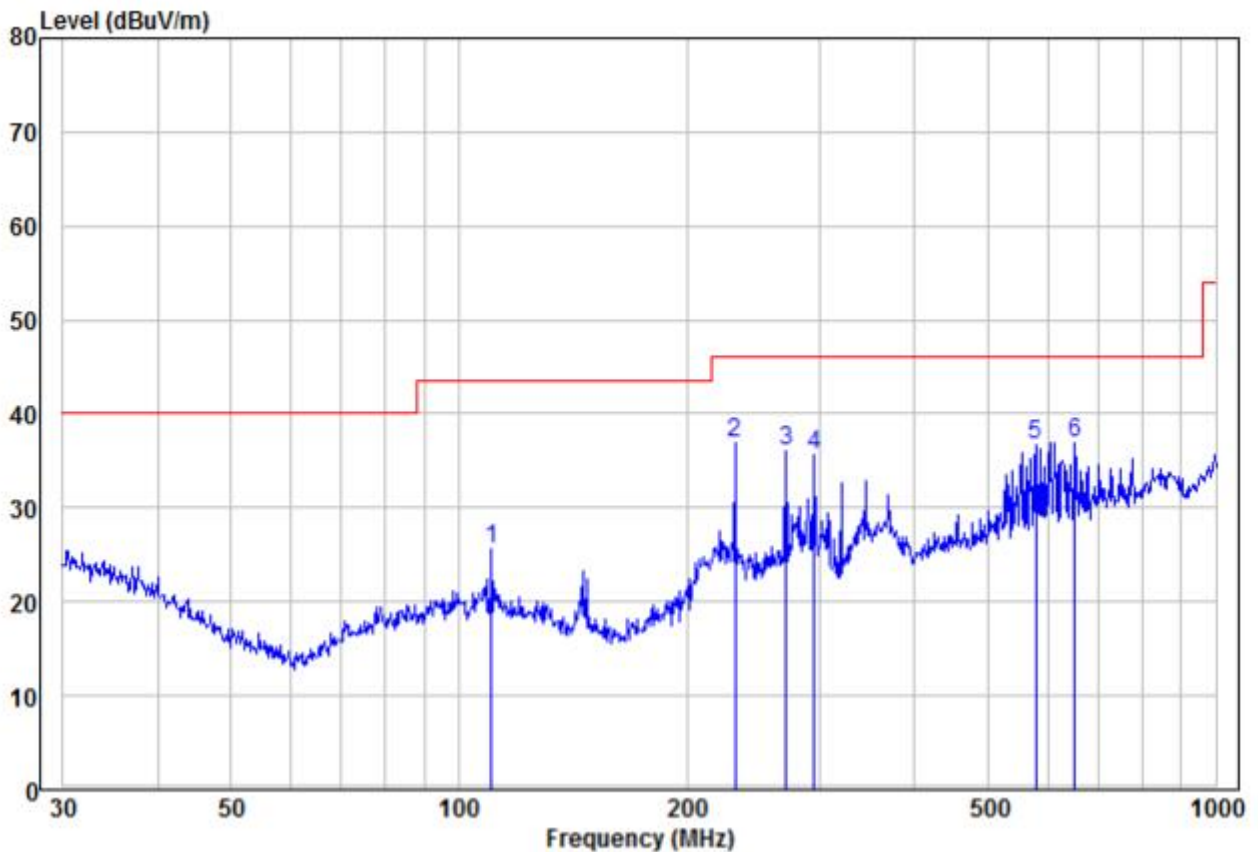
The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

Factor= Antenna Factor + Cable Factor – Preamplifier Factor,

Level = Read Level + Factor,

Over Limit=Level-Limit Line.

Horizontal



|      | Freq   | Read  | Factor | Level  | Limit  | Over   | Remark | Pol/Phase  |
|------|--------|-------|--------|--------|--------|--------|--------|------------|
|      | MHz    | dBuV  | dB/m   | dBuV/m | dBuV/m | dB     |        |            |
| 1    | 110.57 | 15.40 | 10.21  | 25.61  | 43.50  | -17.89 | Peak   | HORIZONTAL |
| 2    | 231.72 | 26.27 | 10.64  | 36.91  | 46.00  | -9.09  | Peak   | HORIZONTAL |
| 3    | 270.37 | 23.24 | 12.75  | 35.99  | 46.00  | -10.01 | Peak   | HORIZONTAL |
| 4    | 295.15 | 22.00 | 13.57  | 35.57  | 46.00  | -10.43 | Peak   | HORIZONTAL |
| 5    | 578.67 | 18.02 | 18.72  | 36.74  | 46.00  | -9.26  | Peak   | HORIZONTAL |
| 6 pp | 651.94 | 17.29 | 19.71  | 37.00  | 46.00  | -9.00  | Peak   | HORIZONTAL |

Remark:

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

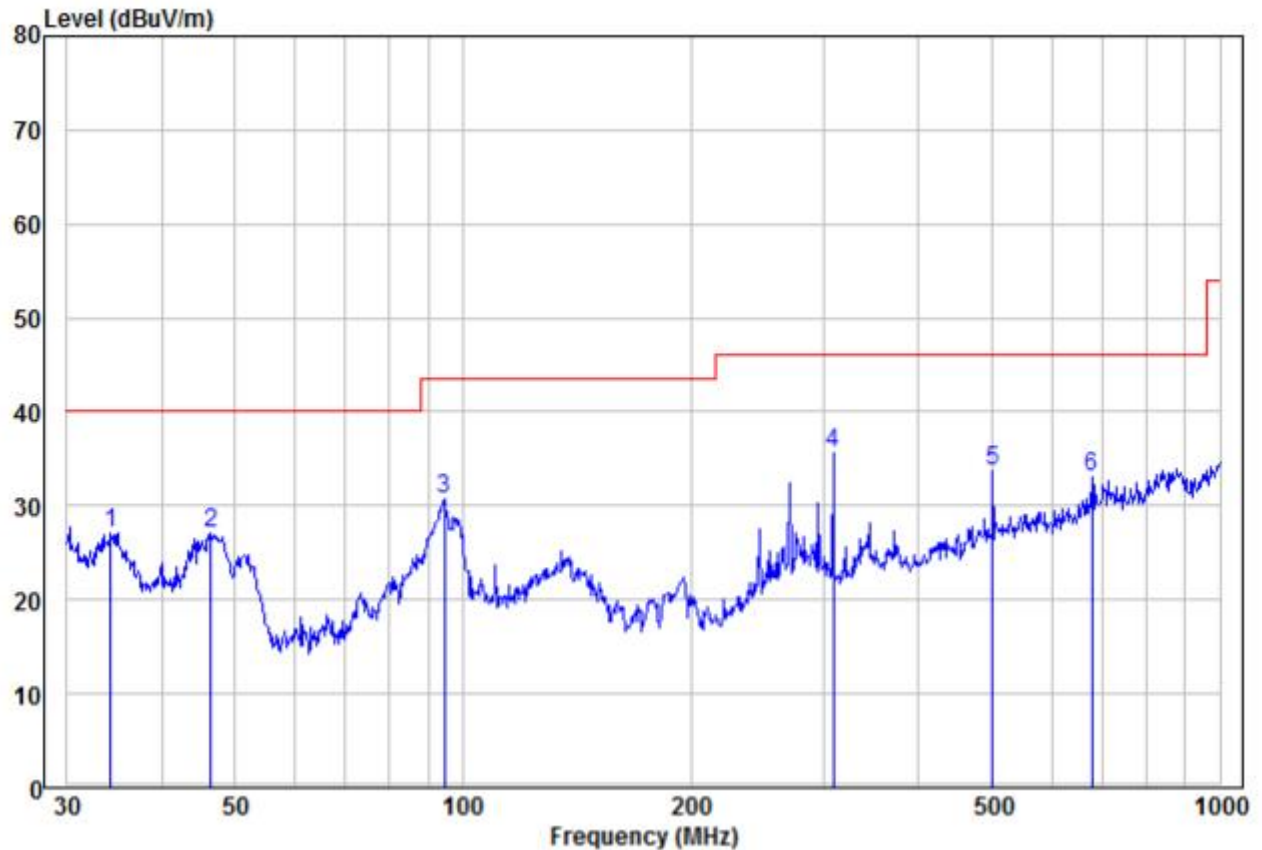
Factor= Antenna Factor + Cable Factor – Preamplifier Factor,

Level = Read Level + Factor,

Over Limit=Level-Limit Line.

2#

Vertical



|      | Freq   | Read Level | Factor | Level  | Limit Line | Over Limit | Remark | Pol/Phase |
|------|--------|------------|--------|--------|------------|------------|--------|-----------|
|      | MHz    | dBuV       | dB/m   | dBuV/m | dBuV/m     | dB         |        |           |
| 1    | 34.28  | 12.30      | 14.80  | 27.10  | 40.00      | -12.90     | Peak   | VERTICAL  |
| 2    | 46.50  | 17.47      | 9.73   | 27.20  | 40.00      | -12.80     | Peak   | VERTICAL  |
| 3    | 94.43  | 20.52      | 10.30  | 30.82  | 43.50      | -12.68     | Peak   | VERTICAL  |
| 4 pp | 308.91 | 21.75      | 13.94  | 35.69  | 46.00      | -10.31     | Peak   | VERTICAL  |
| 5    | 501.18 | 15.52      | 18.29  | 33.81  | 46.00      | -12.19     | Peak   | VERTICAL  |
| 6    | 677.58 | 12.97      | 20.18  | 33.15  | 46.00      | -12.85     | Peak   | VERTICAL  |

Remark:

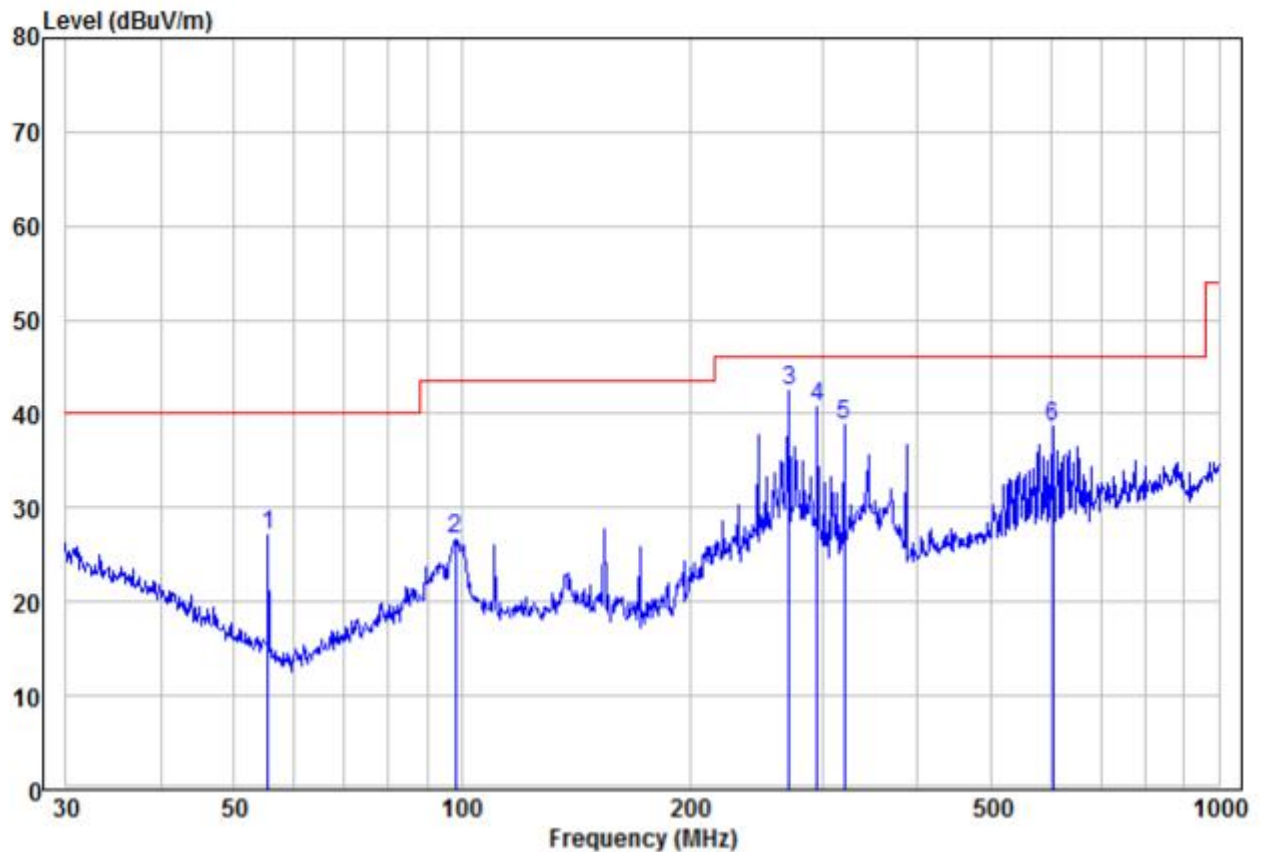
The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

Factor= Antenna Factor + Cable Factor – Preamplifier Factor,

Level = Read Level + Factor,

Over Limit=Level-Limit Line.

Horizontal



|      | Freq   | Read Level | Factor | Level  | Limit Line | Over Limit | Remark | Pol/Phase  |
|------|--------|------------|--------|--------|------------|------------|--------|------------|
|      | MHz    | dBuV       | dB/m   | dBuV/m | dBuV/m     | dB         |        |            |
| 1    | 55.41  | 20.20      | 6.89   | 27.09  | 40.00      | -12.91     | Peak   | HORIZONTAL |
| 2    | 98.14  | 16.10      | 10.53  | 26.63  | 43.50      | -16.87     | Peak   | HORIZONTAL |
| 3 pp | 270.37 | 29.67      | 12.75  | 42.42  | 46.00      | -3.58      | Peak   | HORIZONTAL |
| 4    | 295.15 | 27.20      | 13.57  | 40.77  | 46.00      | -5.23      | Peak   | HORIZONTAL |
| 5    | 319.94 | 24.51      | 14.22  | 38.73  | 46.00      | -7.27      | Peak   | HORIZONTAL |
| 6    | 603.54 | 19.76      | 18.86  | 38.62  | 46.00      | -7.38      | Peak   | HORIZONTAL |

Remark:

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

Factor= Antenna Factor + Cable Factor – Preamplifier Factor,

Level = Read Level + Factor,

Over Limit=Level-Limit Line.

### 5.11.2 Transmitter Emission above 1GHz

| Worse case mode: |               | GFSK(DH5) |                | Test channel: |        | Lowest        |           |
|------------------|---------------|-----------|----------------|---------------|--------|---------------|-----------|
| Frequency        | Meter Reading | Factor    | Emission Level | Limits        | Over   | Detector Type | Ant. Pol. |
| (MHz)            | (dBμV)        | (dB)      | (dBμV/m)       | (dBμV/m)      | (dB)   |               | H/V       |
| 2390             | 54.20         | -9.2      | 45.00          | 74            | -29.00 | <b>Peak</b>   | <b>H</b>  |
| 2400             | 55.83         | -9.39     | 46.44          | 74            | -27.56 | Peak          | H         |
| 4804             | 53.86         | -4.33     | 49.53          | 74            | -24.47 | Peak          | H         |
| 7206             | 49.85         | 1.01      | 50.86          | 74            | -23.14 | Peak          | H         |
| 2390             | 53.44         | -9.2      | 44.24          | 74            | -29.76 | <b>Peak</b>   | <b>V</b>  |
| 2400             | 55.72         | -9.39     | 46.33          | 74            | -27.67 | Peak          | V         |
| 4804             | 55.14         | -4.33     | 50.81          | 74            | -23.19 | Peak          | V         |
| 7206             | 49.04         | 1.01      | 50.05          | 74            | -23.95 | Peak          | V         |

| Worse case mode: |               | GFSK(DH5) |                | Test channel: |        | Middle        |           |
|------------------|---------------|-----------|----------------|---------------|--------|---------------|-----------|
| Frequency        | Meter Reading | Factor    | Emission Level | Limits        | Over   | Detector Type | Ant. Pol. |
| (MHz)            | (dBμV)        | (dB)      | (dBμV/m)       | (dBμV/m)      | (dB)   |               | H/V       |
| 4882             | 51.22         | -4.11     | 47.11          | 74            | -26.89 | peak          | H         |
| 7323             | 49.87         | 1.51      | 51.38          | 74            | -22.62 | peak          | H         |
| 4882             | 53.60         | -4.11     | 49.49          | 74            | -24.51 | peak          | V         |
| 7323             | 49.82         | 1.51      | 51.33          | 74            | -22.67 | peak          | V         |

| Worse case mode: |               | GFSK(DH5) |                | Test channel: |        | Highest       |           |
|------------------|---------------|-----------|----------------|---------------|--------|---------------|-----------|
| Frequency        | Meter Reading | Factor    | Emission Level | Limits        | Over   | Detector Type | Ant. Pol. |
| (MHz)            | (dBμV)        | (dB)      | (dBμV/m)       | (dBμV/m)      | (dB)   |               | H/V       |
| 2483.5           | 56.96         | -9.29     | 47.67          | 74            | -26.33 | <b>Peak</b>   | <b>H</b>  |
| 4960             | 52.89         | -4.04     | 48.85          | 74            | -25.15 | Peak          | H         |
| 7440             | 50.62         | 1.57      | 52.19          | 74            | -21.81 | Peak          | H         |
| 2483.5           | 55.44         | -9.29     | 46.15          | 74            | -27.85 | <b>Peak</b>   | <b>V</b>  |
| 4960             | 49.08         | -4.04     | 45.04          | 74            | -28.96 | Peak          | V         |
| 7440             | 49.79         | 1.57      | 51.36          | 74            | -22.64 | Peak          | V         |

| Worse case mode: |               | $\pi$ /4DQPSK (2DH5) |                | Test channel:  |        | Lowest        |           |
|------------------|---------------|----------------------|----------------|----------------|--------|---------------|-----------|
| Frequency        | Meter Reading | Factor               | Emission Level | Limits         | Over   | Detector Type | Ant. Pol. |
| (MHz)            | (dB $\mu$ V)  | (dB)                 | (dB $\mu$ V/m) | (dB $\mu$ V/m) | (dB)   |               | H/V       |
| 2390             | 54.03         | -9.2                 | 44.83          | 74             | -29.17 | <b>Peak</b>   | <b>H</b>  |
| 2400             | 55.25         | -9.39                | 45.86          | 74             | -28.14 | Peak          | H         |
| 4804             | 53.60         | -4.33                | 49.27          | 74             | -24.73 | Peak          | H         |
| 7206             | 50.77         | 1.01                 | 51.78          | 74             | -22.22 | Peak          | H         |
| 2390             | 55.87         | -9.2                 | 46.67          | 74             | -27.33 | <b>Peak</b>   | <b>V</b>  |
| 2400             | 56.47         | -9.39                | 47.08          | 74             | -26.92 | Peak          | V         |
| 4804             | 52.64         | -4.33                | 48.31          | 74             | -25.69 | Peak          | V         |
| 7206             | 48.69         | 1.01                 | 49.70          | 74             | -24.30 | Peak          | V         |

| Worse case mode: |               | $\pi$ /4DQPSK (2DH5) |                | Test channel:  |        | Middle        |           |
|------------------|---------------|----------------------|----------------|----------------|--------|---------------|-----------|
| Frequency        | Meter Reading | Factor               | Emission Level | Limits         | Over   | Detector Type | Ant. Pol. |
| (MHz)            | (dB $\mu$ V)  | (dB)                 | (dB $\mu$ V/m) | (dB $\mu$ V/m) | (dB)   |               | H/V       |
| 4882             | 51.99         | -4.11                | 47.88          | 74             | -26.12 | peak          | H         |
| 7323             | 51.15         | 1.51                 | 52.66          | 74             | -21.34 | peak          | H         |
| 4882             | 53.16         | -4.11                | 49.05          | 74             | -24.95 | peak          | V         |
| 7323             | 49.72         | 1.51                 | 51.23          | 74             | -22.77 | peak          | V         |

| Worse case mode: |               | $\pi$ /4DQPSK (2DH5) |                | Test channel:  |        | Highest       |           |
|------------------|---------------|----------------------|----------------|----------------|--------|---------------|-----------|
| Frequency        | Meter Reading | Factor               | Emission Level | Limits         | Over   | Detector Type | Ant. Pol. |
| (MHz)            | (dB $\mu$ V)  | (dB)                 | (dB $\mu$ V/m) | (dB $\mu$ V/m) | (dB)   |               | H/V       |
| 2483.5           | 55.05         | -9.29                | 45.76          | 74             | -28.24 | <b>Peak</b>   | <b>H</b>  |
| 4960             | 52.15         | -4.04                | 48.11          | 74             | -25.89 | Peak          | H         |
| 7440             | 48.48         | 1.57                 | 50.05          | 74             | -23.95 | Peak          | H         |
| 2483.5           | 54.97         | -9.29                | 45.68          | 74             | -28.32 | <b>Peak</b>   | <b>V</b>  |
| 4960             | 50.02         | -4.04                | 45.98          | 74             | -28.02 | Peak          | V         |
| 7440             | 50.53         | 1.57                 | 52.10          | 74             | -21.90 | Peak          | V         |

Remark:

- 1) The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:  
Final Test Level = Receiver Reading + Antenna Factor + Cable Factor – Preamplifier Factor
- 2) Scan from 9kHz to 25GHz, the disturbance above 10GHz and below 30MHz was very low. As shown in this section, for frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. So, only the peak measurements were shown in the report.

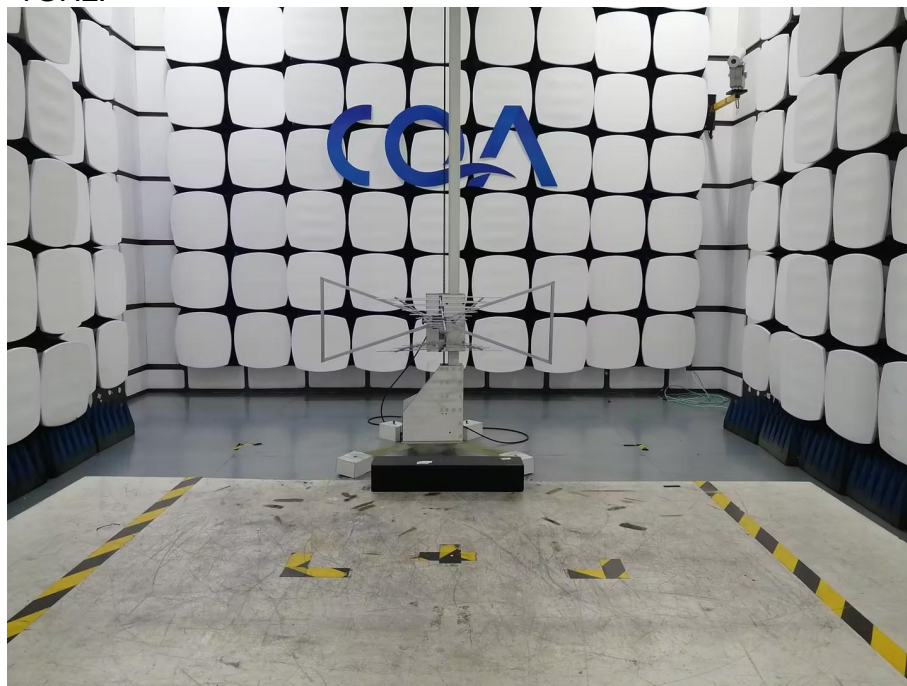
## 6 Photographs - EUT Test Setup

### 6.1 Radiated Emission

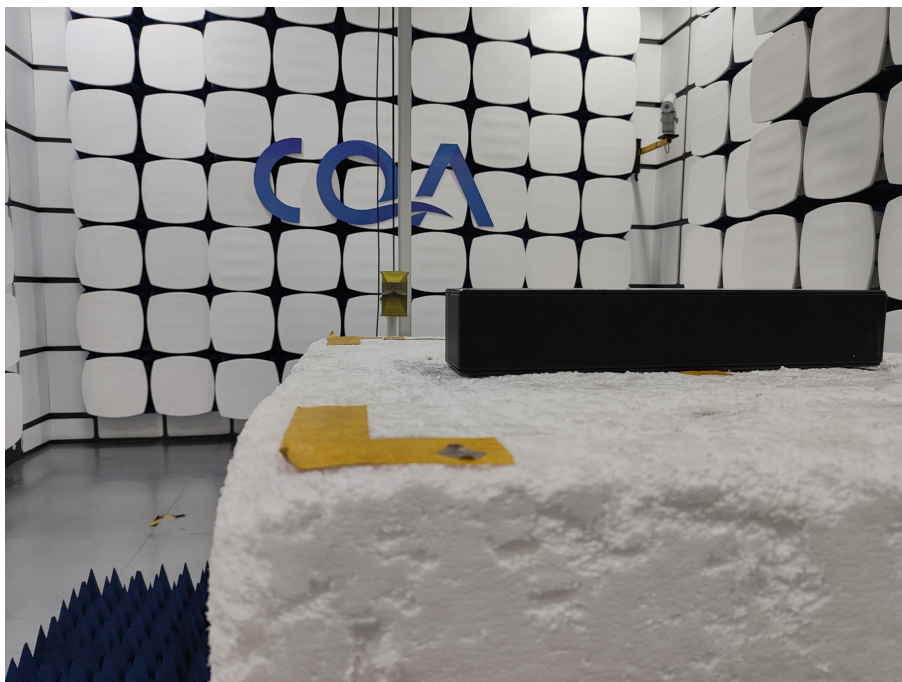
9KHz~30MHz:



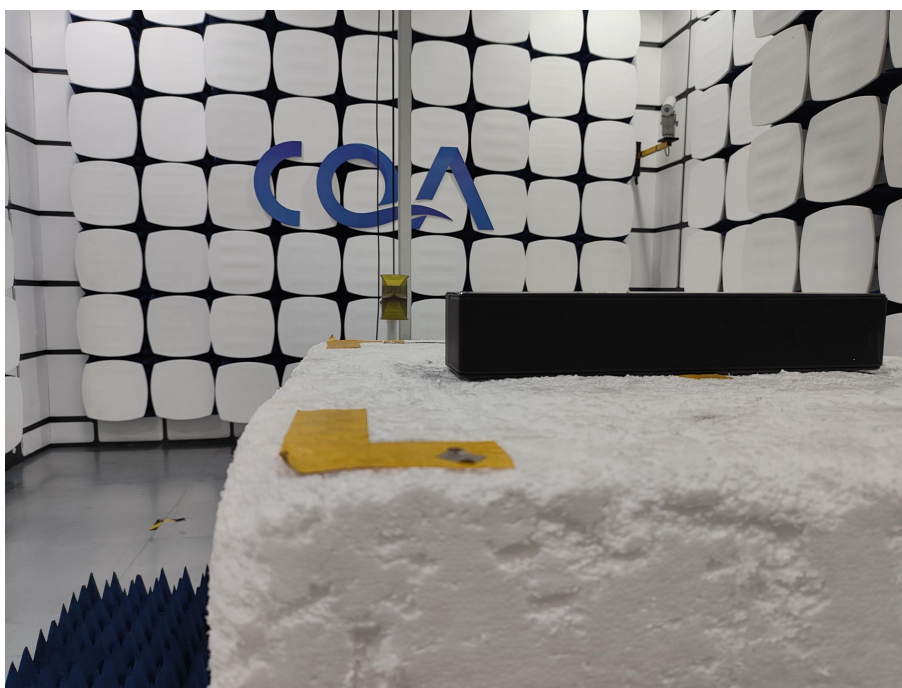
30MHz~1GHz:



Above 1GHz:



## 6.2 Conducted Emission



## 7 Photographs - EUT Constructional Details



