

Appendix A. Test Result of AC Power Line Conducted Emission

The EUT was powered by battery. It's not necessary to apply to AC Power Line Conducted Emission test.

Appendix B. Test Result of Occupied Bandwidth

| Test Frequency (GHz) | Occupied Bandwidth (GHz) | Measurement Value (fL) (GHz) | Measurement Value (fH) (GHz) | Limit |
|-------------------------|-----------------------------|---------------------------------|---------------------------------|--|
| 60.85 | 2.24 | 59.74 | 61.99 | $fL \geq 57 \text{ GHz}$, $fH \leq 64 \text{ GHz}$ |

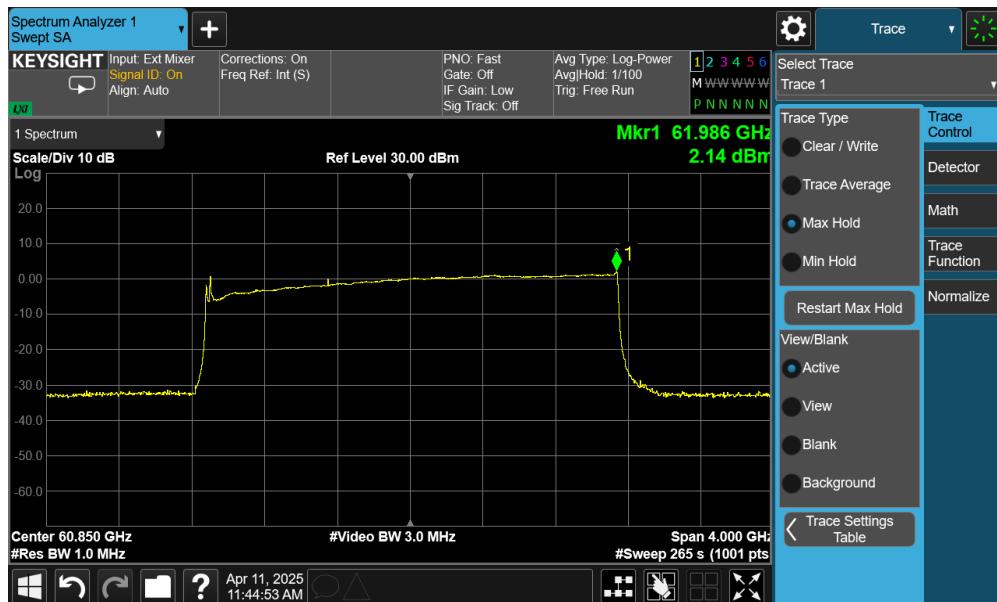


Appendix C. Test Result of Maximum output power (EIRP)

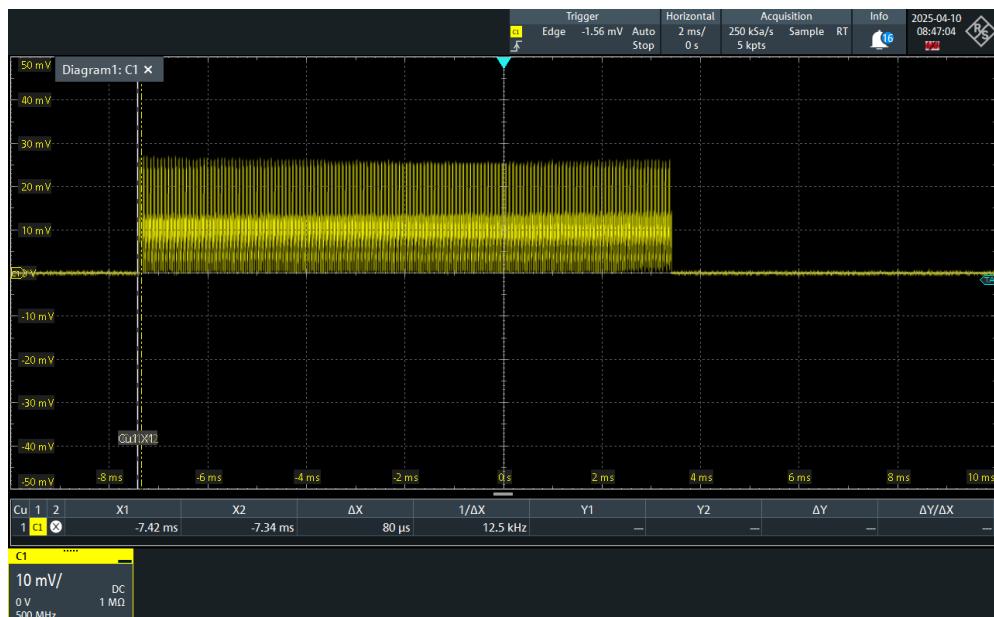
| Test Frequency (GHz) | Measurement Level (dBm) | FMCW Desensitization factor (dB) | EIRP (dBm) | EIRP Limit (dBm) |
|----------------------|-------------------------|----------------------------------|------------|------------------|
| 60.85 | 2.14 | -10.93 | 13.07 | 20 |

Note: EIRP= Measurement Level - FMCW Desensitization factor.

Measurement Level



FMCW Desensitization factor (Chirp Time= 80us)



| BWchirp (MHz) | Tchirp (us) | B (MHz) | α (dB) | FMCW Desensitization factor (dB) |
|------------------|----------------|------------|------------------|--|
| 2240.000 | 80.000 | 1.000 | 0.284 | -10.93 |

Note:

Desensitization factor was calculated from follow equation;

$$\alpha = \frac{1}{1 + \left[\left(\frac{2 \times \ln(2)}{\pi} \right)^2 \times \left(\frac{BW_{Chirp}}{T_{Chirp} \times RBW^2} \right)^2 \right]^{0.25}}$$

and

FMCW Desensitization factor = 20 Log (α)

where

α BW_{Chirp} is the reduction in amplitudes the FMCW Chirp Bandwidth

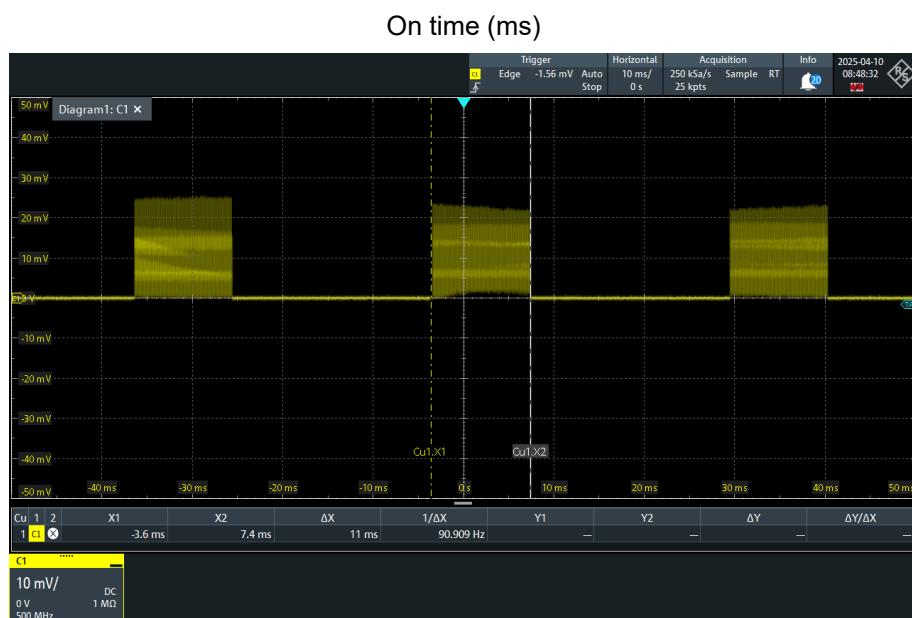
T_{Chirp} is the FMCW Chirp Time

B is the 3 dB IF Bandwidth = RBW

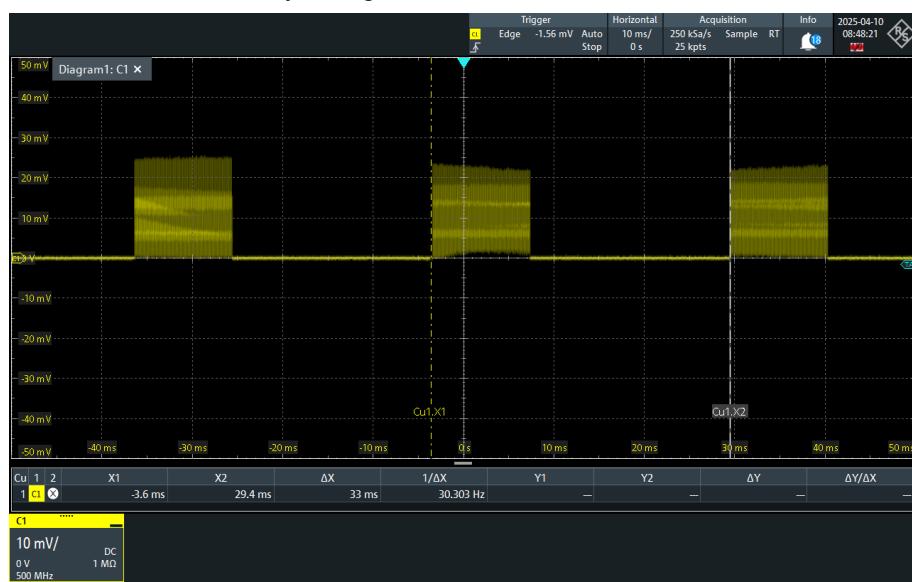
Sum of continuous transmitter off-times in 33ms

| Brust Period (ms) | On Time (ms) | Off Time (ms) | Off Time Limit (ms) |
|----------------------|-----------------|------------------|------------------------|
| 33 | 11 | 22 | >16.5 |

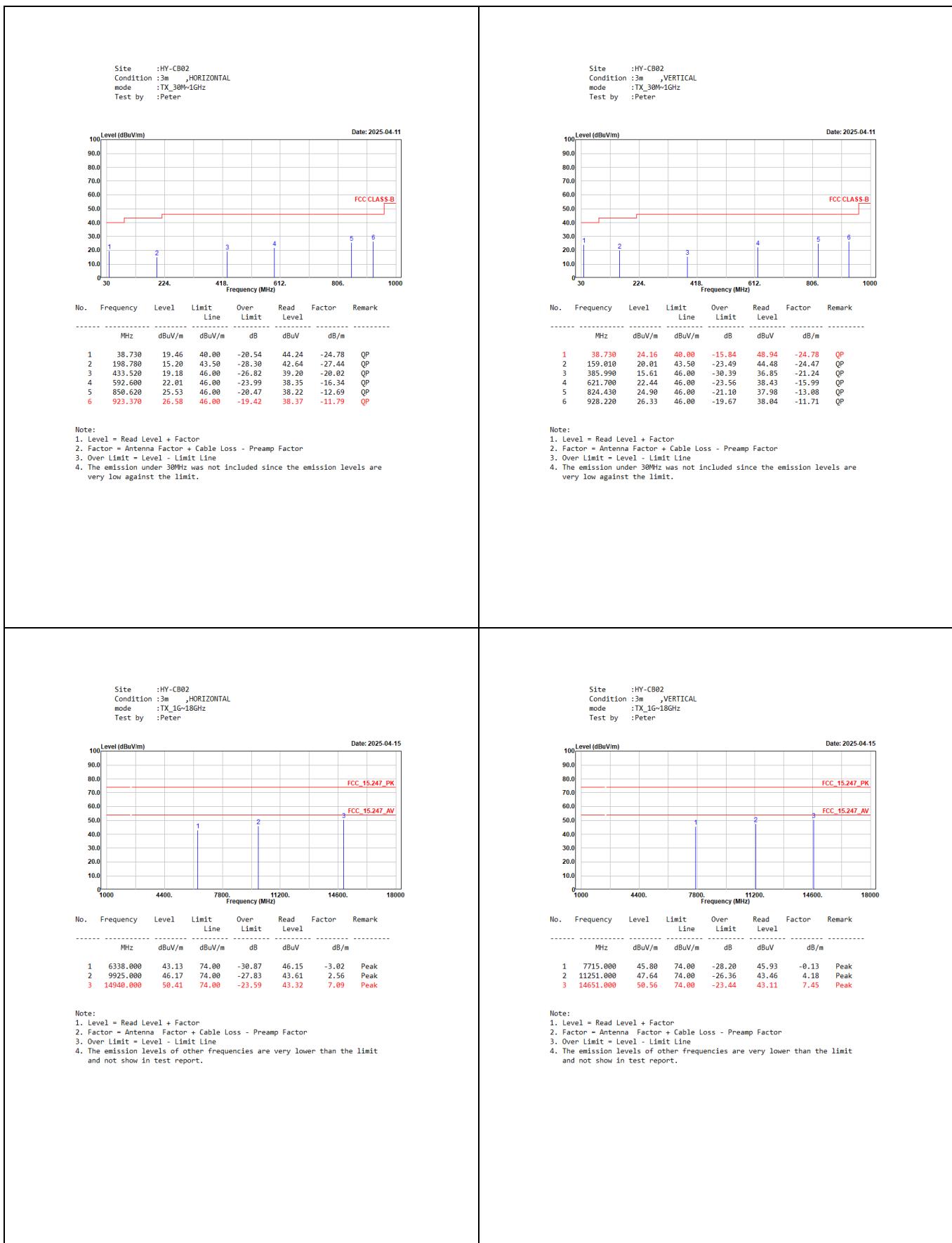
Note: Off Time(ms)= Burst Period(ms)- On Time(ms)



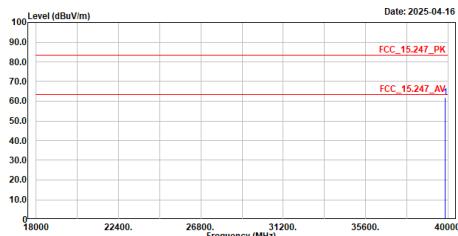
within any contiguous interval of 33 milliseconds



Appendix D. Test Result of Radiated Emissions



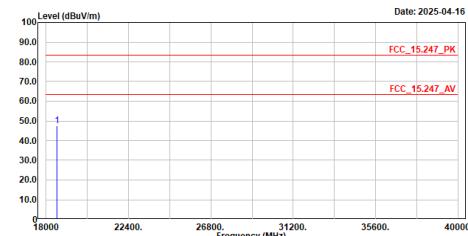
Site :HY-CB02
 Condition :1m ,Horizontal
 mode :TX_18G~40GHz
 Test by :Peter



| No. | Frequency | Level | Limit | Over | Read | Factor | Remark |
|-----|-----------|--------|--------|--------|-------|--------|--------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB/m | |
| 1 | 39846.000 | 61.96 | 83.54 | -21.58 | 42.27 | 19.69 | Peak |

Note:
 1. Level = Read Level + Factor
 2. Factor = Antenna Factor + Cable Loss - Preamp Factor
 3. Over Limit = Level - Limit Line
 4. The emission levels of other frequencies are very lower than the limit and not show in test report.

Site :HY-CB02
 Condition :1m ,Vertical
 mode :TX_18G~40GHz
 Test by :Peter



| No. | Frequency | Level | Limit | Over | Read | Factor | Remark |
|-----|-----------|--------|--------|--------|-------|--------|--------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB/m | |
| 1 | 18567.000 | 47.47 | 83.54 | -36.07 | 42.23 | 5.24 | Peak |

Note:
 1. Level = Read Level + Factor
 2. Factor = Antenna Factor + Cable Loss - Preamp Factor
 3. Over Limit = Level - Limit Line
 4. The emission levels of other frequencies are very lower than the limit and not show in test report.

Above 40 GHz

| Frequency Range (GHz) | Measurement Frequency (GHz) | EIRP (dBm) | EIRP (W) | Specification Distance (m) | Power Density (W / m ²) | Power Density (pW / cm ²) | Limit (pW / cm ²) |
|-----------------------|-----------------------------|------------|------------|----------------------------|-------------------------------------|---------------------------------------|-------------------------------|
| 40-50 | 40.16 | -43.55 | 0.00000004 | 3 | 3.9063E-10 | 0.04 | 90 |
| 50-75 | 52.8 | -20.23 | 0.00000948 | 3 | 8.3906E-08 | 8.39 | 90 |
| 75-90 | 75.03 | -28.33 | 0.00000147 | 3 | 1.3002E-08 | 1.30 | 90 |
| 90-140 | 120.9 | -21.86 | 0.00000601 | 3 | 5.7594E-08 | 5.76 | 90 |
| 140-200 | 142.64 | -18.90 | 0.00001205 | 3 | 1.1392E-07 | 11.39 | 90 |

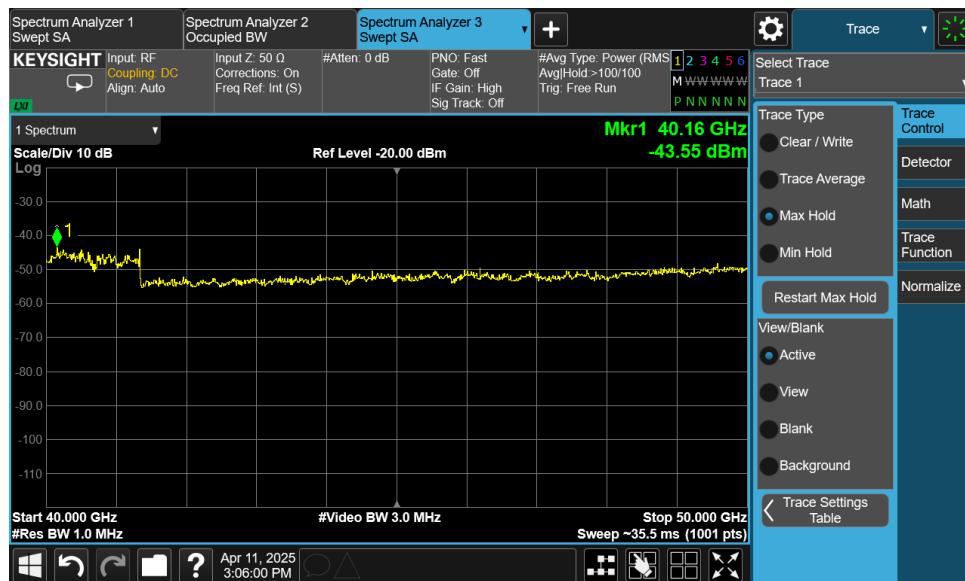
Note: Power densiny was calculated from follow equation;

$$PD = \frac{EIRP_{\text{Linear}}}{4\pi d^2}$$

where

- PD is the power density at the distance specified by the limit, in W/m²
 EIRP_{Linear} is the equivalent isotropically radiated power, in watts
 d is the distance at which the power density limit is specified, in m

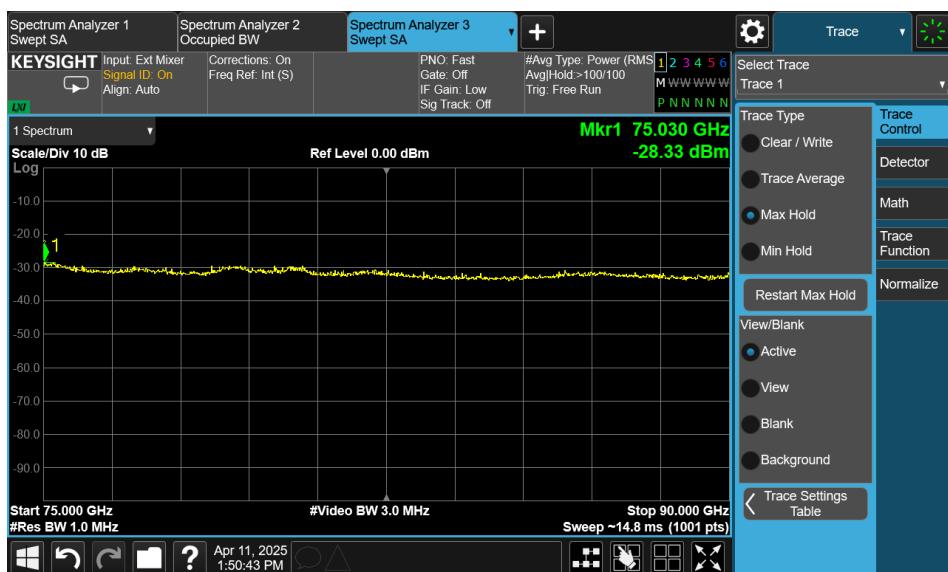
40~50GHz



50~75GHz



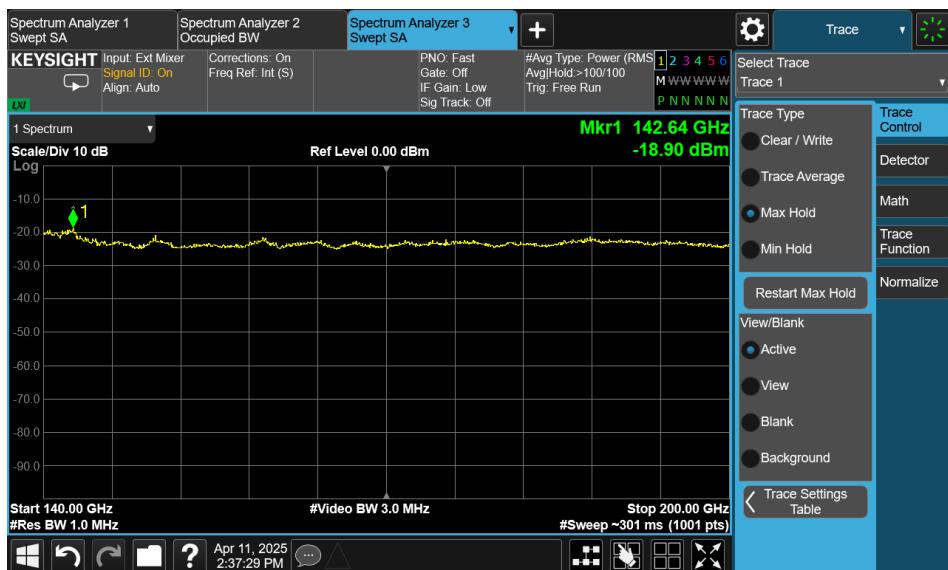
75~90GHz



90-140GHz



140-200GHz



Appendix E. Test Result of Frequency Stability

| Voltage (V) | Measurement Frequency (fL) (GHz) | Measurement Frequency (fH) (GHz) | Limit $fL \geq 57 \text{ GHz}$ $fH \leq 64 \text{ GHz}$ |
|----------------|-------------------------------------|-------------------------------------|---|
| 4.14 | 59.740 | 61.990 | Within band |
| 3.6 | 59.736 | 61.986 | Within band |
| 3.06 | 59.736 | 61.986 | Within band |

| Temperature (°C) | Observe Time | Measurement Frequency (fL) (GHz) | Measurement Frequency (fH) (GHz) | Limit fL ≥ 57 GHz fH ≤ 64 GHz |
|---------------------|--------------|--|--|-------------------------------------|
| 50 | start | 59.736 | 61.986 | Within band |
| | 2 mins | 59.736 | 61.986 | Within band |
| | 5 mins | 59.736 | 61.986 | Within band |
| | 10 mins | 59.736 | 61.986 | Within band |
| 40 | start | 59.732 | 61.986 | Within band |
| | 2 mins | 59.732 | 61.986 | Within band |
| | 5 mins | 59.732 | 61.986 | Within band |
| | 10 mins | 59.732 | 61.986 | Within band |
| 30 | start | 59.740 | 61.986 | Within band |
| | 2 mins | 59.740 | 61.986 | Within band |
| | 5 mins | 59.740 | 61.986 | Within band |
| | 10 mins | 59.740 | 61.986 | Within band |
| 20 | start | 59.740 | 61.986 | Within band |
| | 2 mins | 59.740 | 61.986 | Within band |
| | 5 mins | 59.740 | 61.986 | Within band |
| | 10 mins | 59.740 | 61.986 | Within band |
| 10 | start | 59.736 | 61.986 | Within band |
| | 2 mins | 59.736 | 61.986 | Within band |
| | 5 mins | 59.736 | 61.986 | Within band |
| | 10 mins | 59.736 | 61.986 | Within band |
| 0 | start | 59.740 | 61.986 | Within band |
| | 2 mins | 59.740 | 61.986 | Within band |
| | 5 mins | 59.740 | 61.986 | Within band |
| | 10 mins | 59.740 | 61.986 | Within band |
| -10 | start | 59.732 | 61.986 | Within band |
| | 2 mins | 59.732 | 61.986 | Within band |
| | 5 mins | 59.732 | 61.986 | Within band |
| | 10 mins | 59.732 | 61.986 | Within band |
| -20 | start | 59.732 | 61.986 | Within band |
| | 2 mins | 59.732 | 61.986 | Within band |
| | 5 mins | 59.732 | 61.986 | Within band |
| | 10 mins | 59.732 | 61.986 | Within band |