

# QCC730 FM01.3 WLAN iPA DVT Test Report

80-WL730-73 Rev. AC

# Revision History

| Revision | Date       | Description                                                                      |
|----------|------------|----------------------------------------------------------------------------------|
| AA       | April 2024 | Initial release                                                                  |
| AB       | July 2024  | Updated test results for CS release                                              |
| AC       | March 2025 | Updated for customer release. No technical content was changed in this revision. |

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## Section 1

# Test Setup Information

# DUT Information

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This document describes the hardware used for DVT test data.

## ■ Test sample information:

- MCN: 30-72410-702 Rev: A
- Sample size: 1
- Tx/Rx chains: One Tx, one Rx.
- Firmware: FW147
- Sample type: 1xTT
- Temperature: 25°C, - 20°C, and 85°C
- Boards tested: D382

## ■ Board configuration:

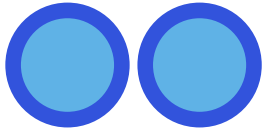
- 38.4 MHz on module
- 2G iPA
- 5G/6G iPA



Section 2

# WLAN Tx Pout Vs. EVM

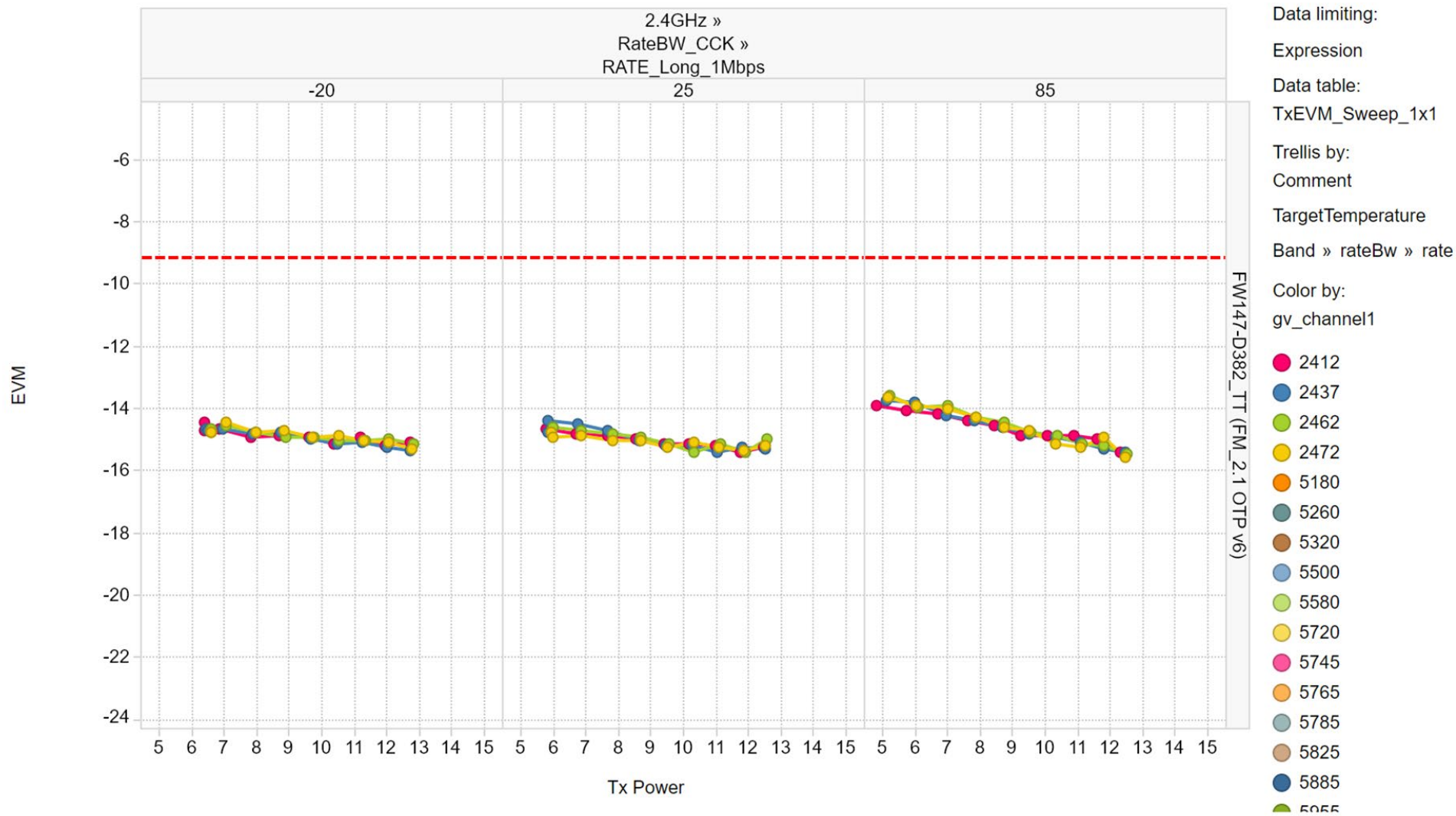
|                    |                    |
|--------------------|--------------------|
| 2.1 Tx EVM 2.4 GHz | <a href="#">7</a>  |
| 2.2 Tx EVM 5 GHz   | <a href="#">14</a> |
| 2.3 Tx EVM 6 GHz   | <a href="#">19</a> |



## Section 2.1

# Tx EVM 2.4 GHz

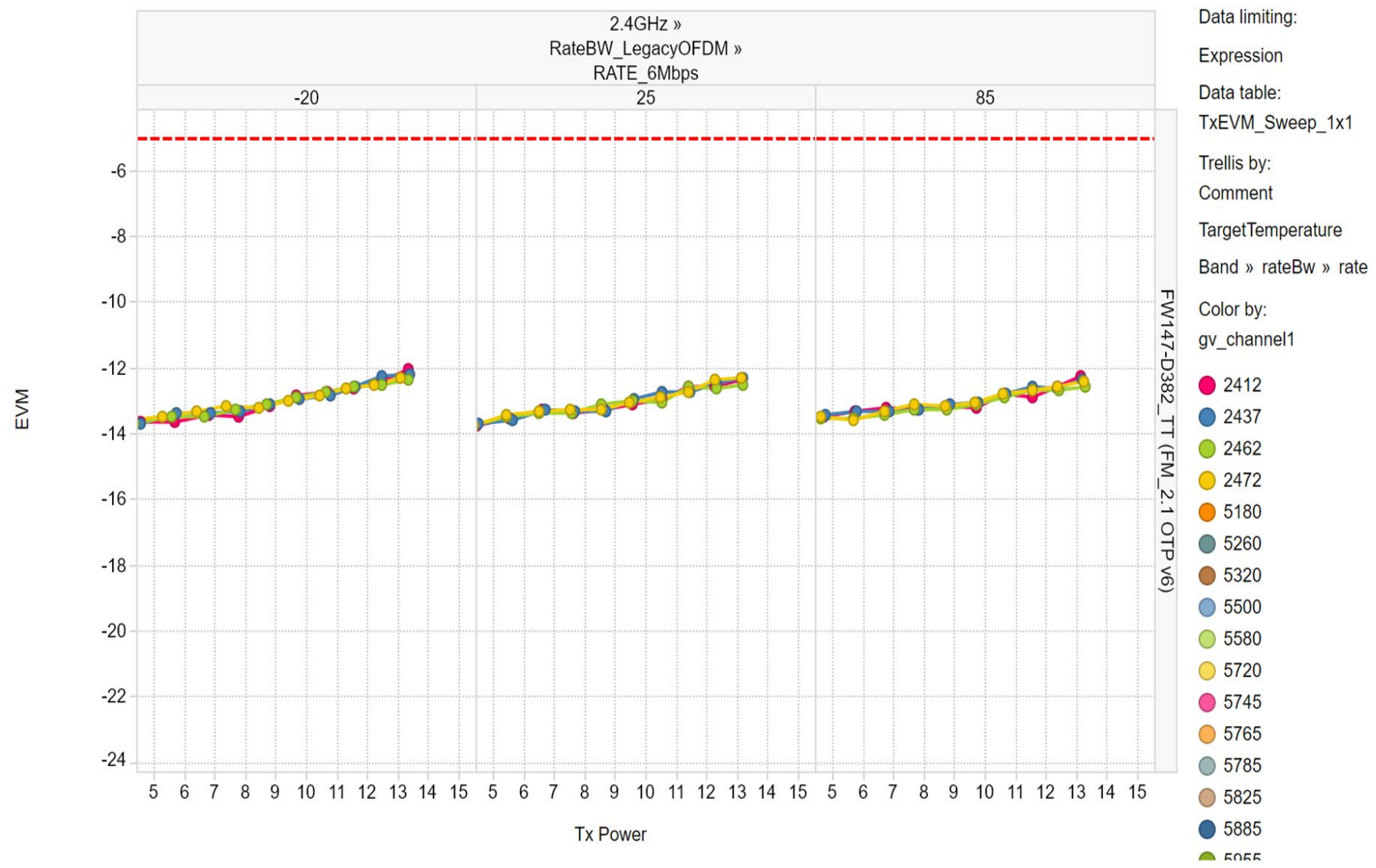
# Tx EVM Summary 2.4 GHz



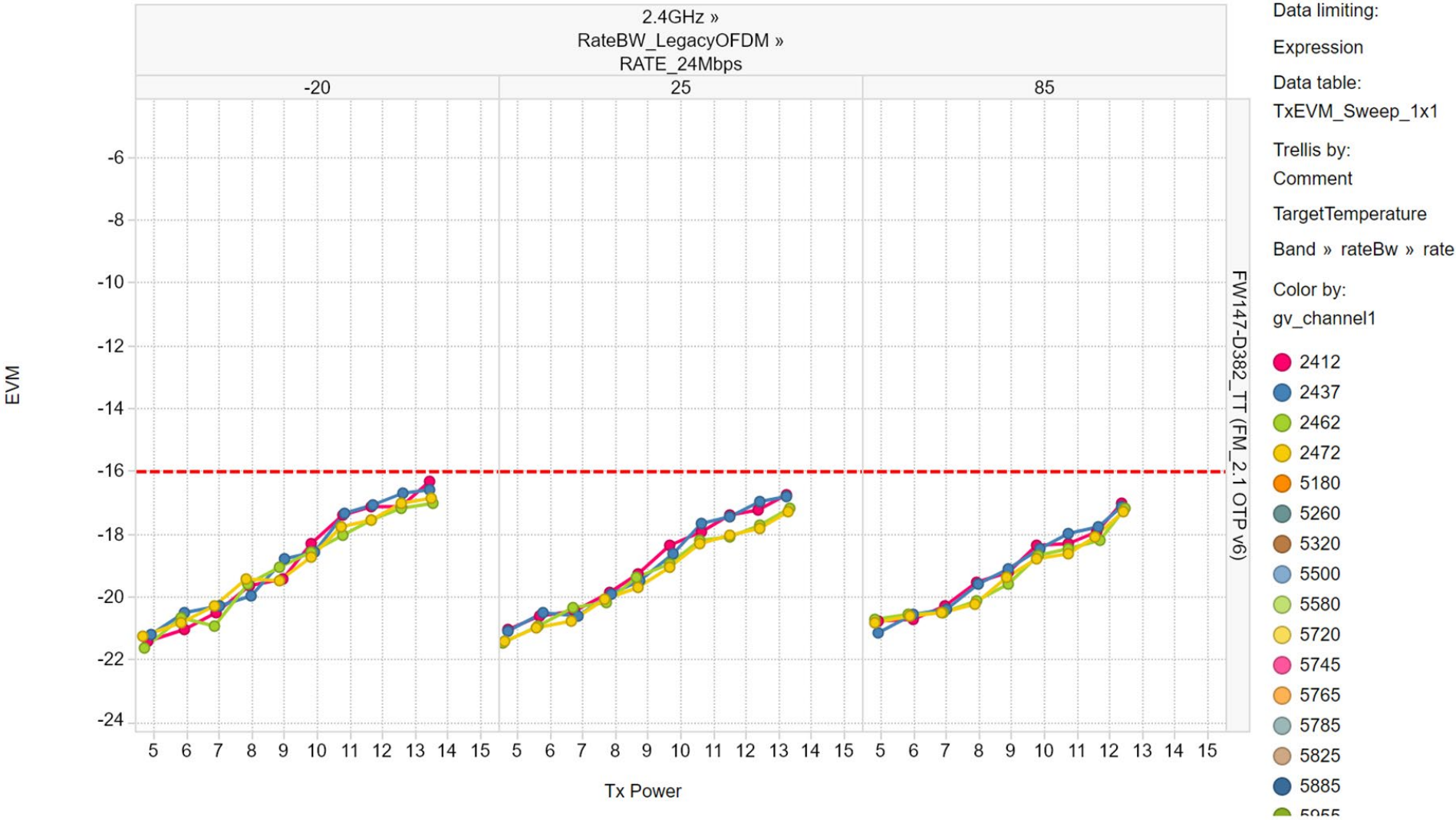
# Tx EVM Summary 2.4 GHz (cont.)



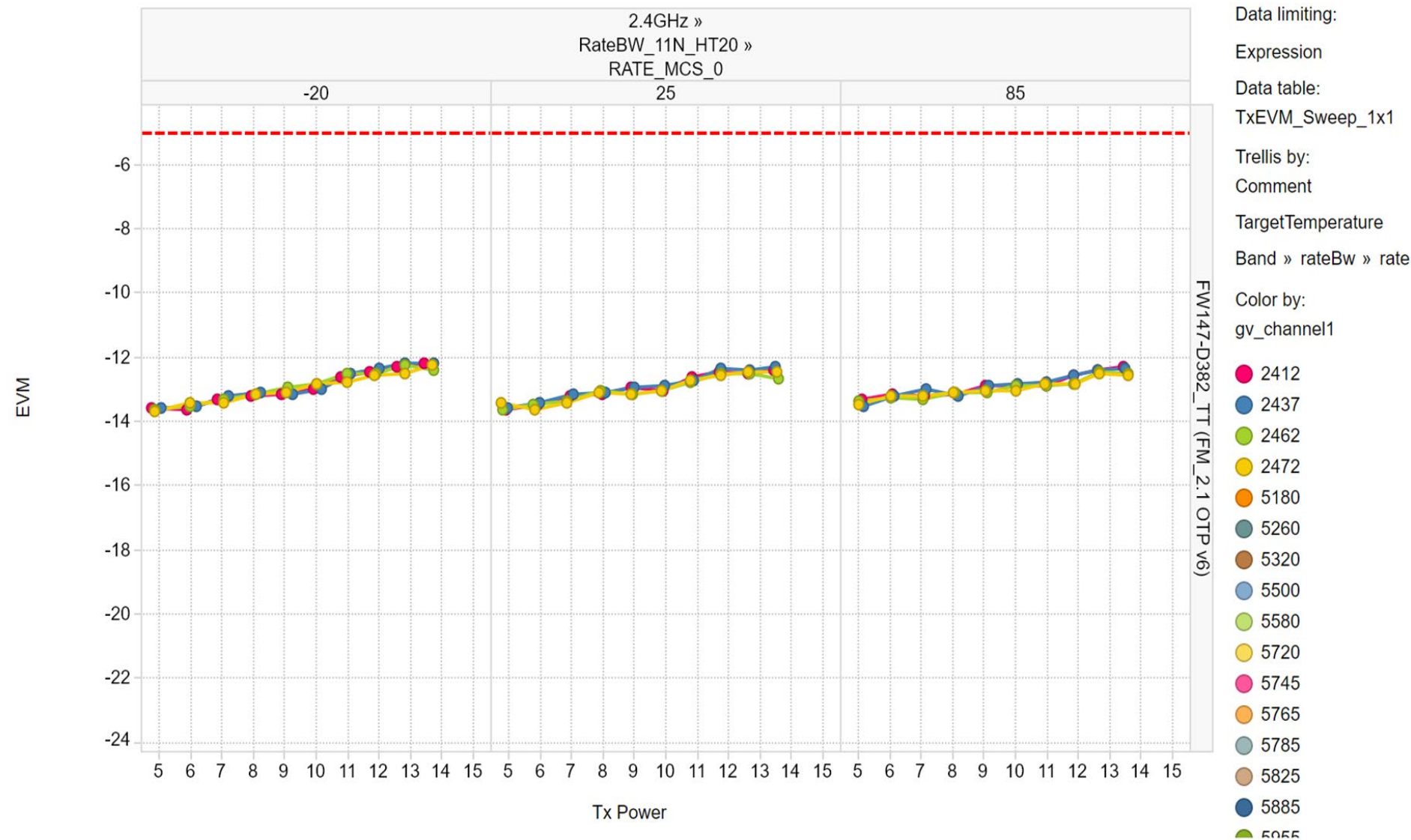
# Tx EVM Summary 2.4 GHz (cont.)



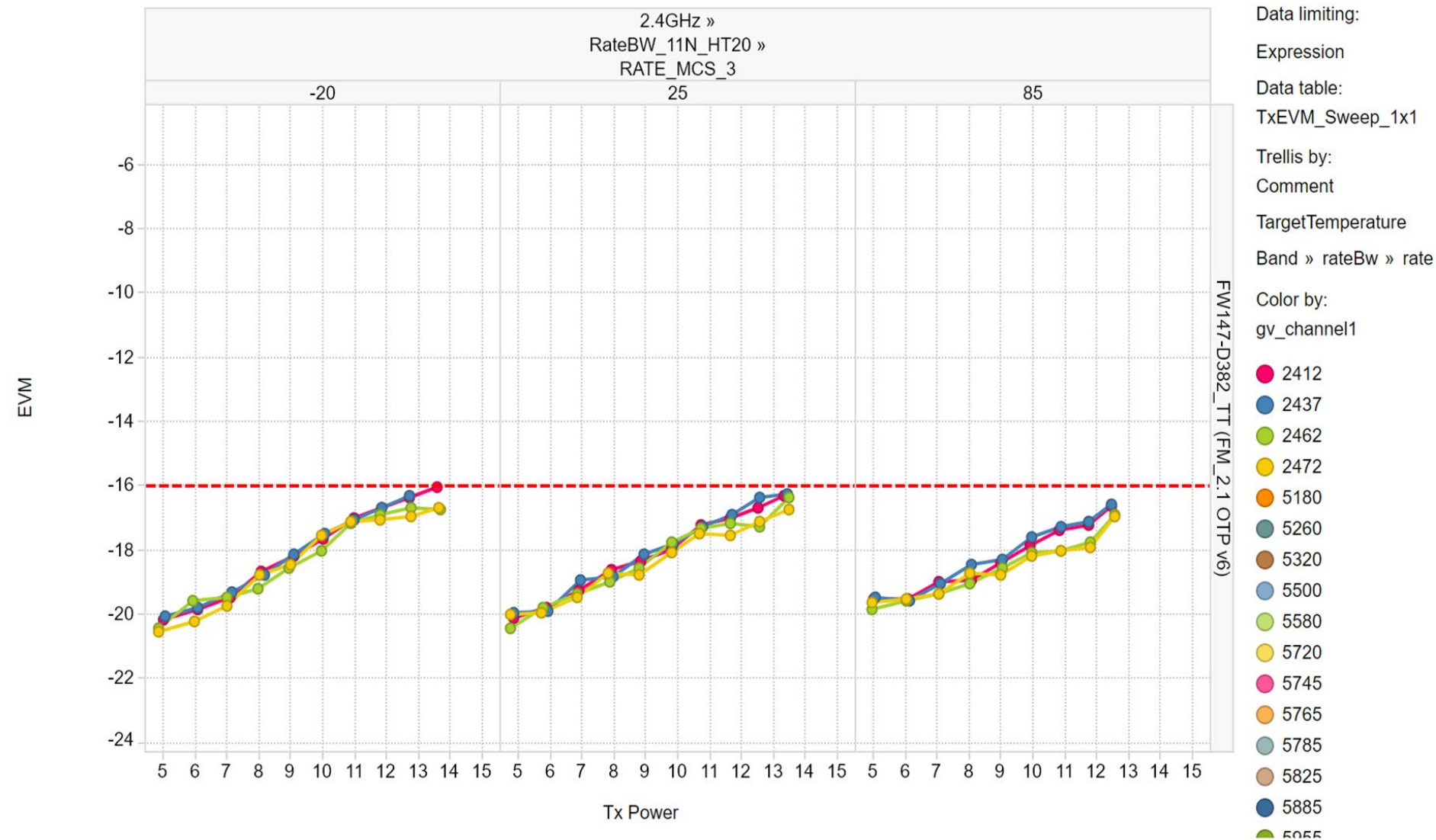
# Tx EVM Summary 2.4 GHz (cont.)

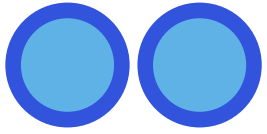


# Tx EVM Summary 2.4 GHz (cont.)



# Tx EVM Summary 2.4 GHz (cont.)

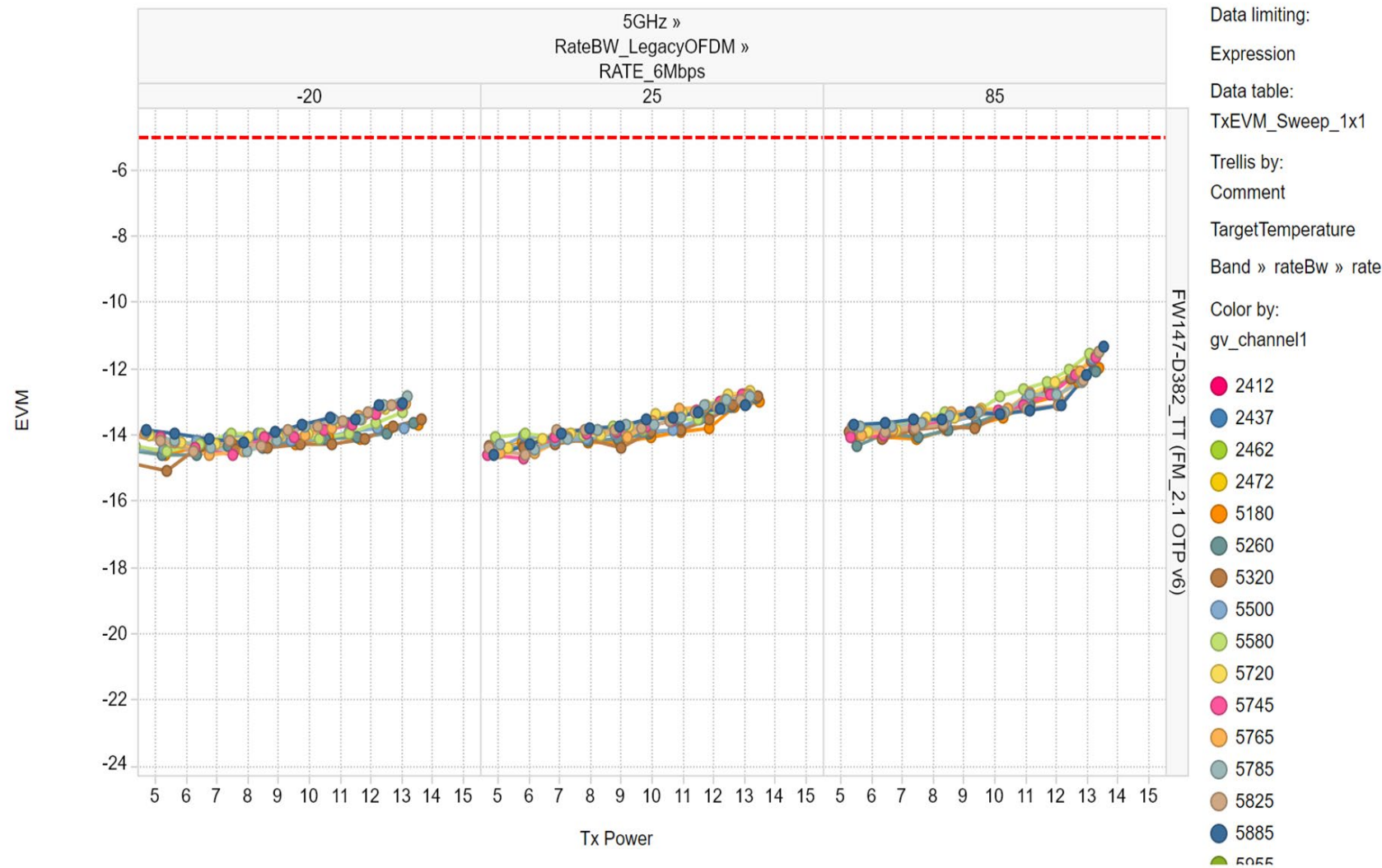




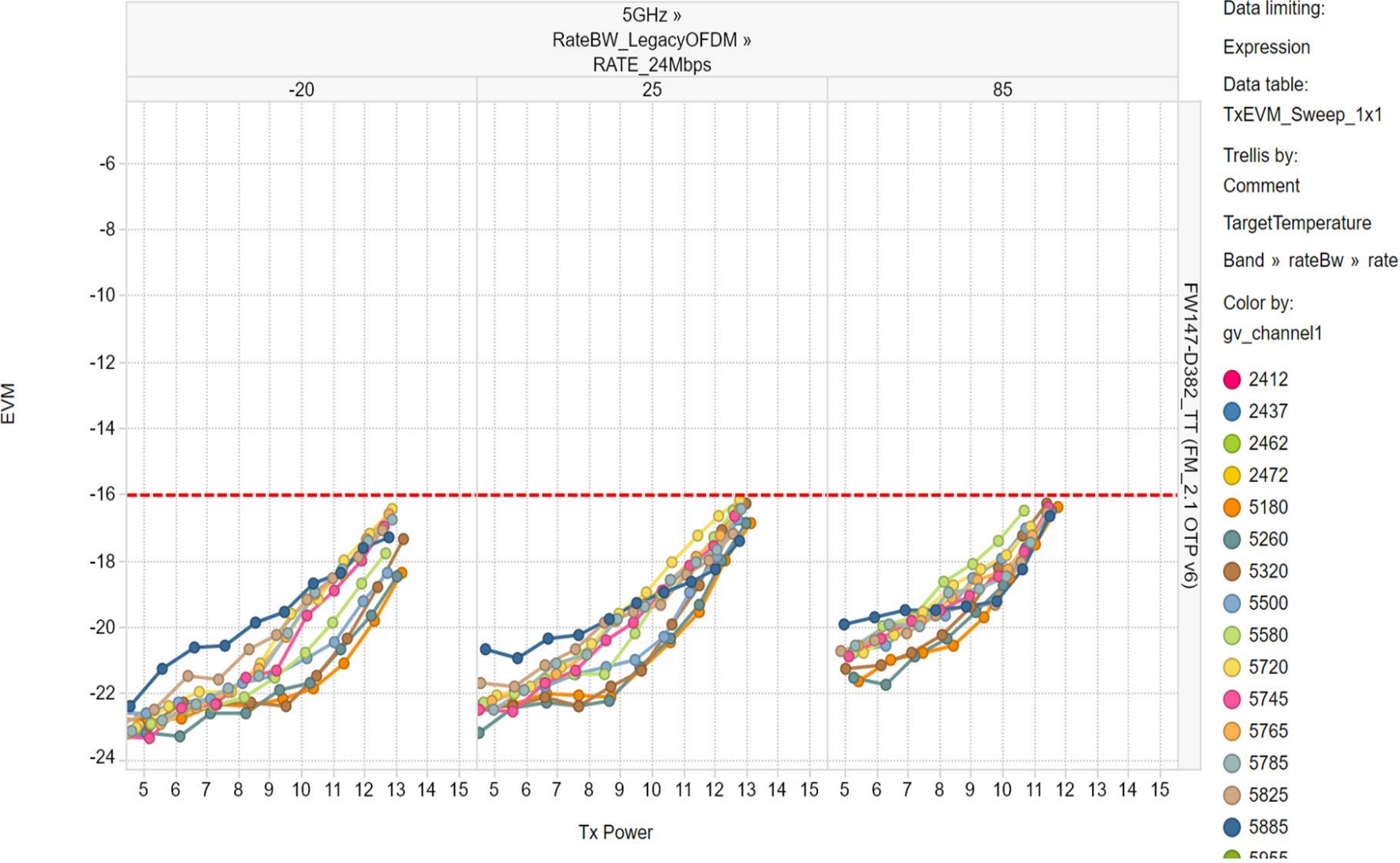
## Section 2.2

# Tx EVM 5 GHz

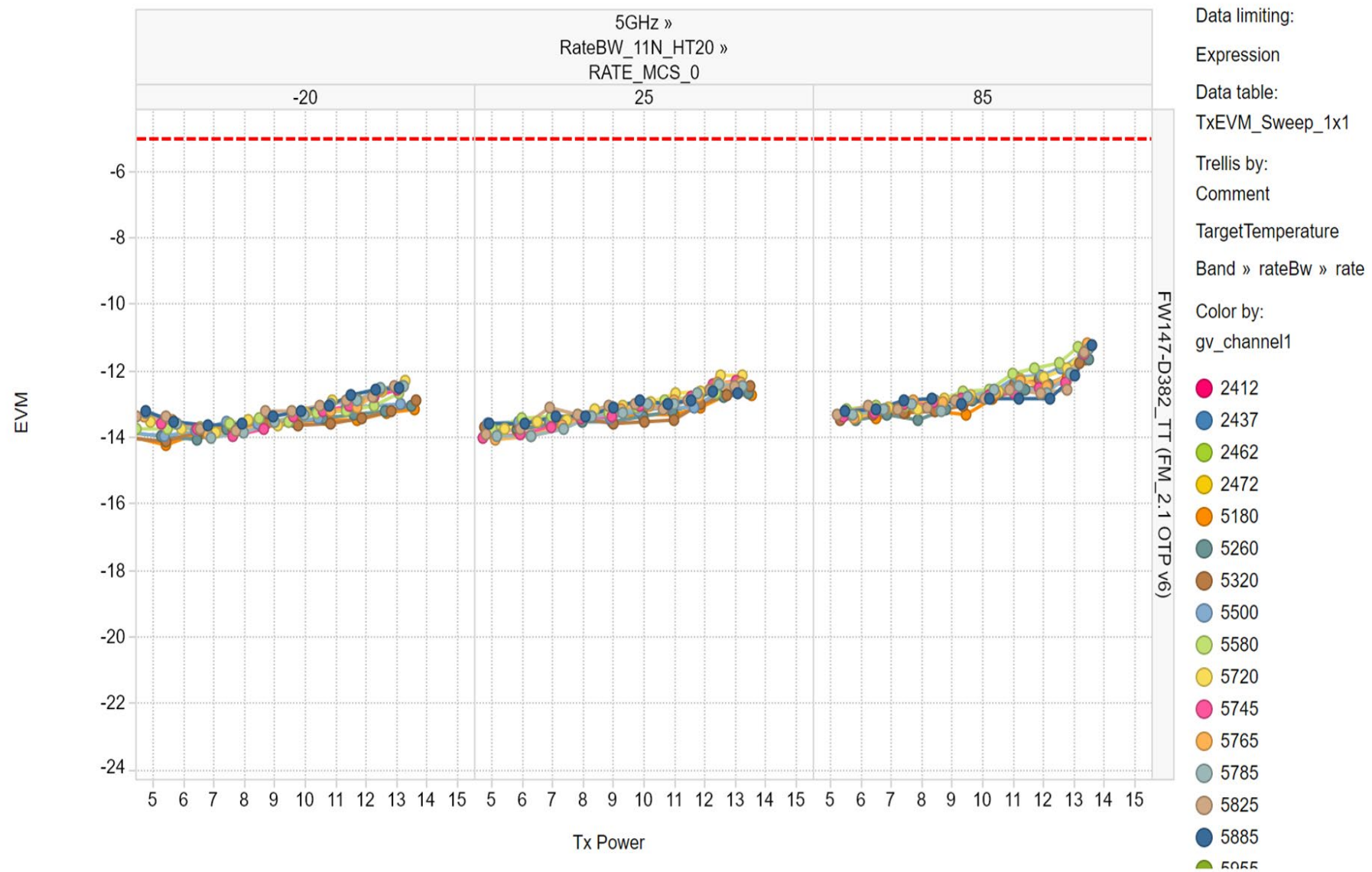
# Tx EVM Summary 5 GHz



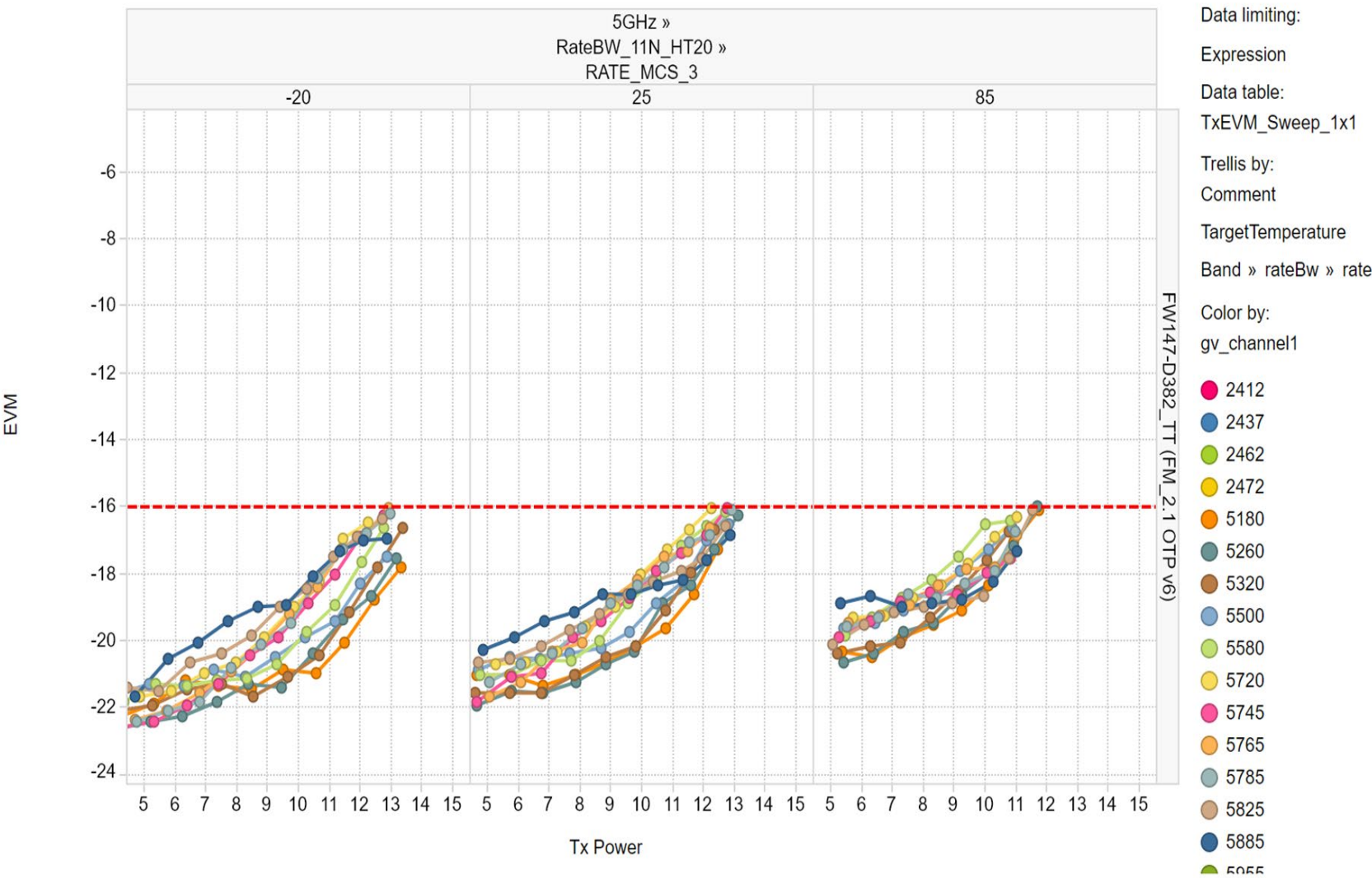
# Tx EVM Summary 5 GHz (cont.)

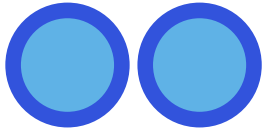


# Tx EVM Summary 5 GHz (cont.)



# Tx EVM Summary 5 GHz (cont.)

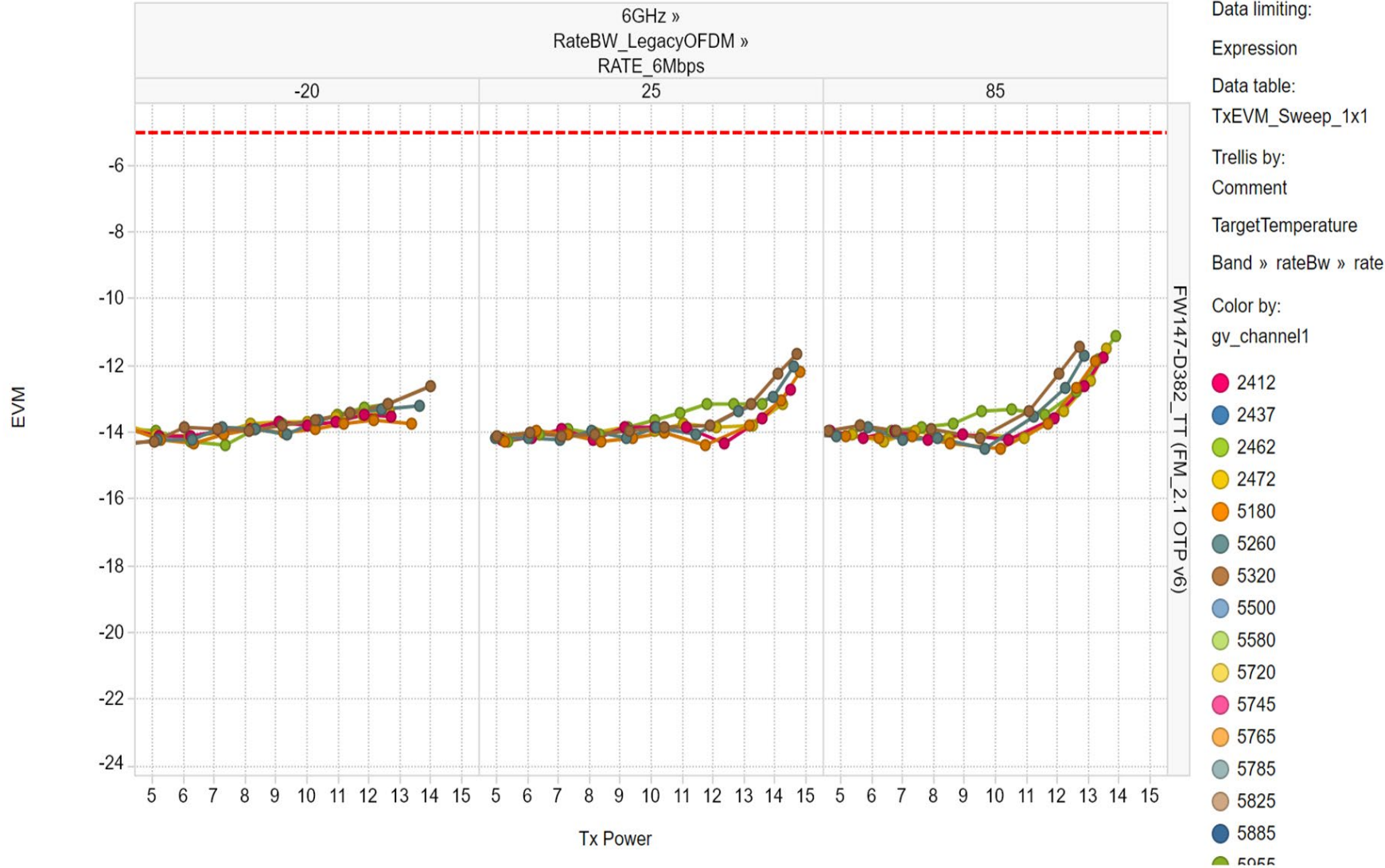




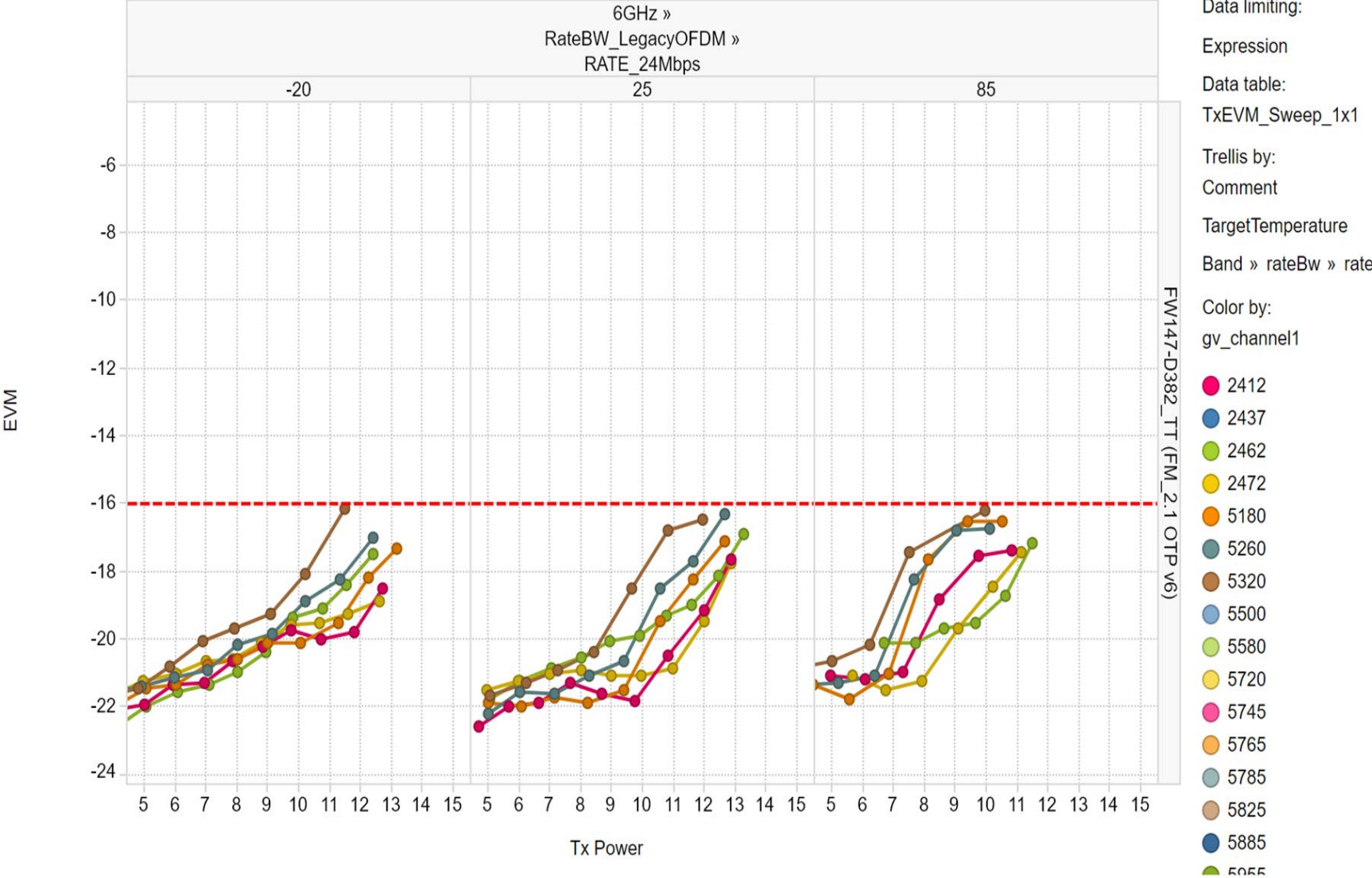
## Section 2.3

# Tx EVM 6 GHz

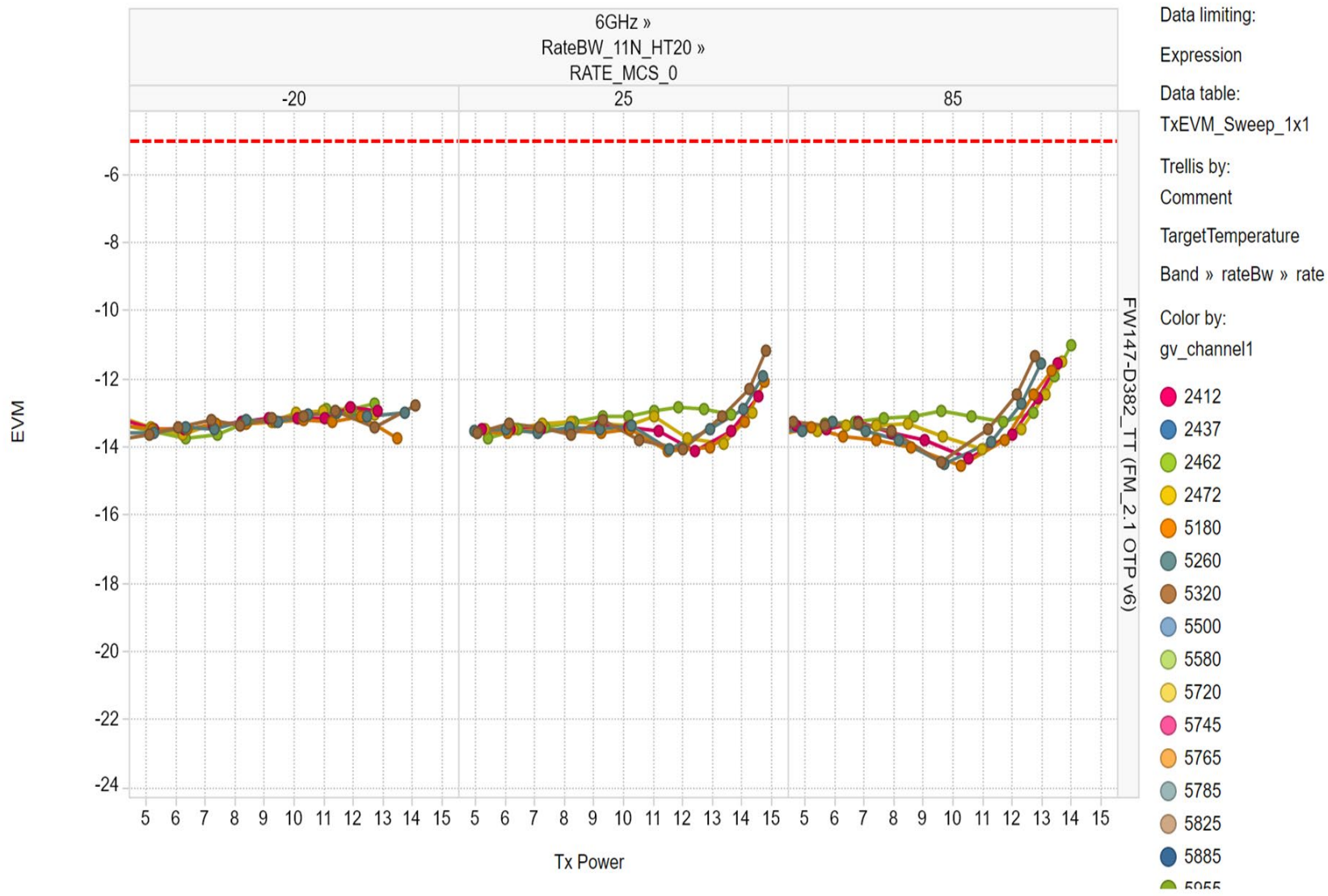
# Tx EVM Summary 6 GHz



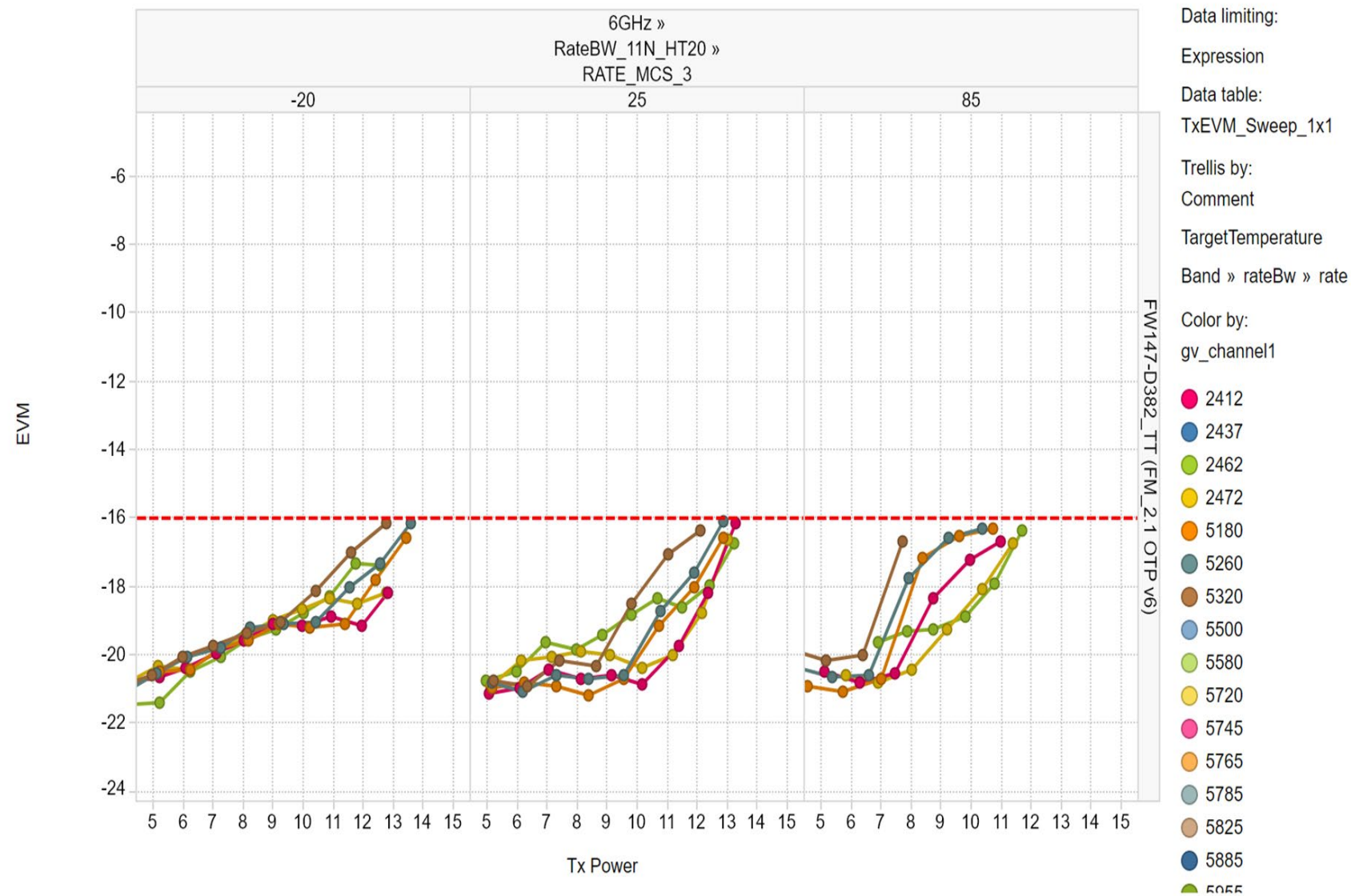
# Tx EVM Summary 6 GHz (cont.)



# Tx EVM Summary 6 GHz (cont.)



# Tx EVM Summary 6 GHz (cont.)

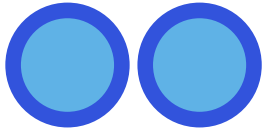




Section 3

# WLAN Tx Mask (SEM)

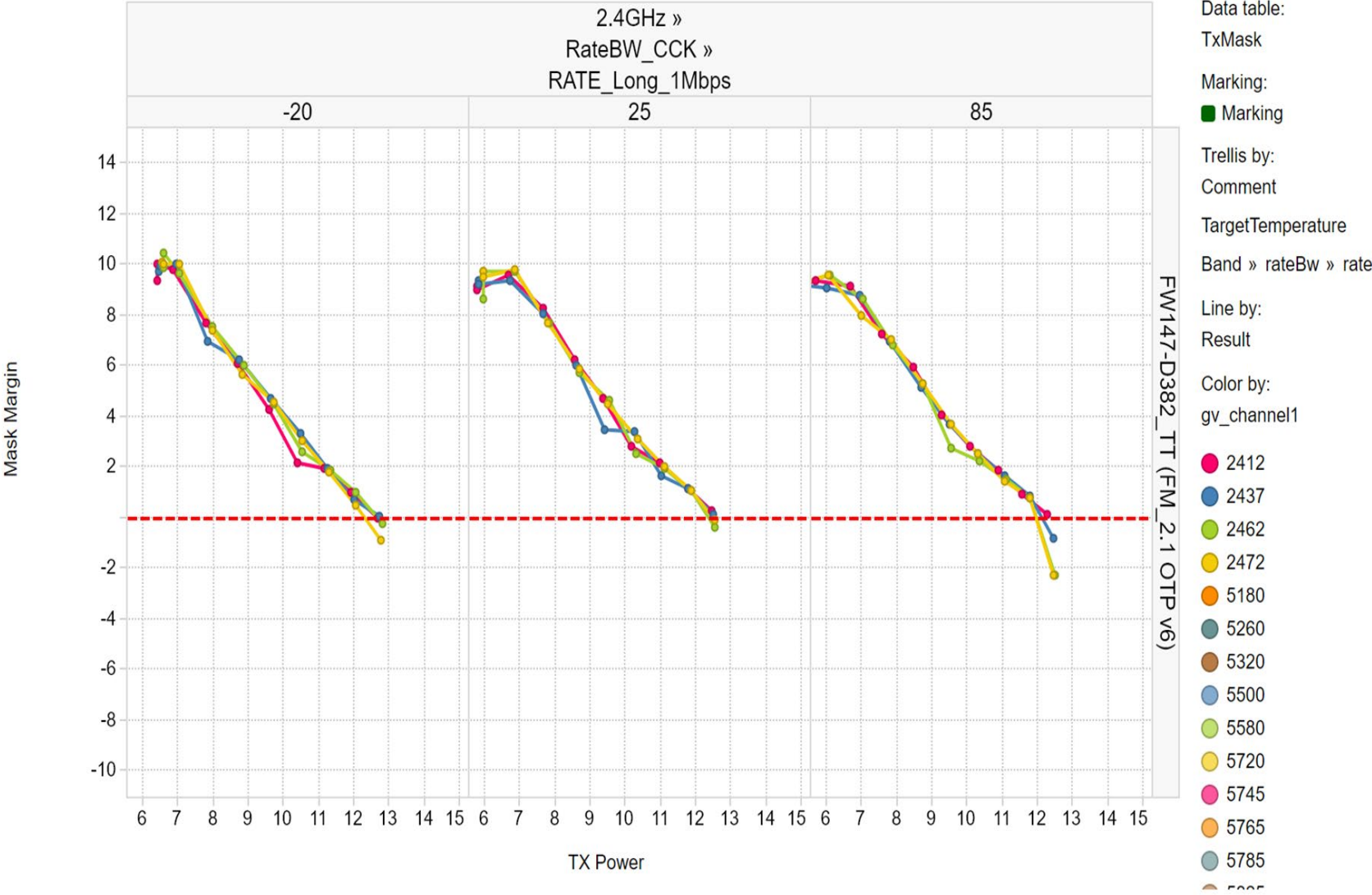
|                     |                           |
|---------------------|---------------------------|
| 3.1 Tx Mask 2.4 GHz | <a href="#"><u>25</u></a> |
| 3.2 Tx Mask 5 GHz   | <a href="#"><u>32</u></a> |
| 3.3 Tx Mask 6 GHz   | <a href="#"><u>37</u></a> |



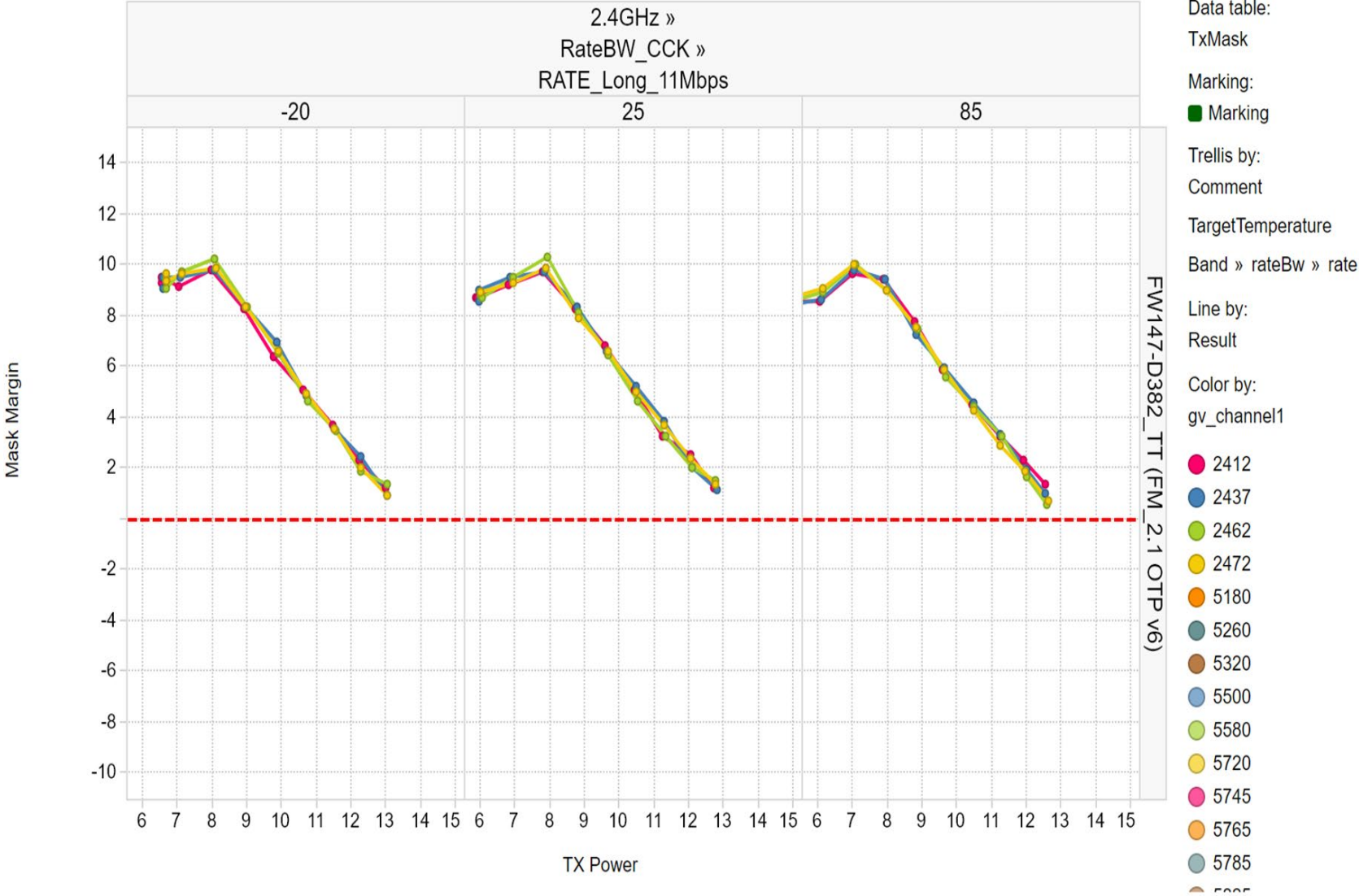
## Section 3.1

# Tx Mask 2.4 GHz

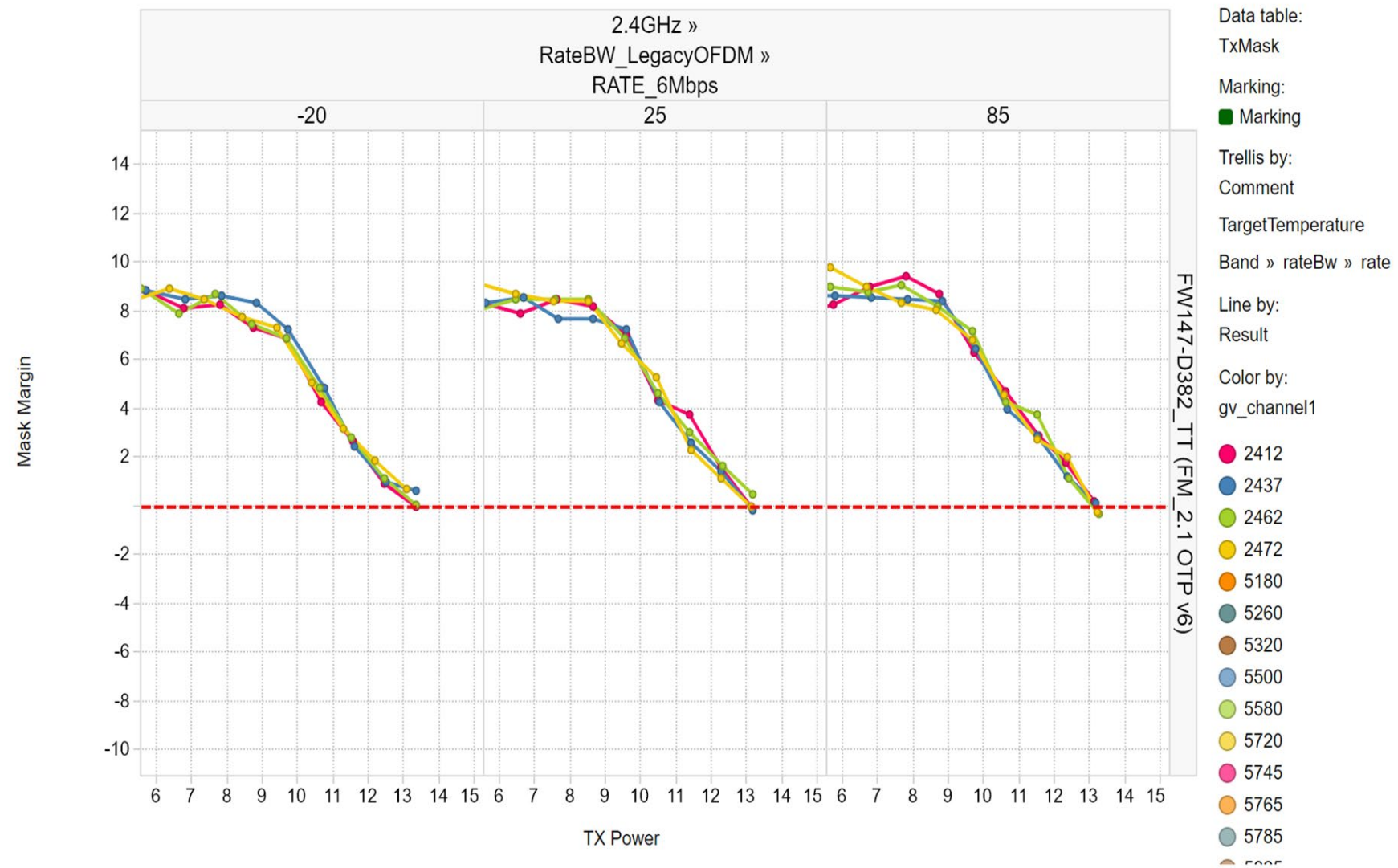
# Tx Mask 2.4 GHz



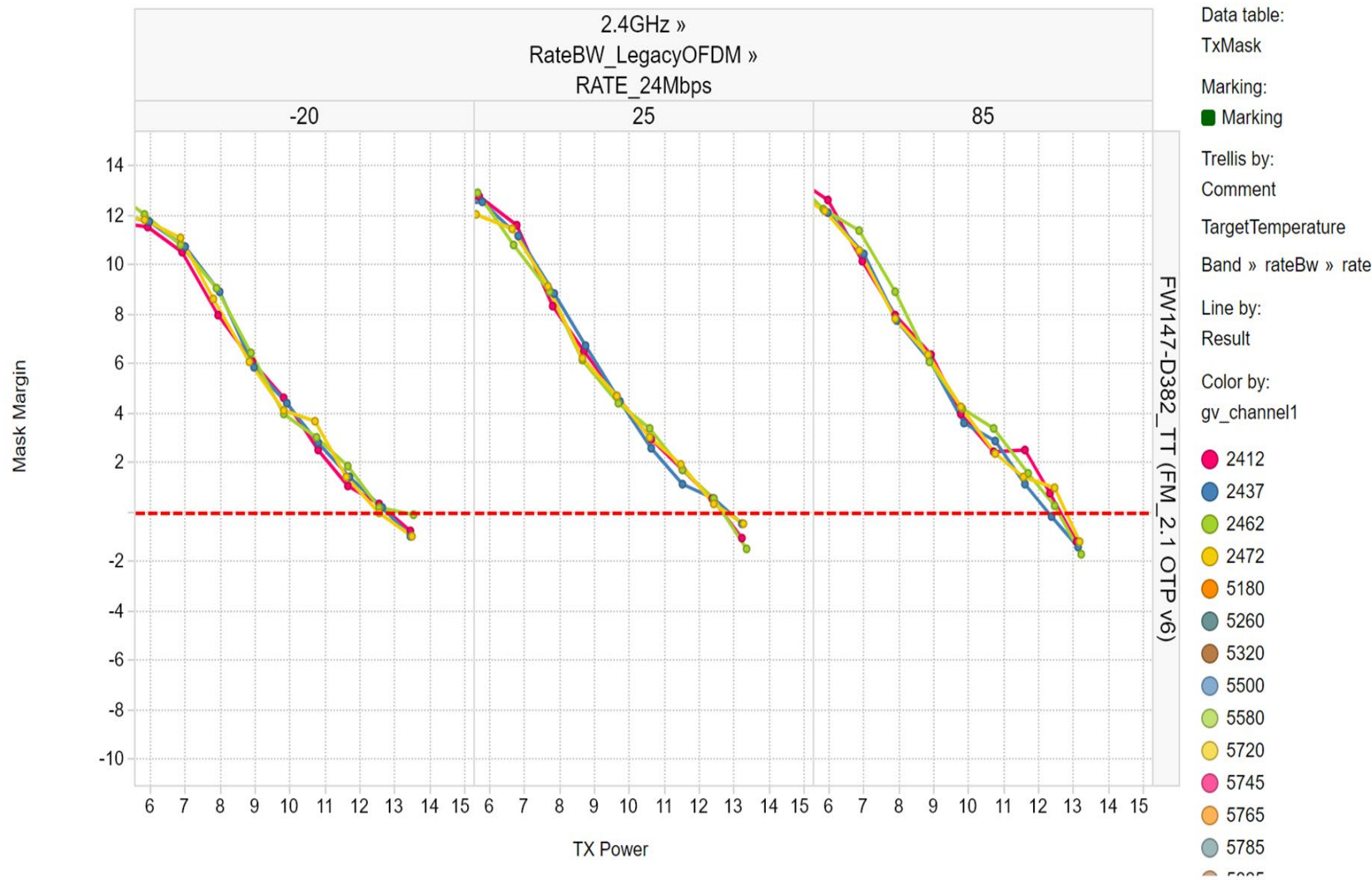
# Tx Mask 2.4 GHz (cont.)



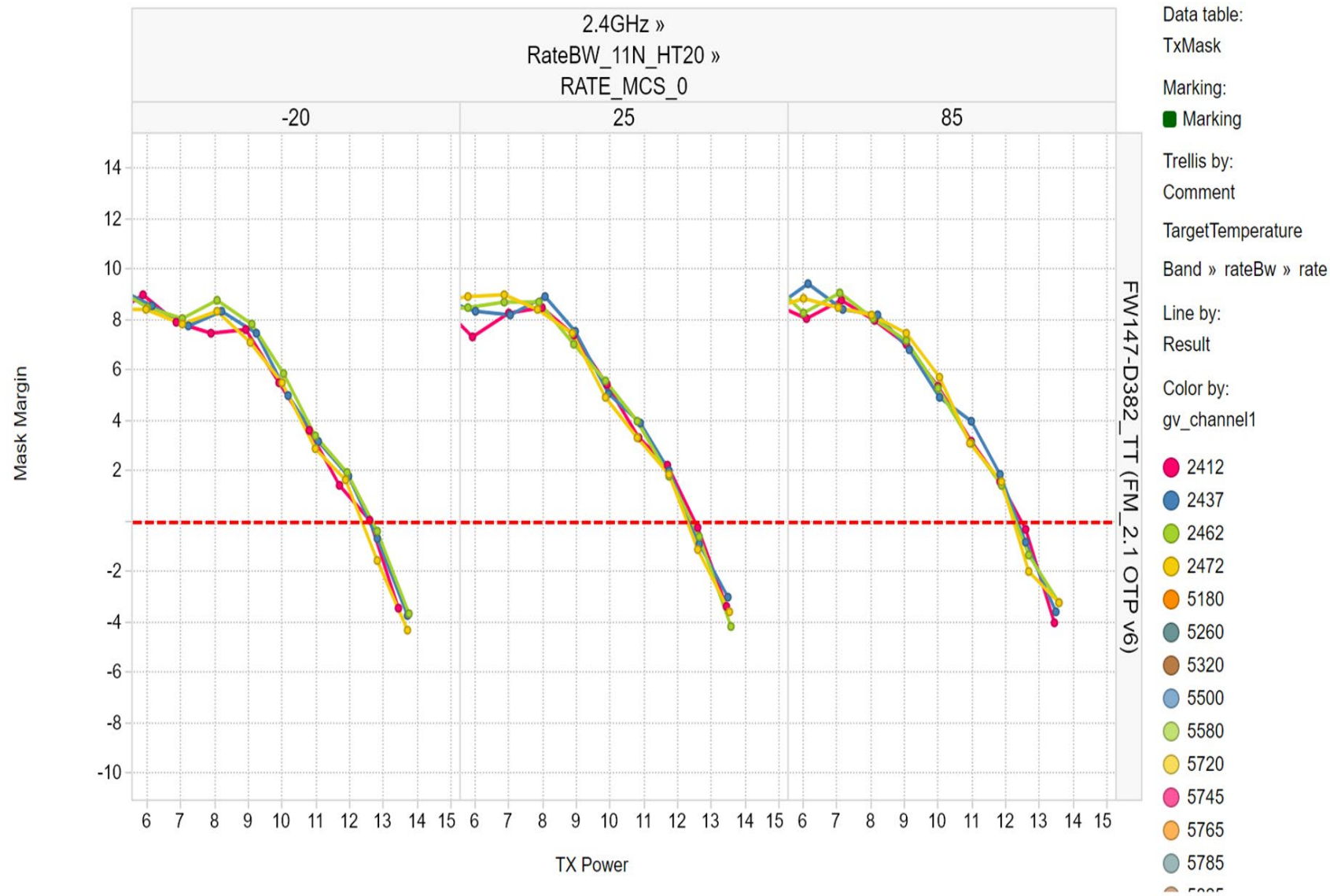
# Tx Mask 2.4 GHz (cont.)



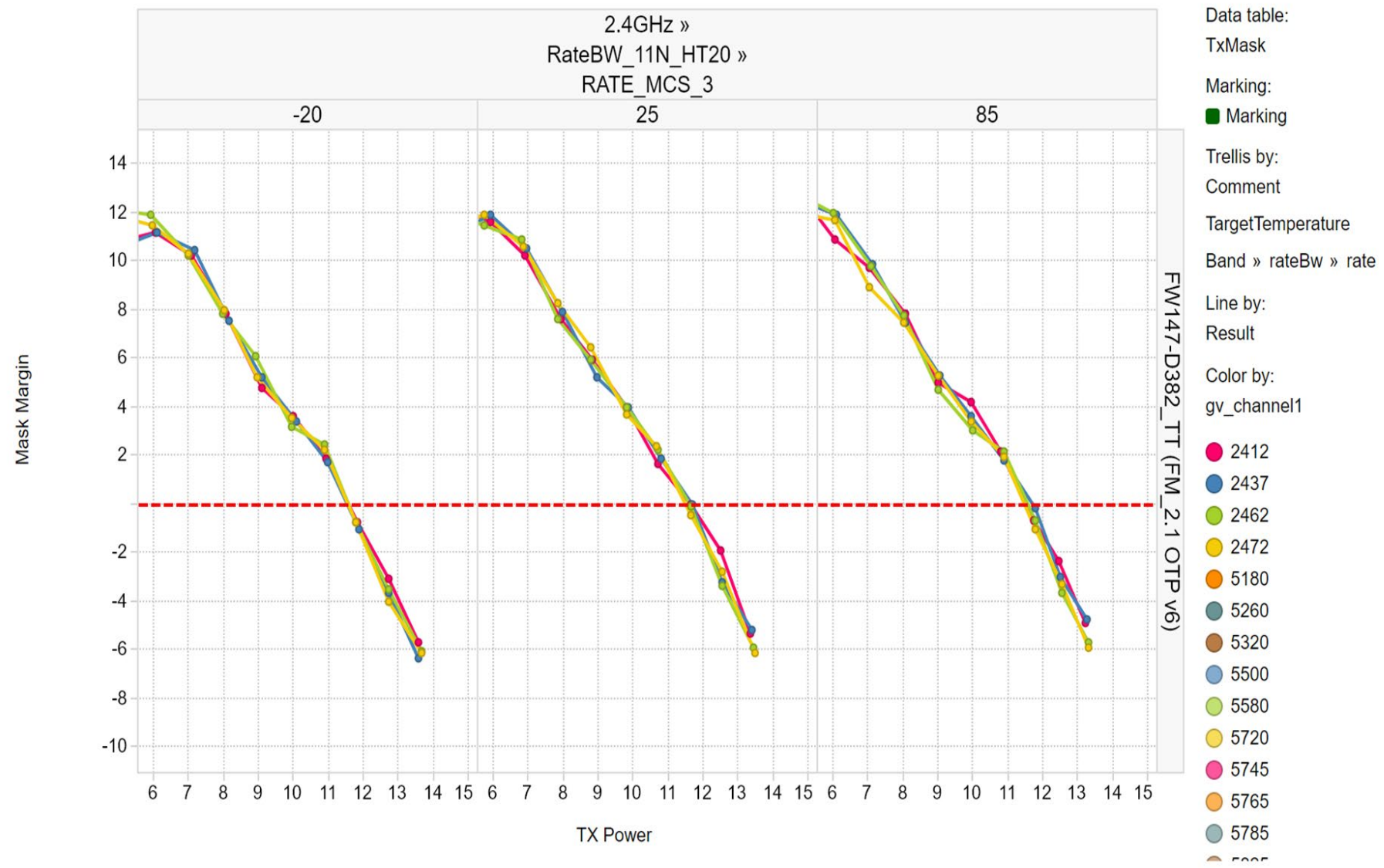
# Tx Mask 2.4 GHz (cont.)

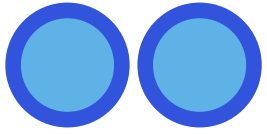


# Tx Mask 2.4 GHz (cont.)



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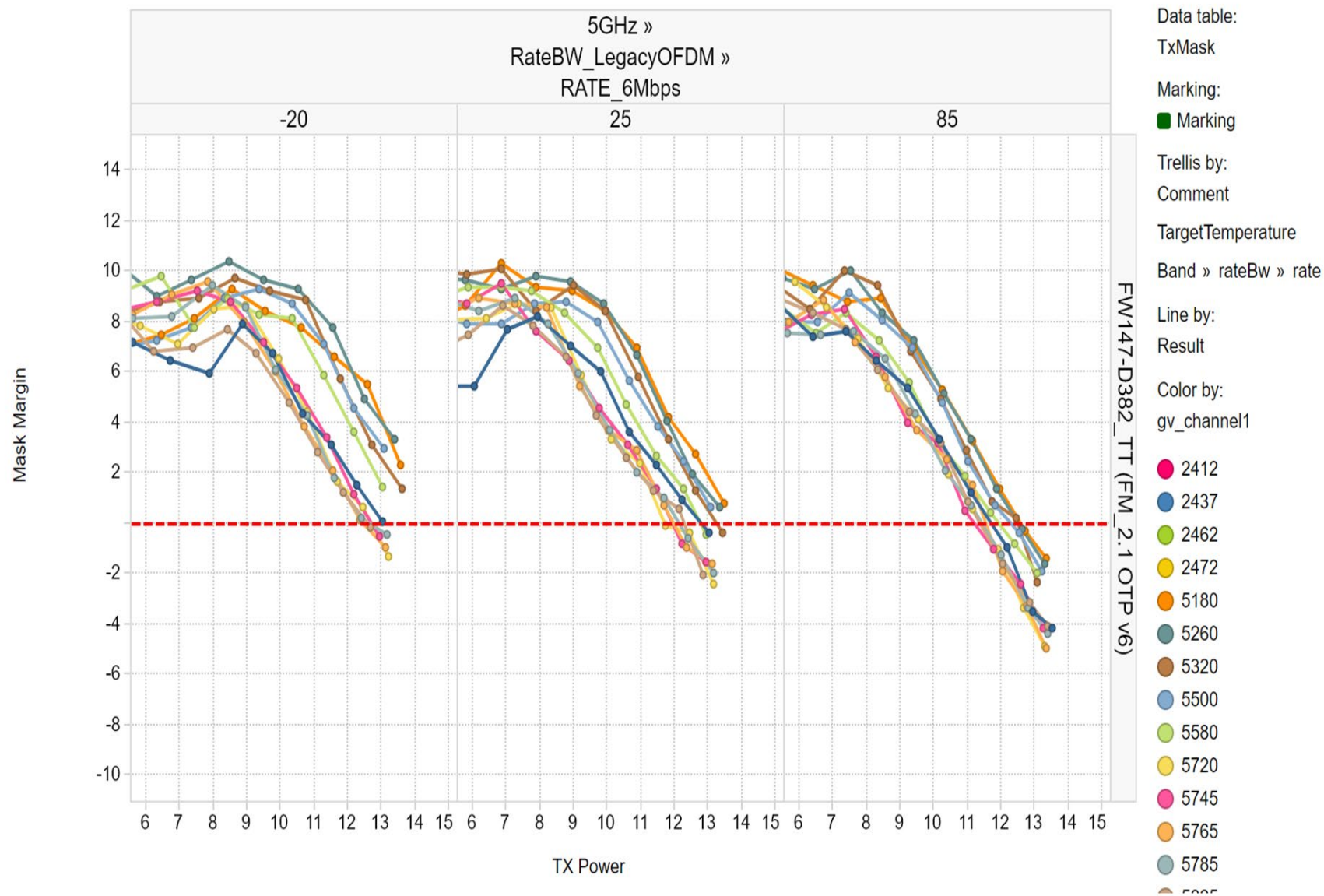




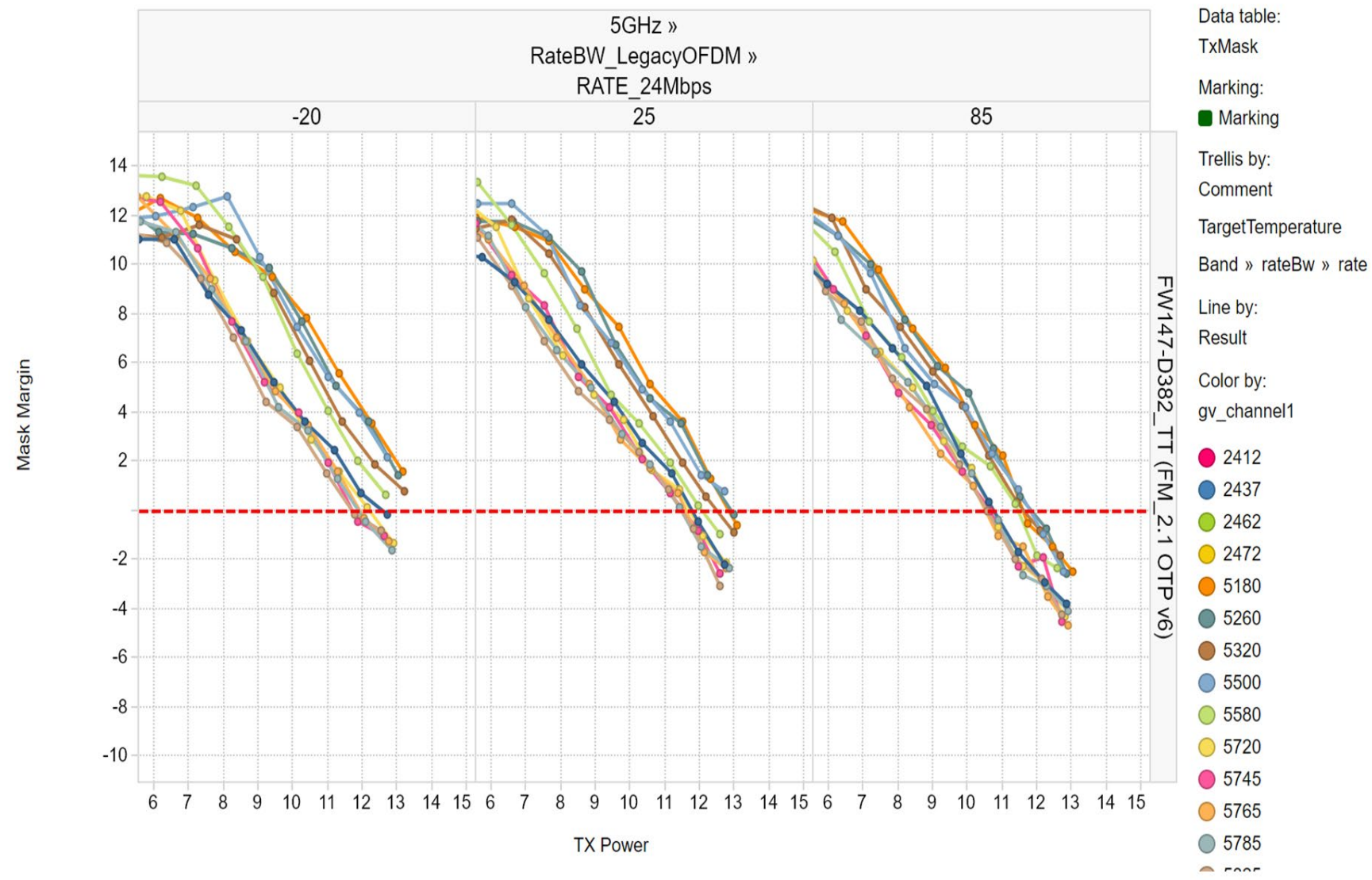
## Section 3.2

# Tx Mask 5 GHz

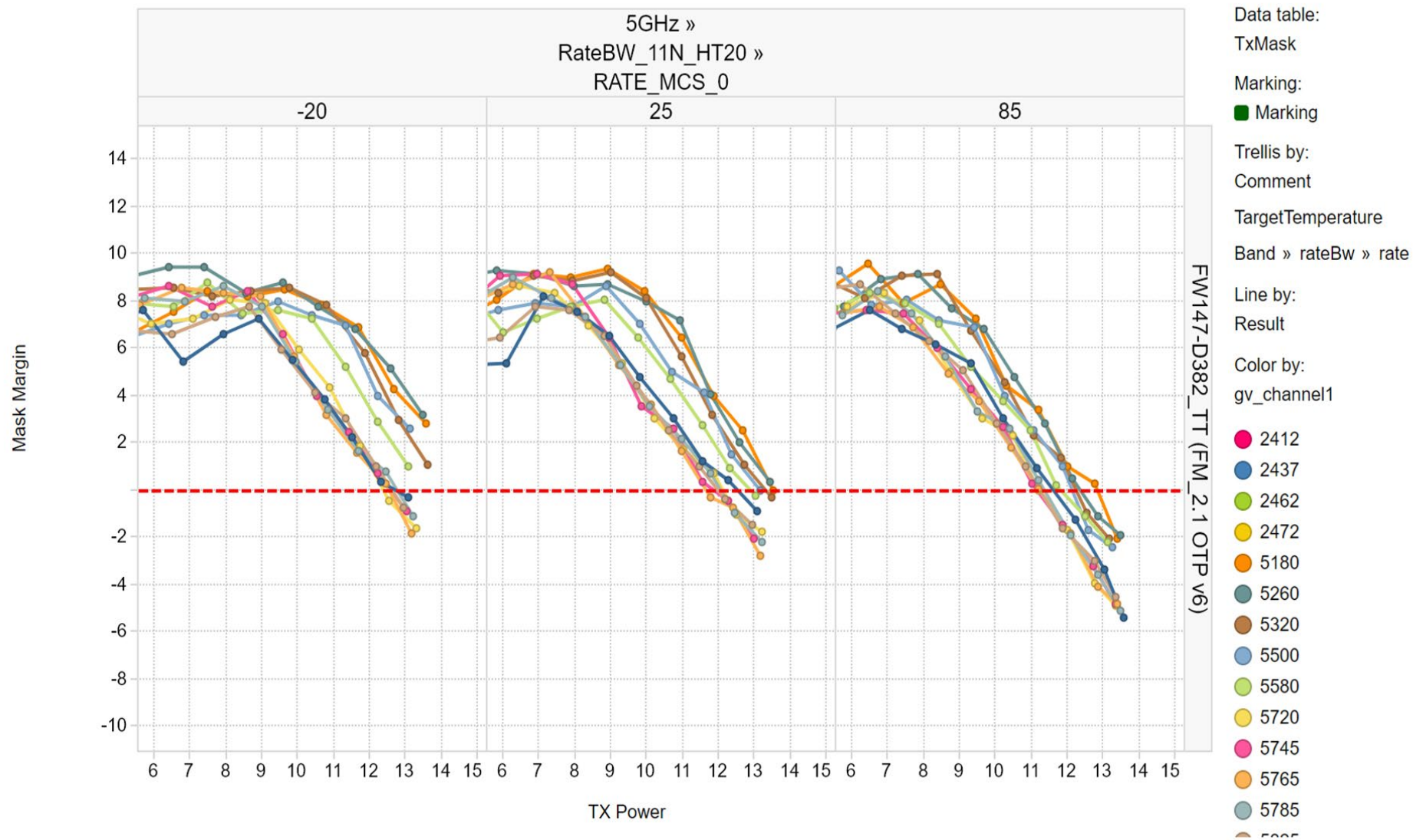
# Tx Mask 5 GHz



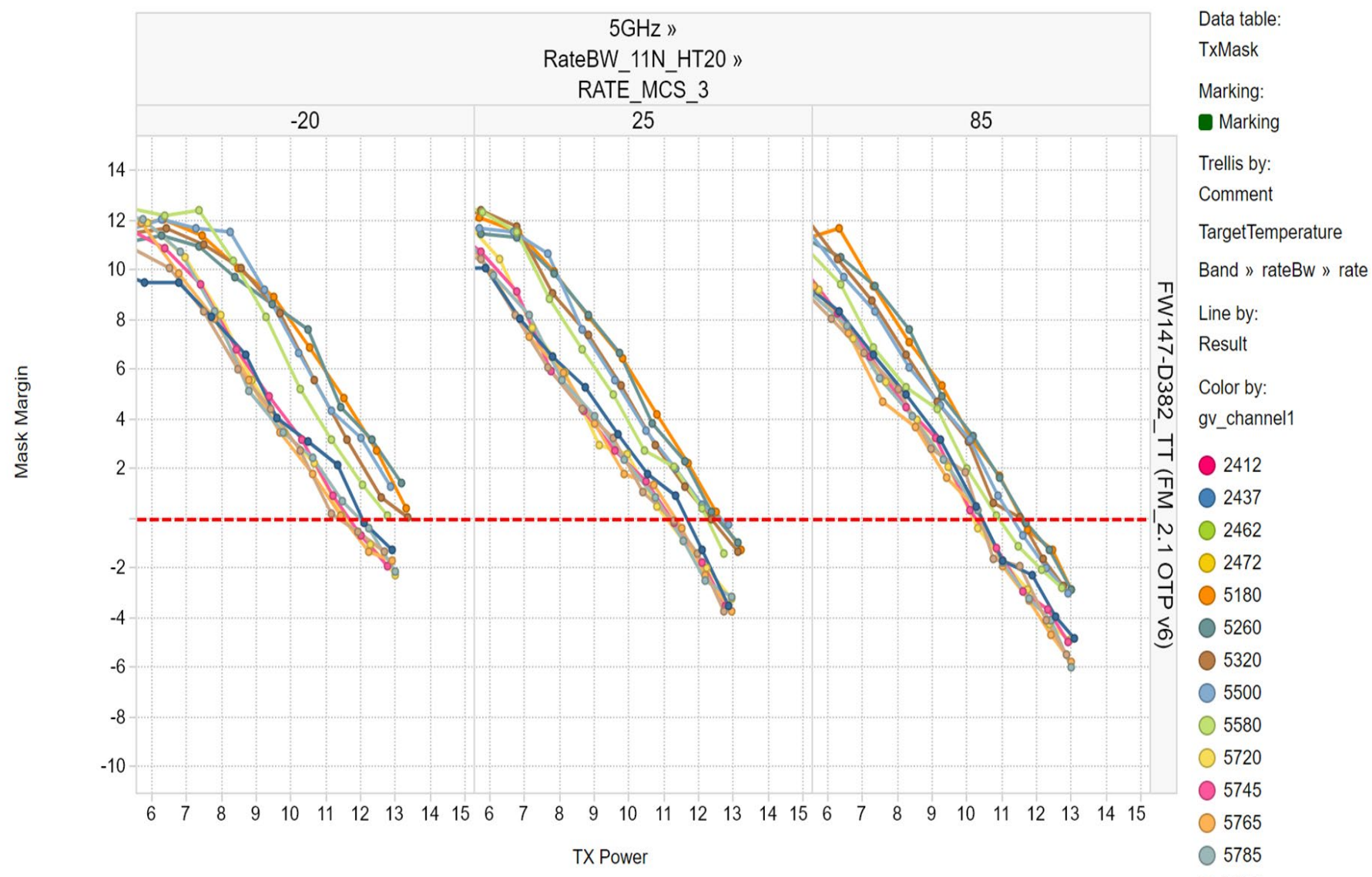
# Tx Mask 5 GHz (cont.)

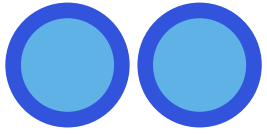


# Tx Mask 5 GHz (cont.)



# Tx Mask 5 GHz (cont.)

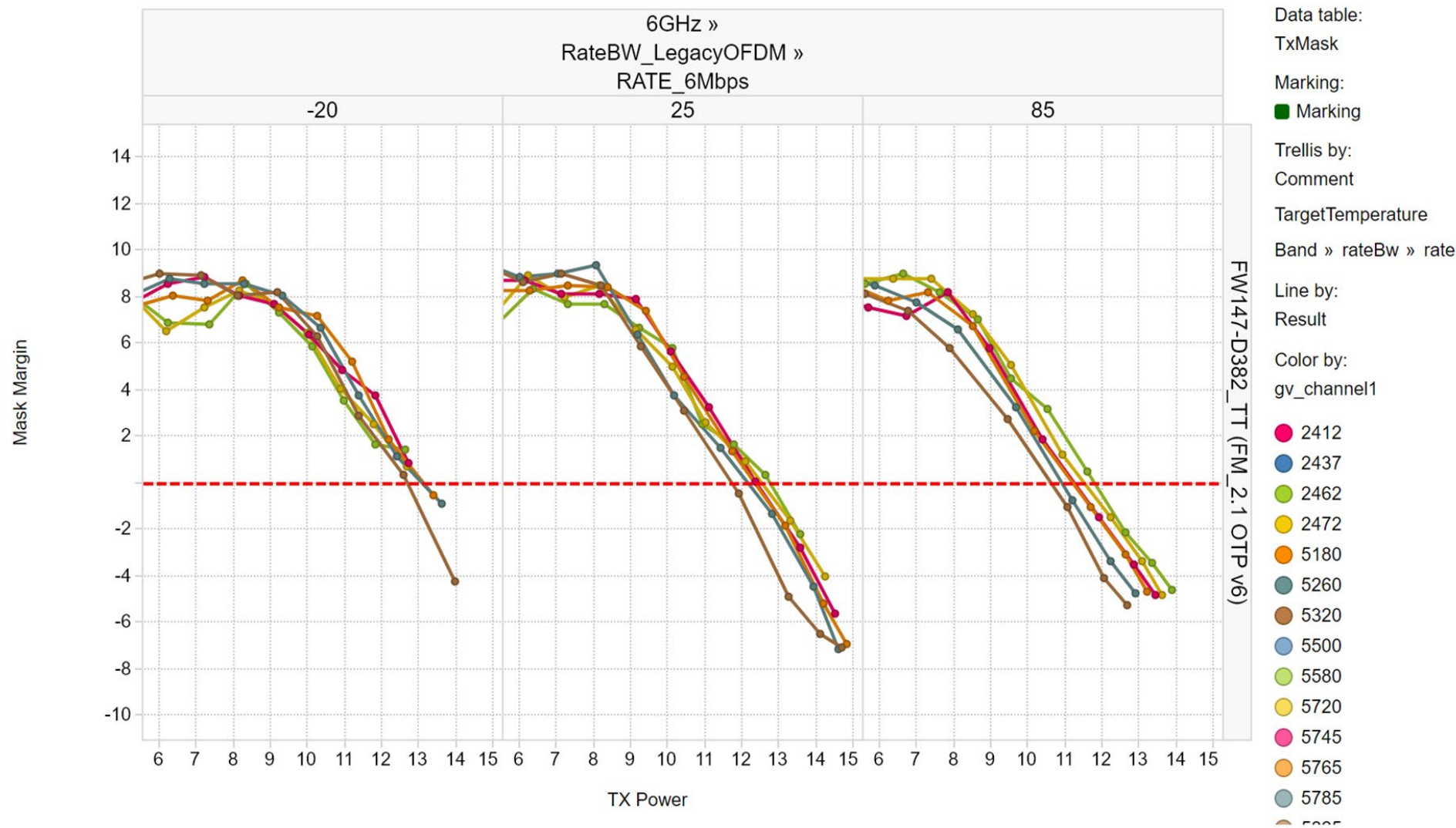




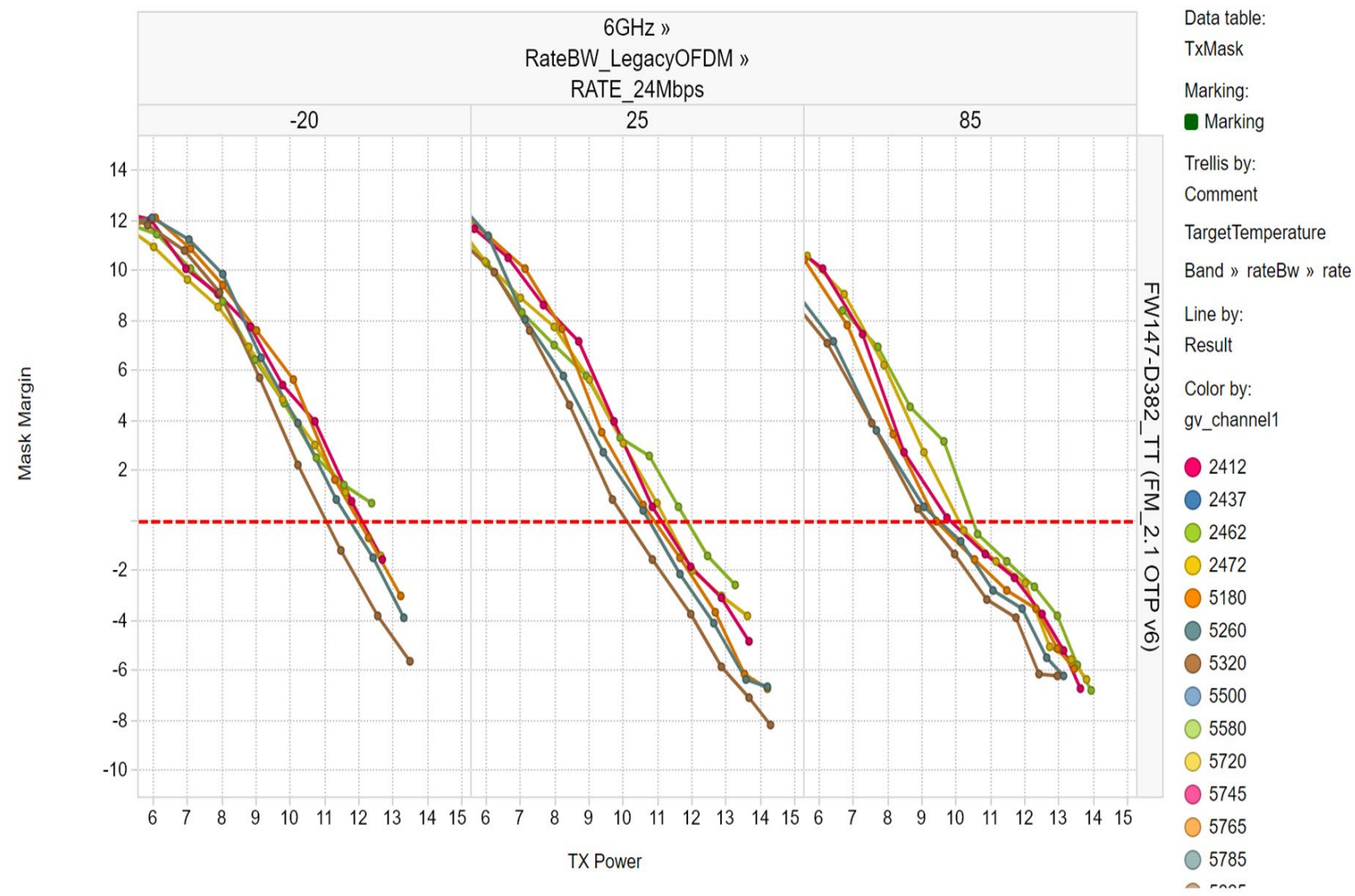
## Section 3.3

# Tx Mask 6 GHz

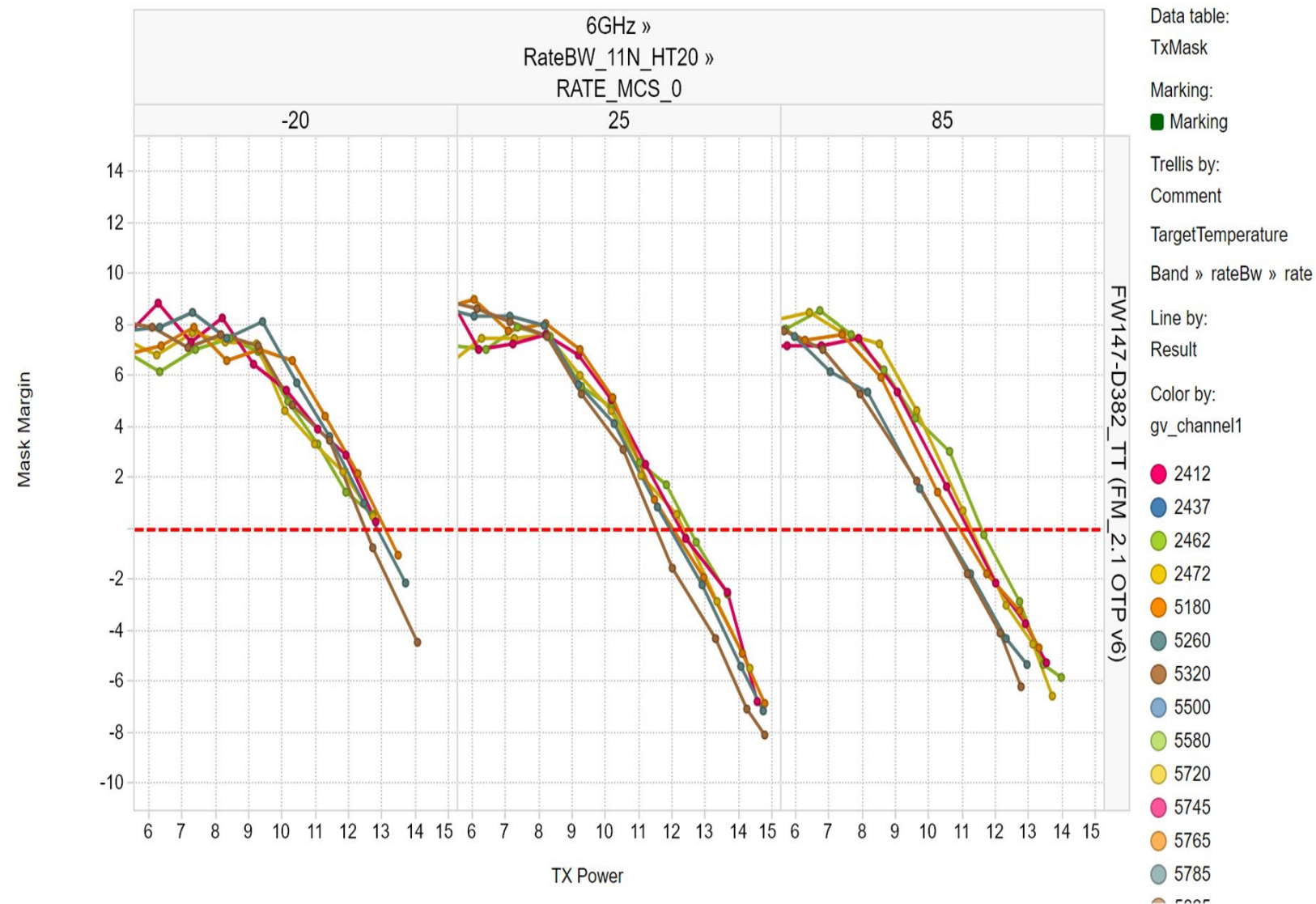
# Tx Mask 6 GHz



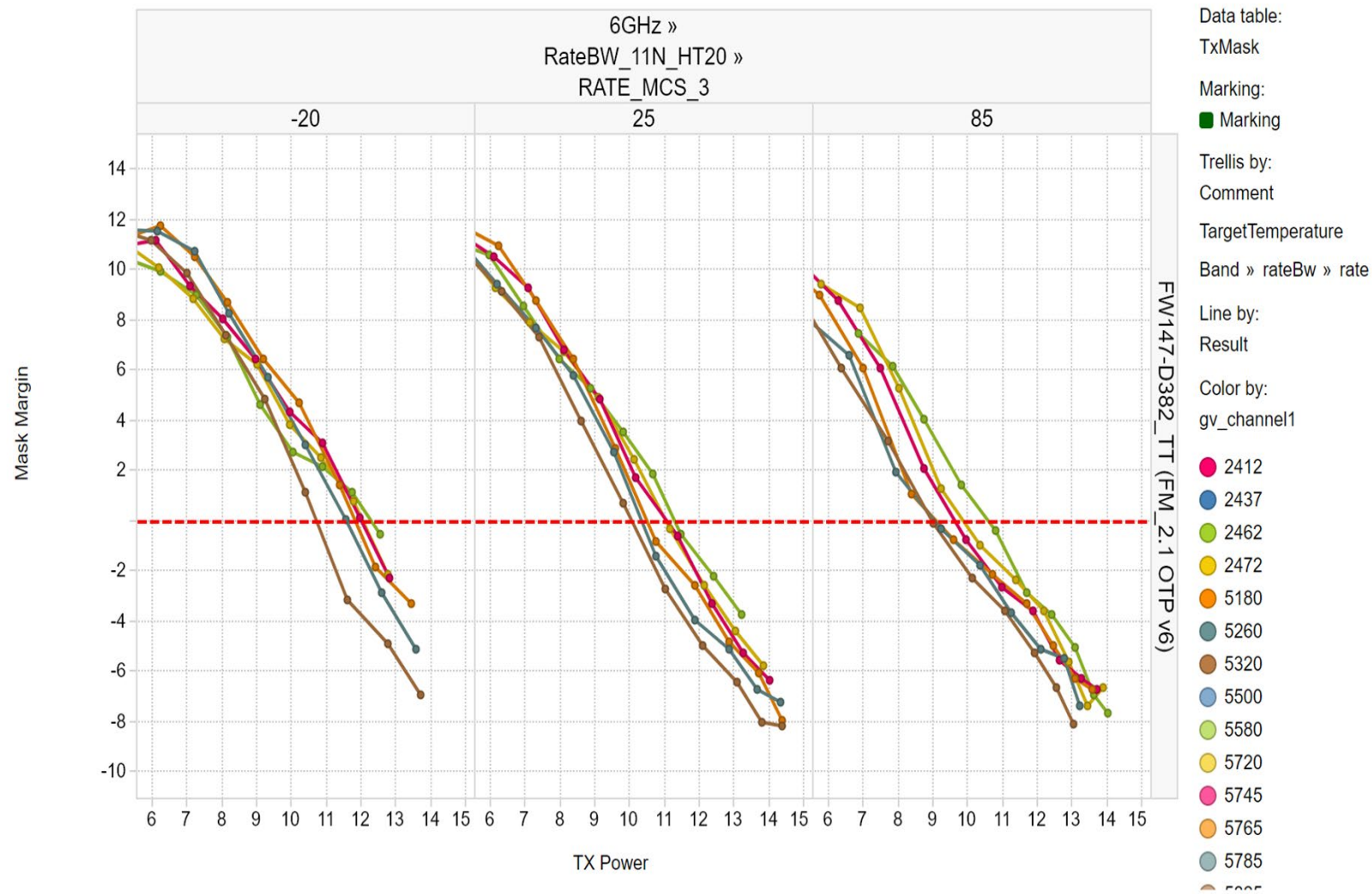
# Tx Mask 6 GHz (cont.)



# Tx Mask 6 GHz (cont.)



# Tx Mask 6 GHz (cont.)

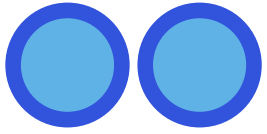




Section 4

# WLAN Tx Power Accuracy

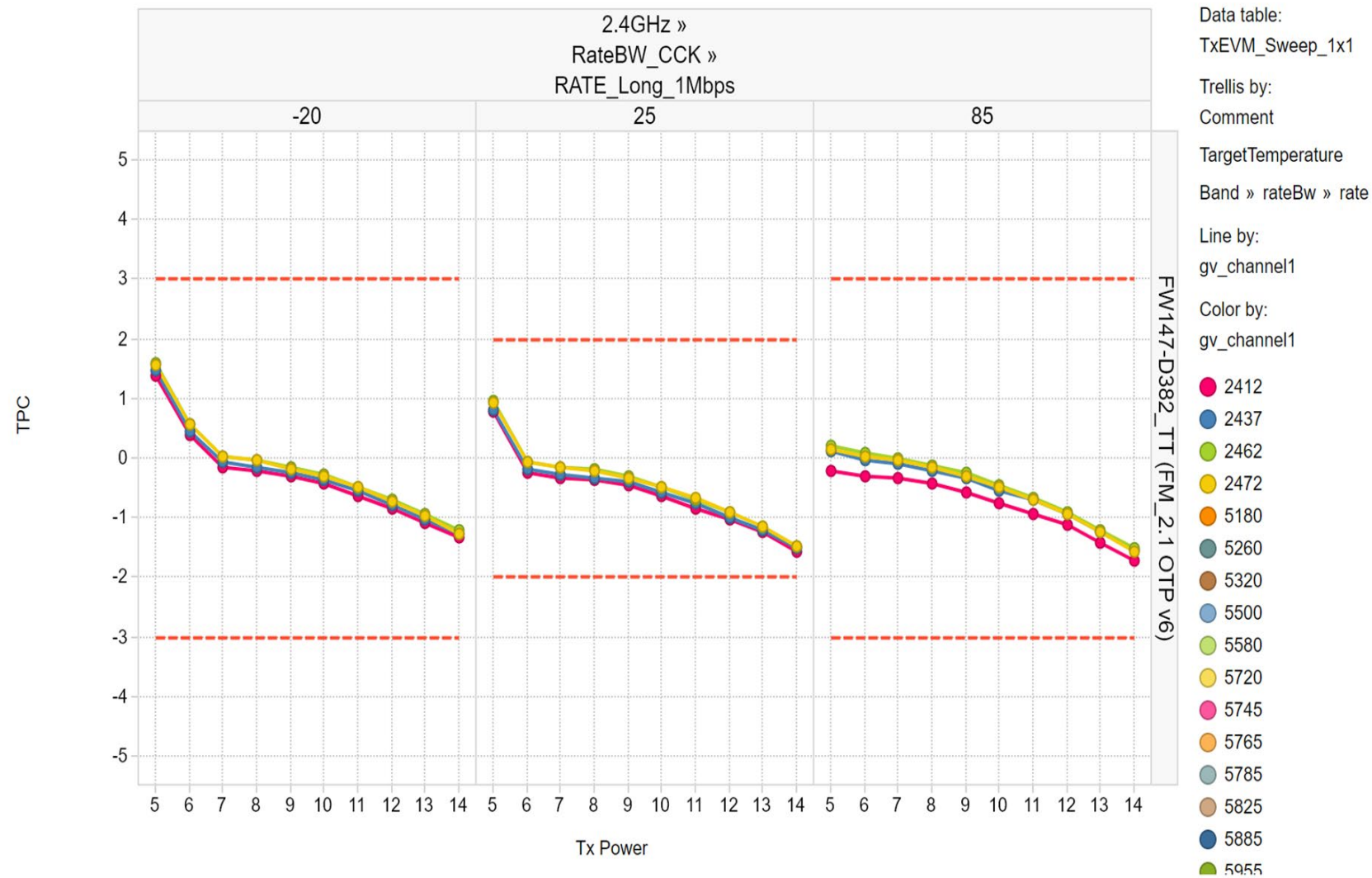
|                    |                    |
|--------------------|--------------------|
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| 4.3 Tx TPC 6 GHz   | <a href="#">55</a> |



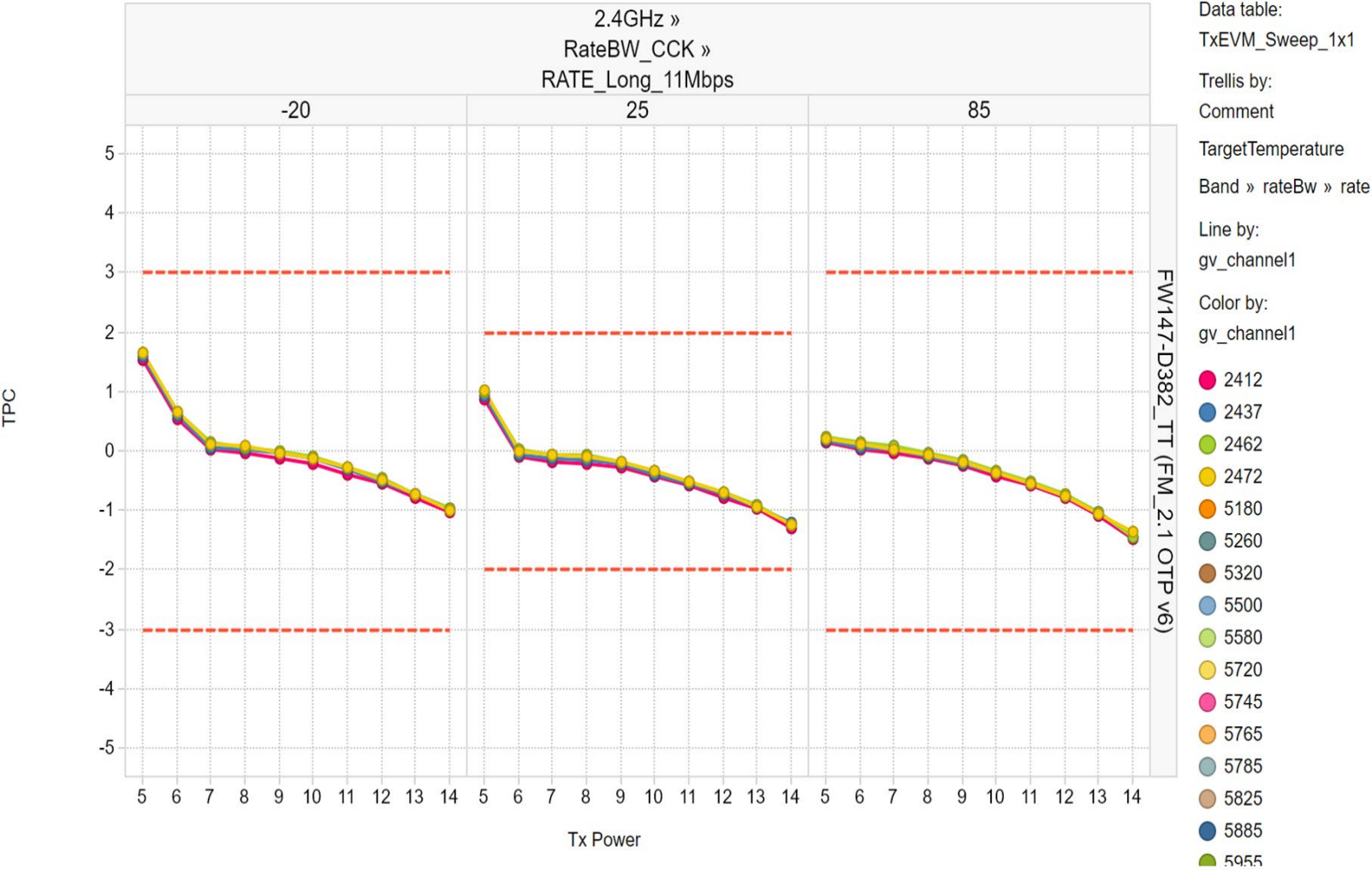
Section 4.1

Tx TPC 2.4 GHz

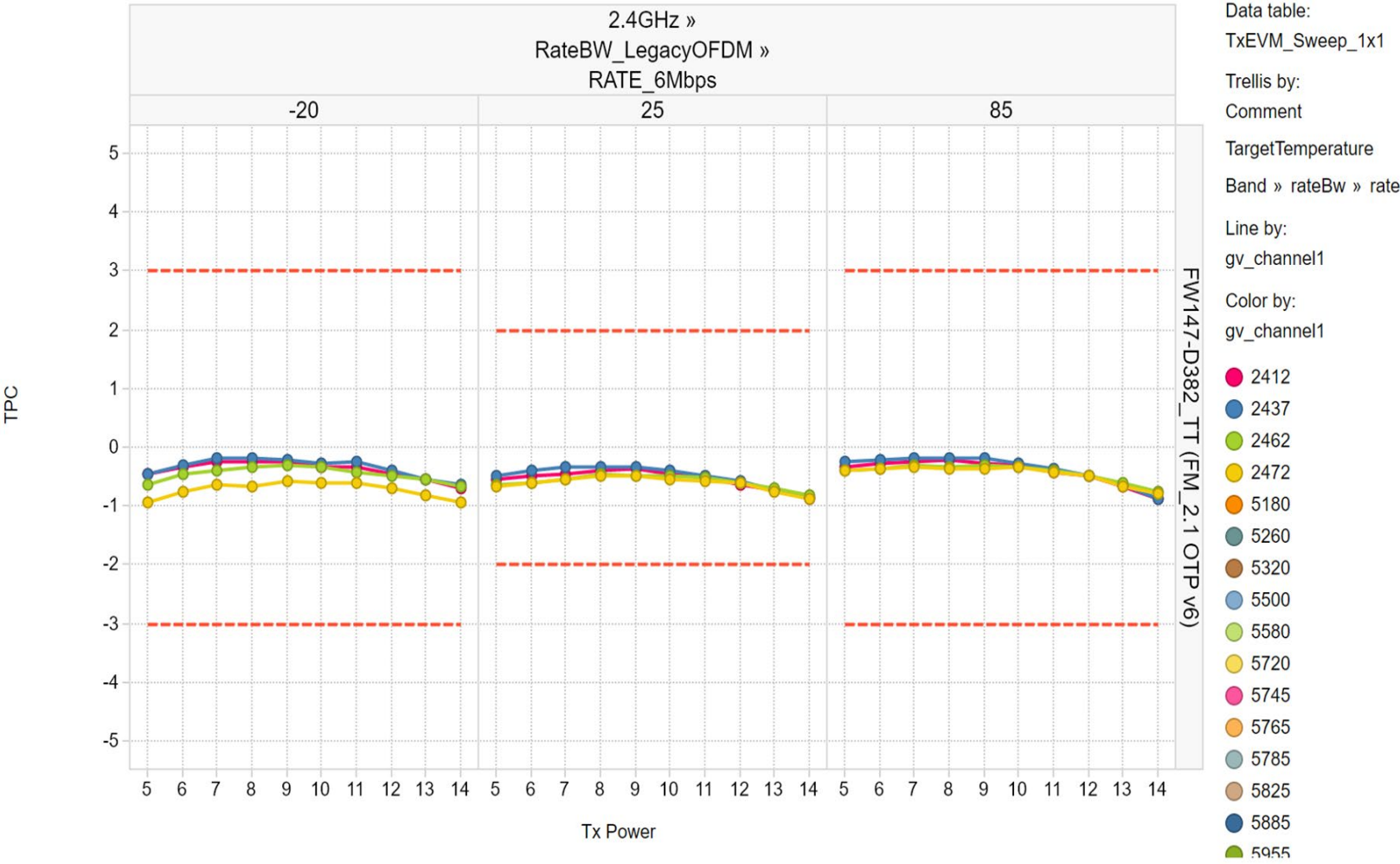
# TPC Accuracy 2.4 GHz



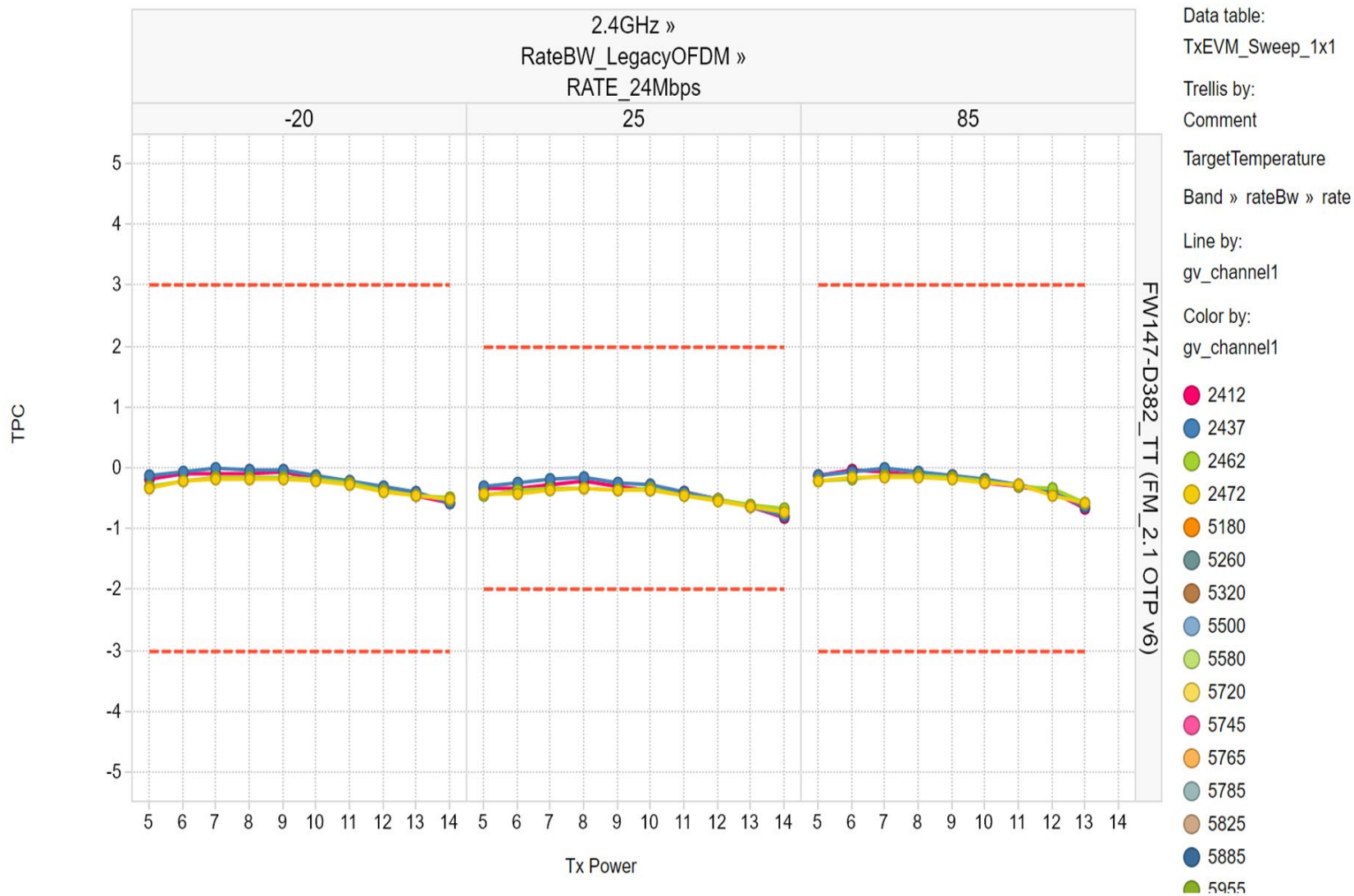
# TPC Accuracy 2.4 GHz (cont.)



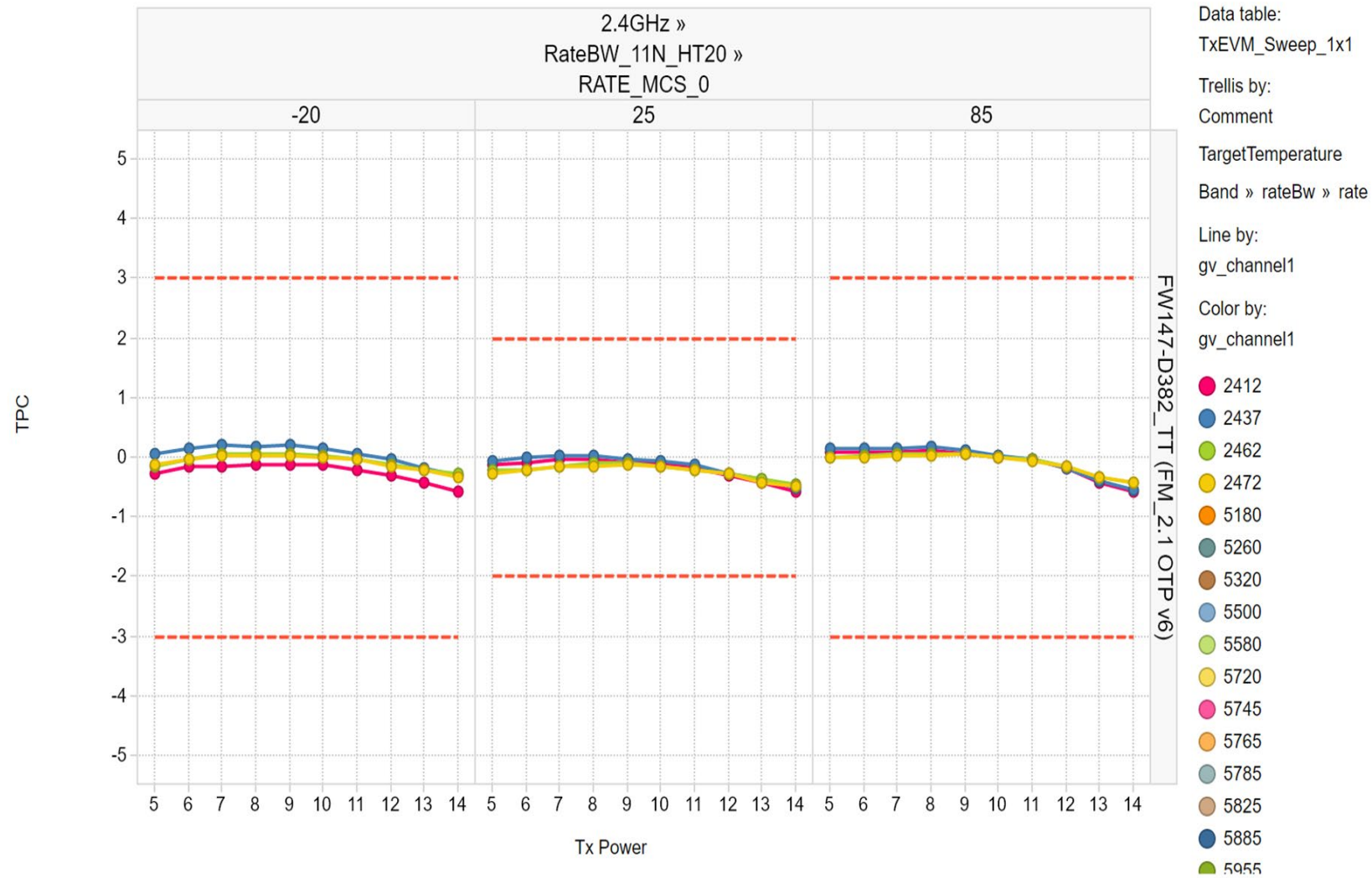
# TPC Accuracy 2.4 GHz (cont.)



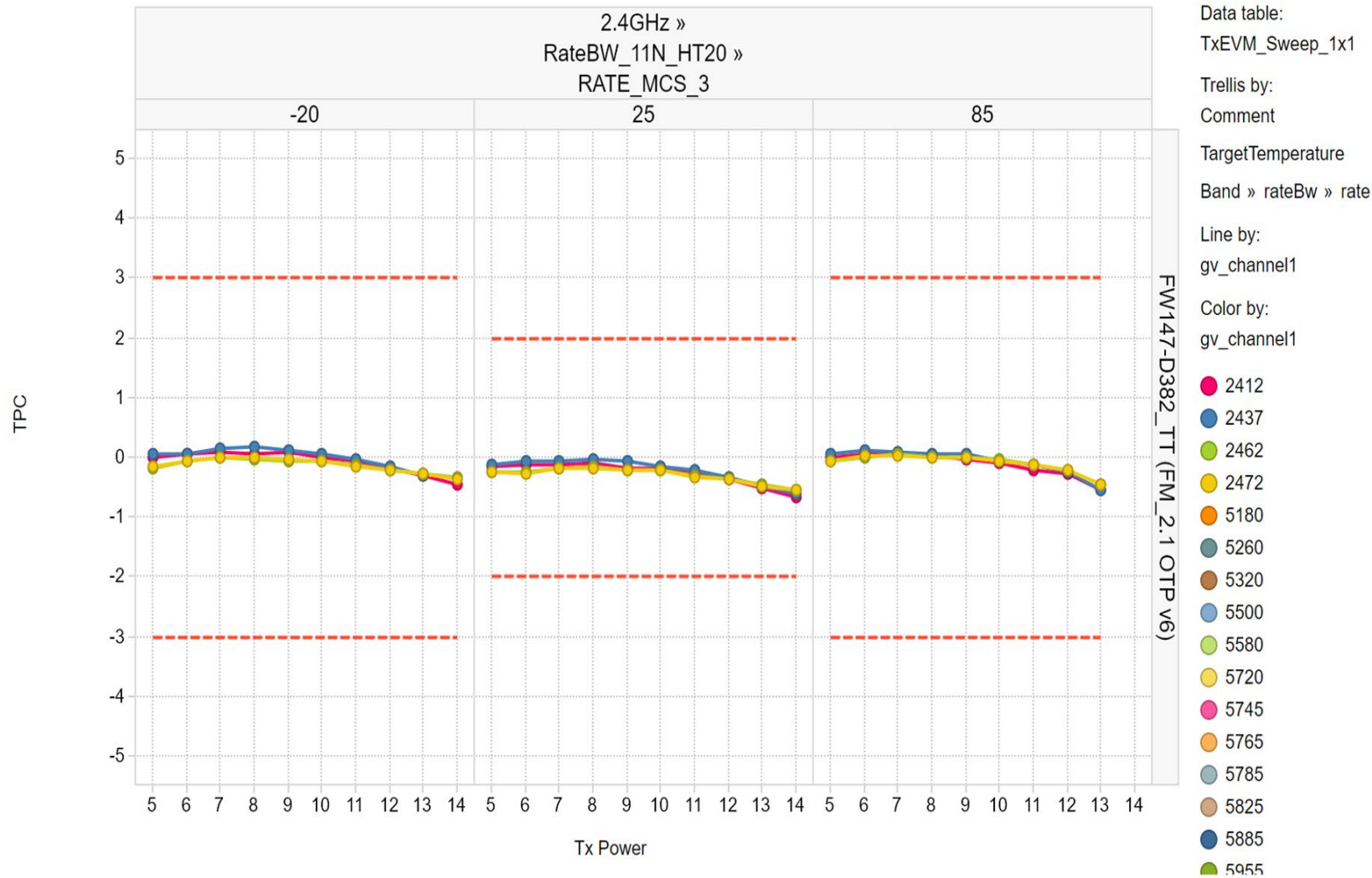
# TPC Accuracy 2.4 GHz (cont.)

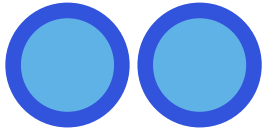


# TPC Accuracy 2.4 GHz (cont.)



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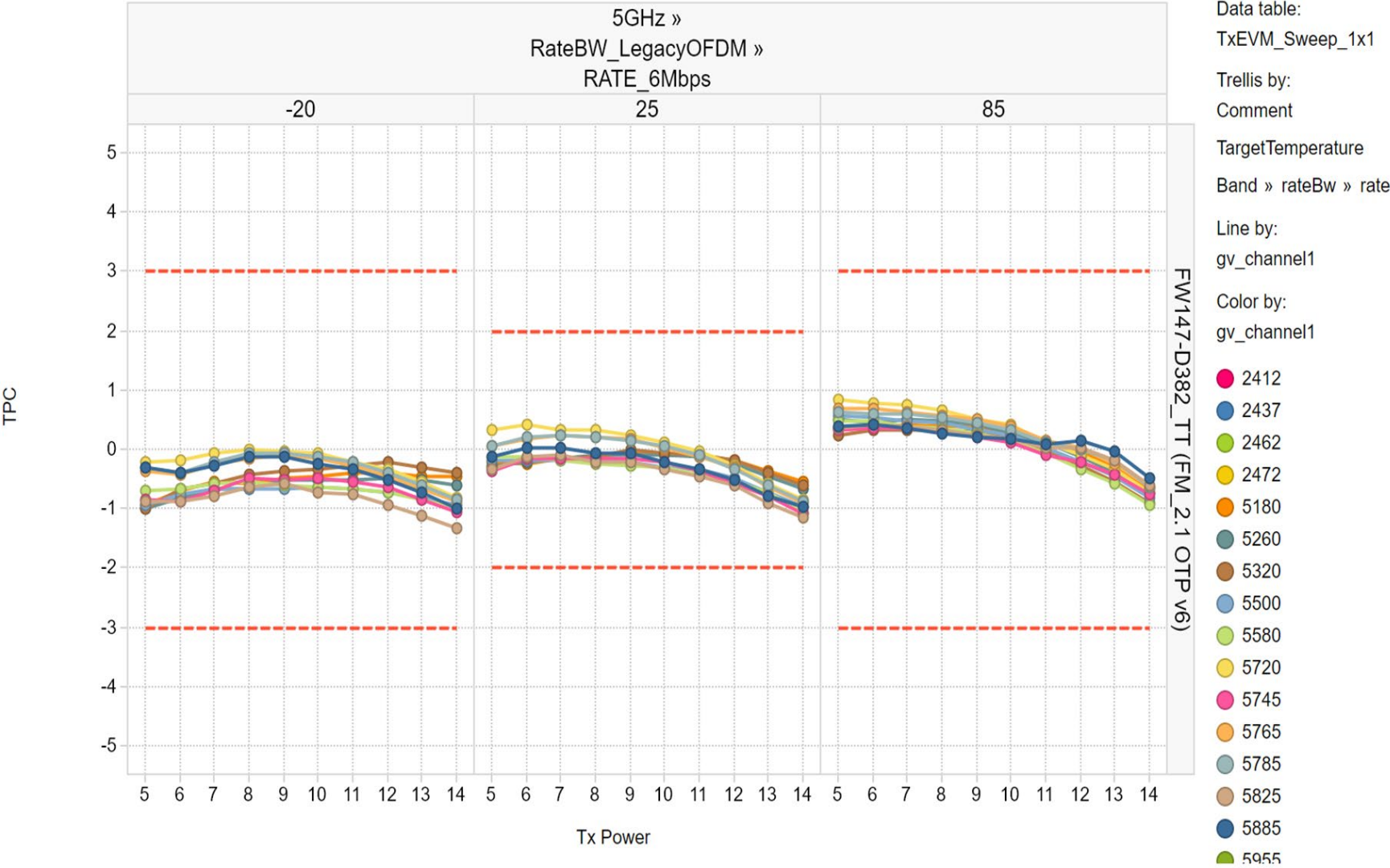




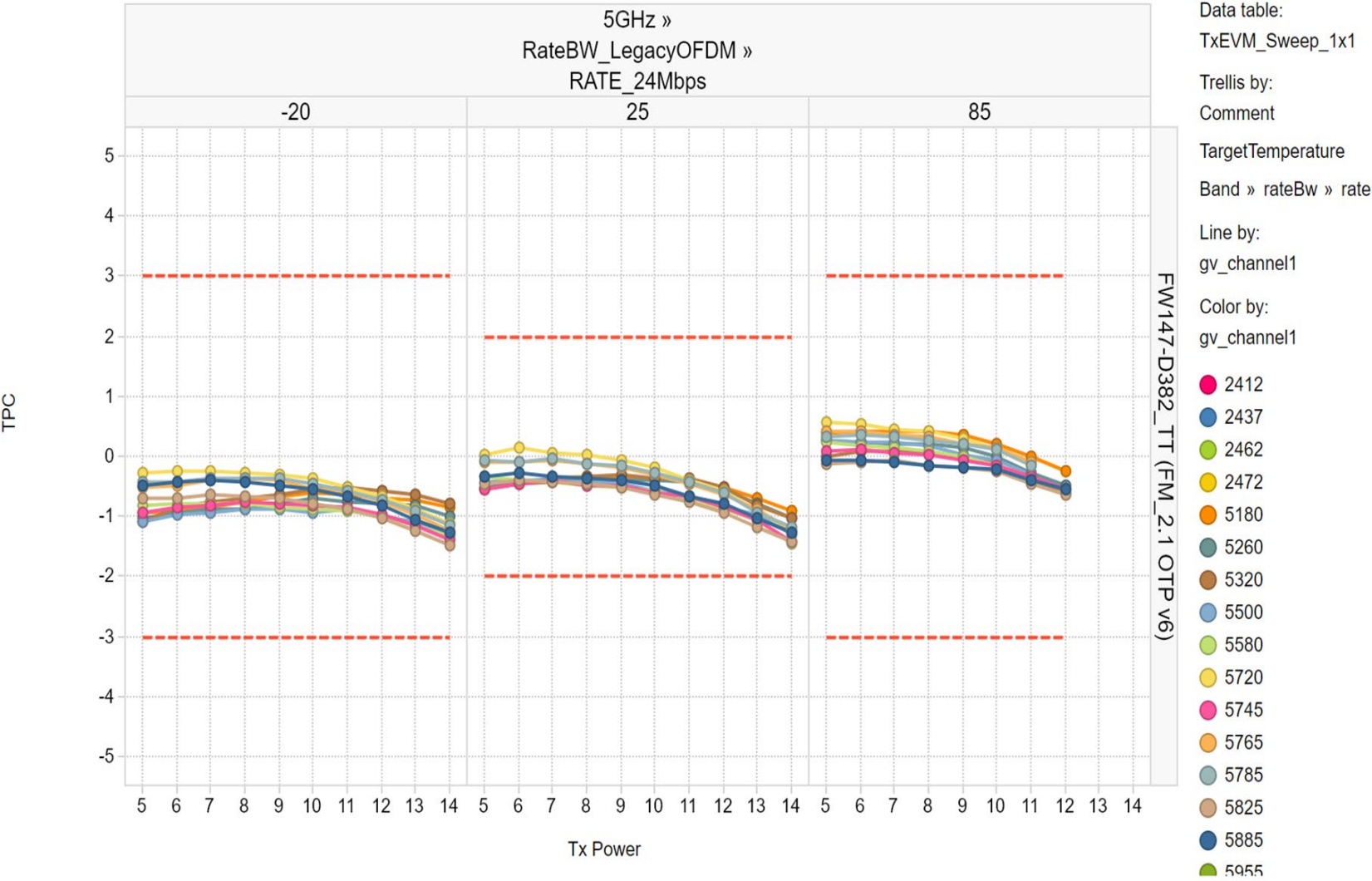
Section 4.2

Tx TPC 5 GHz

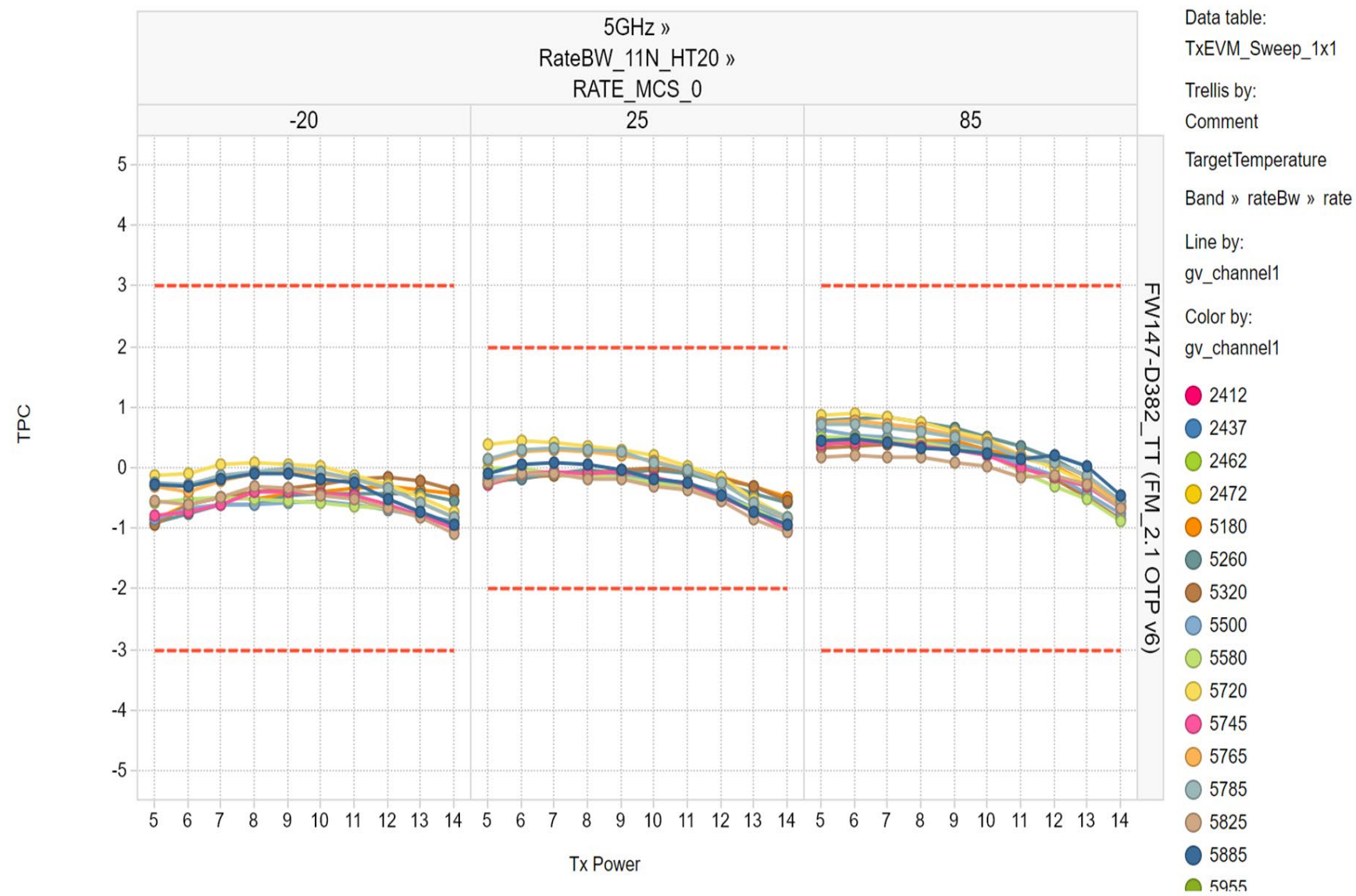
# TPC Accuracy 5 GHz



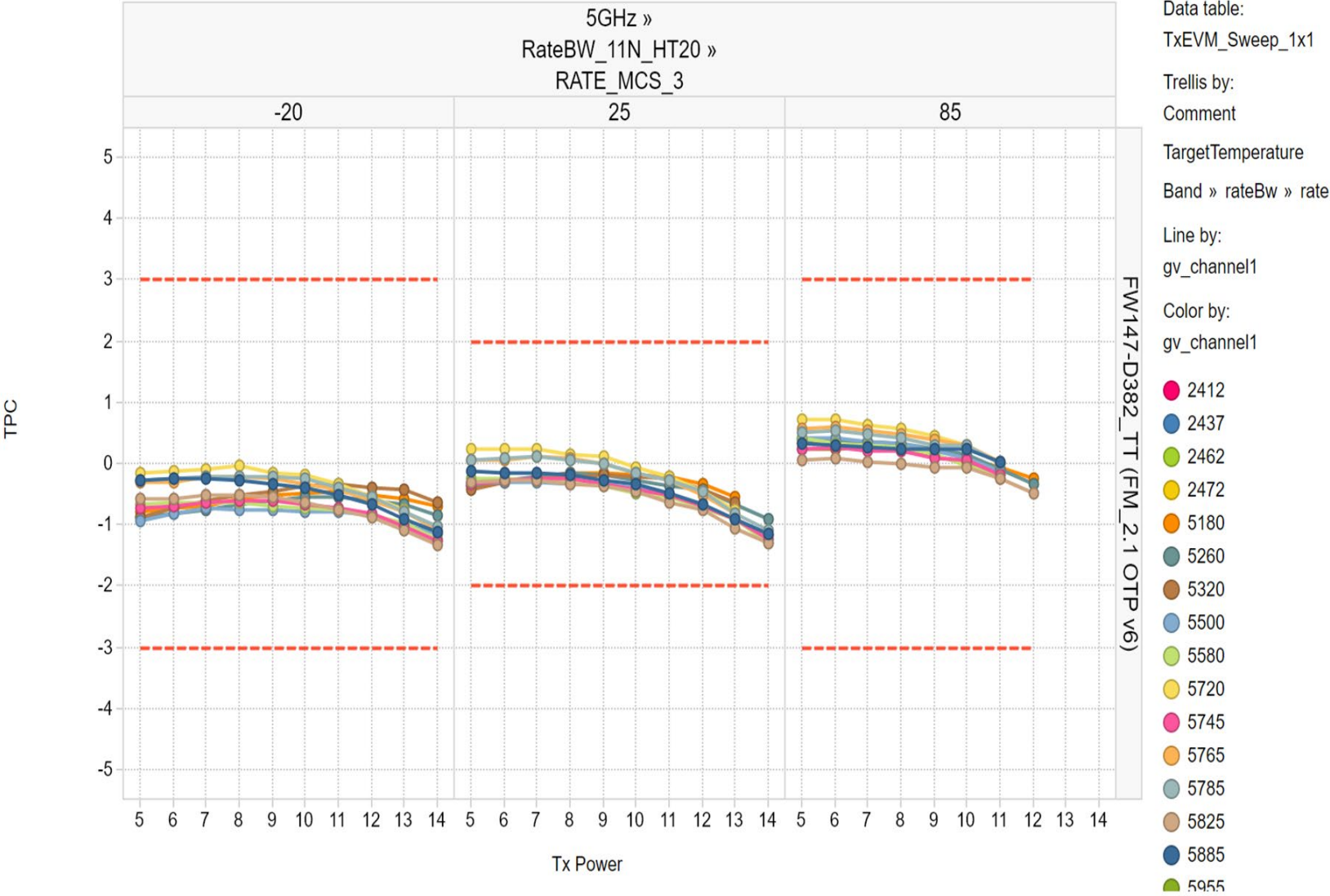
# TPC Accuracy 5 GHz (cont.)

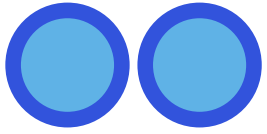


# TPC Accuracy 5 GHz (cont.)



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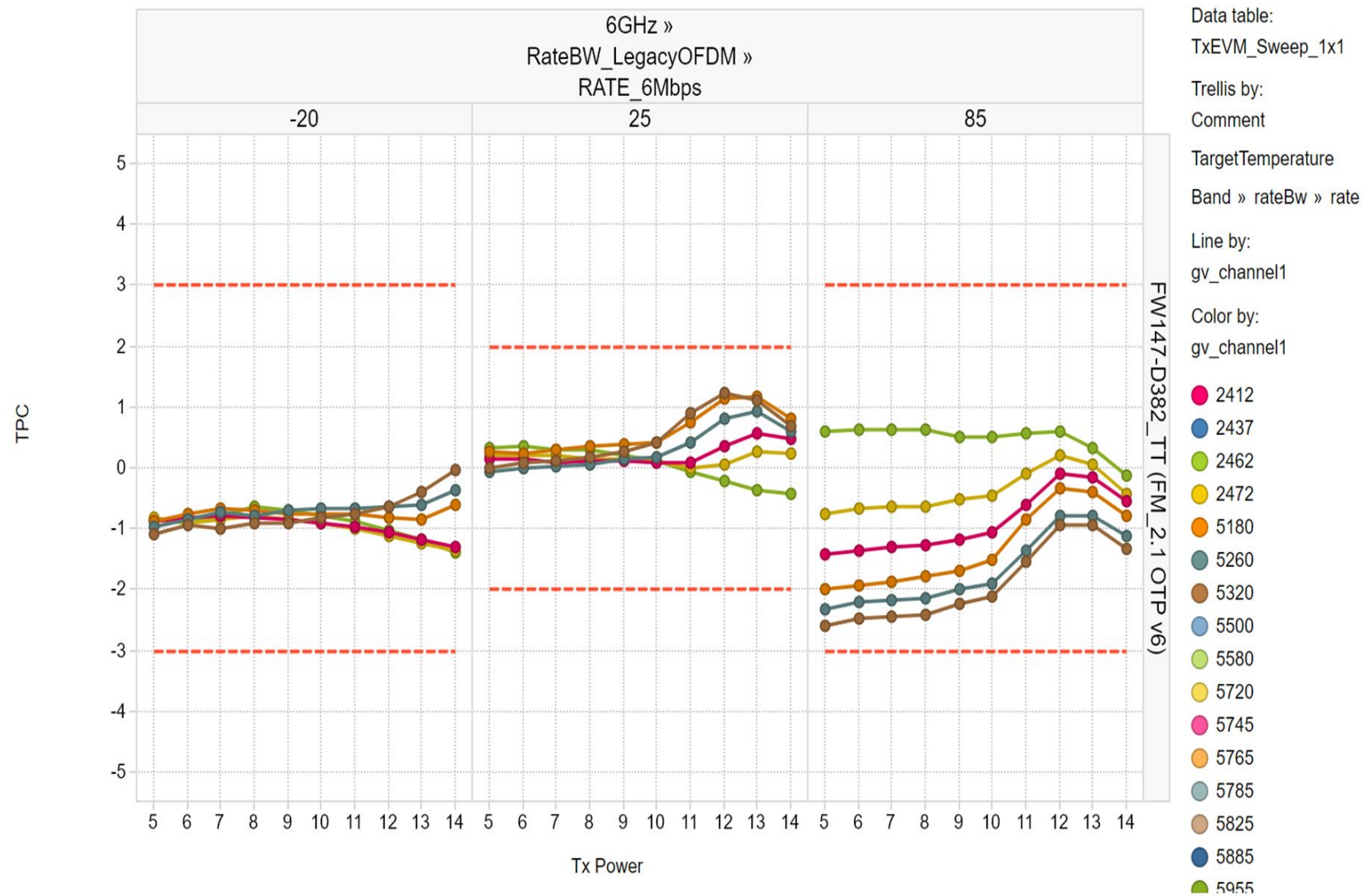




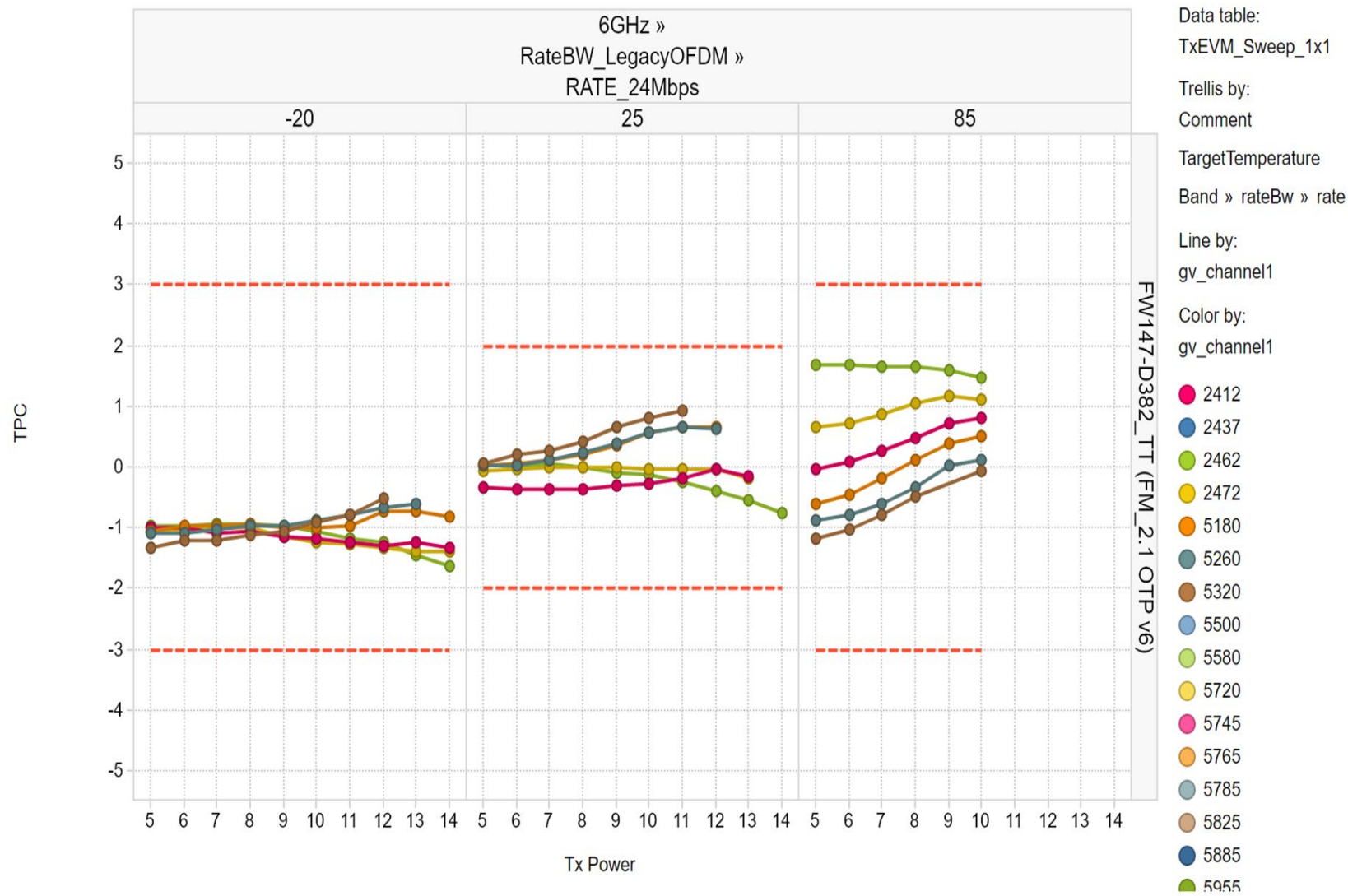
Section 4.3

Tx TPC 6 GHz

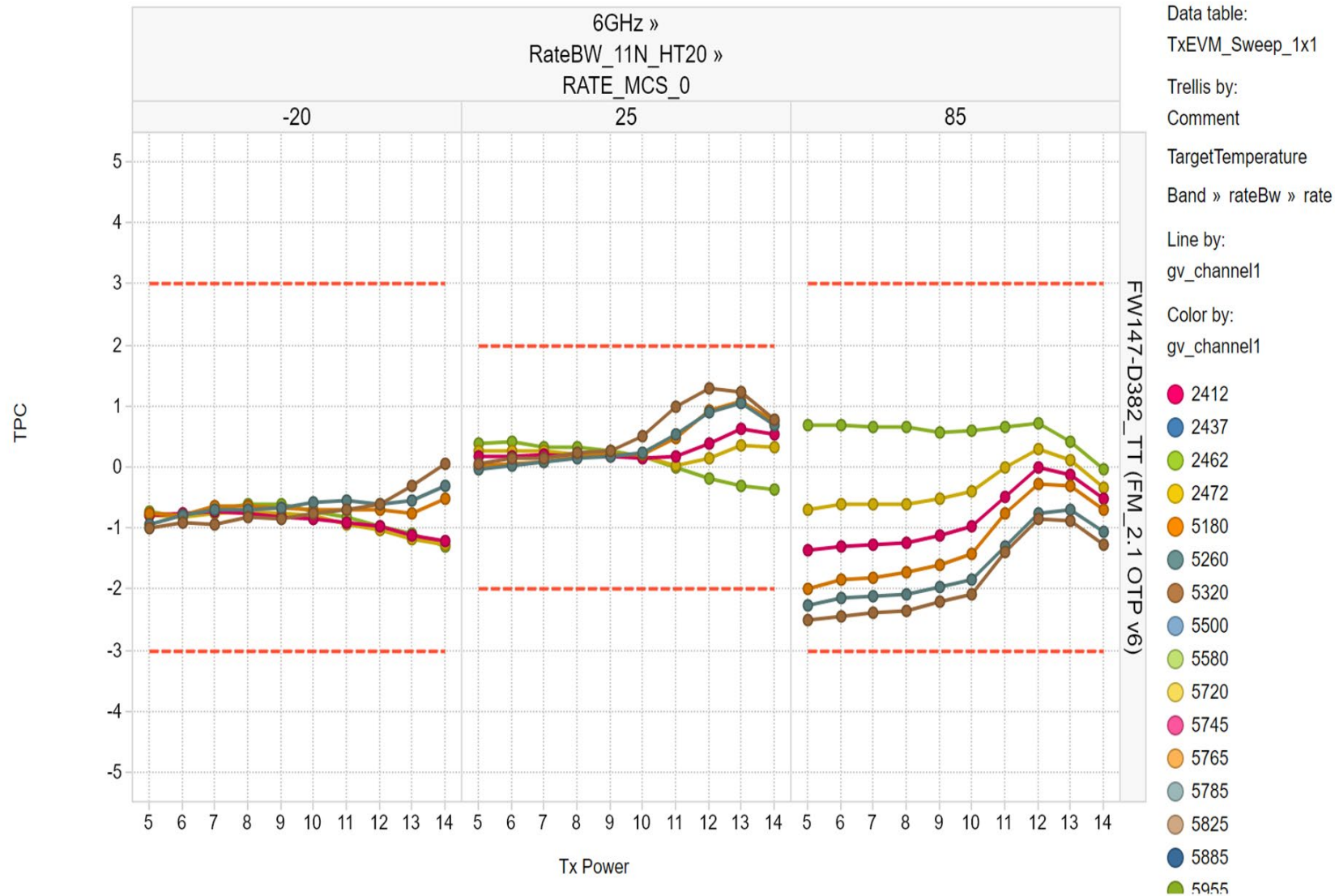
# TPC Accuracy 6 GHz



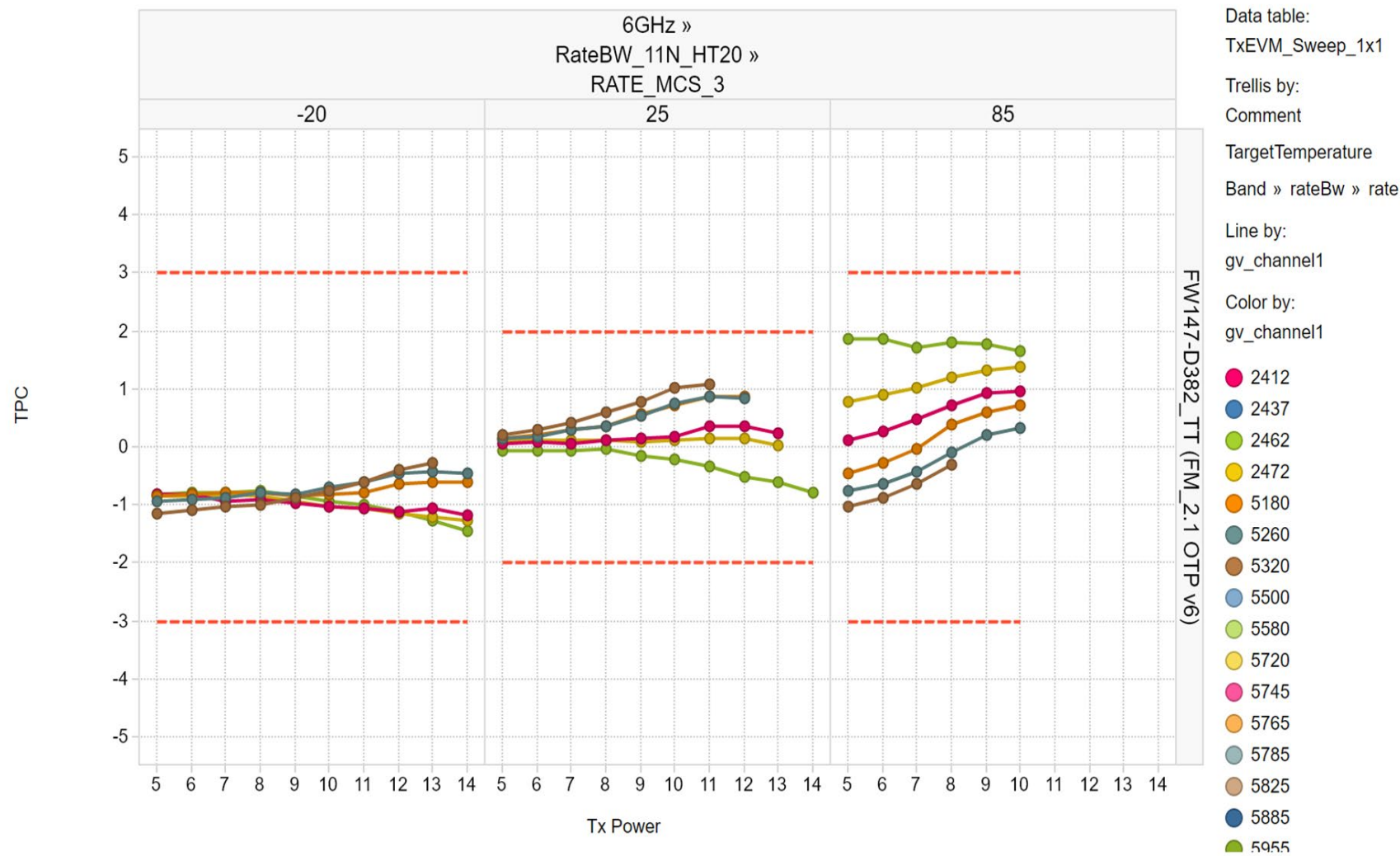
# TPC Accuracy 6 GHz (cont.)



# TPC Accuracy 6 GHz (cont.)



# TPC Accuracy 6 GHz (cont.)

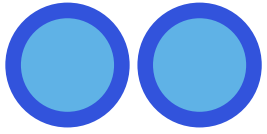




Section 5

WLAN Rx Sensitivity

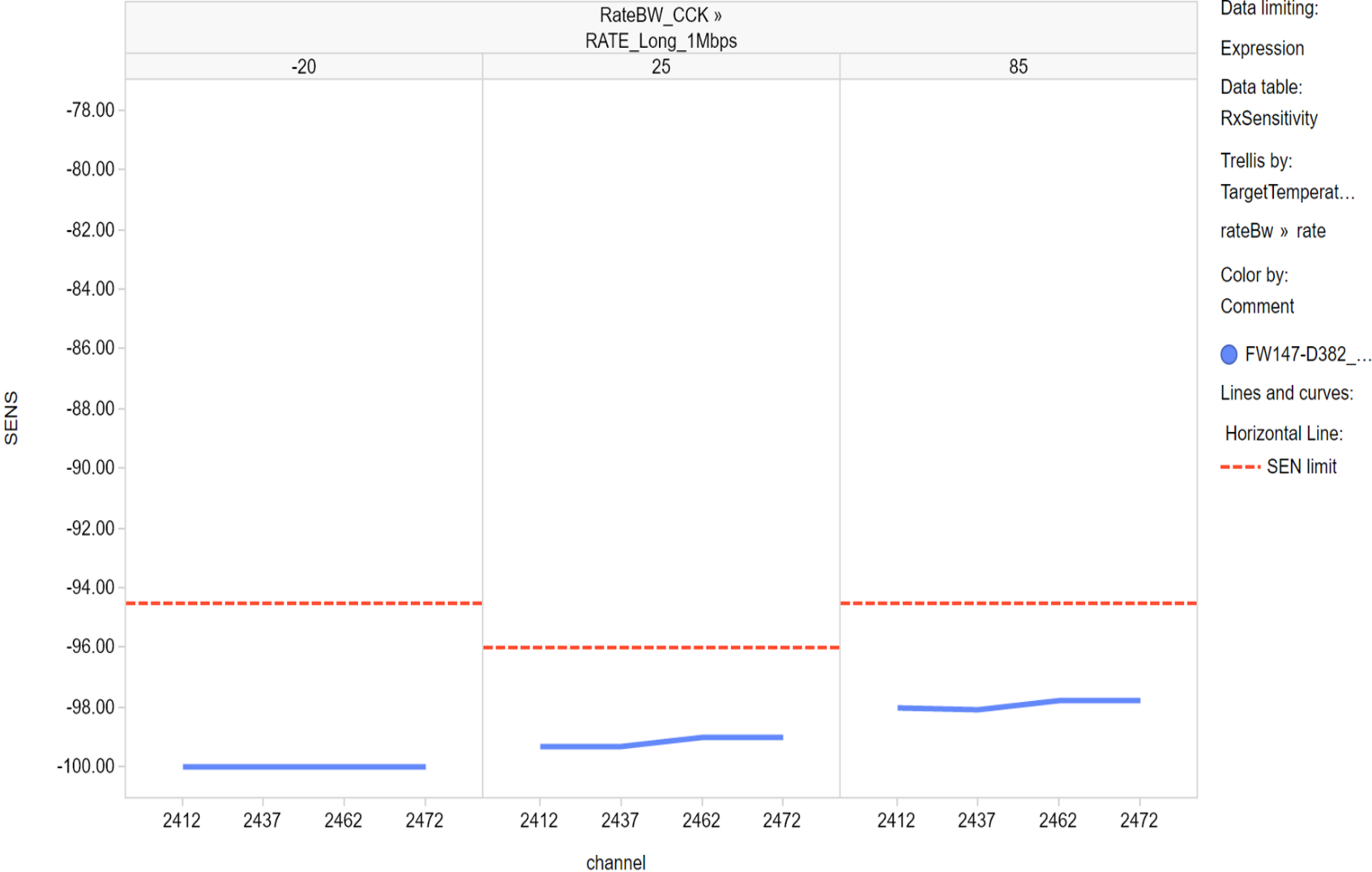
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| 5.3 Rx Sensitivity 6 GHz   | <a href="#"><u>73</u></a> |



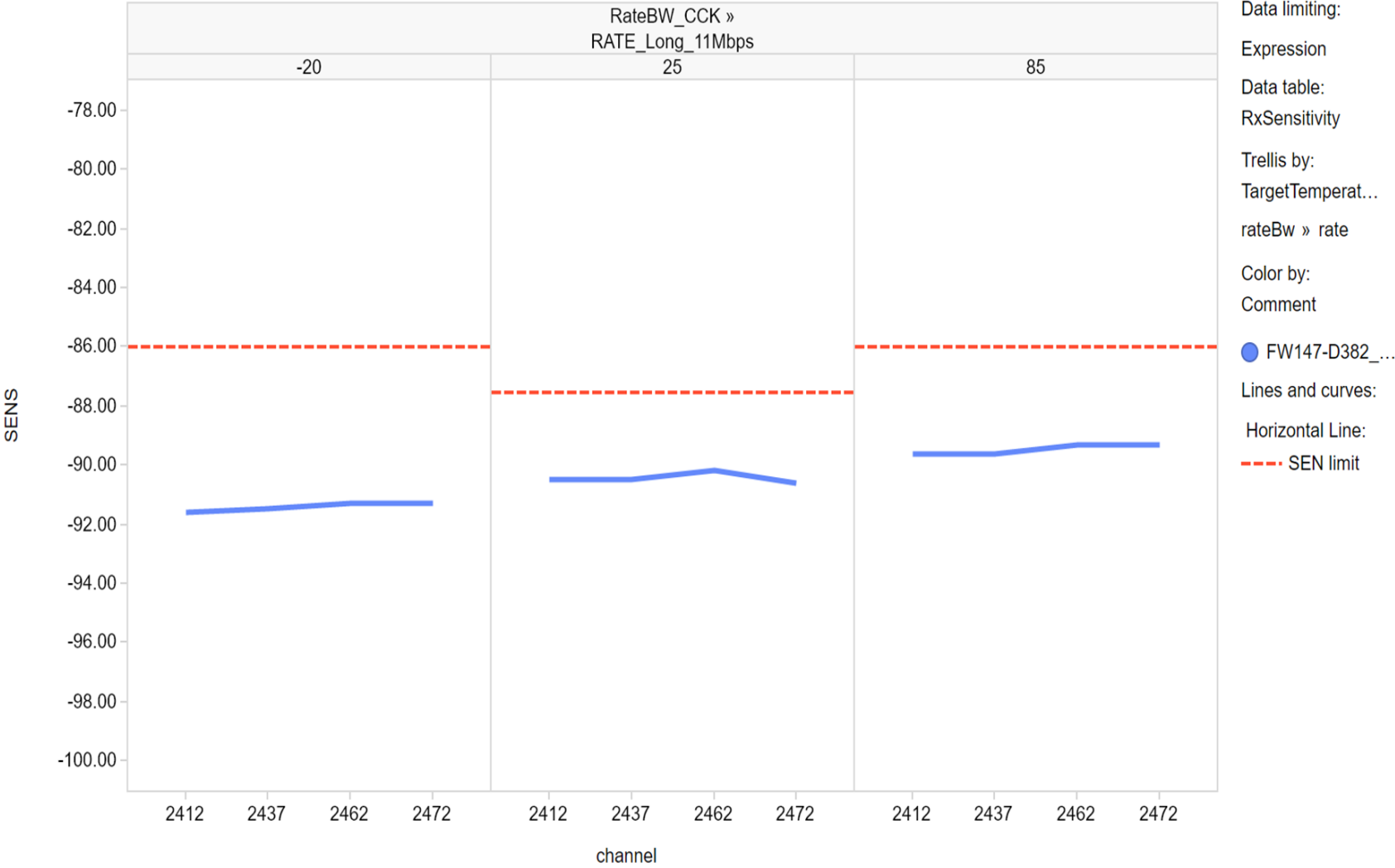
## Section 5.1

# Rx Sensitivity 2.4 GHz

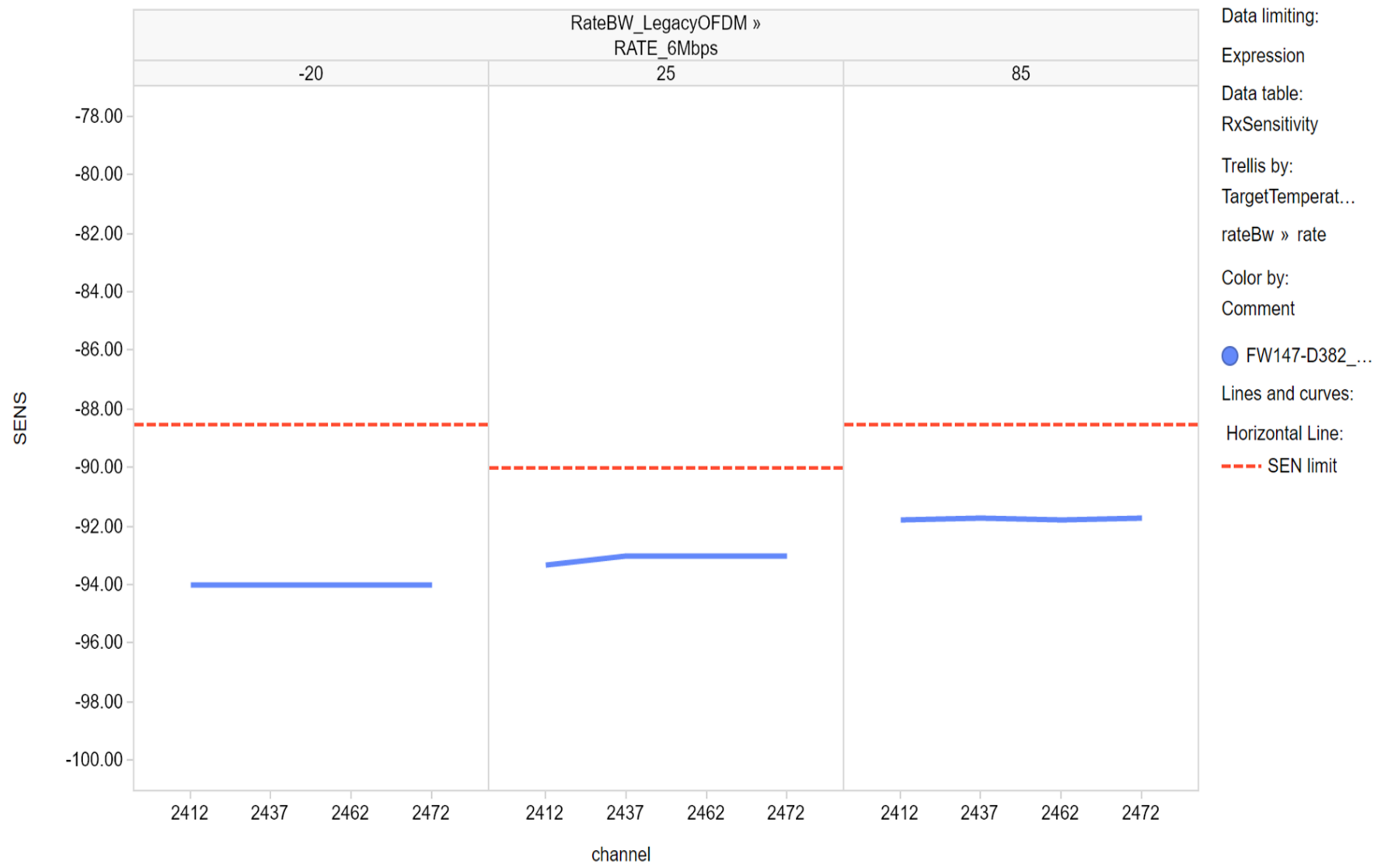
# Rx Sensitivity 2.4 GHz



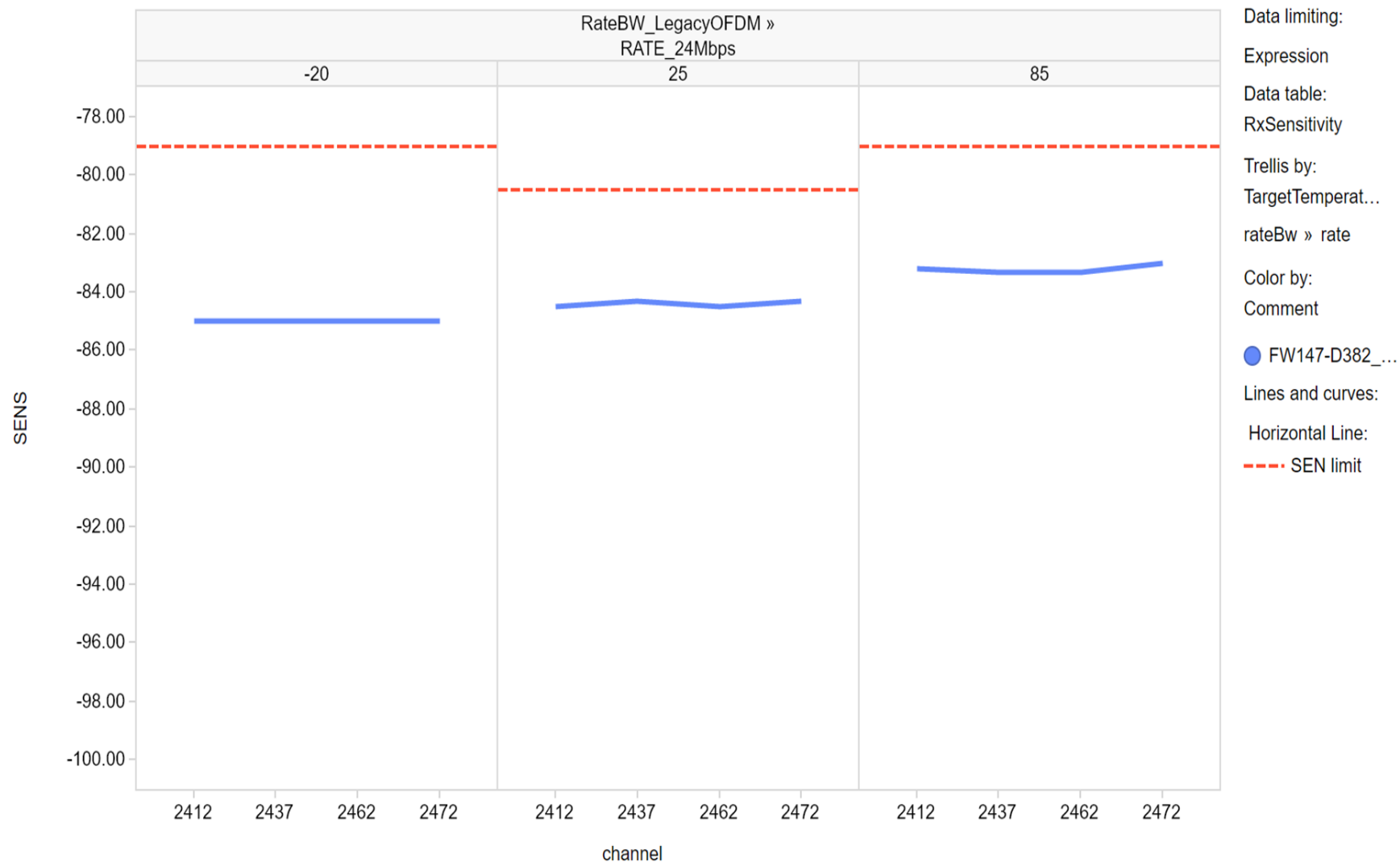
# Rx Sensitivity 2.4 GHz (cont.)



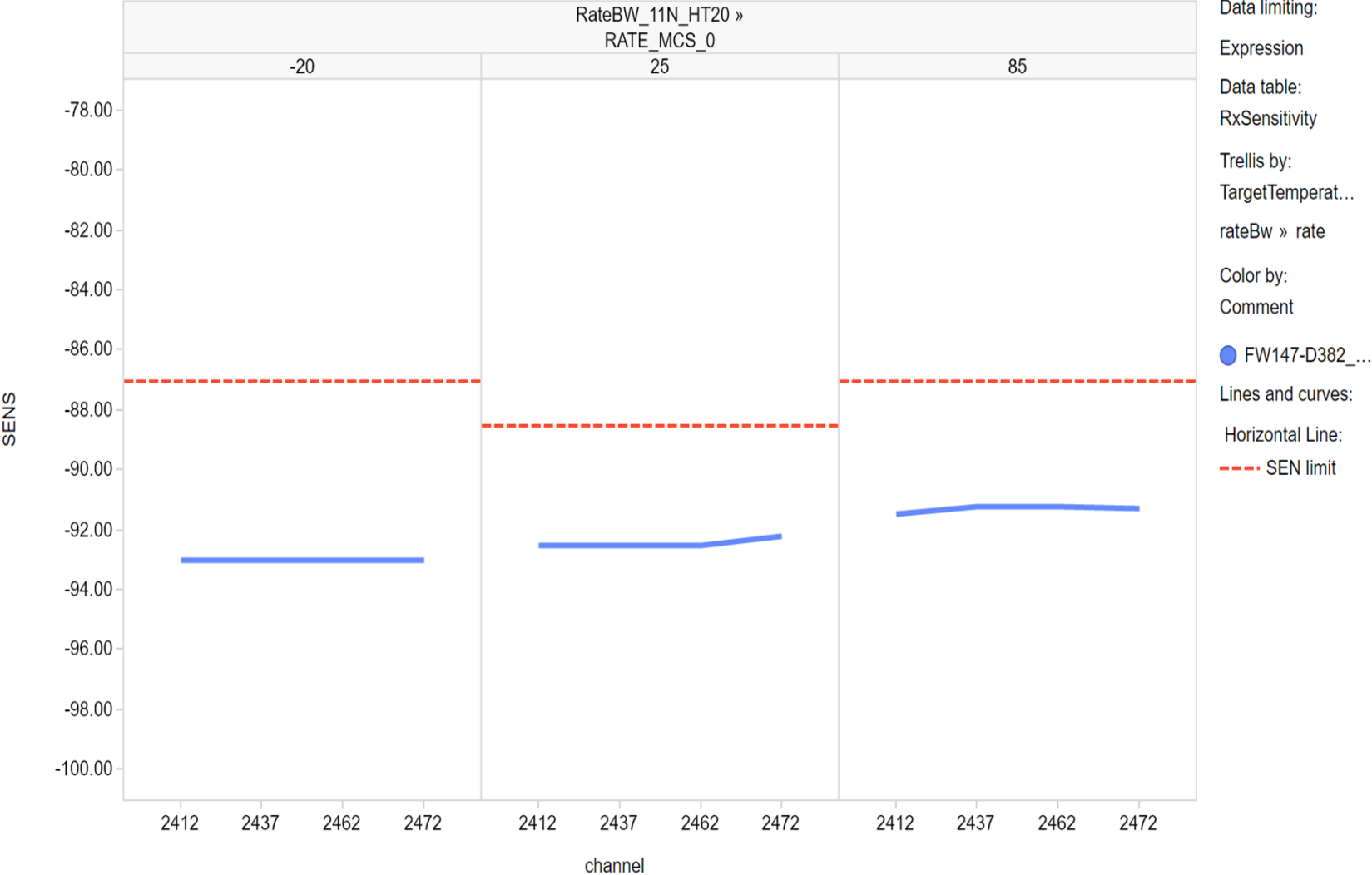
# Rx Sensitivity 2.4 GHz (cont.)



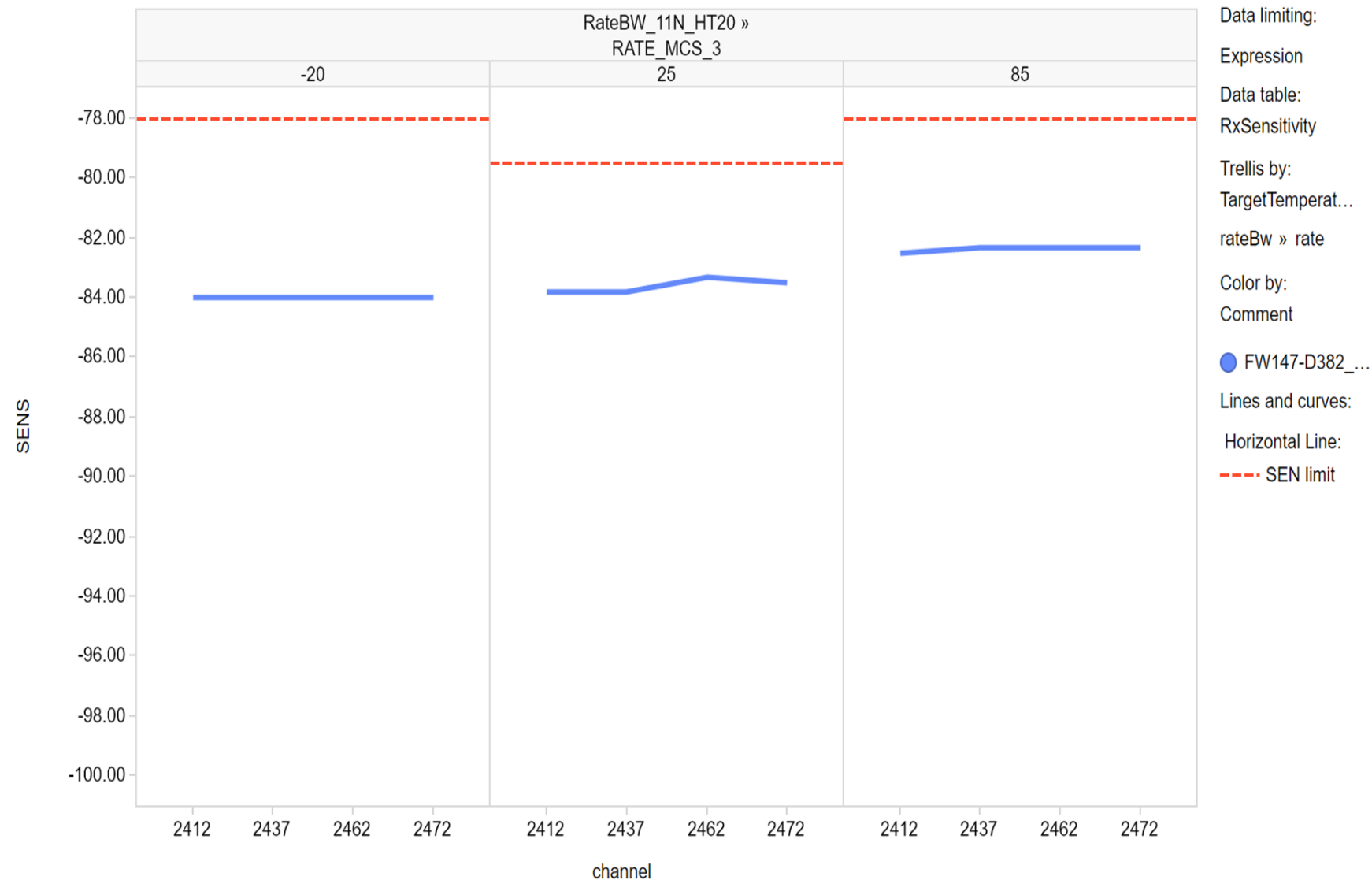
# Rx Sensitivity 2.4 GHz (cont.)

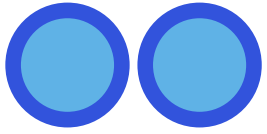


# Rx Sensitivity 2.4 GHz (cont.)



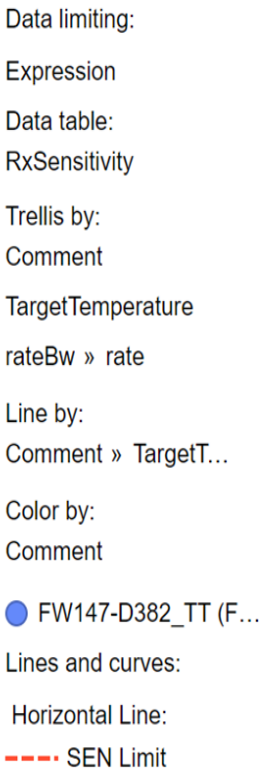
# Rx Sensitivity 2.4 GHz (cont.)



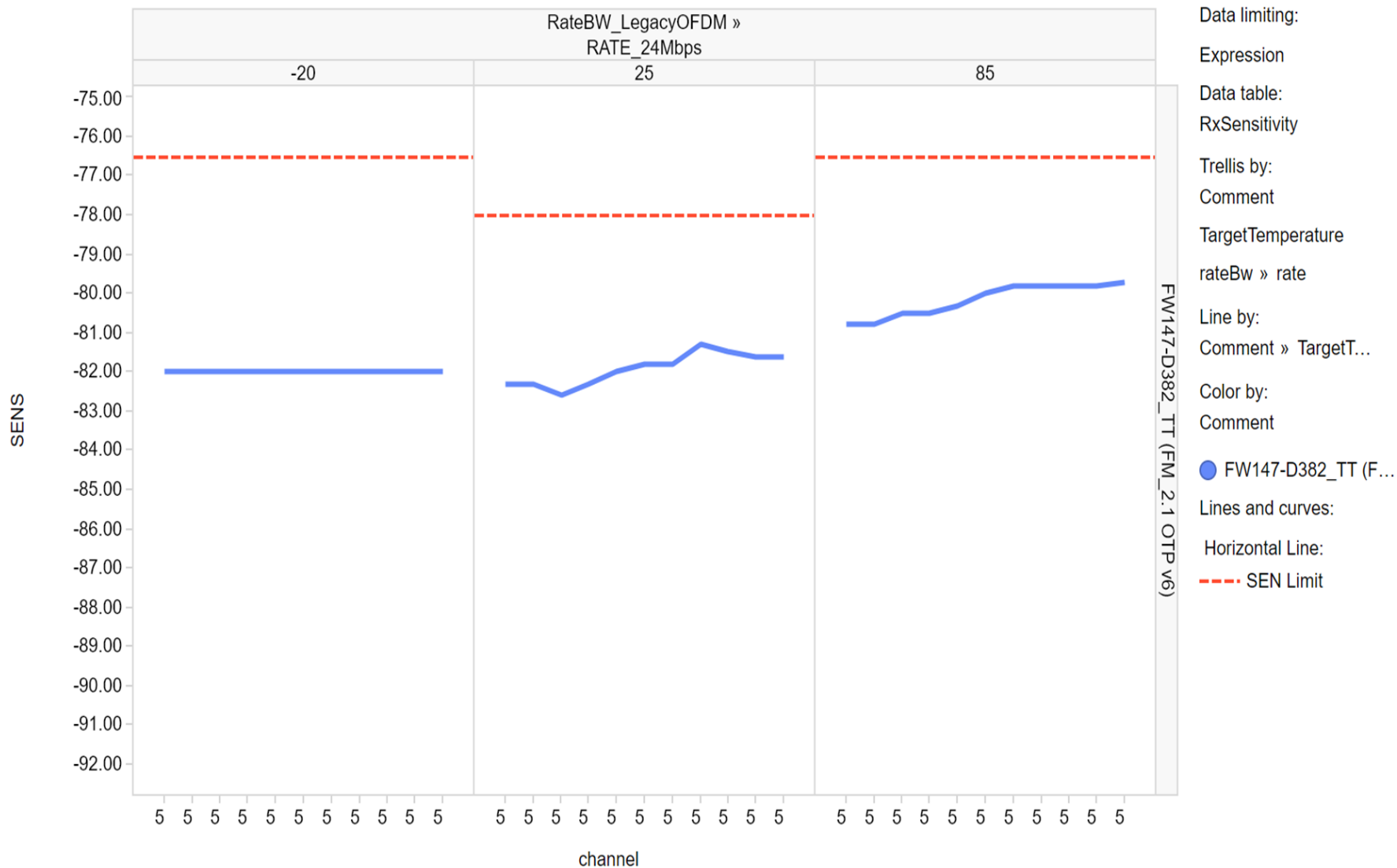


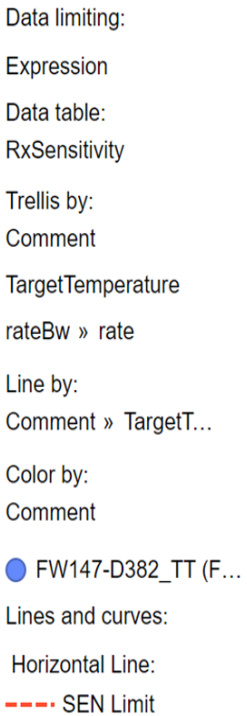
## Section 5.2

# Rx Sensitivity 5 GHz

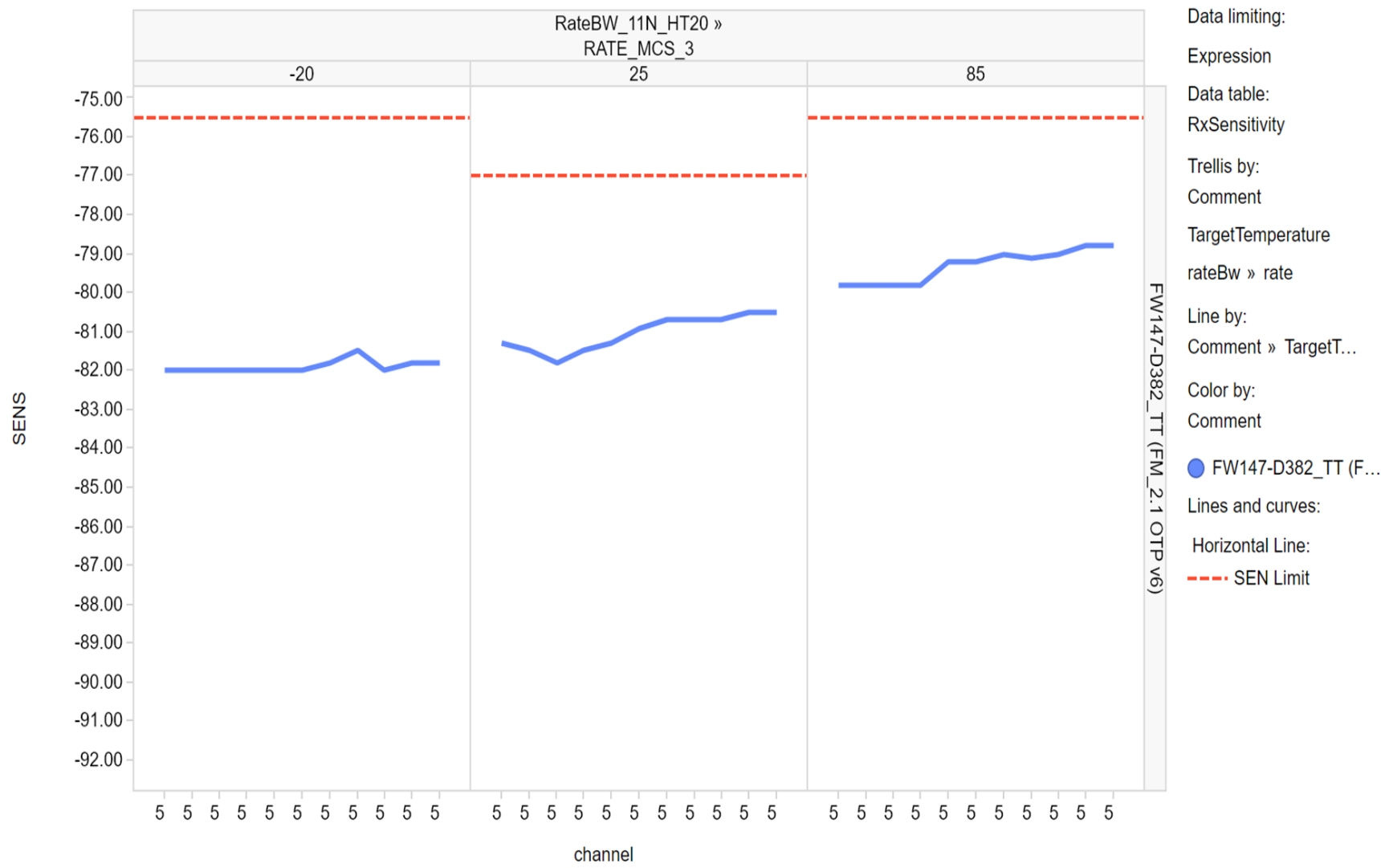


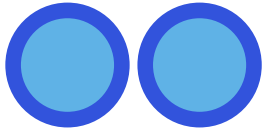
# Rx Sensitivity 5 GHz (cont.)





# Rx Sensitivity 5 GHz (cont.)

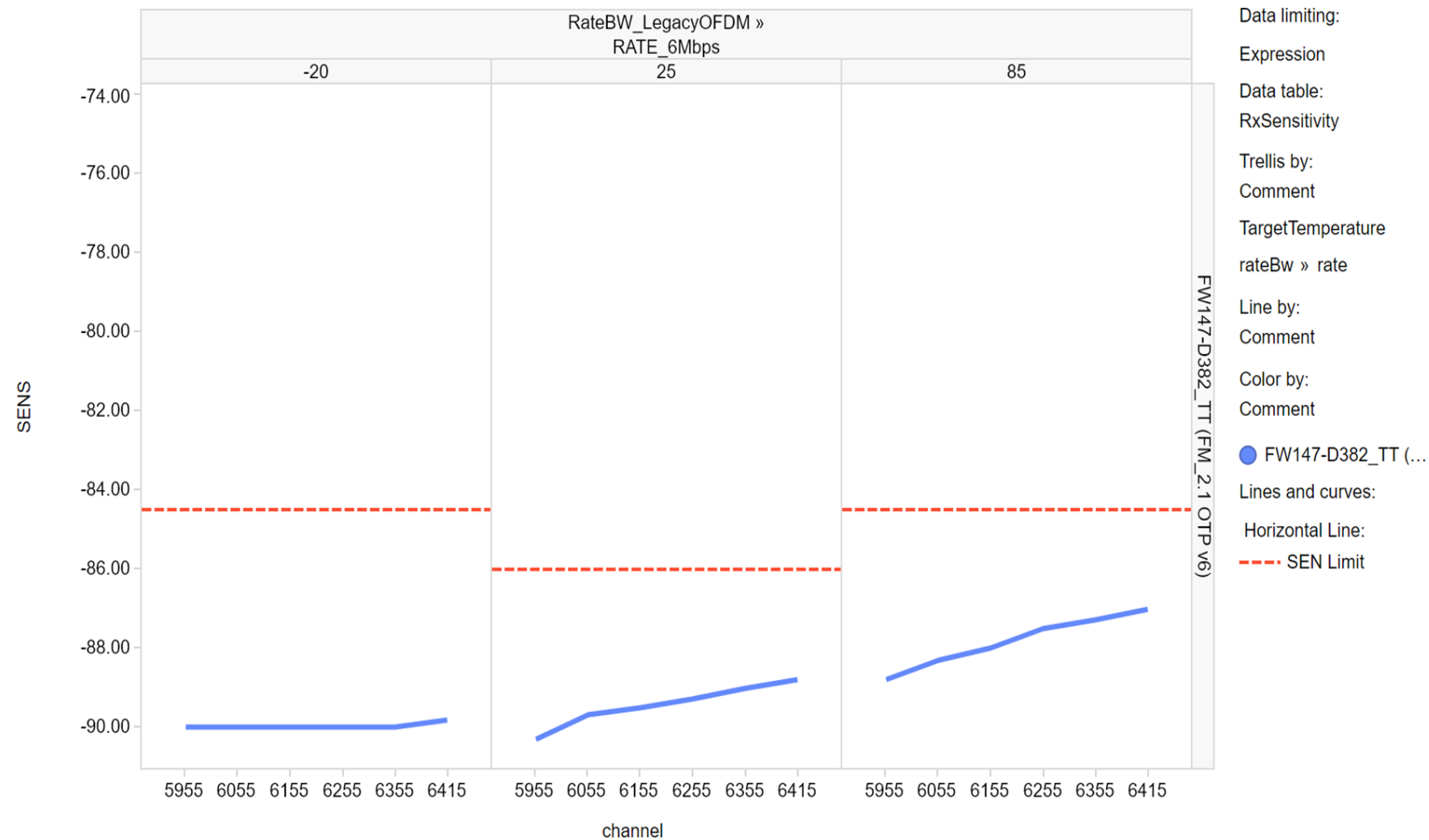




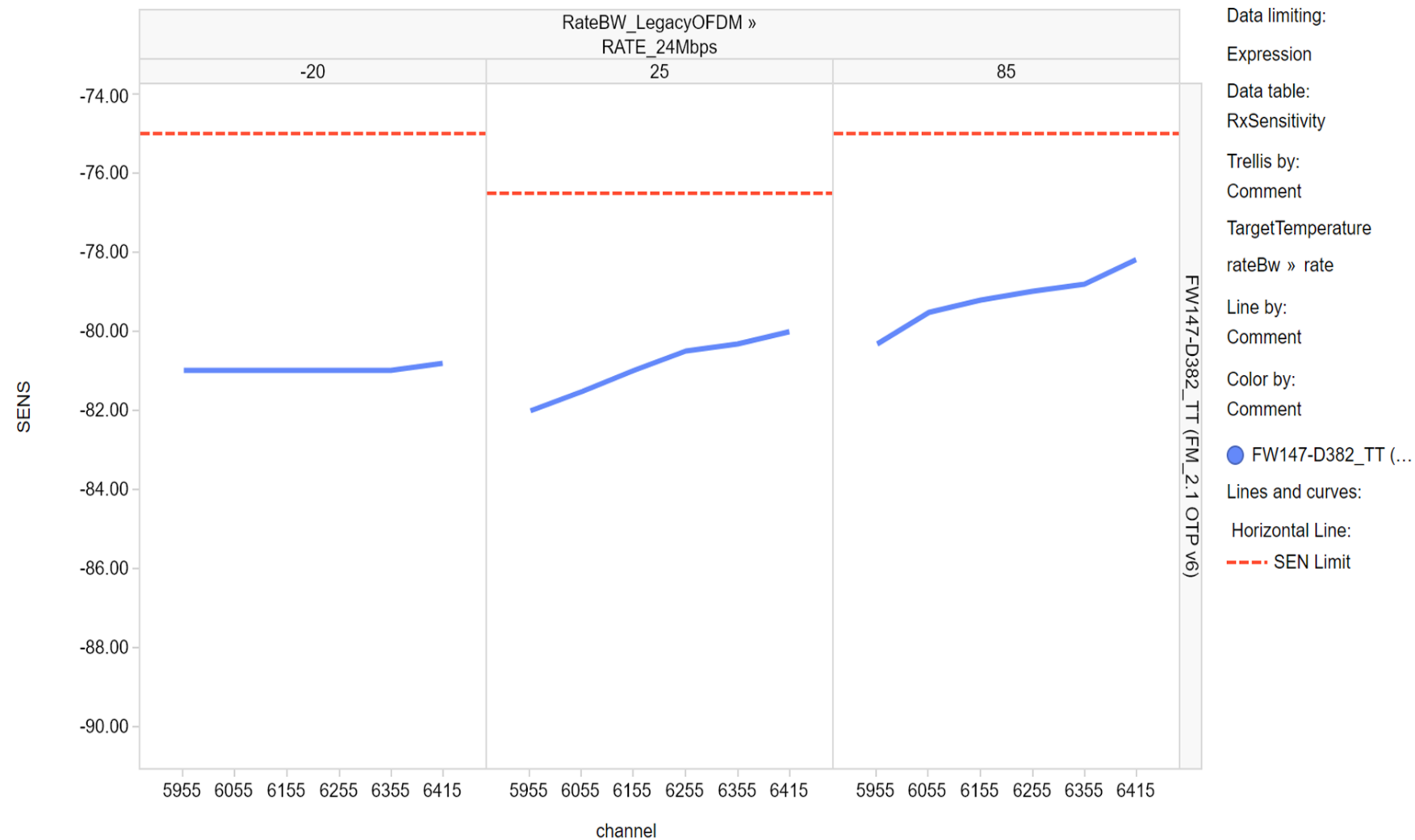
## Section 5.3

# Rx Sensitivity 6 GHz

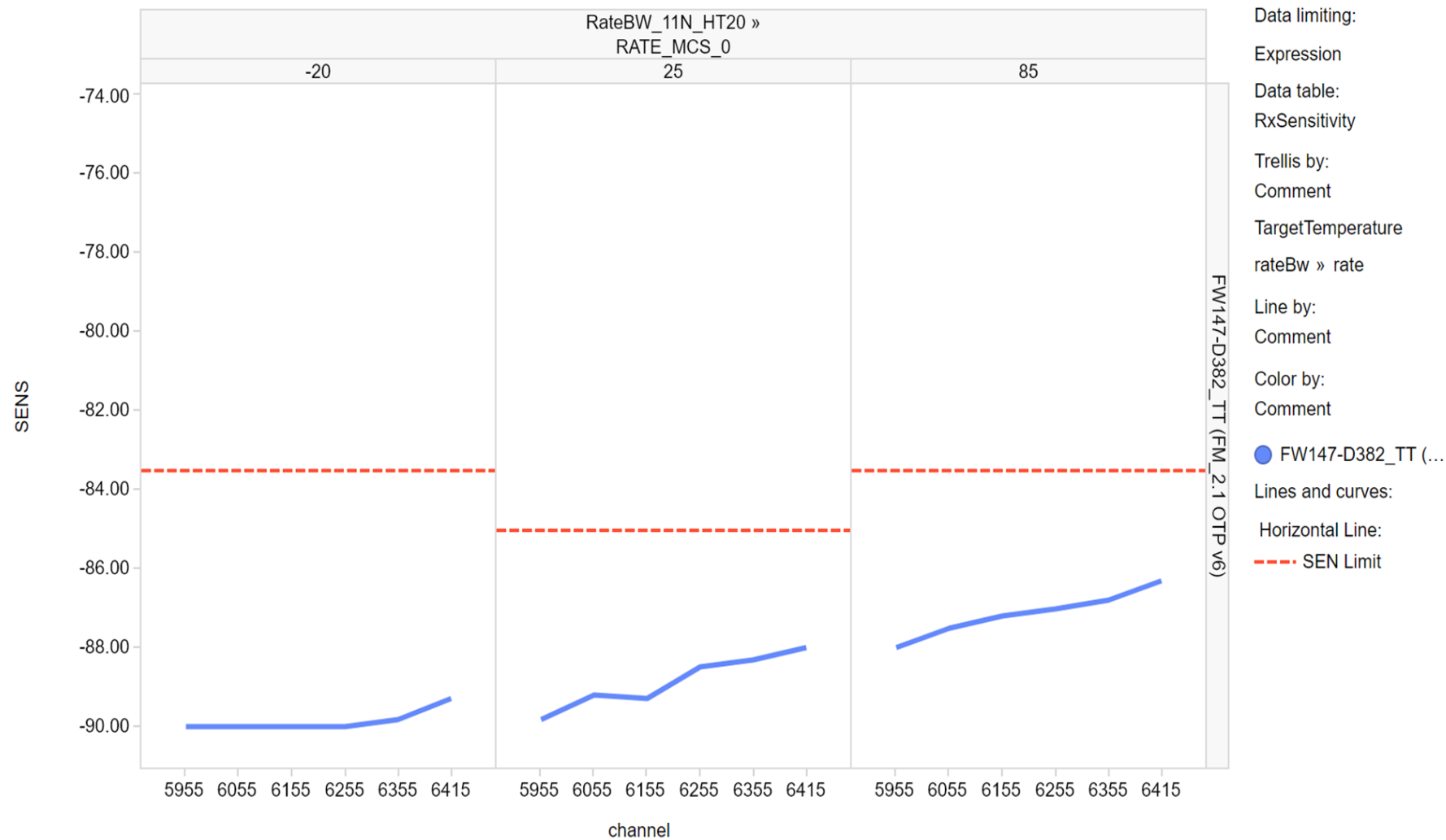
# Rx Sensitivity 6 GHz



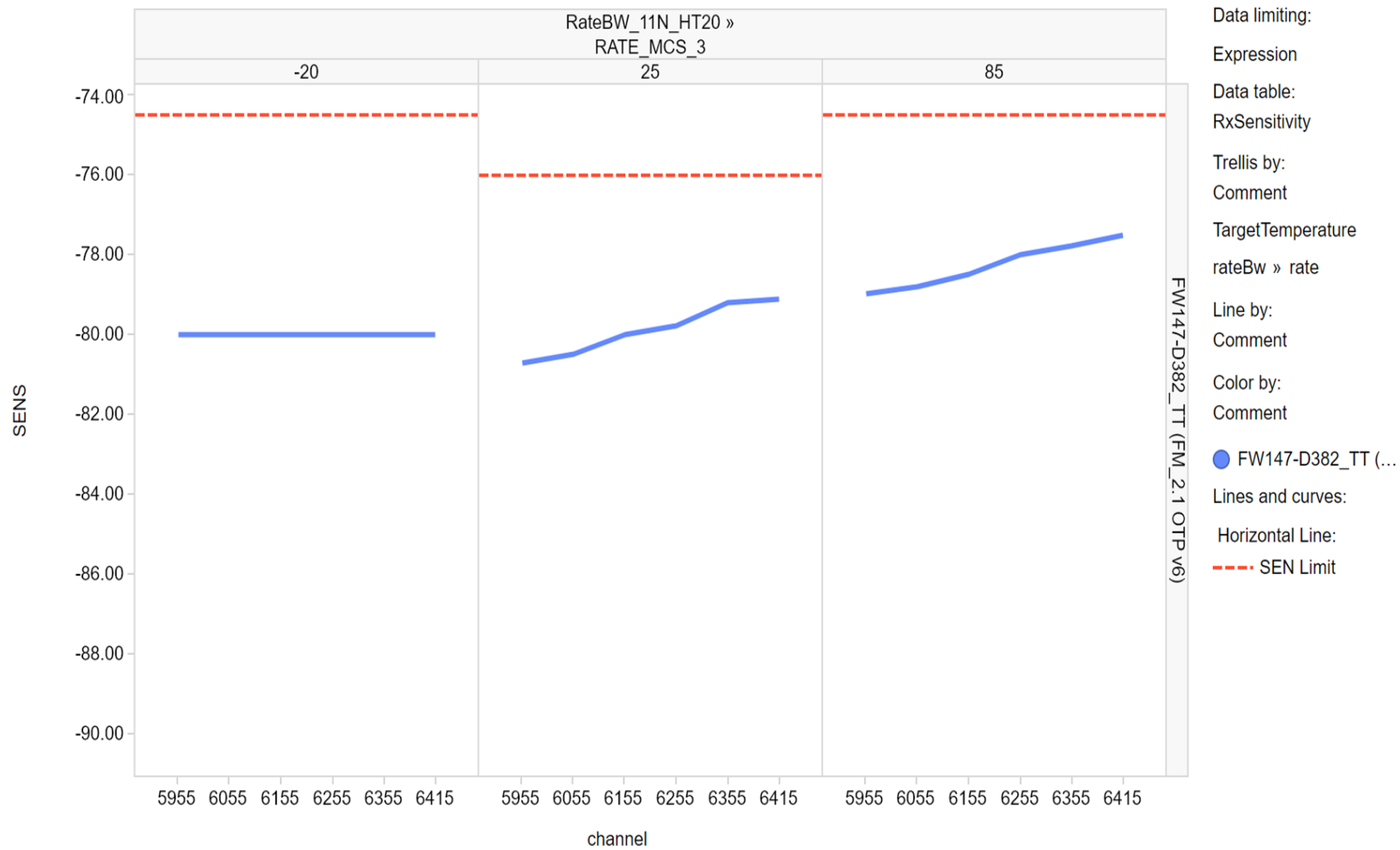
# Rx Sensitivity 6 GHz (cont.)



# Rx Sensitivity 6 GHz (cont.)



# Rx Sensitivity 6 GHz (cont.)





## Section 6

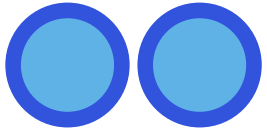
# FTM Power Consumption

6.1 Tx Power Consumption

[79](#)

6.2 Rx Power Consumption

[81](#)

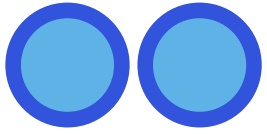


## Section 6.1

# Tx Power Consumption

# Tx Power Consumption

| Active Tx | Rate      | Target power | Measure power | V <sub>BATT</sub> 3.3 V<br>Average (mA) | V <sub>DD</sub> 1.8 V<br>Average (mA) | V <sub>DDIO</sub> 1.8 V<br>Average (mA) | Total power<br>(mW) |
|-----------|-----------|--------------|---------------|-----------------------------------------|---------------------------------------|-----------------------------------------|---------------------|
| 2.4 GHz   | CCK 1 M   | 9.5          | 9.20          | 10.20                                   | 60.42                                 | 0.04                                    | 142.488             |
|           | CCK 11 M  | 9            | 8.87          | 10.14                                   | 59.33                                 | 0.04                                    | 140.328             |
|           | OFDM 6 M  | 9.5          | 10.22         | 10.85                                   | 62.72                                 | 0.04                                    | 148.773             |
|           | OFDM 24 M | 8            | 8.55          | 10.80                                   | 59.25                                 | 0.04                                    | 142.362             |
|           | 11n MCS0  | 9.5          | 9.28          | 10.82                                   | 60.69                                 | 0.04                                    | 145.02              |
|           | 11n MCS3  | 8            | 9.14          | 10.82                                   | 60.31                                 | 0.04                                    | 144.336             |
| 5 GHz     | OFDM 6 M  | 8            | 9.38          | 13.00                                   | 62.48                                 | 0.04                                    | 155.436             |
|           | OFDM 24 M | 6.5          | 7.76          | 12.90                                   | 57.86                                 | 0.04                                    | 146.79              |
|           | 11n MCS0  | 8            | 9.48          | 13.00                                   | 62.58                                 | 0.04                                    | 155.616             |
|           | 11n MCS3  | 6.5          | 8.01          | 12.90                                   | 58.21                                 | 0.04                                    | 147.42              |
| 6 GHz     | OFDM 6 M  | 7            | 8.25          | 13.65                                   | 70.71                                 | 0.04                                    | 172.395             |
|           | OFDM 24 M | 5.5          | 6.56          | 13.63                                   | 66.19                                 | 0.04                                    | 164.193             |
|           | 11n MCS0  | 7            | 8.32          | 13.67                                   | 70.96                                 | 0.04                                    | 172.911             |
|           | 11n MCS3  | 5.5          | 6.74          | 13.63                                   | 66.55                                 | 0.04                                    | 164.841             |



## Section 6.2

# Rx Power Consumption

# Rx Power Consumption

| Active Rx | Rate      | V <sub>BATT</sub> 3.3 V<br>Average (mA) | V <sub>DD</sub> 1.8 V<br>Average (mA) | V <sub>DDIO</sub> 1.8 V<br>Average (mA) | Total power<br>(mW) |
|-----------|-----------|-----------------------------------------|---------------------------------------|-----------------------------------------|---------------------|
| 2.4 GHz   | CCK 1 M   | 2.98                                    | 0.15                                  | 0.04                                    | 10.2                |
|           | CCK 11 M  | 2.95                                    | 0.15                                  | 0.04                                    | 10.1                |
|           | OFDM 6 M  | 3.43                                    | 0.15                                  | 0.04                                    | 11.7                |
|           | OFDM 24 M | 3.39                                    | 0.15                                  | 0.04                                    | 11.5                |
|           | 11n MCS0  | 3.34                                    | 0.15                                  | 0.04                                    | 11.4                |
|           | 11n MCS3  | 3.39                                    | 0.15                                  | 0.04                                    | 11.5                |
| 5 GHz     | OFDM 6 M  | 4.92                                    | 0.15                                  | 0.04                                    | 16.6                |
|           | OFDM 24 M | 4.83                                    | 0.15                                  | 0.04                                    | 16.3                |
|           | 11n MCS0  | 4.78                                    | 0.15                                  | 0.04                                    | 16.1                |
|           | 11n MCS3  | 4.88                                    | 0.15                                  | 0.04                                    | 16.4                |
| 6 GHz     | OFDM 6 M  | 5.03                                    | 0.15                                  | 0.04                                    | 16.9                |
|           | OFDM 24 M | 4.93                                    | 0.15                                  | 0.04                                    | 16.6                |
|           | 11n MCS0  | 4.87                                    | 0.15                                  | 0.04                                    | 16.4                |
|           | 11n MCS3  | 4.98                                    | 0.15                                  | 0.04                                    | 16.8                |

# Acronyms and Terms

| Acronym or term | Definition                                           |
|-----------------|------------------------------------------------------|
| DUT             | Device under test                                    |
| EVM             | Error vector magnitude                               |
| FTM             | Factory test mode                                    |
| KPI             | Key performance indicators                           |
| LAN             | Local area network                                   |
| MAD             | Median absolute deviation                            |
| MIMO            | Multiple inputs multiple outputs                     |
| MTP             | Modem test platform                                  |
| PER             | Packet error rate                                    |
| PSR             | Packet success rate                                  |
| Rx              | Receiver                                             |
| Tx              | Transmitter                                          |
| VSA             | Vector signal analyzer                               |
| VSG             | Vector signal generator                              |
| VST             | Vector signal transceiver                            |
| WAN             | Wide area network (also known as WWAN, wireless WAN) |
| WLAN            | Wireless LAN                                         |

# Questions?

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