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# PART 0 POWER DENSITY CHAR REPORT

| | |
|---|---|
| **Applicant Name:**<br>**SAMSUNG Electronics Co., Ltd.**<br>129, Samsung-ro, Yeongtong-gu, Suwon-Si, Gyeonggi-do, 16677 Rep. of Korea | **Date of Issue:** Nov. 26, 2021<br>**Test Report No.:** HCT-SR-2111-FC002<br>**Test Site: HCT CO., LTD.** |

## FCC ID: A3LSMX808U

| | |
|---|---|
| **Report Type:** | **Part 0 Power Density Characterization** |
| **Equipment Type:** | **Tablet** |
| **Application Type** | **Certification** |
| **FCC Rule Part(s):** | **CFR §2.1093** |
| **Model Name:** | **SM-X808U** |

.

I attest to the accuracy of data. All measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

Tested By

Moon-Pyung Choi
Test Engineer
SAR Team
Certification Division

Reviewed By

Yun-jeang, Heo
Technical Manager
SAR Team
Certification Division

## REVISION HISTORY

The revision history for this test report is shown in table.

| Revision No. | Date of Issue | Description |
|---|---|---|
| 0 | Nov. 26, 2021 | Initial Release |

This test results were applied only to the test methods required by the standard.

The above Test Report is not related to the accredited test result by (KS Q) ISO/IEC 17025 and KOLAS(Korea Laboratory Accreditation Scheme), which signed the ILAC-MRA.

# Table of Contents

# 1. Test Location

## 1.1 Test Laboratory

| | |
|---|---|
| **Company Name** | HCT Co., Ltd. |
| **Address** | 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, 17383 KOREA |
| **Telephone** | 031-645-6300 |
| **Fax.** | 031-645-6401 |

## 1.2 Test Facilities

Our laboratories are accredited and approved by the following approval agencies according to ISO/IEC 17025.

| | |
|---|---|
| **Korea** | National Radio Research Agency (Designation No. KR0032) |
| | KOLAS (Testing No. KT197) |

# 2. Information of the EUT

## 2.1 General Information of the EUT

| | |
|---|---|
| **Model Name** | SM-X808U |
| **Equipment Type** | Tablet |
| **FCC ID** | A3LSMX808U |
| **Application Type** | Certification |
| **Applicant** | SAMSUNG Electronics Co., Ltd. |

# 3. DEVICE UNDER TEST

## 3.1 Device Overview

This device uses the Qualcomm® Smart Transmit feature to control and manage transmitting power in real time and to ensure the time-averaged RF exposure is in compliance with the FCC requirement at all times for 2G/3G/4G/5G WWAN operations. Additionally, this device supports WLAN/BT technologies, but the output power of these modems is not controlled by the Smart Transmit algorithm.

## 3.2 Time-Averaging for SAR and Power Density

This device is enabled with Qualcomm® Smart Transmit algorithm to control and manage transmitting power in real time and to ensure that the time-averaged RF exposure from 2G/3G/4G/5G NR WWAN is in compliance with FCC requirements.

This Part 0 report shows SAR and Power Density characterization of WWAN radios for 2G/3G/4G/5G Sub-6 NR and 5G mmW NR respectively.
Characterization is achieved by determining $P_{Limit}$ for 2G/3G/4G/5G Sub 6 NR and input.power.limit for 5G mmW NR that correspond to the exposure design targets. after accounting for all device design related uncertainties, i.e., SAR_design_target (< FCC SAR limit) for sub-6 radio and PD_design_target (< FCC PD limit) for mmW radio.
The SAR characterization and PD characterization are denoted as SAR Char and PD Char in this report. Section 3.3 includes a nomenclature of the specific terms
used in this report
.
The compliance test under the static transmission scenario and simultaneous transmission analysis are reported in Part 1 report. The validation of the time-averaging algorithm and compliance under the dynamic (time- varying) transmission scenario for WWAN technologies are reported in Part 2 report

### 3.3 Nomenclature for Part 0 Report

| Technology | Term | Description |
|---|---|---|
| 5G mmW NR | *input.power.limit* | Power level at antenna element for each beam corresponding to the exposure design target (*PD_design_target)* |
| | *PD_design_target* | Target PD level < FCC PD limit after accounting for all device design related uncertainties |
| | *Δmin* | Housing material influence |
| | *PD Char* | Table containing *input.power.limit* for all beams and bands |

# 4. POWER DENSITY CHARACTERIZATION

## 4.1 Exposure Scenarios in Power Density Evaluation

At frequencies > 6 GHz, the total peak spatial averaged power density (psPD) is required to be assessed for all antenna configurations (beams) from all mmW antenna modules installed inside the device. This device has 2 patch antenna arrays (Module 0, Module 1) antenna array .
As showed in Figure 4-1, the surfaces near-by each mmW antenna module for PD characterization are identified and listed in Table 4-1.

Note: The J Patch antenna, located on the back surface, is constructed with its dedicated ground plane behind the entire patch array and can only propagate outward.

**Table 4-1 Evaluation Surfaces for PD Characterization**

| Band | Antenna | Rear(S2) | Front(S1) | Left(S3) | Right(S4) | Bottom | Top(S5) |
|---|---|---|---|---|---|---|---|
| 5G NR Band n261 | Module K | No | Yes | No | Yes | No | No |
| | Module L | Yes | No | No | Yes | No | No |
| 5G NR Band n260 | Module K | No | Yes | No | Yes | No | No |
| | Module L | Yes | No | No | Yes | No | No |

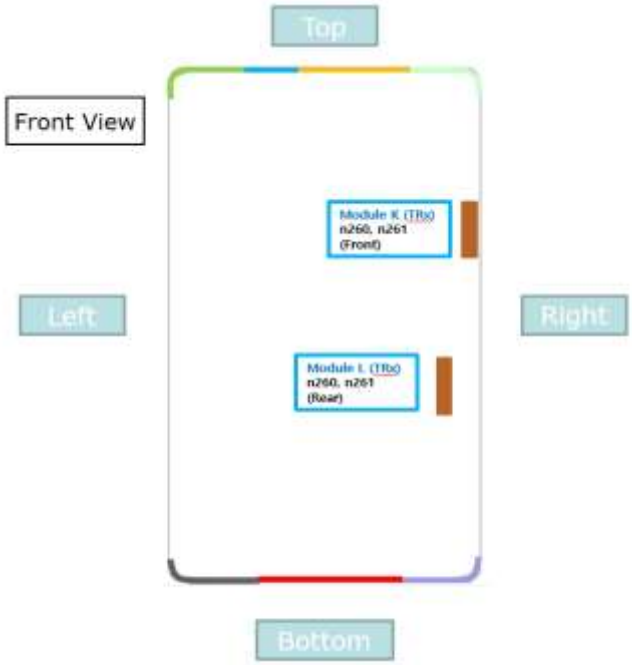


**Figure 4-1: Location of mmW antenna modules looking from front of the DUT**

Particular DUT edges were not required to be evaluated for power density if the edges were greater than 2.5 cm from the transmitting antenna according to FCC KDB Publication 941225 D06v02r01 Section III and FCC KDB Publication 648474 D04v01r03. The distances between the transmit antennas and the edges of the device are included in the filing. Per FCC guidance, additional edges with negligible psPD results could be excluded from testing towards $\Delta_{min}$ calculations.

## 4.2 Power Density Characterization Method

An overview of power density characterization method could be found in Figure 4-2 below.

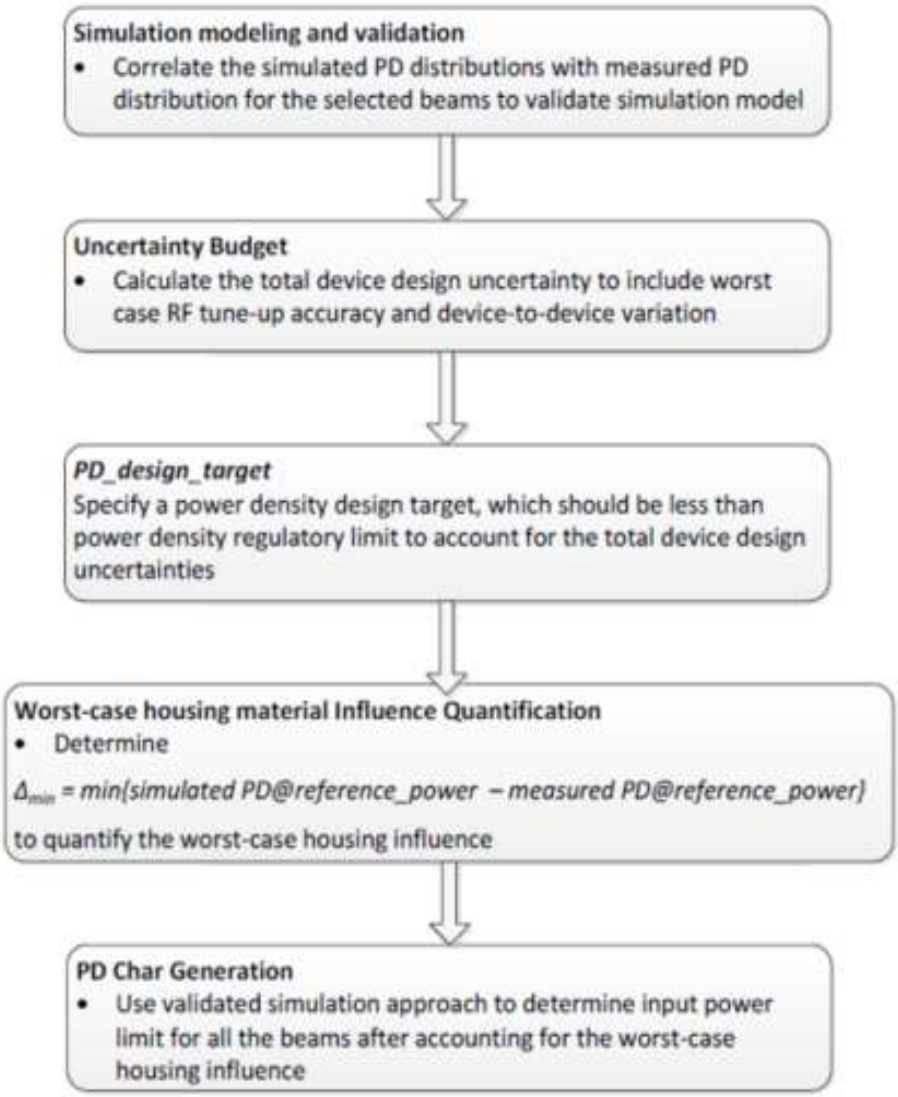


**Figure 4-2: Flow chart for Power deisity characterization**

## 4.3 Codebook for all supported beams

All the beams that the DUT supports are specified in the pre-defined codebook. The codebook for this device is specified as below.

**Table 4-2 5G mmW NR Band n261 Module K(0) Module L (1) Codebook**

| Band | Beam ID | Module | Paired_With | # of Antenna Feed |
|---|---|---|---|---|
| n261 | 0 | 0 | 128 | 1 |
| n261 | 1 | 1 | 129 | 1 |
| n261 | 2 | 0 | 130 | 1 |
| n261 | 3 | 1 | 131 | 1 |
| n261 | 4 | 0 | 132 | 1 |
| n261 | 5 | 1 | 133 | 1 |
| n261 | 6 | 0 | 134 | 1 |
| n261 | 7 | 1 | 135 | 1 |
| n261 | 8 | 0 | 136 | 1 |
| n261 | 9 | 1 | 137 | 1 |
| n261 | 10 | 0 | 138 | 2 |
| n261 | 11 | 0 | 139 | 2 |
| n261 | 12 | 0 | 140 | 2 |
| n261 | 13 | 0 | 141 | 2 |
| n261 | 14 | 1 | 142 | 2 |
| n261 | 15 | 1 | 143 | 2 |
| n261 | 16 | 1 | 144 | 2 |
| n261 | 17 | 1 | 145 | 2 |
| n261 | 18 | 0 | 146 | 2 |
| n261 | 19 | 0 | 147 | 2 |
| n261 | 20 | 0 | 148 | 2 |
| n261 | 21 | 1 | 149 | 2 |
| n261 | 22 | 1 | 150 | 2 |
| n261 | 23 | 1 | 151 | 2 |
| n261 | 24 | 0 | 152 | 5 |
| n261 | 25 | 0 | 153 | 5 |
| n261 | 26 | 0 | 154 | 5 |
| n261 | 27 | 0 | 155 | 5 |
| n261 | 28 | 0 | 156 | 5 |
| n261 | 29 | 1 | 157 | 5 |
| n261 | 30 | 1 | 158 | 5 |
| n261 | 31 | 1 | 159 | 5 |
| n261 | 32 | 1 | 160 | 5 |
| n261 | 33 | 1 | 161 | 5 |
| n261 | 34 | 0 | 162 | 5 |
| n261 | 35 | 0 | 163 | 5 |
| n261 | 36 | 0 | 164 | 5 |
| n261 | 37 | 0 | 165 | 5 |
| n261 | 38 | 1 | 166 | 5 |
| n261 | 39 | 1 | 167 | 5 |
| n261 | 40 | 1 | 168 | 5 |
| n261 | 41 | 1 | 169 | 5 |

**Table 4-3 5G mmW NR Band n260 Codebook module K (0) /Module L(1)**

| Band | Beam ID | Module | Paired_With | # of Antenna Feed |
|---|---|---|---|---|
| n260 | 0 | 0 | 128 | 1 |
| n260 | 1 | 1 | 129 | 1 |
| n260 | 2 | 0 | 130 | 1 |
| n260 | 3 | 1 | 131 | 1 |
| n260 | 4 | 0 | 132 | 1 |
| n260 | 5 | 1 | 133 | 1 |
| n260 | 6 | 0 | 134 | 1 |
| n260 | 7 | 1 | 135 | 1 |
| n260 | 8 | 0 | 136 | 1 |
| n260 | 9 | 1 | 137 | 1 |
| n260 | 10 | 0 | 138 | 2 |
| n260 | 11 | 0 | 139 | 2 |
| n260 | 12 | 0 | 140 | 2 |
| n260 | 13 | 0 | 141 | 2 |
| n260 | 14 | 1 | 142 | 2 |
| n260 | 15 | 1 | 143 | 2 |
| n260 | 16 | 1 | 144 | 2 |
| n260 | 17 | 1 | 145 | 2 |
| n260 | 18 | 0 | 146 | 2 |
| n260 | 19 | 0 | 147 | 2 |
| n260 | 20 | 0 | 148 | 2 |
| n260 | 21 | 1 | 149 | 2 |
| n260 | 22 | 1 | 150 | 2 |
| n260 | 23 | 1 | 151 | 2 |
| n260 | 24 | 0 | 152 | 5 |
| n260 | 25 | 0 | 153 | 5 |
| n260 | 26 | 0 | 154 | 5 |
| n260 | 27 | 0 | 155 | 5 |
| n260 | 28 | 0 | 156 | 5 |
| n260 | 29 | 1 | 157 | 5 |
| n260 | 30 | 1 | 158 | 5 |
| n260 | 31 | 1 | 159 | 5 |
| n260 | 32 | 1 | 160 | 5 |
| n260 | 33 | 1 | 161 | 5 |
| n260 | 34 | 0 | 162 | 5 |
| n260 | 35 | 0 | 163 | 5 |
| n260 | 36 | 0 | 164 | 5 |
| n260 | 37 | 0 | 165 | 5 |
| n260 | 38 | 1 | 166 | 5 |
| n260 | 39 | 1 | 167 | 5 |
| n260 | 40 | 1 | 168 | 5 |
| n260 | 41 | 1 | 169 | 5 |

## 4.4 Simulation and modeling validation

Power density simulations of all 21 beams and surfaces were performed by the manufacturer. Details of these simulations and modeling validation can be found in the Power Density Simulation Report (Table below includes a summary of the validation results to support worst-case housing influence quantification in power density characterization for this model.

With an input power of 6 dBm for n261 band and 6 dBm for n260 band, PD measurements are conducted for at least one single beam per antenna type and per antenna module (K, L) on worst-surface(s)

PD measurements are performed at mid channel of each mmW band and with CW modulation. All measured PD values are listed in table below along with corresponding simulated PD values for the same configuration. PD value will be used to determine worst-case housing influence for conservative assessment.

PD value will be used to determine worst-case housing influence for conservative assessment.

**Table 4-6**

| 5G NR band n261 | | | | | | | |
|---|---|---|---|---|---|---|---|
| PD part 0 : input power limit 6dBm | | | | | | | |
| Module | Antenna pole | **Surface** | Channel | Beam ID | Simulation PD [mW/cm²] | measured PD [mW/cm²] | "Delta_Min (dB)" |
| K | V pole | Front (S1) | Middle | 25 | 1.96 | 0.51 | 5.88 |
| | | Right (S4) | Middle | 36 | 1.82 | 0.43 | |
| | H pole | Front (S1) | Middle | 152 | 3.45 | 1.57 | 3.42 |
| | | Right (S4) | Middle | 165 | 3.20 | 0.60 | |
| L | V pole | Back (S2) | Middle | 33 | 1.95 | 0.7 | 4.48 |
| | H pole | Back (S2) | Middle | 158 | 3.84 | 1.05 | 5.63 |

| 5G NR band n260 | | | | | | | |
|---|---|---|---|---|---|---|---|
| PD part 0 : input power limit 6dBm | | | | | | | |
| Module | Antenna pole | **Surface** | Channel | Beam ID | Simulation PD [mW/cm²] | measured PD [mW/cm²] | "Delta_Min (dB)" |
| K | V pole | Front (S1) | Middle | 24 | 2.22 | 0.65 | 5.34 |
| | | Right (S4) | Middle | 24 | 1.55 | 0.20 | |
| | H pole | Front (S1) | Middle | 155 | 1.51 | 0.55 | 4.5 |
| | | Right (S4) | Middle | 154 | 1.55 | 0.22 | |
| L | V pole | Back (S2) | Middle | 33 | 2.23 | 0.65 | 3.04 |
| | H pole | Back (S2) | Middle | 166 | 1.60 | 0.51 | 5.00 |

## 4.5 *PD_design_target*

*PD_design_target* is determined by ensuring that it is less than FCC PD limit after accounting for total device design uncertainties including TxAGC and device-to-device variation, specified by the manufacturer

***PD_design_target* Calculations**

| ***PD_design_target*** | |
|---|---|
| $PD\_design\_target < PD\_regulatory\_limit \times 10^{\frac{-Total\ Uncertainty}{10}}$ | |
| **psPD over 4 cm² Averaging Area (mW/cm²)** | |
| *Total Uncertainty* | 2.1 dB |
| *PD_regulatory_limit* | 1.0 mW/cm² |
| *PD_design_target* | 0.6166 mW/cm² |

**PD_design_target Calculations**

## 4.6 Worst-case Housing Influence Determination: *Δmin*

For non-metal material, the material property cannot be accurately characterized at mmW frequencies to date. The estimated material property for the device housing is used in the simulation model, which could influence the accuracy in simulation for PD amplitude quantification. Since the housing influence on PD could vary from surfac e
to surface where the EM field propagates through, the most underestimated surface is used to quantify the worst-case housing influence for conservative assessment.

Since the mmW antenna modules are placed at different location as shown in Figure 4-1, only surrounding material/housing has impact on EM field propagation, and in turn power density. Furthermore, depending on the type of antenna array, i.e., dipole antenna array or patch antenna array, the nature of EM field propagation in the near field is different. Therefore, the worst-case housing influence is determined per antenna module and per antenna type.

For this DUT, the below procedure was used to determine worst-case housing influence, *Δmin*:

1.Based on PD simulation, for each module and antenna type, determine one or more worst-surface(s) that has highest 4cm$^2$ PD for all the single beams per antenna module and per antenna type in the mid channel of each band.

2.For identified worst surface(s) per antenna module and per antenna type group,

a. First determine $\Delta_{min}$ based on identified worst surface(s), and derive *input.power.limit*

b.Then prove all other near-by surface(s), i.e., non-selected surface(s), is not required for housing material loss quantification (in other words, these non-evaluated surfaces have no influence on the determined *input.power.limit*) by:

i. re-scale all simulated 4cm$^2$PD values to *input.power.limit* to identify the worst-PD beam per each non-evaluated surface
ii. Measure 4cm$^2$PD at *input.power.limit* on identified worst-PD beam per each non- evaluated surface
iii. Demonstrate all measured 4cm$^2$PD values are below *PD_design_target.*

3.If any of the above surface(s) in Step (2.b.iii) have measured 4cm$^2$ PD ≥ *PD_design_target*, then those surfaces must be included in the $\Delta_{min}$ determination in Step (2.a), and re-evaluate *input.power.limit* with these added surfaces.

Following above procedure, based on Table 4-2 ~ Table 4-5 in Samsung PD simulation report, the worst-surface(s)having highest 4cm$^2$PD for all the single beams per each antenna type and each antenna module group in the mid channel of n261 and n260 bands are identified as:

a. for Module K : Front (S1)
b. for Module L: Back (S2)

Thus, when comparing a simulated 4cm2averaged PD and measured 4 cm2averaged PD for the identified worstsurface(s), the worst error introduced for each antenna type and each antenna module group when using theestimated material property in the simulation is highlighted in bold numbers in Table 4-6.
Thus, the worst-case housing influence, denoted as $\Delta\min$ = Sim. PD − Meas. PD , is determined as

Table 4-7.
*Table Δmin* for Ant K, Ant L

| Band | Ant | *Δmin* **(dB)** |
|---|---|---|
| n261 | Module K | 3.42 |
| | Module L | 4.48 |
| n260 | Module K | 4.50 |
| | Module L | 3.04 |

*Δmin* represents the worst case where RF exposure is underestimated the most in simulation when using the estimated material property of the housing. For conservative assessment, the *Δmin* is used as the worst-case factor and applied to all the beams in the corresponding antenna type and antenna module group to determine input power limits in PD char for compliance.

The detail *input.power.limit* derivation is described in Section 5-1 Simulated 4cm2 PD values in Table 4 ~ Table 5 in Power Density Simulation Report are scaled to input.power.limit and are listed in Tables 4-8 ~ 4-11 for all single beams for all identified surfaces (shown in Table 4-1), when assuming the simulation is performed with correct housing influence. Determine the worst beam for each of non-selected surface(s), i.e.,

a.for L patch(Module 1) Front (S1)

b.for K patch(Module 0):Back (S2)

Then perform PD measurement for all determined worst-case beams, in Tables 4-8 ~4- 11 on the corresponding surface. Measurement is performed in the mid channel of each band with CW modulation.The evaluation distance is at 2 mm.

The test results in Table 4-12 shows that the all measured 4cm$^2$ PD values are less than *PD_design_target* of 0.6166 mW/cm$^2$, thus, the non- selected surfaces have no influence on the determined Δmin and input.power.limit in Section 5

Table 4-8
N261/mid channel, Module K simulates 4cm² PD at PD_Design_Target
(If simulation performed with correct housing material properties) Δmin

| n261, Module K | | | | | | |
|---|---|---|---|---|---|---|
| Beam ID | 4cm2 PD(mW/cm2) | | | | | |
| | S4(Right) | S3(Left) | S5(Top) | S6(Bottom) | S1(Front) | S2(Rear) |
| 0 | 0.160 | 0.095 | 0.077 | 0.053 | 0.595 | 0.028 |
| 2 | 0.219 | 0.023 | 0.023 | 0.013 | 0.536 | 0.015 |
| 4 | 0.211 | 0.032 | 0.048 | 0.026 | 0.571 | 0.020 |
| 6 | 0.238 | 0.034 | 0.034 | 0.027 | 0.631 | 0.017 |
| 8 | 0.244 | 0.031 | 0.027 | 0.029 | 0.631 | 0.020 |
| 10 | 0.156 | 0.050 | 0.049 | 0.020 | 0.544 | 0.013 |
| 11 | 0.236 | 0.029 | 0.022 | 0.021 | 0.611 | 0.022 |
| 12 | 0.254 | 0.026 | 0.034 | 0.016 | 0.475 | 0.022 |
| 13 | 0.264 | 0.033 | 0.045 | 0.029 | 0.631 | 0.025 |
| 18 | 0.258 | 0.034 | 0.021 | 0.010 | 0.584 | 0.018 |
| 19 | 0.232 | 0.032 | 0.022 | 0.015 | 0.532 | 0.014 |
| 20 | 0.221 | 0.032 | 0.056 | 0.028 | 0.483 | 0.021 |
| 24 | 0.170 | 0.034 | 0.045 | 0.035 | 0.555 | 0.021 |
| 25 | 0.237 | 0.026 | 0.015 | 0.008 | 0.601 | 0.022 |
| 26 | 0.314 | 0.026 | 0.015 | 0.010 | 0.536 | 0.026 |
| 27 | 0.315 | 0.034 | 0.019 | 0.026 | 0.571 | 0.031 |
| 28 | 0.351 | 0.052 | 0.053 | 0.035 | 0.613 | 0.044 |
| 34 | 0.208 | 0.030 | 0.031 | 0.022 | 0.589 | 0.021 |
| 35 | 0.289 | 0.034 | 0.012 | 0.008 | 0.595 | 0.025 |
| 36 | 0.320 | 0.025 | 0.008 | 0.005 | 0.556 | 0.025 |
| 37 | 0.333 | 0.045 | 0.035 | 0.033 | 0.589 | 0.039 |
| 128 | 0.132 | 0.009 | 0.022 | 0.022 | 0.631 | 0.006 |
| 130 | 0.151 | 0.014 | 0.028 | 0.014 | 0.631 | 0.009 |
| 132 | 0.158 | 0.014 | 0.031 | 0.017 | 0.631 | 0.010 |
| 134 | 0.155 | 0.018 | 0.031 | 0.013 | 0.631 | 0.010 |
| 136 | 0.136 | 0.029 | 0.027 | 0.015 | 0.631 | 0.008 |
| 138 | 0.138 | 0.029 | 0.056 | 0.025 | 0.604 | 0.016 |
| 139 | 0.184 | 0.024 | 0.025 | 0.008 | 0.618 | 0.008 |
| 140 | 0.221 | 0.013 | 0.009 | 0.008 | 0.630 | 0.005 |
| 141 | 0.169 | 0.010 | 0.019 | 0.021 | 0.631 | 0.007 |
| 146 | 0.158 | 0.021 | 0.040 | 0.022 | 0.615 | 0.013 |
| 147 | 0.221 | 0.014 | 0.005 | 0.001 | 0.608 | 0.004 |
| 148 | 0.200 | 0.014 | 0.023 | 0.019 | 0.619 | 0.007 |
| 152 | 0.151 | 0.041 | 0.046 | 0.009 | 0.611 | 0.016 |
| 153 | 0.214 | 0.045 | 0.010 | 0.004 | 0.606 | 0.010 |
| 154 | 0.250 | 0.028 | 0.004 | 0.004 | 0.617 | 0.004 |
| 155 | 0.229 | 0.026 | 0.003 | 0.005 | 0.624 | 0.005 |
| 156 | 0.192 | 0.019 | 0.005 | 0.033 | 0.617 | 0.015 |
| 162 | 0.166 | 0.055 | 0.035 | 0.005 | 0.581 | 0.012 |
| 163 | 0.242 | 0.028 | 0.006 | 0.006 | 0.631 | 0.007 |
| 164 | 0.245 | 0.028 | 0.002 | 0.005 | 0.619 | 0.004 |
| 165 | 0.212 | 0.021 | 0.003 | 0.014 | 0.631 | 0.008 |

Table 4-9
N261/mid channel, Module 1 simulates 4cm² PD at PD_Design_Target
(If simulation performed with correct housing material properties) Δmin

| n261, Module L | | | | | | |
|---|---|---|---|---|---|---|
| Beam ID | 4cm2 PD(mW/cm2) | | | | | |
| | S4(Right) | S3(Left) | S5(Top) | S6(Bottom) | S1(Front) | S2(Rear) |
| 1 | 0.051 | 0.022 | 0.042 | 0.022 | 0.032 | 0.619 |
| 3 | 0.036 | 0.011 | 0.016 | 0.020 | 0.016 | 0.631 |
| 5 | 0.038 | 0.019 | 0.032 | 0.017 | 0.049 | 0.631 |
| 7 | 0.031 | 0.017 | 0.015 | 0.016 | 0.023 | 0.584 |
| 9 | 0.047 | 0.014 | 0.018 | 0.011 | 0.018 | 0.596 |
| 14 | 0.038 | 0.013 | 0.028 | 0.019 | 0.025 | 0.579 |
| 15 | 0.039 | 0.010 | 0.022 | 0.019 | 0.020 | 0.624 |
| 16 | 0.057 | 0.021 | 0.009 | 0.009 | 0.020 | 0.596 |
| 17 | 0.047 | 0.021 | 0.017 | 0.020 | 0.045 | 0.620 |
| 21 | 0.047 | 0.012 | 0.021 | 0.028 | 0.017 | 0.631 |
| 22 | 0.049 | 0.022 | 0.010 | 0.016 | 0.042 | 0.620 |
| 23 | 0.054 | 0.022 | 0.015 | 0.015 | 0.023 | 0.577 |
| 29 | 0.074 | 0.014 | 0.070 | 0.038 | 0.042 | 0.596 |
| 30 | 0.081 | 0.017 | 0.050 | 0.021 | 0.040 | 0.597 |
| 31 | 0.078 | 0.039 | 0.013 | 0.015 | 0.030 | 0.607 |
| 32 | 0.070 | 0.032 | 0.007 | 0.010 | 0.050 | 0.620 |
| 33 | 0.069 | 0.027 | 0.006 | 0.020 | 0.021 | 0.592 |
| 38 | 0.078 | 0.015 | 0.075 | 0.038 | 0.045 | 0.598 |
| 39 | 0.072 | 0.021 | 0.024 | 0.018 | 0.026 | 0.610 |
| 40 | 0.071 | 0.030 | 0.013 | 0.012 | 0.042 | 0.629 |
| 41 | 0.077 | 0.036 | 0.014 | 0.022 | 0.035 | 0.589 |
| 129 | 0.026 | 0.004 | 0.027 | 0.028 | 0.008 | 0.594 |
| 131 | 0.032 | 0.005 | 0.036 | 0.014 | 0.006 | 0.618 |
| 133 | 0.035 | 0.006 | 0.035 | 0.010 | 0.009 | 0.631 |
| 135 | 0.030 | 0.006 | 0.028 | 0.010 | 0.015 | 0.621 |
| 137 | 0.035 | 0.004 | 0.023 | 0.024 | 0.008 | 0.631 |
| 142 | 0.032 | 0.008 | 0.072 | 0.025 | 0.012 | 0.628 |
| 143 | 0.041 | 0.010 | 0.045 | 0.007 | 0.011 | 0.631 |
| 144 | 0.047 | 0.005 | 0.009 | 0.003 | 0.002 | 0.631 |
| 145 | 0.056 | 0.006 | 0.013 | 0.012 | 0.007 | 0.622 |
| 149 | 0.038 | 0.008 | 0.054 | 0.021 | 0.021 | 0.631 |
| 150 | 0.054 | 0.008 | 0.021 | 0.002 | 0.011 | 0.631 |
| 151 | 0.057 | 0.006 | 0.007 | 0.009 | 0.013 | 0.604 |
| 157 | 0.028 | 0.008 | 0.116 | 0.009 | 0.017 | 0.602 |
| 158 | 0.030 | 0.011 | 0.089 | 0.003 | 0.013 | 0.625 |
| 159 | 0.094 | 0.012 | 0.017 | 0.008 | 0.008 | 0.618 |
| 160 | 0.102 | 0.012 | 0.010 | 0.004 | 0.006 | 0.625 |
| 161 | 0.100 | 0.012 | 0.004 | 0.012 | 0.007 | 0.629 |
| 166 | 0.029 | 0.009 | 0.103 | 0.003 | 0.015 | 0.615 |
| 167 | 0.068 | 0.015 | 0.022 | 0.005 | 0.007 | 0.631 |
| 168 | 0.030 | 0.011 | 0.090 | 0.004 | 0.014 | 0.631 |
| 169 | 0.091 | 0.012 | 0.013 | 0.005 | 0.006 | 0.624 |

Table 4-10
N260/mid channel, Module 0 simulates 4cm² PD at PD_Design_Target
(If simulation performed with correct housing material properties) Δmin

| n260 Module K | | | | | | |
|---|---|---|---|---|---|---|
| Beam ID | 4cm2 PD(mW/cm2) | | | | | |
| | S4(Right) | S3(Left) | S5(Top) | S6(Bottom) | S1(Front) | S2(Rear) |
| 0 | 0.180 | 0.017 | 0.011 | 0.022 | 0.631 | 0.006 |
| 2 | 0.170 | 0.015 | 0.030 | 0.009 | 0.631 | 0.010 |
| 4 | 0.188 | 0.007 | 0.022 | 0.009 | 0.579 | 0.009 |
| 6 | 0.221 | 0.008 | 0.012 | 0.013 | 0.631 | 0.010 |
| 8 | 0.210 | 0.014 | 0.012 | 0.011 | 0.595 | 0.009 |
| 10 | 0.143 | 0.021 | 0.026 | 0.018 | 0.631 | 0.009 |
| 11 | 0.281 | 0.012 | 0.006 | 0.011 | 0.631 | 0.007 |
| 12 | 0.193 | 0.016 | 0.026 | 0.007 | 0.631 | 0.010 |
| 13 | 0.157 | 0.013 | 0.030 | 0.010 | 0.583 | 0.015 |
| 18 | 0.244 | 0.009 | 0.016 | 0.017 | 0.631 | 0.013 |
| 19 | 0.307 | 0.009 | 0.018 | 0.011 | 0.602 | 0.013 |
| 20 | 0.186 | 0.009 | 0.024 | 0.008 | 0.581 | 0.014 |
| 24 | 0.309 | 0.030 | 0.047 | 0.027 | 0.631 | 0.029 |
| 25 | 0.291 | 0.029 | 0.013 | 0.032 | 0.631 | 0.007 |
| 26 | 0.313 | 0.025 | 0.015 | 0.006 | 0.631 | 0.008 |
| 27 | 0.297 | 0.023 | 0.049 | 0.008 | 0.590 | 0.019 |
| 28 | 0.252 | 0.031 | 0.049 | 0.018 | 0.631 | 0.027 |
| 34 | 0.289 | 0.035 | 0.028 | 0.048 | 0.629 | 0.019 |
| 35 | 0.329 | 0.024 | 0.006 | 0.011 | 0.631 | 0.009 |
| 36 | 0.253 | 0.021 | 0.042 | 0.009 | 0.491 | 0.016 |
| 37 | 0.266 | 0.025 | 0.054 | 0.015 | 0.595 | 0.018 |
| 128 | 0.223 | 0.028 | 0.036 | 0.013 | 0.610 | 0.013 |
| 130 | 0.163 | 0.051 | 0.028 | 0.020 | 0.631 | 0.019 |
| 132 | 0.171 | 0.047 | 0.029 | 0.014 | 0.624 | 0.015 |
| 134 | 0.181 | 0.042 | 0.028 | 0.021 | 0.558 | 0.010 |
| 136 | 0.120 | 0.044 | 0.025 | 0.012 | 0.578 | 0.009 |
| 138 | 0.132 | 0.043 | 0.027 | 0.019 | 0.567 | 0.014 |
| 139 | 0.228 | 0.061 | 0.025 | 0.019 | 0.619 | 0.019 |
| 140 | 0.195 | 0.059 | 0.037 | 0.019 | 0.625 | 0.011 |
| 141 | 0.131 | 0.044 | 0.038 | 0.016 | 0.496 | 0.014 |
| 146 | 0.146 | 0.054 | 0.026 | 0.015 | 0.531 | 0.012 |
| 147 | 0.281 | 0.065 | 0.022 | 0.022 | 0.631 | 0.012 |
| 148 | 0.112 | 0.060 | 0.034 | 0.024 | 0.590 | 0.012 |
| 152 | 0.186 | 0.060 | 0.031 | 0.032 | 0.499 | 0.015 |
| 153 | 0.218 | 0.108 | 0.053 | 0.027 | 0.616 | 0.027 |
| 154 | 0.352 | 0.087 | 0.025 | 0.022 | 0.631 | 0.011 |
| 155 | 0.197 | 0.109 | 0.054 | 0.022 | 0.631 | 0.018 |
| 156 | 0.222 | 0.045 | 0.041 | 0.028 | 0.540 | 0.027 |
| 162 | 0.170 | 0.071 | 0.036 | 0.026 | 0.482 | 0.017 |
| 163 | 0.245 | 0.106 | 0.042 | 0.020 | 0.631 | 0.030 |
| 164 | 0.327 | 0.081 | 0.026 | 0.017 | 0.631 | 0.012 |
| 165 | 0.166 | 0.105 | 0.083 | 0.031 | 0.563 | 0.027 |

Table 4-11
N260/mid channel, Module 1 simulates 4cm² PD at PD_Design_Target
(If simulation performed with correct housing material properties) Δmin

| n260, Module L | | | | | | |
|---|---|---|---|---|---|---|
| Beam ID | 4cm2 PD(mW/cm2) | | | | | |
| | S4(Right) | S3(Left) | S5(Top) | S6(Bottom) | S1(Front) | S2(Rear) |
| 1 | 0.053 | 0.011 | 0.037 | 0.016 | 0.015 | 0.600 |
| 3 | 0.050 | 0.017 | 0.044 | 0.015 | 0.016 | 0.494 |
| 5 | 0.046 | 0.012 | 0.025 | 0.039 | 0.024 | 0.511 |
| 7 | 0.047 | 0.013 | 0.022 | 0.072 | 0.017 | 0.503 |
| 9 | 0.045 | 0.021 | 0.032 | 0.044 | 0.039 | 0.470 |
| 14 | 0.064 | 0.015 | 0.024 | 0.093 | 0.028 | 0.554 |
| 15 | 0.078 | 0.021 | 0.016 | 0.046 | 0.014 | 0.482 |
| 16 | 0.048 | 0.014 | 0.033 | 0.021 | 0.026 | 0.470 |
| 17 | 0.044 | 0.017 | 0.042 | 0.023 | 0.015 | 0.536 |
| 21 | 0.062 | 0.017 | 0.025 | 0.022 | 0.017 | 0.539 |
| 22 | 0.058 | 0.016 | 0.036 | 0.016 | 0.031 | 0.447 |
| 23 | 0.056 | 0.023 | 0.041 | 0.025 | 0.017 | 0.477 |
| 29 | 0.117 | 0.027 | 0.022 | 0.141 | 0.024 | 0.545 |
| 30 | 0.101 | 0.029 | 0.030 | 0.022 | 0.046 | 0.491 |
| 31 | 0.086 | 0.042 | 0.027 | 0.013 | 0.018 | 0.495 |
| 32 | 0.090 | 0.035 | 0.078 | 0.015 | 0.026 | 0.417 |
| 33 | 0.054 | 0.023 | 0.022 | 0.038 | 0.018 | 0.504 |
| 38 | 0.116 | 0.030 | 0.019 | 0.122 | 0.029 | 0.523 |
| 39 | 0.151 | 0.051 | 0.014 | 0.018 | 0.020 | 0.629 |
| 40 | 0.077 | 0.036 | 0.042 | 0.013 | 0.022 | 0.466 |
| 41 | 0.067 | 0.042 | 0.051 | 0.040 | 0.026 | 0.474 |
| 129 | 0.054 | 0.023 | 0.013 | 0.006 | 0.014 | 0.631 |
| 131 | 0.086 | 0.019 | 0.032 | 0.014 | 0.059 | 0.631 |
| 133 | 0.110 | 0.030 | 0.042 | 0.017 | 0.091 | 0.631 |
| 135 | 0.084 | 0.028 | 0.044 | 0.040 | 0.125 | 0.631 |
| 137 | 0.110 | 0.053 | 0.027 | 0.048 | 0.115 | 0.626 |
| 142 | 0.106 | 0.027 | 0.018 | 0.010 | 0.032 | 0.631 |
| 143 | 0.133 | 0.055 | 0.024 | 0.045 | 0.140 | 0.601 |
| 144 | 0.093 | 0.030 | 0.057 | 0.019 | 0.091 | 0.631 |
| 145 | 0.070 | 0.017 | 0.033 | 0.016 | 0.057 | 0.631 |
| 149 | 0.099 | 0.024 | 0.013 | 0.007 | 0.023 | 0.631 |
| 150 | 0.134 | 0.048 | 0.053 | 0.020 | 0.112 | 0.631 |
| 151 | 0.046 | 0.024 | 0.034 | 0.015 | 0.055 | 0.631 |
| 157 | 0.182 | 0.061 | 0.036 | 0.024 | 0.107 | 0.631 |
| 158 | 0.165 | 0.035 | 0.025 | 0.031 | 0.083 | 0.631 |
| 159 | 0.126 | 0.072 | 0.034 | 0.022 | 0.103 | 0.631 |
| 160 | 0.145 | 0.051 | 0.070 | 0.035 | 0.079 | 0.607 |
| 161 | 0.090 | 0.024 | 0.050 | 0.032 | 0.089 | 0.631 |
| 166 | 0.171 | 0.059 | 0.029 | 0.028 | 0.094 | 0.631 |
| 167 | 0.154 | 0.054 | 0.013 | 0.017 | 0.097 | 0.631 |
| 168 | 0.114 | 0.065 | 0.053 | 0.021 | 0.085 | 0.631 |
| 169 | 0.131 | 0.029 | 0.083 | 0.039 | 0.079 | 0.620 |

Table 4-12
4cm² PD of the selected Beam ids measured on the corresponding surfaces that are not selected for $\Delta_{min}$ determination

| Band | Antenna | Beam ID_1 | Surface | Input.power.limit (dBm) | Meas.4 c ㎠ cm PD(Mw/㎠) |
|---|---|---|---|---|---|
| n261 | Module K | 153 | FRONT | 4.4 | 0.06 |
| | Module L | 154 | BACK | 5.9 | 0.05 |
| n260 | Module K | 152 | FRONT | 7.2 | 0.12 |
| | Module L | 157 | BACK | 4.2 | 0.04 |

# 5 PD Char

## 5.1 Scaling Factor for Single Beams

To determine the input power limit at each antenna port, simulation was performed at low, mid, and high channel for each mmW band supported, with 6 dBm input power per active port for n261 band and 6 dBm input power per active port for n260 band:

1 .Obtained $PD_{surface}$ value (the worst PD among all identified surfaces of the DUT) at all three channels for all single beams specified in the codebook.

2.Derived a scaling factor at low, mid and high channel, $s(i)_{low\ or\ mid\ or\ high}$, by:

$$s(i)_{low\_or\_mid\_or\_high} = \frac{PD\ design\ target}{sim.PD_{surface}(i)},\ i \in single\ beams \qquad (1)$$

3. Determined the worst-case scaling factor, $s(i)$, among low, mid and high channels:

$$\boldsymbol{s(i)} = min\{s_{low}(i), s_{mid}(i), s_{high}(i)\},\ i \in single\ beams \qquad (2)$$

and this scaling factor applies to the input power at each antenna port.

## 5.2 Scaling Factor for Beam Pairs

Per the manufacturer, the relative phase between beam pair is not controlled in the chipset design and could vary from run to run. Therefore, for each beam pair, based on the simulation results, the worst case scaling factor was determined mathematically to ensure the compliance. The worst-case PD for MIMO operations was found by sweeping the relative phase for all possible angles to ensure a conservative assessment. The power density simulation report contains the worst-case power density for each surface after sweeping through all relative phases between beams.

$$s(i)_{low\_or\_mid\_or\_high} = \frac{PD\ design\ target}{total\ PD\ (\emptyset(i)_{worstcase})}, i \in beam\ pairs \qquad (3)$$

The total PD ($\emptyset_{worstcase}$) varies with channel and beam pair, the lowest scaling factor among all three channels, s(i), is determined for the beam pair *i*:

$$\boldsymbol{s(i)} = min\{s_{low}(i), s_{mid}(i), s_{high}(i)\},\ i \in beam\ pairs \qquad (4)$$

### 5.3 *Input.Power.Limit* Calculations

The PD Char specifies the limit of input power at antenna port that corresponds to *PD_design_target* for all the beams.

Ideally, if there is no uncertainty associated with hardware design, the input power limit, denoted as *Input.power.limit(i),* for beam *i* can be obtained after accounting for the housing influence (Δmin) determined in Table 4-7, given by:

For n260 and n261

$$input.power.limit(i) = 6\ dBm + 10 * \log(s(i)) + \Delta_{min},\ i \in all\ beams \qquad (5)$$

where 6 *dBm* is the input power used in simulation for n261 and n260, respectively;s(i) is the scaling factor obtained from Eq. (2) or Eq. (4) for beam *i*; Δmin is the worst- case housing influence factor

If simulation overestimates the housing influence, then Δmin (= simulated PD – measured PD) is negative, which means that the measured PD would be higher than the simulated PD. The input power to antenna elements determined via simulation must be decreased for compliance.

Similarly, if simulation underestimates the loss, then Δmin is positive (measured PD would be lower than the simulated value). Input power to antenna elements determined via simulation can be increased and still be PD compliant.

In reality the hardware design has uncertainty which must be properly considered. The device design related uncertainty is embedded in the process of [redacted] determination. Since the device uncertainty is already accounted for in *PD_design_target*, it needs to be removed to avoid double counting this uncertainty.

Thus, Equation 5 is modified to:

**If** -TxAGC uncertainty < $\Delta_{min}$ < TxAGC uncertainty,

$$input.power.limit(i) = 6\ dBm + 10 * \log(s(i)),\ i \in all\ beams, \text{ for n260 and n261} \qquad (6)$$

**else if** $\Delta_{min}$ < -TxAGC uncertainty,

$$input.power.limit(i) = 6\ dBm + 10 * \log(s(i)) + (\Delta_{min} + \text{TxAGC uncertainty}),$$
$$i \in all\ beams, \text{ for n260 and n261} \qquad (7)$$

**else if** $\Delta_{min}$ > TxAGC uncertainty,

$$input.power.limit(i) = 6\ dBm + 10 * \log(s(i)) + (\Delta_{min} - \text{TxAGC uncertainty}),$$
$$i \in all\ beams, \text{ for n260 and n261} \qquad (8)$$

Following above logic, the *input.power.limit* for this DUT can be calculated using Equations (6), (7), and (8), i.e.,

*Input.power.limit* Calculation

| Band | Antenna | Δmin (dB) | TxAGC Uncertainty (dB) | *input.power.limit (dBm)* | Notes |
|---|---|---|---|---|---|
| n261 | Module K | 3.42 | 0.5 | input.power.limit (i)=6dB+10*log(s(i)+2.92 | Using Eq. 8 |
| | Module L | 4.48 | 0.5 | input.power.limit (i)=6dB+10*log(s(i)+3.98 | Using Eq. 8 |
| n261 | Module K | 4.5 | 0.5 | input.power.limit (i)=6dB+10*log(s(i)+4.0 | Using Eq. 8 |
| | Module L | 3.04 | 0.5 | input.power.limit (i)=6dB+10*log(s(i)+2.54 | Using Eq. 8 |

**Table 5-1 5G NR n261 Module K *input.power.limit***

| Antenna | Beam ID_1 | Beam ID_2 | Input.power.limit(dBm) |
|---|---|---|---|
| Module K | 0 | | **13.6** |
| | 2 | | **10.4** |
| | 4 | | **10.7** |
| | 6 | | **11.0** |
| | 8 | | **11.2** |
| | 10 | | **8.6** |
| | 11 | | **7.9** |
| | 12 | | **7.7** |
| | 13 | | **8.6** |
| | 18 | | **7.0** |
| | 19 | | **8.0** |
| | 20 | | **8.4** |
| | 24 | | **5.1** |
| | 25 | | **3.2** |
| | 26 | | **3.6** |
| | 27 | | **4.6** |
| | 28 | | **6.4** |
| | 34 | | **4.1** |
| | 35 | | **3.3** |
| | 36 | | **3.2** |
| | 37 | | **5.7** |
| | 128 | | **8.5** |
| | 130 | | **8.5** |
| | 132 | | **8.7** |
| | 134 | | **8.9** |
| | 136 | | **8.9** |
| | 138 | | **5.8** |
| | 139 | | **5.6** |
| | 140 | | **5.7** |
| | 141 | | **5.2** |
| | 146 | | **5.6** |
| | 147 | | **5.6** |
| | 148 | | **5.8** |
| | 152 | | **0.9** |
| | 153 | | **1.8** |
| | 154 | | **2.2** |
| | 155 | | **1.8** |
| | 156 | | **1.1** |
| | 162 | | **1.3** |
| | 163 | | **2.1** |
| | 164 | | **2.1** |
| | 165 | | **1.3** |
| | 0 | 128 | **6.7** |
| | 2 | 130 | **5.6** |
| | 4 | 132 | **5.7** |
| | 6 | 134 | **5.9** |
| | 8 | 136 | **6.1** |
| | 10 | 138 | **3.4** |
| | 11 | 139 | **2.7** |
| | 12 | 140 | **3.1** |

| | | | |
|---|---|---|---|
| | 13 | 141 | **3.8** |
| | 18 | 146 | **2.6** |
| | 19 | 147 | **3.1** |
| | 20 | 148 | **3.5** |
| | 24 | 152 | **-2.1** |
| | 25 | 153 | **-1.7** |
| | 26 | 154 | **-0.7** |
| | 27 | 155 | **-0.3** |
| | 28 | 156 | **-0.8** |
| | 34 | 162 | **-2.1** |
| | 35 | 163 | **-1.2** |
| | 36 | 164 | **-0.8** |
| | 37 | 165 | **-0.4** |

**Table 5-2 5G NR n261 Module L *input.power.limit***

| Antenna | Beam ID_1 | Beam ID_2 | Input.power.limit(dBm) |
|---|---|---|---|
| Module L | 1 | | **14.7** |
| | 3 | | **11.2** |
| | 5 | | **11.4** |
| | 7 | | **10.7** |
| | 9 | | **11.0** |
| | 14 | | **8.0** |
| | 15 | | **8.7** |
| | 16 | | **8.0** |
| | 17 | | **8.5** |
| | 21 | | **8.8** |
| | 22 | | **8.5** |
| | 23 | | **8.0** |
| | 29 | | **6.0** |
| | 30 | | **4.9** |
| | 31 | | **4.9** |
| | 32 | | **5.0** |
| | 33 | | **4.3** |
| | 38 | | **6.1** |
| | 39 | | **4.6** |
| | 40 | | **5.5** |
| | 41 | | **5.1** |
| | 129 | | **10.2** |
| | 131 | | **9.9** |
| | 133 | | **9.7** |
| | 135 | | **9.8** |
| | 137 | | **10.1** |
| | 142 | | **7.1** |
| | 143 | | **6.3** |
| | 144 | | **6.8** |
| | 145 | | **7.1** |
| | 149 | | **7.2** |
| | 150 | | **6.5** |
| | 151 | | **7.0** |
| | 157 | | **2.4** |
| | 158 | | **1.6** |
| | 159 | | **3.4** |
| | 160 | | **3.6** |
| | 161 | | **3.5** |
| | 166 | | **1.8** |
| | 167 | | **2.5** |
| | 168 | | **1.8** |
| | 169 | | **3.6** |
| | 1 | 129 | **8.5** |
| | 3 | 131 | **7.2** |
| | 5 | 133 | **7.2** |
| | 7 | 135 | **6.8** |
| | 9 | 137 | **7.1** |
| | 14 | 142 | **5.4** |

| | | | |
|---|---|---|---|
| | 15 | 143 | **4.3** |
| | 16 | 144 | **5.1** |
| | 17 | 145 | **4.3** |
| | 21 | 149 | **5.4** |
| | 22 | 150 | **4.0** |
| | 23 | 151 | **4.3** |
| | 29 | 157 | **-0.2** |
| | 30 | 158 | **-1.0** |
| | 31 | 159 | **0.9** |
| | 32 | 160 | **0.9** |
| | 33 | 161 | **0.6** |
| | 38 | 166 | **-0.7** |
| | 39 | 167 | **-0.1** |
| | 40 | 168 | **0.8** |
| | 41 | 169 | **0.9** |

**Table 5-3 5G NR n260 Module K *input.power.limit***

| Antenna | Beam ID_1 | Beam ID_2 | Input.power.limit(dBm) |
|---|---|---|---|
| Module K | 0 | | 10.5 |
| | 2 | | 10.8 |
| | 4 | | 10.4 |
| | 6 | | 10.7 |
| | 8 | | 10.3 |
| | 10 | | 7.2 |
| | 11 | | 7.7 |
| | 12 | | 7.7 |
| | 13 | | 7.1 |
| | 18 | | 7.5 |
| | 19 | | 8.3 |
| | 20 | | 7.5 |
| | 24 | | 4.0 |
| | 25 | | 4.7 |
| | 26 | | 4.7 |
| | 27 | | 5.0 |
| | 28 | | 4.0 |
| | 34 | | 4.3 |
| | 35 | | 4.7 |
| | 36 | | 4.4 |
| | 37 | | 4.9 |
| | 128 | | 10.9 |
| | 130 | | 12.1 |
| | 132 | | 11.7 |
| | 134 | | 11.7 |
| | 136 | | 11.3 |
| | 138 | | 8.5 |
| | 139 | | 8.6 |
| | 140 | | 9.1 |
| | 141 | | 8.2 |
| | 146 | | 8.2 |
| | 147 | | 9.1 |
| | 148 | | 8.5 |
| | 152 | | 5.0 |
| | 153 | | 6.0 |
| | 154 | | 5.6 |
| | 155 | | 5.5 |
| | 156 | | 5.3 |
| | 162 | | 5.0 |
| | 163 | | 5.6 |
| | 164 | | 5.6 |
| | 165 | | 5.6 |
| | 0 | 128 | 7.1 |
| | 2 | 130 | 7.6 |
| | 4 | 132 | 7.4 |
| | 6 | 134 | 7.6 |
| | 8 | 136 | 7.5 |
| | 10 | 138 | 4.5 |

| | | | |
|---|---|---|---|
| | 11 | 139 | 5.9 |
| | 12 | 140 | 5.9 |
| | 13 | 141 | 3.9 |
| | 18 | 146 | 4.3 |
| | 19 | 147 | 4.8 |
| | 20 | 148 | 4.7 |
| | 24 | 152 | 0.1 |
| | 25 | 153 | 1.2 |
| | 26 | 154 | 1.4 |
| | 27 | 155 | 2.2 |
| | 28 | 156 | 0.5 |
| | 34 | 162 | 0.2 |
| | 35 | 163 | 1.2 |
| | 36 | 164 | 1.5 |
| | 37 | 165 | 1.0 |

**Table 5-4 5G NR n260 Module L *input.power.limit***

| Antenna | Beam ID_1 | Beam ID_2 | Input.power.limit(dBm) |
|---|---|---|---|
| Module L | 1 | | **12.0** |
| | 3 | | **11.8** |
| | 5 | | **11.3** |
| | 7 | | **11.4** |
| | 9 | | **11.5** |
| | 14 | | **8.2** |
| | 15 | | **9.7** |
| | 16 | | **8.2** |
| | 17 | | **8.1** |
| | 21 | | **9.5** |
| | 22 | | **8.9** |
| | 23 | | **7.7** |
| | 29 | | **5.8** |
| | 30 | | **7.5** |
| | 31 | | **5.6** |
| | 32 | | **4.6** |
| | 33 | | **3.5** |
| | 38 | | **6.0** |
| | 39 | | **7.7** |
| | 40 | | **5.0** |
| | 41 | | **4.2** |
| | 129 | | **11.7** |
| | 131 | | **12.5** |
| | 133 | | **13.1** |
| | 135 | | **13.5** |
| | 137 | | **13.8** |
| | 142 | | **8.8** |
| | 143 | | **10.7** |
| | 144 | | **10.4** |
| | 145 | | **9.4** |
| | 149 | | **8.8** |
| | 150 | | **10.6** |
| | 151 | | **9.6** |
| | 157 | | **5.9** |
| | 158 | | **6.2** |
| | 159 | | **7.3** |
| | 160 | | **7.3** |
| | 161 | | **6.9** |
| | 166 | | **5.9** |
| | 167 | | **6.1** |
| | 168 | | **7.5** |
| | 169 | | **7.1** |
| | 1 | 129 | **8.3** |
| | 3 | 131 | **9.2** |
| | 5 | 133 | **8.9** |
| | 7 | 135 | **9.0** |
| | 9 | 137 | **8.6** |
| | 14 | 142 | **7.0** |

| | | | |
|---|---|---|---|
| | 15 | 143 | **6.8** |
| | 16 | 144 | **6.3** |
| | 17 | 145 | **5.1** |
| | 21 | 149 | **5.5** |
| | 22 | 150 | **5.9** |
| | 23 | 151 | **4.9** |
| | 29 | 157 | **1.6** |
| | 30 | 158 | **2.4** |
| | 31 | 159 | **2.6** |
| | 32 | 160 | **1.8** |
| | 33 | 161 | **1.8** |
| | 38 | 166 | **1.6** |
| | 39 | 167 | **2.8** |
| | 40 | 168 | **1.9** |
| | 41 | 169 | **1.5** |