

# RF EXPOSURE COMPLIANCE SUMMARY REPORT

**FCC ID** : O57FLEX5G14X05  
**Equipment** : Notebook Computer  
**Brand Name** : Lenovo  
**Applicant** : Lenovo (Shanghai) Electronics Technology Co., Ltd.  
Section 304-305, Building No. 4, # 222, Meiyue Road,  
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Approved by: Cona Huang / Deputy Manager

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## History of this test report

Report No.	Version	Description	Issued Date
FA9N2705D	01	Initial issue of report	Feb. 19, 2020

# 1. Equipment Under Test (EUT) Information

## 1.1 General Information

Product Feature & Specification	
Equipment Name	Notebook Computer
Brand Name	Lenovo
FCC ID	O57FLEX5G14X05
Wireless Technology and Frequency Range	WCDMA Band II: 1852.4 MHz ~ 1907.6 MHz WCDMA Band IV: 1712.4 MHz ~ 1752.6 MHz WCDMA Band V: 826.4 MHz ~ 846.6 MHz LTE Band 2: 1850.7 MHz ~ 1909.3 MHz LTE Band 4: 1710.7 MHz ~ 1754.3 MHz LTE Band 5: 824.7 MHz ~ 848.3 MHz LTE Band 7: 2502.5 MHz ~ 2567.5 MHz LTE Band 12: 699.7 MHz ~ 715.3 MHz LTE Band 13: 779.5 MHz ~ 784.5 MHz LTE Band 14: 790.5 MHz ~ 795.5 MHz LTE Band 17: 706.5 MHz ~ 713.5 MHz LTE Band 25: 1850.7 MHz ~ 1914.3 MHz LTE Band 26: 814.7 MHz ~ 848.3 MHz LTE Band 30: 2307.5 MHz ~ 2312.5 MHz LTE Band 38: 2572.5 MHz ~ 2617.5 MHz LTE Band 41: 2498.5 MHz ~ 2687.5 MHz LTE Band 48: 3552.5 MHz ~ 3697.5 MHz LTE Band 66: 1710.7 MHz ~ 1779.3 MHz LTE Band 71: 665.5 MHz ~ 695.5 MHz 5G NR n260: 37GHz~40GHz 5G NR n261: 27.5GHz~28.35GHz WLAN 2.4GHz Band: 2412 MHz ~ 2472 MHz WLAN 5.2GHz Band: 5180 MHz ~ 5240 MHz WLAN 5.3GHz Band: 5260 MHz ~ 5320 MHz WLAN 5.5GHz Band: 5500 MHz ~ 5720 MHz WLAN 5.8GHz Band: 5745 MHz ~ 5825 MHz Bluetooth: 2402 MHz ~ 2480 MHz
Mode	RMC 12.2Kbps HSDPA HSUPA DC-HSDPA HSPA+ LTE: QPSK, 16QAM, 64QAM 5GNR: DFT-s-OFDM/CP-OFDM, QPSK / 16QAM / 64QAM WLAN: 802.11a/b/g/n/ac HT20 / HT40 / VHT20 / VHT40 / VHT80 Bluetooth BR/EDR/LE

Reviewed by: Jason Wang

Report Producer: Wan Liu

## **2. Strategy for Compliance Demonstration**

The FCC RF exposure limit is defined based on time-averaged RF exposure. When running in a wireless device, Qualcomm Smart Transmit algorithm enables more elegant power control mechanisms for RF exposure management. It ensures at all times the wireless device is in compliance with the FCC limit of RF exposure time-averaged over a defined time window, denoted as  $T_{SAR}$  and  $T_{PD}$  for specific absorption rate (SAR for transmit frequency < 6 GHz) and power density (PD for transmit frequency > 6 GHz) time windows, respectively.

The equipment under test (EUT) is Notebook Computer (FCC ID: O57FLEX5G14X05), it contains:

1. WWAN 2G/3G/4G technologies
2. mmw 5G NR 28GHz and 39GHz bands.
3. WLAN/BT

Both of WWAN and FR2 are enabled with Qualcomm<sup>®</sup> Smart Transmit feature. This feature performs time averaging algorithm in real time to control and manage transmitting power and ensure the time-averaged RF exposure in compliance with FCC requirements all the time. WLAN/BT is not enabled with Smart Transmit.

Demonstrating compliance of EUT enabled with Qualcomm Smart Transmit feature is completed in three parts:

### **0. RF Exposure Compliance Test Report Part 0: SAR Characterization and PD Characterization**

The SAR and PD Characterization, denoted as SAR Char and PD Char, determines the power limit that meets FCC exposure requirement after accounting for device design related uncertainties for each supported radio configuration and RF exposure usage scenario.

### 1. RF Exposure Compliance Test Report Part 1: Test in Static Transmission Condition

Part 1 test is to demonstrate that EUT meets FCC SAR and PD limits when transmitting at pre-determined maximum time-averaged power level for WWAN radios (i.e., 3G/4G, 5G NR). The SAR and PD measurement in Part 1 is under static transmission condition.

### 2. RF Exposure Compliance Test Report Part 2: Test in Dynamic Transmission Condition

In Part 2 test, the compliance is assessed in Tx varying transmission condition to validate the Qualcomm® Smart Transmit algorithm. The test results reported in Part 2 demonstrates that EUT complies with FCC RF exposure requirement under Tx varying transmission scenarios

## 3. Compliance Summary General Information

Notebook Computer (FCC ID: O57FLEX5G14X05) complies with FCC RF exposure requirements.

Table 4-1 Reported RF exposure level

	FCC Limit	Reported RF Exposure level	Notes
Highest 1g SAR at $P_{limit}$ (W/kg)	1.6	1.20	Sporton Document No. FA9N2705A (Part 1)
Highest 4cm <sup>2</sup> -avg PD at <i>input.power.limit</i> (mW/cm <sup>2</sup> )	1.0	0.441	Sporton Document No. FA9N2705B (Part 1)
Highest normalized exposure ratio for simultaneous Tx	1.0	0.994	Sporton Document No. FA9N2705A (Part 1)