TEST REPORT

Applicant:	Particle Industries, Inc.
EUT Description:	Tachyon
Model:	TACH4ROW, TACH8ROW
Brand:	Particle
Standards:	ETSI EN 301 908-25 V15.1.1 ETSI TS 138 521-1 V17.10.0 ETSI TS 138 521-3 V17.10.0
Date of Receipt:	2025/06/25
Date of Test:	2025/06/25 to 2025/08/28
Date of Issue:	2025/08/28

TOWE. tested the above equipment in accordance with the requirements set forth in the above standards. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

the results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. It is the manufacturer's responsibility to assure that additional production units of the model are manufactured with identical electrical and mechanical components. All sample tested were in good operating condition throughout the entire test program. Measurement Uncertainties are published for informational purposes only and were not taken into account unless noted otherwise. without written approval of TOWE, the test report shall not be reproduced except in full.

Jim Huang
Approved By:

Carey Chen
Reviewed By:

Revision History

Rev.	Issue Date	Description	Revised by
01	2025/08/28	Original	Carey Chen

Summary of Test Results

5G NR-SA Mode			
Test Item	Test Requirement	Test Method	Result
	ETSI EN 301 908-25	ETSI TS 138 521-1	
Transmitter maximum output power for Single Carrier	Clause 4.1.2.2.1	Clause 6.2.1	Pass
Spurious emission for UE co-existence for Single Carrier	Clause 4.1.2.6.1.2.2	Clause 6.5.3.2	Pass
Spurious emission for UE co-existence for UL-MIMO	Clause 4.1.2.6.5	Clause 6.5D.3.2	Pass
Transmitter maximum output power for UL-MIMO	Clause 4.1.2.2.5	Clause 6.2D.1	Reference report 2406RSU046-E4 & 2406RSU046-E5
Transmitter minimum output power for Single Carrier	Clause 4.1.2.3.1	Clause 6.3.1	
Transmitter Spectrum Emission Mask for Single Carrier	Clause 4.1.2.4.1	Clause 6.5.2.2	
Transmitter Spectrum Emission Mask for UL-MIMO	Clause 4.1.2.4.5	Clause 6.5D.2.2	
Transmitter Adjacent Channel Leakage Power Ratio for Single Carrier	Clause 4.1.2.5.1	Clause 6.5.2.4	
Transmitter Adjacent Channel Leakage Power Ratio for UL-MIMO	Clause 4.1.2.5.5	Clause 6.5D.2.4	
General spurious emissions for Single Carrier	Clause 4.1.2.6.1.2.1	Clause 6.5.3.1	
Additional spurious emissions for Single Carrier	Clause 4.1.2.6.1.2.3	Clause 6.5.3.3	
General spurious emissions for UL-MIMO	Clause 4.1.2.6.5	Clause 6.5D.3.1	
Additional spurious emissions for UL-MIMO	Clause 4.1.2.6.5	Clause 6.5D.3.3	
Receiver Reference Sensitivity Level for single carrier	Clause 4.1.2.7.1	Clause 7.3.2	
Receiver Reference Sensitivity Level for UL-MIMO	Clause 4.1.2.7.5	Clause 7.3D.2	
Receiver Adjacent Channel Selectivity (ACS) for single carrier	Clause 4.1.2.8.1	Clause 7.5	
Receiver Adjacent Channel Selectivity (ACS) for UL-MIMO	Clause 4.1.2.8.5	Clause 7.5D	
In-band blocking for single carrier	Clause 4.1.2.9.1.2.1	Clause 7.6.2	
Out-of-band blocking for single carrier	Clause 4.1.2.9.1.2.2	Clause 7.6.3	
Narrow band blocking for single carrier	Clause 4.1.2.9.1.2.3	Clause 7.6.4	
In-band blocking for UL-MIMO	Clause 4.1.2.9.5	Clause 7.6D.2	
Out-of-band blocking for UL-MIMO	Clause 4.1.2.9.5	Clause 7.6D.3	
Narrow band blocking for UL-MIMO	Clause 4.1.2.9.5	Clause 7.6D.4	
Receiver Spurious Response for single carrier	Clause 4.1.2.10.1	Clause 7.7	
Receiver spurious response for UL-MIMO	Clause 4.1.2.10.5	Clause 7.7D	
Receiver Intermodulation Characteristic for single carrier	Clause 4.1.2.11.1	Clause 7.8	
Receiver Intermodulation Characteristic for UL-MIMO	Clause 4.1.2.11.5	Clause 7.8D	
Receiver Spurious Emissions for single carrier	Clause 4.1.2.12.1	Clause 7.9	
Transmit OFF power for Single Carrier	Clause 4.1.2.13.1	Clause 6.3.2.4	

5G NR-SA Mode			
Test Item	Test Requirement	Test Method	Result
	ETSI EN 301 908-25	ETSI TS 138 521-1	
Remark: 1. Pass: Meet the requirement. 2. The EUT and test equipment were configured for testing according to ETSI EN 301 908-25 and ETSI TS 138 521-1.			

5G NR-SA (MIMO) Mode			
Test Item	Test Requirement ETSI EN 301 908-25	Test Method ETSI EN 301 908-25	Result
Transmitter Minimum Output Power for UL-MIMO	Clause 4.1.2.3.	Clause 5.1.3.2.5	Reference report 2406RSU046-E4 & 2406RSU046-E5
Transmit OFF Power for UL-MIMO	Clause 4.1.2.13.5	Clause 5.1.3.12.5	
Remark: The EUT and test equipment were configured for testing according to ETSI EN 301 908-25.			

5G NR-NSA(EN-DC) Mode			
Test Item	Test Requirement	Test Method	Result
	ETSI EN 301 908-25	ETSI TS 138 521-3	
Spurious emission band UE co-existence for Inter-Band EN-DC within FR1	Clause 4.3.2.6.2.3.2	Clause 6.5B.3.3.2	Pass
Transmitter Maximum Output Power for Inter-Band EN-DC within FR1	Clause 4.3.2.2.2.3	Clause 6.2B.1.3	Reference report 2406RSU046-E4 & 2406RSU046-E5
Transmitter Minimum Output Power for Inter-Band EN-DC within FR1	Clause 4.3.2.3.2.3	Clause 6.3B.1.3	
Transmitter Spectrum Emission Mask for Inter-Band EN-DC within FR1	Clause 4.3.2.4.2.3	Clause 6.5B.2.3.1	
Transmitter Adjacent Channel Leakage Power Ratio for Inter-Band EN-DC within FR1	Clause 4.3.2.5.2.3	Clause 6.5B.2.3.3	
General spurious emissions for Inter-Band EN-DC within FR1	Clause 4.3.2.6.2.3.1	Clause 6.5B.3.3.1	
Additional Spurious Emissions for Inter-Band EN-DC within FR1	Clause 4.3.2.6.2.3.3	Clause 6.5B.4.3	
Receiver Reference Sensitivity for Inter-Band EN-DC within FR1	Clause 4.3.2.7.2.3	Clause 7.3B.2.3	
Receiver Adjacent Channel Selectivity for Inter-Band EN-DC within FR1	Clause 4.3.2.8.2.3	Clause 7.5B.3	
In-band blocking for Inter-Band EN-DC within FR1	Clause 4.3.2.9.2.3.2.1	Clause 7.6B.2.3	
Out-of-band blocking for Inter-Band EN-DC within FR1	Clause 4.3.2.9.2.3.2.2	Clause 7.6B.3.3	
Narrow band blocking for Inter-Band EN-DC within FR1	Clause 4.3.2.9.2.3.2.3	Clause 7.6B.4.3	
Receiver Spurious Response for Inter-Band EN-DC within FR1	Clause 4.3.2.10.2.3	Clause 7.7B.3	
Wideband Intermodulation for Inter-Band EN-DC within FR1	Clause 4.3.2.11.2.3	Clause 7.8B.2.3	
Receiver Spurious Emissions for Inter-Band EN-DC within FR1	Clause 4.3.2.12.2.3	Clause 7.9B.3	
Remark: The EUT and test equipment were configured for testing according to ETSI EN 301 908-25 and ETSI TS 138 521-3.			

Remark:

Review this report and original report, this report also updates the following standard:

Original report standard:	The newest report standard:
Draft EN 301 908-25 V0.0.23	ETSI EN 301 908-25 V15.1.1

So, Spurious emission band UE co-existence of all frequency bands was retested, and the Transmitter maximum output power for Single Carrier was tested, and the other data please refer to the previous report with report number 2406RSU046-E4 & 2406RSU046-E5 issued by MRT Technology (Suzhou) Co., Ltd.

Table of Contents

1 General Description

1.1 Lab Information

1.1.1 Testing Location

These measurements tests were conducted at the Sushi TOWE Wireless Testing(Shenzhen) Co., Ltd. facility located at F401 and F101, Building E, Hongwei Industrial Zone, Liuxian 3rd Road, Bao'an District, Shenzhen, China.
Tel.: +86-755-27212361
Contact Email: info@towewireless.com

1.1.2 Test Facility / Accreditations

A2LA (Certificate Number: 7088.01)
This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 General requirements for the competence of testing and calibration laboratories. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated April 2017).

FCC Designation No.: CN1353
Sushi TOWE Wireless Testing(Shenzhen) Co., Ltd. has been recognized as an accredited testing laboratory. Designation Number: CN1353.

ISED CAB identifier: CN0152
Sushi TOWE Wireless Testing(Shenzhen) Co., Ltd. has been recognized by ISED as an accredited testing laboratory.
CAB identifier: CN0152
Company Number: 31000

1.2 Client Information

1.2.1 Applicant

Applicant:	Particle Industries, Inc.
Address:	548 Market St, PMB 34833, San Francisco, CA 94104, USA

1.2.2 Manufacturer

Manufacturer:	Particle Industries, Inc.
Address:	548 Market St, PMB 34833, San Francisco, CA 94104, USA

1.3 Product Information

EUT Description:	Tachyon		
Model:	TACH4ROW, TACH8ROW		
Brand:	Particle		
Hardware Version:	V1.2		
Software Version:	1.0.160		
IMEI:	863174060028643		
Technical specification:			
Operation Frequency Range:	Band	TX Frequency	RX Frequency
	NR Band n1	1920 ~ 1980MHz	2110 ~ 2170MHz
	NR Band n3	1710 ~ 1785MHz	1805 ~ 1880MHz
	NR Band n5	824 ~ 849 MHz	869 ~ 894 MHz
	NR Band n7	2500 ~ 2570 MHz	2620 ~ 2690 MHz
	NR Band n8	880 ~ 915 MHz	925 ~ 960 MHz
	NR Band n20	832 ~ 862MHz	791 ~ 821 MHz
	NR Band n28	703 ~ 748 MHz	758 ~ 803 MHz
	NR Band n38	2570 ~ 2620 MHz	2570 ~ 2620 MHz
	NR Band n40	2300 ~ 2400 MHz	2300 ~ 2400 MHz
	NR Band n41	2496 ~ 2690MHz	2496 ~ 2690MHz
	NR Band n77	3300 ~ 4200 MHz	3300 ~ 4200 MHz
	NR Band n78	3300 ~ 3800 MHz	3300 ~ 3800 MHz
Type of Modulation:	☒ DFT-s-OFDM:	PI/2-BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM	
	☒ CP-OFDM:	QPSK, 16-QAM, 64-QAM, 256-QAM	
EN-DC:	DC_1A_n28A, DC_3A_n28A, DC_7A_n28A, DC_20A_n28A[1], DC_3A_n7A, DC_1A_n77A, DC_3A_n77A, DC_8A_n77A, DC_28A_n77A, DC_41A_n77A, DC_1A_n78A, DC_3A_n78A, DC_7A_n78A, DC_8A_n78A, DC_20A_n78A, DC_28A_n78A, DC_38A_n78A, DC_41A_n78A;		
Power Class:	Class 2: NR Band n41; NR Band n77; NR Band n78; Class 3: All Frequency Bands		
UL MIMO:	NR Band n38; NR Band n40; NR Band n41; NR Band n77; NR Band n78;		
Antenna Type:	☐ External, ☒ Integrated		
Antenna Gain:	Band	Ant (dBi)	
	NR Band n1	-0.4	
	NR Band n3	-0.4	
	NR Band n5	-0.5	
	NR Band n7	0.0	
	NR Band n8	-2.7	
	NR Band n20	-1.1	
	NR Band n28	-0.5	
	NR Band n38	0.4	
	NR Band n40	-1.1	
	NR Band n41	1.0	

	NR Band n77	2.2
	NR Band n78	2.2

Remark:
1. The above EUT's information was declared by applicant, please refer to the specifications or user's manual for more detailed description.
2. According to the customer's Letter of model difference, TACH4ROW and TACH8ROW are identical with each other, except for RAM and model number difference.
Note:
[1] DC_20A_n28A: Referring to Note 8 in Table 5.5B.4.1-1 of ETSI TS 138 521-3, The frequency range in band n28 / 28 is restricted for this band combination to 703 - 733 MHz for the UL and 758-788 MHz for the DL.

2 Test Configuration

2.1 Standards Specification

No.	Reference Standards	Standards Title
1	ETSI EN 301 908-25 V15.1.1	IMT cellular networks; Harmonised Standard for access to radio spectrum; Part 25: New Radio (NR) User Equipment (UE) Release 15
2	ETSI TS 138 521-1 V17.10.0	5G; NR; User Equipment (UE) conformance specification; Radio transmission and reception; Part 1: Range 1 standalone (3GPP TS 38.521-1 version 17.10.0 Release 17)
3	ETSI TS 138 521-3 V17.10.0	5G; NR; User Equipment (UE) conformance specification; Radio transmission and reception; Part 3: Range 1 and Range 2 Interworking operation with other radios (3GPP TS 38.521-3 version 17.10.0 Release 17)

2.2 Test Channel and Bandwidth

5G NR Band n1 and SCS 15 kHz						
Bandwidth	TX Frequency			RX Frequency		
	Range	Carrier centre (ARFCN)	Carrier centre (MHz)	Range	Carrier centre (ARFCN)	Carrier centre (MHz)
5MHz	Low	384500	1922.5	Low	422500	2112.5
	Middle	390000	1950	Middle	428000	2140
	High	395500	1977.5	High	433500	2167.5
10MHz	Low	385000	1925	Low	423000	2115
	Middle	390000	1950	Middle	428000	2140
	High	395000	1975	High	433000	2165
15MHz	Low	385500	1927.5	Low	423500	2117.5
	Middle	390000	1950	Middle	428000	2140
	High	394500	1972.5	High	432500	2162.5
20MHz	Low	386000	1930	Low	424000	2120
	Middle	390000	1950	Middle	428000	2140
	High	394000	1970	High	432000	2160
30MHz	Low	387000	1935	Low	425000	2125
	Middle	390000	1950	Middle	428000	2140
	High	393000	1965	High	431000	2155
40MHz	Low	388000	1940	Low	426000	2130
	Middle	390000	1950	Middle	428000	2140
	High	392000	1960	High	430000	2150

5G NR Band n3 and SCS 15 kHz						
Bandwidth	TX Frequency			RX Frequency		
	Range	Carrier centre (ARFCN)	Carrier centre (MHz)	Range	Carrier centre (ARFCN)	Carrier centre (MHz)
5MHz	Low	342500	1712.5	Low	361500	1807.5
	Middle	349500	1747.5	Middle	368500	1842.5
	High	356500	1782.5	High	375500	1877.5
10MHz	Low	343000	1715	Low	362000	1810
	Middle	349500	1747.5	Middle	368500	1842.5
	High	356000	1780	High	375000	1875
15MHz	Low	343500	1717.5	Low	362500	1812.5
	Middle	349500	1747.5	Middle	368500	1842.5
	High	355500	1777.5	High	374500	1872.5
20MHz	Low	344000	1720	Low	363000	1815
	Middle	349500	1747.5	Middle	368500	1842.5
	High	349500	1775	High	374000	1870

5G NR Band n5 and SCS 15 kHz						
Bandwidth	TX Frequency			RX Frequency		
	Range	Carrier centre (ARFCN)	Carrier centre (MHz)	Range	Carrier centre (ARFCN)	Carrier centre (MHz)
5MHz	Low	165300	826.5	Low	174300	871.5
	Middle	167300	836.5	Middle	176300	881.5
	High	169300	846.5	High	178300	891.5
10MHz	Low	165800	829	Low	174800	874
	Middle	167300	836.5	Middle	176300	881.5
	High	168800	844	High	177800	889
15MHz	Low	166300	831.5	Low	175300	876.5
	Middle	167300	836.5	Middle	176300	881.5
	High	168300	841.5	High	177300	886.5
20MHz	Low	166800	834	Low	175800	879
	Middle	167300	836.5	Middle	176300	881.5
	High	167800	839	High	176800	884

5G NR Band n7 and SCS 15 kHz						
Bandwidth	TX Frequency			RX Frequency		
	Range	Carrier centre (ARFCN)	Carrier centre (MHz)	Range	Carrier centre (ARFCN)	Carrier centre (MHz)
5MHz	Low	500500	2502.5	Low	524500	2622.5
	Middle	507000	2535	Middle	531000	2655
	High	513500	2567.5	High	537500	2687.5
10MHz	Low	501000	2505	Low	525000	2625
	Middle	507000	2535	Middle	531000	2655
	High	513000	2565	High	537000	2685
15MHz	Low	501500	2507.5	Low	525500	2627.5
	Middle	507000	2535	Middle	531000	2655
	High	512500	2562.5	High	536500	2682.5
20MHz	Low	502000	2510	Low	526000	2630
	Middle	507000	2535	Middle	531000	2655
	High	512000	2560	High	536000	2680

5G NR Band n8 and SCS 15 kHz						
Bandwidth	TX Frequency			RX Frequency		
	Range	Carrier centre (ARFCN)	Carrier centre (MHz)	Range	Carrier centre (ARFCN)	Carrier centre (MHz)
5MHz	Low	176500	882.5	Low	185500	927.5
	Middle	179500	897.5	Middle	188500	942.5
	High	182500	912.5	High	191500	957.5
10MHz	Low	177000	885	Low	186000	930
	Middle	179500	897.5	Middle	188500	942.5
	High	182000	910	High	191000	955
15MHz	Low	177500	887.5	Low	186500	932.5
	Middle	179500	897.5	Middle	188500	942.5
	High	181500	907.5	High	190500	952.5
20MHz	Low	178000	890	Low	187000	935
	Middle	179500	897.5	Middle	188500	942.5
	High	181000	905	High	190000	950

5G NR Band n20 and SCS 15 kHz						
Bandwidth	TX Frequency			RX Frequency		
	Range	Carrier centre (ARFCN)	Carrier centre (MHz)	Range	Carrier centre (ARFCN)	Carrier centre (MHz)
5MHz	Low	166900	834.5	Low	158700	793.5
	Middle	169400	847.0	Middle	161200	806.0
	High	171900	859.5	High	163700	818.5
10MHz	Low	167400	837.0	Low	159200	796.0
	Middle	169400	847.0	Middle	161200	806.0
	High	171400	857.0	High	163200	816.0
15MHz	Low	167900	839.5	Low	159700	798.5
	Middle	169400	847.0	Middle	161200	806.0
	High	170900	854.5	High	162700	813.5
20MHz	Low	168400	842.0	Low	160200	801.0
	Middle	169400	847.0	Middle	161200	806.0
	High	170400	852.0	High	162200	811.0

5G NR Band n28 and SCS 15 kHz						
Bandwidth	TX Frequency			RX Frequency		
	Range	Carrier centre (ARFCN)	Carrier centre (MHz)	Range	Carrier centre (ARFCN)	Carrier centre (MHz)
5MHz	Low	141100	705.5	Low	152100	760.5
	Middle	145100	725.5	Middle	156100	780.5
	High	149100	745.5	High	160100	800.5
10MHz	Low	141600	708.0	Low	152600	763.0
	Middle	145100	725.5	Middle	156100	780.5
	High	148600	743.0	High	159600	798.0
15MHz	Low	142100	710.5	Low	153100	765.5
	Middle	145100	725.5	Middle	156100	780.5
	High	148100	740.5	High	159100	795.5
20MHz	Low	142600	713.0	Low	153600	768.0
	Middle	145600	728.0	Middle	156600	783.0
	High	147600	738.0	High	158600	793.0
30MHz	Low	143600	718.0	Low	154600	773.0
	High	146600	733.0	High	157600	788.0

5G NR Band n38, SCS 30 kHz and ΔF_{Raster} 30 kHz			
Bandwidth	TX & RX Frequency		
	Range	Carrier centre (ARFCN)	Carrier centre (MHz)
20MHz	Low	516000	2580
	Middle	519000	2595
	High	522000	2610
30MHz	Low	517000	2585
	Middle	519000	2595
	High	521000	2605
40MHz	Low	518000	2590
	Middle	519000	2595
	High	520000	2600

5G NR Band n40, SCS 30 kHz and ΔF_{Raster} 30 KHz			
Bandwidth	TX & RX Frequency		
	Range	Carrier centre (ARFCN)	Carrier centre (MHz)
20MHz	Low	462000	2310
	Middle	470000	2350
	High	478000	2390
30MHz	Low	463000	2315
	Middle	470000	2350
	High	477000	2385
40MHz	Low	464000	2320
	Middle	470000	2350
	High	476000	2380
50MHz	Low	465000	2325
	Middle	470000	2350
	High	475000	2375
60MHz	Low	466000	2330
	Middle	470000	2350
	High	474000	2370
80MHz	Low	468000	2340
	Middle	470000	2350
	High	472000	2360

5G NR Band n41, SCS 30 kHz and ΔF_{Raster} 30 kHz			
Bandwidth	TX & RX Frequency		
	Range	Carrier centre (ARFCN)	Carrier centre (MHz)
20MHz	Low	501204	2506.02
	Middle	518598	2592.99
	High	535998	2679.99
30MHz	Low	502200	2511
	Middle	518598	2592.99
	High	534996	2674.98
40MHz	Low	503202	2516.01
	Middle	518598	2592.99
	High	534000	2670
50MHz	Low	504204	2521.02
	Middle	518598	2592.99
	High	532998	2664.99
60MHz	Low	505200	2526
	Middle	518598	2592.99
	High	531996	2659.98
80MHz	Low	507204	2536.02
	Middle	518598	2592.99
	High	529998	2649.99
90MHz	Low	508200	2541
	Middle	518598	2592.99
	High	528996	2644.98
100MHz	Low	509202	2546.01
	Middle	518598	2592.99
	High	528000	2640

5G NR Band n77, SCS 30 kHz and ΔF_{Raster} 30 kHz			
Bandwidth	TX & RX Frequency		
	Range	Carrier centre (ARFCN)	Carrier centre (MHz)
20MHz	Low	620668	3310.02
	Middle	650000	3750
	High	679332	4189.98
30MHz	Low	621000	3315
	Middle	650000	3750
	High	679000	4185
40MHz	Low	621334	3320.01
	Middle	650000	3750
	High	678666	4179.99
60MHz	Low	622000	3330
	Middle	650000	3750
	High	678000	4170
80MHz	Low	622668	3340.02
	Middle	650000	3750
	High	677332	4159.98
90MHz	Low	623000	3345
	Middle	650000	3750
	High	677000	4155
100MHz	Low	623334	3350.01
	Middle	650000	3750
	High	676666	4149.99

5G NR Band n78, SCS 30 kHz and ΔF_{Raster} 30 kHz			
Bandwidth	TX & RX Frequency		
	Range	Carrier centre (ARFCN)	Carrier centre (MHz)
20MHz	Low	620668	3310.02
	Middle	636666	3549.99
	High	652666	3789.99
30MHz	Low	621000	3315
	Middle	636666	3549.99
	High	652332	3784.98
40MHz	Low	621334	3320.01
	Middle	636666	3549.99
	High	652000	3780
60MHz	Low	622000	3300
	Middle	636666	3549.99
	High	651332	3769.98
80MHz	Low	622668	3340.02
	Middle	636666	3549.99
	High	650666	3759.99
90MHz	Low	623000	3345
	Middle	636666	3549.99
	High	650332	3754.98
100MHz	Low	623334	3350.01
	Middle	636666	3549.99
	High	650000	3750

2.3 Test Mode

Test Mode	Description
TM 1	EUT communication with simulated station in DFT-s-OFDM PI/2 BPSK mode
TM 2	EUT communication with simulated station in DFT-s-OFDM QPSK mode
TM 3	EUT communication with simulated station in DFT-s-OFDM 16QAM mode
TM 4	EUT communication with simulated station in DFT-s-OFDM 64QAM mode
TM 5	EUT communication with simulated station in DFT-s-OFDM 256QAM mode
TM 6	EUT communication with simulated station in CP QPSK mode
TM 7	EUT communication with simulated station in CP 16QAM mode
TM 8	EUT communication with simulated station in CP 64QAM mode
TM 9	EUT communication with simulated station in CP 256QAM mode

2.4 Test Environment

Relative Humidity	45-56 % RH Ambient	
Condition	Temperature(℃)	Voltage(V)
NTNV	25	4.00
LTLV	-20	3.55
LTHV	-20	4.40
HTLV	60	3.55
HTHV	60	4.40

Remark:

NTNV Normal Temperature, Normal Voltage
LTLV Low Temperature, Low Voltage
LTHV Low Temperature, High Voltage
HTLV High Temperature, Low Voltage
HTHV High Temperature, High Voltage

2.5 Support Unit used in test

The EUT has been tested as an independent unit.

2.6 Test RF Cable

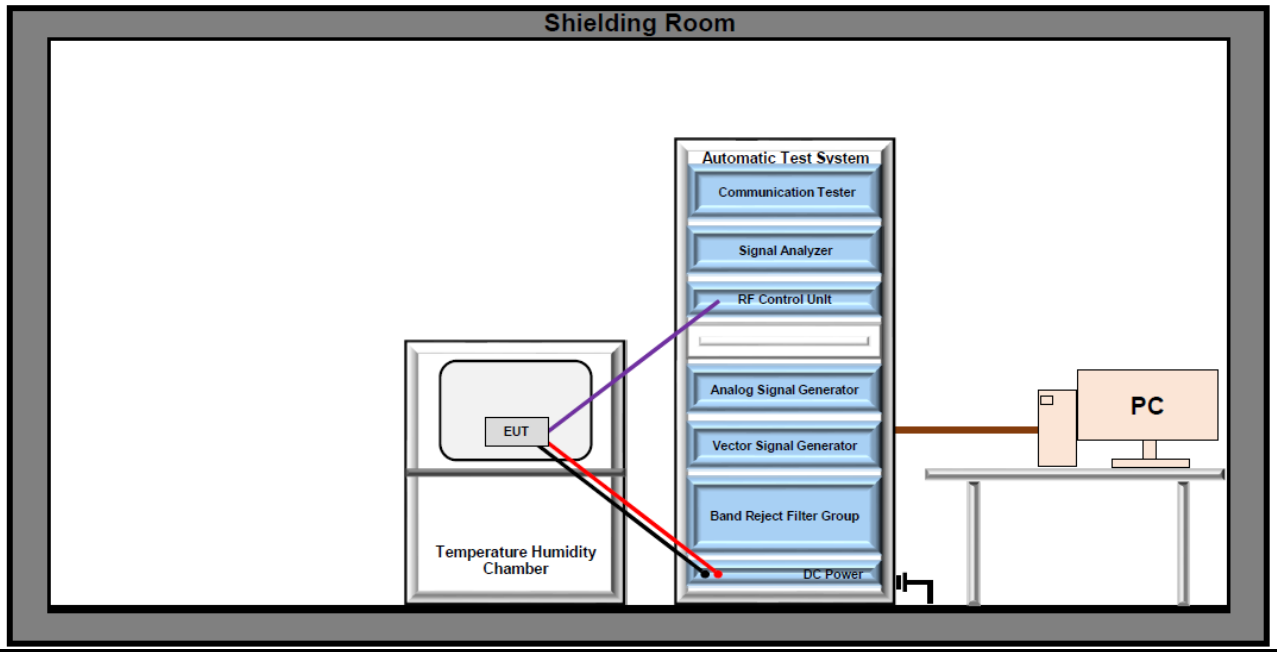
For all conducted test items: The offset level is set spectrum analyzer to compensate the RF cable loss and attenuator factor between RF conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level will be exactly the RF output level.
The spectrum analyzer offset is derived from RF cable loss and attenuator factor.
Offset = RF cable loss + attenuator factor.

2.7 Modifications

No modifications were made during testing.

2.8 Test Setup Diagram

Conducted Configuration:



3 Equipment and Measurement Uncertainty

All test and measuring equipment utilized to perform the tests documented in this report are calibrated on a regular basis, whichever is less, and where applicable is traceable to recognized national standards.

3.1 Test Equipment List

RF Conducted 02					
Description	**Manufacturer**	**Model**	**S.N.**	**Last Due**	**Cal Due**
Signal Analyzer	Keysight	N9020A	MY53280106	2025/03/11	2026/03/10
EXG X-Series Microwave Analog Signal Generator	Keysight	N5173B	MY62220561	2025/05/29	2026/05/28
Radio Communication Test Station	Anritsu	MT8000A	6262036781	2024/11/04	2025/11/03
Radio Communication Analyzer	Anritsu	MT8821C	6262170436	2025/03/14	2026/03/13
Power Divider	Qotana	DBPD0200001800C	22122900036	2025/03/11	2027/03/10
Hygrometer	BingYu	HTC-1	N/A	2025/05/29	2027/05/28
Band Reject Filter Group	Tonscend	JS0806-F	23C806F0669	N/A	N/A
RF Control Unit	Tonscend	JS0806-1	22L8060651	N/A	N/A
Measurement Software	Tonscend	TS1120 V2.4.1	10767	N/A	N/A

3.2 Measurement Uncertainty

Parameter	**U_{lab}**
Output Power	0.70dB

Uncertainty figures are valid to a confidence level of 95%

4 Test Results

The following tables reflect the requirements of the relevant specification and show the tests performed. Result files verifying these verdicts are available for inspection at TOWE.

The Max Output Power of NR			
NR Band n1	Channel	Power(dBm)	Tune up(dBm)
	390000	23.67	25.00
NR Band n3	Channel	Power(dBm)	Tune up(dBm)
	349500	23.73	25.00
NR Band n5	Channel	Power(dBm)	Tune up(dBm)
	167300	23.51	25.00
NR Band n7	Channel	Power(dBm)	Tune up(dBm)
	513500	23.68	25.00
NR Band n8	Channel	Power(dBm)	Tune up(dBm)
	179500	23.85	25.00
NR Band n20	Channel	Power(dBm)	Tune up(dBm)
	166900	23.68	25.00
NR Band n28	Channel	Power(dBm)	Tune up(dBm)
	141100	23.76	25.00
NR Band n38	Channel	Power(dBm)	Tune up(dBm)
	518000	23.81	25.00
NR Band n40	Channel	Power(dBm)	Tune up(dBm)
	478000	25.45	25.00
NR Band n41	Channel	Power(dBm)	Tune up(dBm)
	509202	25.60	28.00
NR Band n77	Channel	Power(dBm)	Tune up(dBm)
	650000	27.06	28.00
NR Band n78	Channel	Power(dBm)	Tune up(dBm)
	622000	26.78	28.00

4.1 Test Result Summary

ETSI EN 301 908-25	ETSI TS 138 521-1	Testing Condition	Result-Single Carrier							
			Test Items	5G NR						
				n1	n3	n5	n7	n8	n20	n28
4.1.2.2.1	6.2.1	NTNV	Transmitter maximum output power for Single Carrier	Pass	Pass	Pass	Pass	Pass	Pass	Pass
		LTLV		Pass	Pass	Pass	Pass	Pass	Pass	Pass
		LTHV		Pass	Pass	Pass	Pass	Pass	Pass	Pass
		HTLV		Pass	Pass	Pass	Pass	Pass	Pass	Pass
		HTHV		Pass	Pass	Pass	Pass	Pass	Pass	Pass
4.1.2.6.1.2.2	6.5.3.2	NTNV	Spurious emission for UE co-existence for Single Carrier	Pass	Pass	Pass	Pass	Pass	Pass	Pass
Remark: During the test, the preliminary test was performed in Transmitter output power with five conditions (NTNV, HTHV, HTLV, LTHV and LTLV), and the test data of the worst-case condition was recorded in this report.										

ETSI EN 301 908-25	ETSI TS 138 521-1	Testing Condition	Result-Single Carrier					
			Test Items	5G NR				
				n38	n40	n41	n77	n78
4.1.2.2.1	6.2.1	NTNV	Transmitter maximum output power for Single Carrier	Pass	Pass	Pass	Pass	Pass
		LTLV		Pass	Pass	Pass	Pass	Pass
		LTHV		Pass	Pass	Pass	Pass	Pass
		HTLV		Pass	Pass	Pass	Pass	Pass
		HTHV		Pass	Pass	Pass	Pass	Pass
4.1.2.6.1.2.2	6.5.3.2	NTNV	Spurious emission for UE co-existence for Single Carrier	Pass	Pass	Pass	Pass	Pass
Remark: During the test, the preliminary test was performed in Transmitter output power with five conditions (NTNV, HTHV, HTLV, LTHV and LTLV), and the test data of the worst-case condition was recorded in this report.								

ETSI EN 301 908-25	ETSI TS 138 521-1	Testing Condition	Result-MIMO					
			Test Items	5G NR				
				n38	n40	n41	n77	n78
4.1.2.6.5	6.5D.3.1.2	NTNV	Spurious emission for UE co-existence for UL-MIMO	Pass	Pass	Pass	Pass	Pass

ETSI EN 301 908-25	ETSI TS 138 521-3	Testing Condition	Result EN-DC					
			Test Items	1A_n28A	3A_n28A	7A_n28A	20A_n28A	3A_n7A
4.3.2.6.2.3.2	6.5B.3.3.2	NTNV	Spurious emission band UE co-existence for Inter-Band EN-DC within FR1	Pass	Pass	Pass	Pass	Pass

ETSI EN 301 908-25	ETSI TS 138 521-3	Testing Condition	Result-EN-DC					
			Test Items	NR n77				
				1A	3A	8A	28A	41A
4.3.2.6.2.3.2	6.5B.3.3.2	NTNV	Spurious emission band UE co-existence for Inter-Band EN-DC within FR1	Pass	Pass	Pass	Pass	Pass

ETSI EN 301 908-25	ETSI TS 138 521-3	Testing Condition	Result-EN-DC							
			Test Items	NR n78						
				1A	3A	7A	8A	20A	28A	38A	41A
4.3.2.6.2.3.2	6.5B.3.3.2	NTNV	Spurious emission band UE co-existence for Inter-Band EN-DC within FR1	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass

~The End~