

TEST REPORT

EUT Description	Convertible PC
Brand Name	Dell
Model Name	P138F
FCC ID	PD9BE201NG
ISED ID	1000M-BE201NG
Date of Test Start/End	2025-01-17 / 2025-01-17
Features	2x2 Wi-Fi- Bluetooth® (see section 5)

Applicant	Intel Corporation SAS
Address	425 Rue de Goa – Le Cargo B6 – 06600 Antibes, FRANCE
Contact Person	Benjamin Lavenant
Telephone/Fax/ Email	Benjamin.lavenant@intel.com

Reference Standards	FCC 47 CFR Part §2.1093 RSS 102, issue 6 (see section 1)
---------------------	--

Test Report identification	241008-08.TR05
Revision Control	Rev. 01 This test report revision replaces any previous test report revision (see section 8)

The test results relate only to the samples tested.
Reference to accreditation shall be used only by full reproduction of test report

Reviewed by _____

Table of Contents

1. Standards, reference documents and applicable test methods	3
2. General conditions, competences and guarantees	3
3. Environmental Conditions	3
4. Test Sample	3
5. EUT Features	4
6. Remarks and comments	4
7. Test Results summary.....	4
7.1. WLAN TX POWER TABLE SUMMARY	4
8. Document Revision History	5
Annex A. Test & System description	6
A.1 TEST SETUP	6
A.2 PROCEDURE	6
A.3 TEST EQUIPMENT LIST.....	7
A.4 MEASUREMENT UNCERTAINTY EVALUATION.....	7
Annex B. Test Results	8
B.1 TRIGGER LID ANGLE DETECTION AND POWER VERIFICATION 2.4GHZ	9
B.1.1 LCD DIRECTION 0°	9
B.1.2 LCD DIRECTION 180°	11
B.2 TRIGGER LID ANGLE DETECTION AND POWER VERIFICATION 5GHZ	12
B.2.1 LCD DIRECTION 0°	12
B.2.2 LCD DIRECTION 180°	14

1. Standards, reference documents and applicable test methods

FCC	1. FCC Title 47 CFR Part §2.1093 – Radiofrequency radiation exposure evaluation: portable devices. 2022-10-01 Edition 2. KDB 388624 D02 Pre-Approval Guidance List v18, PRE-APPROVAL GUIDANCE LIST 3. FCC Presentations TCB Workshop November 2019, RF exposure procedures.
ISED	1. RSS 102 Issue 6 - Radio Frequency (RF) Exposure Compliance of Radiocommunication Apparatus (All Frequency Bands)

2. General conditions, competences and guarantees

- ✓ Tests performed under FCC standards identified in section 1 are covered by A2LA accreditation.
- ✓ Tests performed under ISED standards identified in section 1 are covered by Cofrac accreditation.
- ✓ Intel Corporation SAS Wireless RF Lab (Intel WRF Lab) is an ISO/IEC 17025:2017 laboratory accredited by the American Association for Laboratory Accreditation (A2LA) with the certificate number 3478.01.
- ✓ Intel Corporation SAS Wireless RF Lab (Intel WRF Lab) is an Accredited Test Firm recognized by the FCC, with Designation Number FR0011.
- ✓ Intel Corporation SAS Wireless RF Lab (Intel WRF Lab) is an ISO/IEC 17025:2017 testing laboratory accredited by the French Committee for Accreditation (Cofrac) with the certificate number 1-6736.
- ✓ Intel Corporation SAS Wireless RF Lab (Intel WRF Lab) is a Registered Test Site listed by ISED, with ISED company number 1000Y and CAB identifier FR0005.
- ✓ Intel WRF Lab only provides testing services and is committed to providing reliable, unbiased test results and interpretations.
- ✓ Intel WRF Lab is liable to the client for the maintenance of the confidentiality of all information related to the item under test and the results of the test.
- ✓ Intel WRF Lab has developed calibration and proficiency programs for its measurement equipment to ensure correlated and reliable results to its customers.
- ✓ This report is only referred to the item that has undergone the test.
- ✓ This report does not imply an approval of the product by the Certification Bodies or competent Authorities.

3. Environmental Conditions

- ✓ At the site where the measurements were performed the following limits were not exceeded during the tests:

Temperature	Min: 18.20°C Max: 21.45°C AVG: 20.25°C
Humidity	Min: 21.79% Max: 35.40% AVG: 24.57%

4. Test Sample

Sample	ID #	Description	Model	Serial #	Note
#1	241008-08.S03	Convertible PC	P138F	2024092302772	-

5. EUT Features

The herein information is provided by the customer.

Intel WRF Lab declines any responsibility for the accuracy of the stated customer provided information, especially if it has any impact on the correctness of test results presented in this report.

Brand Name	Dell		
Model Name	P138F		
Prototype / Production	Production		
Host Identification	Convertible PC		
Supported Radios	802.11b/g/n/ax/be	2.4GHz (2400.0 – 2483.5 MHz)	
	802.11a/n/ac/ax/be	5.2GHz (5150.0 – 5250.0 MHz)	
		5.3GHz (5250.0 – 5350.0 MHz)	
		5.6GHz (5470.0 – 5725.0 MHz)	
		5.8GHz (5725.0 – 5895.0 MHz)	
	802.11ax/be	6.0GHz (5925.0 – 7125.0 MHz)	
	Bluetooth	2.4GHz (2400.0 – 2483.5 MHz)	

6. Remarks and comments

- The test report is a validation of the G sensor functionality

7. Test Results summary

The statement of conformity to applicable standards in the table below are based on the measured values, without considering the measurement uncertainties.

7.1. WLAN Tx Power Table Summary

Device Mode	Lid Angle range	LCD Direction	2.4GHz-CH6 802.11b - 1Mbps				5GHz-CH120 802.11a - 6Mbps			
			Target Power (dBm)		Measured Power (dBm)		Target Power (dBm)		Measured Power (dBm)	
			Ant AUX (1)	Ant MAIN (2)	Ant AUX (1)	Ant MAIN (2)	Ant AUX (1)	Ant MAIN (2)	Ant AUX (1)	Ant MAIN (2)
Notebook	$0^{\circ} \leq \varphi < 180^{\circ}$	0°	21.0	18.0	20.04	17.95	20.0	20.0	19.36	19.24
Stand/Tablet	$180^{\circ} \leq \varphi < 360^{\circ}$	0°	16.0	16.0	15.02	15.47	12.5	12.5	11.85	11.43
Tent	$180^{\circ} \leq \varphi < 360^{\circ}$	180°	16.0	16.0	15.02	15.47	12.5	12.5	11.85	11.43

8. Document Revision History

Revision #	Modified by	Revision Details
Rev.00	Axel AZIZE G.	First Issue
Rev.01	Estelle GILLES	Target power in section 7.1 corrected upon TCB comment

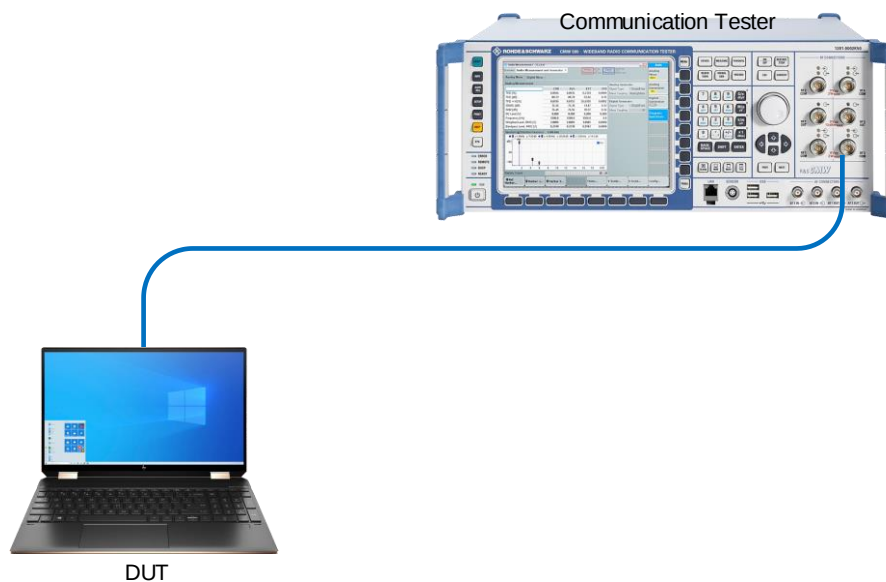
Annex A. Test & System description

A.1 Test setup

The conducted power measurement test setup is described in the following and illustrated in Figure 1.

- The DUT is convertible PC from Dell model P138F. An BE201NGW connectivity module is installed inside
- Uplink signal power is measured with the access point.
- Path loss in the power measurement setup from the wireless module antenna port to the access point is compensated
- ANT tool version .01832.23.60.0 is used on the DUT to query the power table index and sensor status

Figure.1 – Power measurement test setup.



A.2 Procedure

The following additional guidance applies only to convertible laptops whose screen rotates around one axis, from 0 degrees to 360 degrees, in a clamshell style, i.e., from closed mode to open mode, to “tent” mode, and finally, to tablet mode. This process must be followed to determine the lid angle where a power reduction occurs, by taking power measurements at each step, as indicated in the step listed here below:

1. From the lid in closed mode (0 degrees), open the screen in 10-degree steps until laptop mode is obtained
2. Lower the screen by 5 degrees increments to verify that the “closed mode” is triggered
3. From the position of the previous step, open the screen in 1-degree increments until laptop mode is triggered again
4. Continue opening the screen in 1-degree increments until at least 5 degrees past where “laptop mode” was obtained, then continue opening the screen in 10-degree steps until the device switches to tablet mode
5. Reverse the previous procedure to go from tablet mode back down to closed mode

A.3 Test Equipment List

Equipment and accessories used for the conducted power measurement test setup are listed below. The Test Platform (DUT), test setup and associated equipment are shown in A.1.3.

ID#	Device	Type/Model	Serial #	Manufacturer	Cal. Date	Cal. Due Date
125-000	Communication Tester	CMW500	129337	Rohde & Schwartz	2023-04-20	2025-04-20
022-003 022-004	RF path (RF cable + Adapters)	-	-	-	RF path loss was verified before usage	

A.4 Measurement Uncertainty Evaluation

The system uncertainty evaluation is shown in the table below with a coverage factor of $k = 2$ to indicate a 95% level of confidence:

Measurement type	Uncertainty	Unit
Power level	± 1	dB

Annex B. Test Results

The herein test results were performed by:

Test case measurement	Test Personnel
G-sensor	Axel AZIZE G.

B.1 Trigger lid angle detection and power verification 2.4GHz**B.1.1 LCD direction 0°**

The lid is rotating from 0° to 360°. The screen is vertical, LCD direction is 0°

Device Mode	Angle (°)	Meas. Power (dBm) 2.4GHz Ch6 Aux (1) Ant.	Meas. Power (dBm) 2.4GHz Ch6 Main (2) Ant.	Device Mode	Angle (°)	Meas. Power (dBm) 2.4GHz Ch6 Aux (1) Ant.	Meas. Power (dBm) 2.4GHz Ch6 Main (2) Ant.
Notebook	0	20.04	17.95	Stand/Tablet	210	15.02	15.47
Notebook	10	20.04	17.95	Stand/Tablet	220	15.02	15.47
Notebook	20	20.04	17.95	Stand/Tablet	230	15.02	15.47
Notebook	30	20.04	17.95	Stand/Tablet	240	15.02	15.47
Notebook	40	20.04	17.95	Stand/Tablet	250	15.02	15.47
Notebook	50	20.04	17.95	Stand/Tablet	260	15.02	15.47
Notebook	60	20.04	17.95	Stand/Tablet	270	15.02	15.47
Notebook	70	20.04	17.95	Stand/Tablet	280	15.02	15.47
Notebook	80	20.04	17.95	Stand/Tablet	290	15.02	15.47
Notebook	90	20.04	17.95	Stand/Tablet	300	15.02	15.47
Notebook	100	20.04	17.95	Stand/Tablet	310	15.02	15.47
Notebook	110	20.04	17.95	Stand/Tablet	320	15.02	15.47
Notebook	120	20.04	17.95	Stand/Tablet	330	15.02	15.47
Notebook	130	20.04	17.95	Stand/Tablet	340	15.02	15.47
Notebook	140	20.04	17.95	Stand/Tablet	350	15.02	15.47
Notebook	140	20.04	17.95	Stand/Tablet	360	15.02	15.47
Notebook	150	20.04	17.95				
Notebook	160	20.04	17.95				
Notebook	170	20.04	17.95				
Stand/Tablet	180	15.02	15.47				
Notebook	175	20.04	17.95				
Notebook	176	20.04	17.95				
Notebook	177	20.04	17.95				
Notebook	178	20.04	17.95				
Notebook	179	20.04	17.95				
Stand/Tablet	180	15.02	15.47				
Stand/Tablet	190	15.02	15.47				
Stand/Tablet	200	15.02	15.47				

The lid is rotating from 360° to 0°. The screen is vertical, LCD direction to 0°.

Device Mode	Angle (°)	Meas. Power (dBm) 2.4GHz Ch6 Aux (1) Ant.	Meas. Power (dBm) 2.4GHz Ch6 Main (2) Ant.
Stand/Tablet	360	15.02	15.47
Stand/Tablet	350	15.02	15.47
Stand/Tablet	340	15.02	15.47
Stand/Tablet	330	15.02	15.47
Stand/Tablet	320	15.02	15.47
Stand/Tablet	310	15.02	15.47
Stand/Tablet	300	15.02	15.47
Stand/Tablet	290	15.02	15.47
Stand/Tablet	280	15.02	15.47
Stand/Tablet	270	15.02	15.47
Stand/Tablet	260	15.02	15.47
Stand/Tablet	250	15.02	15.47
Stand/Tablet	240	15.02	15.47
Stand/Tablet	230	15.02	15.47
Stand/Tablet	220	15.02	15.47
Stand/Tablet	210	15.02	15.47
Stand/Tablet	200	15.02	15.47
Stand/Tablet	190	15.02	15.47
Stand/Tablet	180	15.02	15.47
Notebook	170	20.04	17.95
Notebook	175	20.04	17.95
Stand/Tablet	180	15.02	15.47
Notebook	179	20.04	17.95
Notebook	178	20.04	17.95
Notebook	177	20.04	17.95
Notebook	176	20.04	17.95
Notebook	175	20.04	17.95
Notebook	170	20.04	17.95

Device Mode	Angle (°)	Meas. Power (dBm) 2.4GHz Ch6 Aux (1) Ant.	Meas. Power (dBm) 2.4GHz Ch6 Main (2) Ant.
Notebook	160	20.04	17.95
Notebook	150	20.04	17.95
Notebook	140	20.04	17.95
Notebook	130	20.04	17.95
Notebook	120	20.04	17.95
Notebook	110	20.04	17.95
Notebook	100	20.04	17.95
Notebook	90	20.04	17.95
Notebook	80	20.04	17.95
Notebook	70	20.04	17.95
Notebook	60	20.04	17.95
Notebook	50	20.04	17.95
Notebook	40	20.04	17.95
Notebook	30	20.04	17.95
Notebook	20	20.04	17.95
Notebook	25	20.04	17.95
Notebook	30	20.04	17.95
Notebook	29	20.04	17.95
Notebook	28	20.04	17.95
Notebook	27	20.04	17.95
Notebook	26	20.04	17.95
Notebook	25	20.04	17.95
Notebook	24	20.04	17.95
Notebook	23	20.04	17.95
Notebook	22	20.04	17.95
Notebook	21	20.04	17.95
Notebook	20	20.04	17.95
Notebook	10	20.04	17.95
Notebook	0	20.04	17.95

B.1.2 LCD direction 180°

The lid is rotating from 0° to 360°. The screen is vertical, LCD direction to 180°.

Device Mode	Angle (°)	Meas. Power (dBm) 2.4GHz Ch6 Aux (1) Ant.	Meas. Power (dBm) 2.4GHz Ch6 Main (2) Ant.
Notebook	0	20.04	17.95
Notebook	10	20.04	17.95
Notebook	20	20.04	17.95
Notebook	30	20.04	17.95
Notebook	40	20.04	17.95
Notebook	50	20.04	17.95
Notebook	60	20.04	17.95
Notebook	70	20.04	17.95
Notebook	80	20.04	17.95
Notebook	90	20.04	17.95
Notebook	100	20.04	17.95
Notebook	110	20.04	17.95
Notebook	120	20.04	17.95
Notebook	130	20.04	17.95
Notebook	140	20.04	17.95
Notebook	140	20.04	17.95
Notebook	150	20.04	17.95
Notebook	160	20.04	17.95
Notebook	170	20.04	17.95
Tent	180	15.02	15.47
Notebook	175	20.04	17.95
Notebook	176	20.04	17.95
Notebook	177	20.04	17.95
Notebook	178	20.04	17.95
Notebook	179	20.04	17.95
Tent	180	15.02	15.47
Tent	190	15.02	15.47
Tent	200	15.02	15.47

The lid is rotating from 360° to 0°. The screen is vertical, LCD direction to 180°.

Device Mode	Angle (°)	Meas. Power (dBm) 2.4GHz Ch6 Aux (1) Ant.	Meas. Power (dBm) 2.4GHz Ch6 Main (2) Ant.
Tent	210	15.02	15.47
Tent	220	15.02	15.47
Tent	230	15.02	15.47
Tent	240	15.02	15.47
Tent	250	15.02	15.47
Tent	260	15.02	15.47
Tent	270	15.02	15.47
Tent	280	15.02	15.47
Tent	290	15.02	15.47
Tent	300	15.02	15.47
Tent	310	15.02	15.47
Tent	320	15.02	15.47
Tent	330	15.02	15.47
Tent	340	15.02	15.47
Tent	350	15.02	15.47
Tent	360	15.02	15.47

B.2 Trigger lid angle detection and power verification 5GHz

B.2.1 LCD direction 0°

The lid is rotating from 0° to 360°. The screen is vertical, LCD direction is 0°

Device Mode	Angle (°)	Meas. Power (dBm) 5GHz Ch120 Aux (1) Ant.	Meas. Power (dBm) 5GHz Ch120 Main (2) Ant.
Notebook	0	19.36	19.24
Notebook	10	19.36	19.24
Notebook	20	19.36	19.24
Notebook	30	19.36	19.24
Notebook	40	19.36	19.24
Notebook	50	19.36	19.24
Notebook	60	19.36	19.24
Notebook	70	19.36	19.24
Notebook	80	19.36	19.24
Notebook	90	19.36	19.24
Notebook	100	19.36	19.24
Notebook	110	19.36	19.24
Notebook	120	19.36	19.24
Notebook	130	19.36	19.24
Notebook	140	19.36	19.24
Notebook	140	19.36	19.24
Notebook	150	19.36	19.24
Notebook	160	19.36	19.24
Notebook	170	19.36	19.24
Stand/Tablet	180	11.85	11.43
Notebook	175	19.36	19.24
Notebook	176	19.36	19.24
Notebook	177	19.36	19.24
Notebook	178	19.36	19.24
Notebook	179	19.36	19.24
Stand/Tablet	180	11.85	11.43
Stand/Tablet	190	11.85	11.43
Stand/Tablet	200	11.85	11.43

Device Mode	Angle (°)	Meas. Power (dBm) 5GHz Ch120 Aux (1) Ant.	Meas. Power (dBm) 5GHz Ch120 Main (2) Ant.
Stand/Tablet	210	11.85	11.43
Stand/Tablet	220	11.85	11.43
Stand/Tablet	230	11.85	11.43
Stand/Tablet	240	11.85	11.43
Stand/Tablet	250	11.85	11.43
Stand/Tablet	260	11.85	11.43
Stand/Tablet	270	11.85	11.43
Stand/Tablet	280	11.85	11.43
Stand/Tablet	290	11.85	11.43
Stand/Tablet	300	11.85	11.43
Stand/Tablet	310	11.85	11.43
Stand/Tablet	320	11.85	11.43
Stand/Tablet	330	11.85	11.43
Stand/Tablet	340	11.85	11.43
Stand/Tablet	350	11.85	11.43
Stand/Tablet	360	11.85	11.43

The lid is rotating from 360° to 0°. The screen is vertical, LCD direction to 0°.

Device Mode	Angle (°)	Meas. Power (dBm) 5GHz Ch120 Aux (1) Ant.	Meas. Power (dBm) 5GHz Ch120 Main (2) Ant.
Stand/Tablet	360	11.85	11.43
Stand/Tablet	350	11.85	11.43
Stand/Tablet	340	11.85	11.43
Stand/Tablet	330	11.85	11.43
Stand/Tablet	320	11.85	11.43
Stand/Tablet	310	11.85	11.43
Stand/Tablet	300	11.85	11.43
Stand/Tablet	290	11.85	11.43
Stand/Tablet	280	11.85	11.43
Stand/Tablet	270	11.85	11.43
Stand/Tablet	260	11.85	11.43
Stand/Tablet	250	11.85	11.43
Stand/Tablet	240	11.85	11.43
Stand/Tablet	230	11.85	11.43
Stand/Tablet	220	11.85	11.43
Stand/Tablet	210	11.85	11.43
Stand/Tablet	200	11.85	11.43
Stand/Tablet	190	11.85	11.43
Stand/Tablet	180	11.85	11.43
Notebook	170	19.36	19.24
Notebook	175	19.36	19.24
Stand/Tablet	180	11.85	11.43
Notebook	179	19.36	19.24
Notebook	178	19.36	19.24
Notebook	177	19.36	19.24
Notebook	176	19.36	19.24
Notebook	175	19.36	19.24
Notebook	170	19.36	19.24

Device Mode	Angle (°)	Meas. Power (dBm) 5GHz Ch120 Aux (1) Ant.	Meas. Power (dBm) 5GHz Ch120 Main (2) Ant.
Notebook	160	19.36	19.24
Notebook	150	19.36	19.24
Notebook	140	19.36	19.24
Notebook	130	19.36	19.24
Notebook	120	19.36	19.24
Notebook	110	19.36	19.24
Notebook	100	19.36	19.24
Notebook	90	19.36	19.24
Notebook	80	19.36	19.24
Notebook	70	19.36	19.24
Notebook	60	19.36	19.24
Notebook	50	19.36	19.24
Notebook	40	19.36	19.24
Notebook	30	19.36	19.24
Notebook	20	19.36	19.24
Notebook	25	19.36	19.24
Notebook	30	19.36	19.24
Notebook	29	19.36	19.24
Notebook	28	19.36	19.24
Notebook	27	19.36	19.24
Notebook	26	19.36	19.24
Notebook	25	19.36	19.24
Notebook	24	19.36	19.24
Notebook	23	19.36	19.24
Notebook	22	19.36	19.24
Notebook	21	19.36	19.24
Notebook	20	19.36	19.24
Notebook	10	19.36	19.24
Notebook	0	19.36	19.24

B.2.2 LCD direction 180°

The lid is rotating from 0° to 360°. The screen is vertical, LCD direction to 180°.

Device Mode	Angle (°)	Meas. Power (dBm) 5GHz Ch120 Aux (1) Ant.	Meas. Power (dBm) 5GHz Ch120 Main (2) Ant.
Notebook	0	19.36	19.24
Notebook	10	19.36	19.24
Notebook	20	19.36	19.24
Notebook	30	19.36	19.24
Notebook	40	19.36	19.24
Notebook	50	19.36	19.24
Notebook	60	19.36	19.24
Notebook	70	19.36	19.24
Notebook	80	19.36	19.24
Notebook	90	19.36	19.24
Notebook	100	19.36	19.24
Notebook	110	19.36	19.24
Notebook	120	19.36	19.24
Notebook	130	19.36	19.24
Notebook	140	19.36	19.24
Notebook	140	19.36	19.24
Notebook	150	19.36	19.24
Notebook	160	19.36	19.24
Notebook	170	19.36	19.24
Tent	180	11.85	11.43
Notebook	175	19.36	19.24
Notebook	176	19.36	19.24
Notebook	177	19.36	19.24
Notebook	178	19.36	19.24
Notebook	179	19.36	19.24
Tent	180	11.85	11.43
Tent	190	11.85	11.43
Tent	200	11.85	11.43

The lid is rotating from 360° to 0°. The screen is vertical, LCD direction to 180°.

Device Mode	Angle (°)	Meas. Power (dBm) 5GHz Ch120 Aux (1) Ant.	Meas. Power (dBm) 5GHz Ch120 Main (2) Ant.
Tent	210	11.85	11.43
Tent	220	11.85	11.43
Tent	230	11.85	11.43
Tent	240	11.85	11.43
Tent	250	11.85	11.43
Tent	260	11.85	11.43
Tent	270	11.85	11.43
Tent	280	11.85	11.43
Tent	290	11.85	11.43
Tent	300	11.85	11.43
Tent	310	11.85	11.43
Tent	320	11.85	11.43
Tent	330	11.85	11.43
Tent	340	11.85	11.43
Tent	350	11.85	11.43
Tent	360	11.85	11.43

End of the report

This page is left intentionally blank and marks the last page of the test report.