



Maximum Permissible Exposure Evaluation

FCC ID: S9E-73355046

Report No.	:	TBR-C-202506-0272-1	
Applicant	:	Trimble Inc.	
Equipment Under Test (EUT)			
EUT Name	:	HCB2	
Model No.	:	73355046	
Series Model No.	:	N/A	
Brand Name	:	Trimble	
Sample ID	:	HC-C-202506-0272-01-01	
Receipt Date	:	2025-07-23	
Test Date	:	2025-07-23 to 2026-07-22	
Issue Date	:	2026-07-22	
Standards	:	FCC Part 2.1091	
Test Method	:	KDB 447498 D01 General RF Exposure Guidance v06	
Conclusions	:	PASS	
In the configuration tested, the EUT complied with the standards specified above.			
Test By	:	Gold. zhang	
Reviewed By	:	Henry Huang	
Approved By	:	IVAN SU	
This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in the report.			

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Revision History

Report No.	Version	Description	Issued Date
TBR-C-202506-0272-1	Rev.01	Initial issue of report	2026-07-22



1. General Information about EUT

1.1 Client Information

Applicant	:	Trimble Inc.
Address	:	5475 Kellenburger Rd, Dayton, OH 45424
Manufacturer	:	Trimble Inc.
Address	:	5475 Kellenburger Rd, Dayton, OH 45424

1.2 General Description of EUT (Equipment Under Test)

EUT Name	:	HCB2
Models No.	:	73355046
Model Different	:	N/A
Product Description	:	Operation Frequency: Bluetooth&BLE&125K&500K: 2402MHz~2480MHz 2.4G Wi-Fi: 2412MHz~2462MHz U-NII-1: 5180MHz~5240MHz U-NII-2A: 5260MHz~5320MHz U-NII-2C: 5500MHz~5720MHz U-NII-3: 5745MHz~5825MHz
		Modulation Type: Bluetooth&BLE&125K&500K: GFSK, Pi/4-DQPSK, 8DPSK 802.11b: DSSS (DQPSK, DBPSK, CCK) 802.11g: OFDM (BPSK, QPSK, 16QAM, 64QAM) 802.11a: OFDM (QPSK, BPSK, 16QAM, 64QAM) 802.11n: OFDM (QPSK, BPSK, 16QAM, 64QAM) 802.11ac: OFDM (QPSK, BPSK, 16QAM, 64QAM, 256QAM)
		Antenna Gain: 2.4G:4.0dBi FPC Antenna 1 2.4G:4.0dBi FPC Antenna 2 5G:5.5dBi FPC Antenna 1 5G:5.5dBi FPC Antenna 2
Power Rating	:	DC 5V
Software Version	:	13.35.369
Hardware Version	:	Rev.E
Remark: The above antenna information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications, the laboratory shall not be held responsible.		



2. Measurement Uncertainty

The reported uncertainty of measurement $y \pm U$, where expanded uncertainty U is based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95 %.

Test Item	Parameters	Expanded Uncertainty (ULab)
Conducted Emission	Level Accuracy: 9kHz~150kHz 150kHz to 30MHz	± 3.50 dB ± 3.10 dB
Radiated Emission	Level Accuracy: 9kHz to 30 MHz	± 4.60 dB
Radiated Emission	Level Accuracy: 30MHz to 1000 MHz	± 4.50 dB
Radiated Emission	Level Accuracy: Above 1000MHz	± 4.20 dB
Temperature	/	$\pm 0.6^{\circ}\text{C}$
Humidity	/	$\pm 4\%$
Supply voltages	/	$\pm 2\%$
Time	/	$\pm 4\%$



3. Test Facility

The testing report were performed by the Shenzhen Toby Technology Co., Ltd., in their facilities located at 1/F., Building 6, Rundongsheng Industrial Zone, Longzhu, Xixiang, Bao'an District, Shenzhen, Guangdong, China. At the time of testing, the following bodies accredited the Laboratory:

CNAS (L5813)

The Laboratory has been accredited by CNAS to ISO/IEC 17025: 2017 General Requirements for the Competence of Testing and Calibration Laboratories for the competence in the field of testing. And the Registration No.: CNAS L5813.

A2LA Certificate No.: 4750.01

The laboratory has been accredited by American Association for Laboratory Accreditation(A2LA) to ISO/IEC 17025: 2017 General Requirements for the Competence of Testing and Calibration Laboratories for the technical competence in the field of Electrical Testing. And the A2LA Certificate No.: 4750.01.FCC Accredited Test Site Number: 854351. Designation Number: CN1223.

IC Registration No.: (11950A)

The Laboratory has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing. The site registration: Site# 11950A. CAB identifier: CN0056.



4. Method of Measurement for FCC

4.1 EUT Operation Condition:

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

4.2 Exposure Evaluation:

Equation from page 18 of OET Bulletin 65, Edition 97-01

$$S=(PG)/4\pi R^2$$

Where

S: power density

P: power input to the antenna

G: power gain of the antenna in the direction of interest relative to an isotropic radiator.

R: distance to the center of radiation of the antenna

4.3 Simultaneous transmission MPE Considerations

According to KDB447498 D01 v06: All transmitters and antennas in the host must be either evaluated for MPE compliance, by measurement or computational modeling, or qualify for the standalone MPE test exclusion in section 7.1. Simultaneous transmission MPE test exclusion applies when the sum of the MPE ratios for all simultaneous transmitting antennas incorporated in a host device, based on the calculated/estimated, numerically modeled or measured field strengths or power density, is ≤ 1.0 .

This means that:

$$\sum \text{ of MPE ratios } \leq 1.0$$



5. Test Result

Worst MPE Result							
Test Mode	Antenna	Conducted Power(max) (dBm)	Turn-up Power (dB)	Max tune up power (dBm) [P]	Max. ANT Gain (dBi) [G]	Distance (cm) [R]	Power Density (mW/ cm ²) [S]
BLE	Ant1	16.58	16±1	17	4.0	20	0.02505
Bluetooth	Ant2	10.53	10±1	11	4.0	20	0.00629
2.4G b	Ant1	15.66	15±1	16	4.0	20	0.01989
	Ant2	15.25	15±1	16	4.0	20	0.01989
2.4G g	Ant1	12.80	12±1	13	4.0	20	0.00997
	Ant2	12.48	12±1	13	4.0	20	0.00997
2.4G n20	Ant1	10.54	10±1	11	4.0	20	0.00629
	Ant2	10.24	10±1	11	4.0	20	0.00629
5G a	Ant1	15.77	16±1	17	5.5	20	0.03538
	Ant2	17.02	17±1	18	5.5	20	0.04454
5G n20	Ant1	15.47	16±1	17	5.5	20	0.03538
	Ant2	15.26	16±1	17	5.5	20	0.03538
5G n40	Ant1	15.47	16±1	17	5.5	20	0.03538
	Ant2	16.59	16±1	17	5.5	20	0.03538
5G ac20	Ant1	15.48	16±1	17	5.5	20	0.03538
	Ant2	15.41	16±1	17	5.5	20	0.03538
5G ac40	Ant1	15.46	15±1	16	5.5	20	0.02810
	Ant2	14.85	15±1	16	5.5	20	0.02810
5G ac80	Ant1	10.08	10±1	11	5.5	20	0.00889
	Ant2	10.35	10±1	11	5.5	20	0.00889

Note: The antenna gain used max. antenna gain

Report on two types of antennas: FPC Antenna (2.4G Ant1 4.0dBi, 2.4G Ant2 4.0dBi, 5G Ant1 5.5dBi, 5G Ant2 5.5dBi) and Dipole Antenna (2.4G Ant1 3.0dBi, 2.4G Ant2 3.0dBi, 5G Ant1 5.0dBi, 5G Ant2 5.0dBi). Only evaluate the worst antenna.



1. Conclusion:

As specified in Table 1B of 47 CFR 1.1310- Limits for Maximum Permissible Exposure (MPE),

Limits for General Population/ Uncontrolled Exposure

Frequency Range (MHz)	Power density (mW/ cm ²)
300-1,500	F/1500
1,500-100,000	1.0

For: 2402~2480MHz&2412~2462MHz&5180~5825MHz

MPE limit S: 1mW/ cm²

The MPE is calculated as $0.04454 \text{ mW} / \text{cm}^2 < \text{limit } 1 \text{ mW} / \text{cm}^2$.

2. Summary simultaneous transmission information

Modulation Type	Work Frequency Band	Transmit Antenna		MIMO
		Antenna 1	Antenna 2	
Bluetooth	2.4GHz	/	Yes	/
Bluetooth LE	2.4GHz	Yes	/	/
IEEE 802.11a	U-NII-1/ U-NII-2A U-NII-2C/ U-NII-3	Yes	Yes	No
IEEE 802.11b	2.4GHz	Yes	Yes	No
IEEE 802.11g	2.4GHz	Yes	Yes	No
IEEE 802.11n HT20	2.4GHz	Yes	Yes	Yes
IEEE 802.11n HT20	U-NII-1/ U-NII-2A U-NII-2C/ U-NII-3	Yes	Yes	Yes
IEEE 802.11n HT40	U-NII-1/ U-NII-2A U-NII-2C/ U-NII-3	Yes	Yes	Yes
IEEE 802.11ac VHT20	U-NII-1/ U-NII-2A U-NII-2C/ U-NII-3	Yes	Yes	Yes
IEEE 802.11ac VHT40	U-NII-1/ U-NII-2A U-NII-2C/ U-NII-3	Yes	Yes	Yes
IEEE 802.11ac VHT80	U-NII-1/ U-NII-2A U-NII-2C/ U-NII-3	Yes	Yes	Yes



3. Summary simultaneous transmission results

Antenna 1 and Antenna 2 for 2.4G WLAN & 5G WLAN

Worst Modulation Type	MPE Antenna 1 (mW/cm ²)	MPE Antenna 2 (mW/cm ²)	ΣMPE ratios	Limit	Results
2.4G b	0.01989	0.01989	0.03978	1.0	PASS
5G a	0.03538	0.04454	0.07992	1.0	PASS

Bluetooth and WiFi support Synchronization transmitter

Maximum MPE ratio BLE	Maximum MPE ratio WiFi	ΣMPE ratios	Limit	Results
0.02505	0.07992	0.10497	1	PASS

So, RF exposure limit warning or SAR test are not required.

The EUT will only be used with a separation of 20cm or greater between the antenna and nearby persons and can therefore be considered a mobile transmitter per 47 CFR 2.1091 (b). The RF Exposure Information page from the manual is included here for reference.

-----END OF THE REPORT-----

