

RF Exposure report



The following samples were submitted and identified on behalf of the client as:

Product Name: Noise Cancelling Wireless Headphones
Brand Name: Bowers & Wilkins
Model No.: Px7 S3
Family Model No. Px8 S2
Model Difference: Refer to page5
Applicant B&W Group Ltd.
Dale Road, Worthing, West Sussex, BN11 2BH, United Kingdom
Standards IEEE/ANSI C95.1-1992, IEEE 1528-2013
RSS-102 Issue 6, IEC/IEEE 62209-1528:2020
FCC ID 2ACIX-PX8S2
IC 11946B-PX8S2
Date of EUT Receipt Nov. 20, 2024
Date of Test(s) Dec. 10, 2024 ~ Dec. 11, 2024
Date of Issue Dec. 24, 2024

In the configuration tested, the EUT complied with the standards specified above.

Remarks:

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 this report.

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Signed on behalf of SGS

Clerk / Kimmy Chiou	PM / Afu Chen	Approved By / John Yeh

Date: Dec. 24, 2024

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Revision History

Report Number	Revision	Description	Issue Date	Revised By	Remark
TESA2411000820E5	00	Initial creation of document	Dec. 24, 2024	Kimmy Chiou	

Note:

1. The mark " * " is the revised version of the report due to comments submitted by the certification.
2. Variant information of model numbers is provided by the applicant, test results of this report are applicable to the sample EUT(s) received.

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Contents

1	GENERAL INFORMATION	4
1.1	Test Methodology	4
1.2	Description of EUT.....	5
1.3	Model Difference	5
1.4	Maximum value	6
1.5	Antenna Information.....	6
2	MEASUREMENT SYSTEM	7
2.1	Test Facility	7
2.2	SAR System	8
3	SAR SYSTEM VERIFICATION.....	11
3.1	Tissue Simulating Liquid.....	11
3.2	Tissue Simulant Liquid measurement	11
3.3	Measurement results of Tissue Simulant Liquid.....	11
3.4	The composition of the tissue simulating liquid:.....	12
3.5	System check	12
3.6	System check results	13
4	TEST CONFIGURATIONS	14
4.1	Test Environment.....	14
4.2	Test Note.....	14
4.3	Test position.....	15
4.4	FCC Test limit.....	16
4.5	ISED Test limit	19
5	MAXIMUM OUTPUT POWER	20
5.1	Bluetooth	20
5.2	BLE.....	20
6	DUTY CYCLE	21
7	SUMMARY OF RESULTS	22
7.1	Decision rules	22
7.2	Summary of SAR Results.....	22
7.3	Reporting statements of conformity	22
7.4	Conclusion	22
8	INSTRUMENTS LIST	23
9	UNCERTAINTY BUDGET	24
10	SAR MEASUREMENT RESULTS	25
11	SAR SYSTEM CHECK RESULTS.....	27
12	APPENDIXES	28
12.1	SAR_Appendix A Photographs.....	28
12.2	SAR_Appendix B DAE & Probe Cal. Certificate	28
12.3	SAR_Appendix C Phantom Description & Dipole Cal. Certificate	28

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1 GENERAL INFORMATION

1.1 Test Methodology

The SAR testing method and procedure for this device is in accordance with the following standards:

IEEE/ANSI C95.1-1992

IEEE 1528-2013

KDB447498D01v06

KDB865664D01v01r04

KDB865664D02v01r02

RSS102 Issue 6

IEC/IEEE 62209-1528:2020

RSS-102.SAR.MEAS Issue 1

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1.2 Description of EUT

Product Name:	Noise Cancelling Wireless Headphones	
Brand Name:	Bowers & Wilkins	
Model No.:	Px7 S3	
Family Model No.:	Px8 S2	
FCC ID	2ACIX-PX8S2	
Duty Cycle	Bluetooth	Please refer to section 7
Supported radios (TX Frequency Range, MHz)	Bluetooth	2.4GHz (2400.0 – 2483.5 MHz)

1.3 Model Difference

- The appearance material and color are different.
- The display names differ due to the software (traditional Bluetooth name, USB device name, BLE name, USB PID, configuration design, and speaker distinction).
- The antenna gain is different.

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1.4 Maximum value

Body

Summary of Maximum SAR Value	
Mode	Highest SAR 1g (W/kg)
Bluetooth(GFSK)	0.07

Extremity

Summary of Maximum SAR Value	
Mode	Highest SAR 10g (W/kg)
Bluetooth(GFSK)	0.25

1.5 Antenna Information

Vendor	Etheta Communication Technology (shenzhen) co.,Ltd
Antenna	Px7
Part Number	HDT559
Frequency(MHz)	2400~2500
Gain (dBi)	1.99
Antenna	Px8
Part Number	HDT659
Frequency(MHz)	2400~2500
Gain (dBi)	1.02

Note: Antenna information is provided by the applicant.

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2 MEASUREMENT SYSTEM

2.1 Test Facility

Laboratory	Test Site Address	Test Site Name	FCC Designation number	IC CAB identifier
SGS Taiwan Ltd. Central RF Lab. (TAF code 3702)	1F, No. 8, Alley 15, Lane 120, Sec. 1, NeiHu Road, NeiHu District, Taipei City, 11493, Taiwan.	SAR 2	TW0029	TW3702
		SAR 6		
		SAR 8		
	No. 2, Keji 1st Rd., Guishan Township, Taoyuan County, 33383, Taiwan	SAR 1	TW0028	
		SAR 4		
	No.134, Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan	SAR 3	TW0027	
		SAR 7		

Note: Test site name is remarked on the equipment list in each section of this report as an indication where measurements occurred in specific test site and address.

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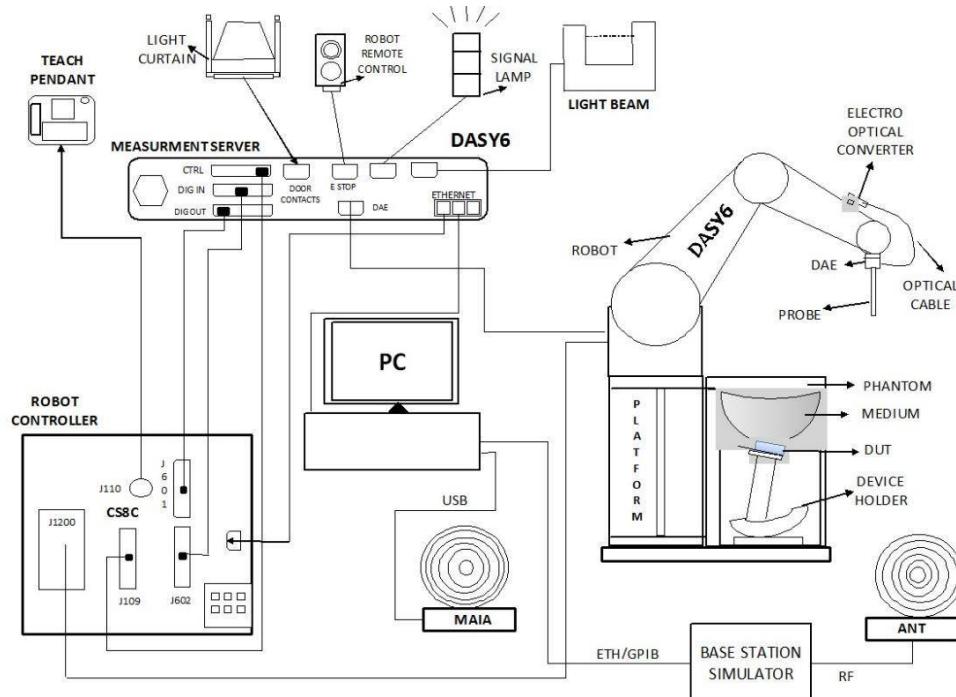
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2.2 SAR System

Block Diagram (DASY6)

The DASY system used for performing compliance tests consists of the following items:



- A standard high precision 6-axis robot with controller, teach pendant and software. An arm extension for accommodating the data acquisition electronics (DAE).
- An isotropic field probe optimized and calibrated for the targeted measurement.
- A data acquisition electronics (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.
- The Electro-optical converter (EOC) performs the conversion from optical to electrical signals for the digital communication to the DAE. To use optical surface detection, a special version of the EOC is required. The EOC signal is transmitted to the measurement server.
- The function of the measurement server is to perform the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
- The Light Beam used is for probe alignment. This improves the (absolute) accuracy of the probe positioning.
- A computer running Windows 10 and the DASY6 software.
- Remote control and teach pendant as well as additional circuitry for robot safety such as warning lamps, etc.
- The phantom, the device holder and other accessories according to the targeted measurement.

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EX3DV4 E-Field Probe

Construction	Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)		
Calibration	Basic Broad Band Calibration in air Conversion Factors (CF) for HSL 2450 MHz Additional CF for other liquids and frequencies upon request		
Frequency	10 MHz to > 6 GHz		
Directivity	± 0.3 dB in HSL (rotation around probe axis) ± 0.5 dB in tissue material (rotation normal to probe axis)		
Dynamic Range	10 μW/g to > 100 mW/g Linearity: ± 0.2 dB (noise: typically < 1 μW/g)		
Dimensions	Tip diameter: 2.5 mm		
Application	High precision dosimetric measurements in any exposure scenario (e.g., very strong gradient fields). Only probe which enables compliance testing for frequencies up to 6 GHz with precision of better 30%.		

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PHANTOM (SAM)

Model	Twin SAM	
Construction	The shell corresponds to the specifications of the Specific Anthropomorphic Mannequin (SAM) phantom defined in IEEE 1528 and IEC 62209. It enables the dosimetric evaluation of left and right hand phone usage as well as body mounted usage at the flat phantom region. A cover prevents evaporation of the liquid. Reference markings on the phantom allow the complete setup of all predefined phantom positions and measurement grids by manually teaching three points with the robot.	
Shell Thickness	2 ± 0.2 mm	
Filling Volume	Approx. 25 liters	
Dimensions	Height: 850 mm; Length: 1000 mm; Width: 500 mm	

DEVICE HOLDER

Construction	In combination with the Twin SAM Phantom V4.0/V4.0C or Twin SAM, the Mounting Device (made from POM) enables the rotation of the mounted transmitter in spherical coordinates, whereby the rotation point is the ear opening. The devices can be easily and accurately positioned according to IEC, IEEE, CENELEC, FCC or other specifications. The device holder can be locked at different phantom locations (left head, right head, flat phantom).	 Device Holder
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3 SAR SYSTEM VERIFICATION

3.1 Tissue Simulating Liquid

For the measurement of the field distribution inside the SAM phantom with DASY, the phantom must be filled with homogeneous tissue simulating liquid. For head SAR testing, the liquid height from the ear rint (ERP) of the phantom to the liquid top surface is larger than 15cm. For body SAR testing, the liquid height from the center of the flat phantom to the liquid top surface is larger than 15cm.

3.2 Tissue Simulant Liquid measurement

The dielectric properties for this Head-simulant fluid were measured by using the SPEAG Dielectric Assessment Kit (DAKS-3.5)

All dielectric parameters of tissue simulates were measured within 24 hours of SAR measurements. The measured conductivity and permittivity are all within $\pm 5\%$ of the target values.

3.3 Measurement results of Tissue Simulant Liquid

Measured Frequency (MHz)	Target Dielectric Constant, ϵ_r	Target Conductivity, σ (S/m)	Measured Dielectric Constant, ϵ_r	Measured Conductivity, σ (S/m)	% dev ϵ_r	% dev σ	Limit	Measurement Date
2402	39.296	1.758	38.703	1.774	-1.51%	0.89%	$\pm 5\%$	Dec. 11, 2024
2441	39.218	1.792	38.634	1.807	-1.49%	0.83%	$\pm 5\%$	
2450	39.200	1.800	38.618	1.815	-1.48%	0.83%	$\pm 5\%$	
2480	39.160	1.832	38.579	1.842	-1.48%	0.55%	$\pm 5\%$	

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3.4 The composition of the tissue simulating liquid:

Simulating Liquids for 600 MHz -10 GHz, Manufactured by SPEAG:

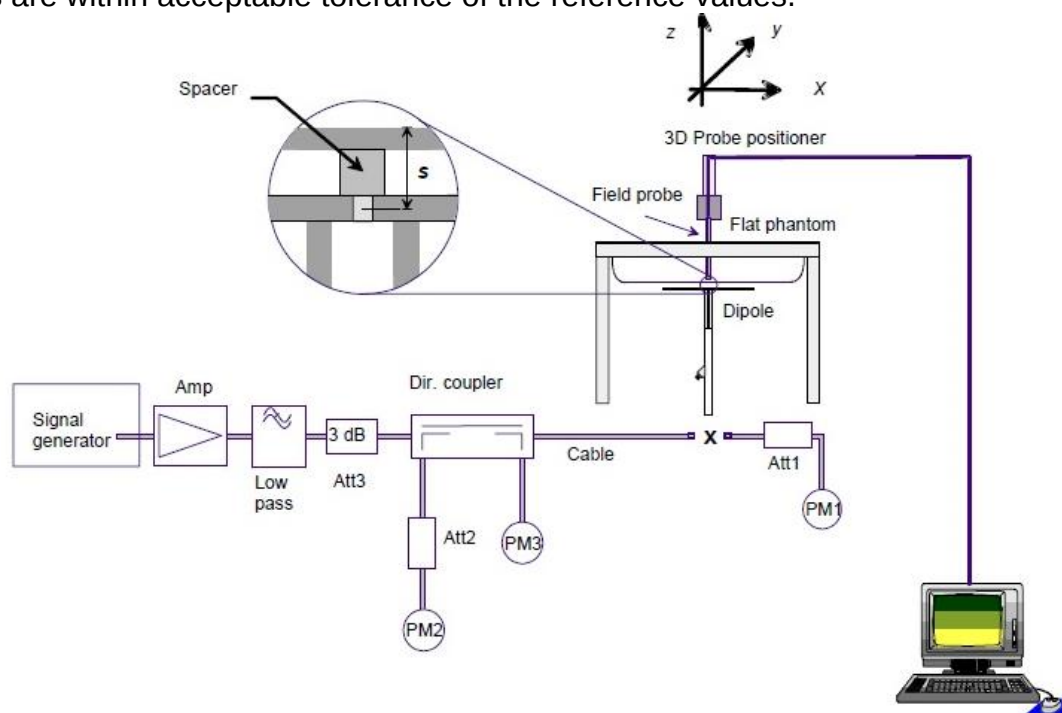
Broad-band head tissue simulating liquids	SPEAG Product	Frequency range (MHz)	Main Ingredients
	HBBL600-10000V6	600 - 10000	Water, Oil

3.5 System check

The microwave circuit arrangement for system check is sketched in below. The daily system accuracy verification occurs within the flat section of the SAM phantom and ELI phantom. A SAR measurement was performed to see if the measured SAR was within +/- 10% from the target SAR values.

The tests were conducted on the same days as the measurement of the DUT. The obtained results from the system accuracy verification are displayed with SAR values normalized to 1W forward power delivered to the dipole.

During the tests, the liquid depth from the center of the flat phantom to the liquid top surface was 15 cm above in all the cases. It is seen that the system is operating within its specification, as the results are within acceptable tolerance of the reference values.



The block diagram of system check

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3.6 System check results

Validation Kit	S/N	Frequency (MHz)	1W Target 1g-SAR (W/kg)	pin=250mW Measured 1g-SAR (W/kg)	Normalized to 1W 1g-SAR (W/kg)	Deviation (%)	Limit	Measurement Date
D2450V2	728	2450	52.7	13.7	54.8	3.98	± 10%	Dec.11,2024

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4 TEST CONFIGURATIONS

4.1 Test Environment

Ambient Temperature: $22 \pm 2^{\circ}\text{C}$

Tissue Simulating Liquid: $22 \pm 2^{\circ}\text{C}$

4.2 Test Note

- **General:** Measurements are performed respectively on the lowest, middle and highest channels of the operating band(s).
- **General:** The EUT is set to maximum power level during all tests, and at the beginning of each test the battery is fully charged.
- **General:** During the SAR testing, the DASY system checks power drift by comparing the e-field strength of one specific location measured at the beginning with that measured at the end of the SAR testing.
- **General:** According to KDB447498D01v06, testing of other required channels is not required when the reported 1-g SAR for the highest output channel is $\leq 0.8\text{ W/kg}$, when the transmission band is $\leq 100\text{ MHz}$.
- **General:** According to KDB865664D01v01r04, SAR measurement variability must be assessed for each frequency band. When the original highest measured SAR is $\geq 0.8\text{ W/kg}$, repeated that measurement once. Perform a second repeated measurement only if the ratio of largest to smallest SAR for the original and first repeated measurements is > 1.20 or when the original or repeated measurement is $\geq 1.45\text{ W/kg}$ ($\sim 10\%$ from the 1-g SAR limit).

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4.3 Test position

Body_back_0mm

Extremity_front/top/right/left/bottom/curve_0mm

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4.4 FCC Test limit

§ 2.1093(d)(1)

Applications for equipment authorization of portable RF sources subject to routine environmental evaluation must contain a statement confirming compliance with the limits specified in § 1.1310 as part of their application. Technical information showing the basis for this statement must be submitted to the Commission upon request. The SAR limits specified in § 1.1310(a) through (c) of this chapter shall be used for evaluation of portable devices transmitting in the frequency range from 100 kHz to 6 GHz. Portable devices that transmit at frequencies above 6 GHz shall be evaluated in terms of the MPE limits specified in Table 1 to § 1.1310(e)(1). A minimum separation distance applicable to the operating configurations and exposure conditions of the device shall be used for the evaluation. In general, maximum time-averaged power levels must be used for evaluation. All unlicensed personal communications service (PCS) devices and unlicensed NII devices shall be subject to the limits for general population/uncontrolled exposure.

Radiofrequency radiation exposure limits.

§ 1.1310(a)

Specific absorption rate (SAR) shall be used to evaluate the environmental impact of human exposure to radiofrequency (RF) radiation as specified in § 1.1307(b) within the frequency range of 100 kHz to 6 GHz (inclusive).

§ 1.1310(b)

The SAR limits for occupational/controlled exposure are 0.4 W/kg, as averaged over the whole body, and a peak spatial-average SAR of 8 W/kg, averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube). Exceptions are the parts of the human body treated as extremities, such as hands, wrists, feet, ankles, and pinnae, where the peak spatial-average SAR limit for occupational/controlled exposure is 20 W/kg, averaged over any 10 grams of tissue (defined as a tissue volume in the shape of a cube). Exposure may be averaged over a time period not to exceed 6 minutes to determine compliance with occupational/controlled SAR limits.

§ 1.1310(c)

The SAR limits for general population/uncontrolled exposure are 0.08 W/kg, as averaged over the whole body, and a peak spatial-average SAR of 1.6 W/kg, averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube). Exceptions are the parts of the human body treated as extremities, such as hands, wrists, feet, ankles, and pinnae, where the peak spatial-average SAR limit is 4 W/kg, averaged over any 10 grams of tissue (defined as a tissue volume in the shape of a cube). Exposure may be averaged over a time period not to exceed 30 minutes to determine compliance with general population/uncontrolled SAR limits.

Note to paragraphs (a) through (c):

SAR is a measure of the rate of energy absorption due to exposure to RF electromagnetic energy. These SAR limits to be used for evaluation are based generally on criteria published by the American National Standards Institute (ANSI) for localized SAR in Section 4.2 of "IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz," ANSI/IEEE Std C95.1-1992, copyright 1992 by the Institute of Electrical and Electronics Engineers, Inc., New York, New York 10017. These criteria for SAR evaluation are similar to those recommended by the National Council on Radiation Protection and Measurements (NCRP) in "Biological Effects and Exposure Criteria for Radiofrequency Electromagnetic Fields," NCRP Report No. 86, Section 17.4.5, copyright 1986 by NCRP, Bethesda, Maryland 20814. Limits for whole body SAR and peak spatial-average SAR are based

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on recommendations made in both of these documents. The MPE limits in Table 1 are based generally on criteria published by the NCRP in "Biological Effects and Exposure Criteria for Radiofrequency Electromagnetic Fields," NCRP Report No. 86, Sections 17.4.1, 17.4.1.1, 17.4.2 and 17.4.3, copyright 1986 by NCRP, Bethesda, Maryland 20814. In the frequency range from 100 MHz to 1500 MHz, these MPE exposure limits for field strength and power density are also generally based on criteria recommended by the ANSI in [Section 4.1](#) of "IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz," ANSI/IEEE Std C95.1-1992, copyright 1992 by the Institute of Electrical and Electronics Engineers, Inc., New York, New York 10017.

Portable devices that transmit at frequencies above 6 GHz shall be evaluated in terms of the MPE limits specified in Table 1 to [§ 1.1310\(e\)\(1\)](#).

According to ANSI/IEEE C95.1-1992, the criteria listed in the following Table shall be used to evaluate the environmental impact of human exposure to radio frequency (RF) radiation as specified in §1.1310.

Peak Spatially Averaged Power Density was evaluated over a circular area of 4cm² per interim FCC Guidance for near-field power density evaluations per October 2018 TCB Workshop notes

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Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(i) Limits for Occupational/Controlled Exposure				
0.3-3.0	614	1.63	*(100)	≤6
3.0-30	1842/f	4.89/f	*(900/f ²)	<6
30-300	61.4	0.163	1.0	<6
300-1,500			f/300	<6
1,500-100,000			5	<6
(ii) Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*(100)	<30
1.34-30	824/f	2.19/f	*(180/f ²)	<30
30-300	27.5	0.073	0.2	<30
300-1,500			f/1500	<30
1,500-100,000			1.0	<30

f = frequency in MHz. * = Plane-wave equivalent power density.

Table 1 to § 1.1310(e)(1) - Limits for Maximum Permissible Exposure (MPE)

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4.5 ISED Test limit

The SAR limits are summarized in table 3.

Table 3: SAR basic restrictions limits (100 kHz to 6 GHz)

Body region	Uncontrolled environment average SAR (W/kg)	Controlled environment average SAR (W/kg)	Averaging time (minutes)	Averaging mass (g)
Whole body	0.08	0.4	6	whole body
Localized head, neck and trunk	1.6	8	6	1
Localized limbs	4	20	6	10

The localized APD limits are summarized in table 4.

Table 4: Localized APD basic restrictions limits (6 GHz-300 GHz)

Exposure scenario	Local APD (W/m ²)	Exposure duration (minutes)
Uncontrolled environment	20	6
Controlled environment	100	6

Local APD shall be averaged over a square 4 cm² surface area of the body.

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5 MAXIMUM OUTPUT POWER

5.1 Bluetooth

Mode	Channel	Frequency (MHz)	1Mbps		2Mbps		3Mbps	
			Max. Rated Avg. Power + Max. Tolerance (dBm)	Average power (dBm)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Average power (dBm)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Average power (dBm)
BR/EDR	CH 00	2402	10.00	8.52	10.00	NR*	10.00	NR*
	CH 39	2441		8.22				
	CH 78	2480		8.00				

*- Not required

5.2 BLE

Mode	Channel	Frequency (MHz)	GFSK	
			Max. Rated Avg.Power + Max. Tolerance (dBm)	Average Output Power (dBm)
BLE_1M	CH 00	2402	10	NR*
	CH 19	2440		
	CH 39	2480		
Mode	Channel	Frequency (MHz)	GFSK	
			Max. Rated Avg.Power + Max. Tolerance (dBm)	Average Output Power (dBm)
BLE_2M	CH 00	2402	10	NR*
	CH 19	2440		
	CH 39	2480		

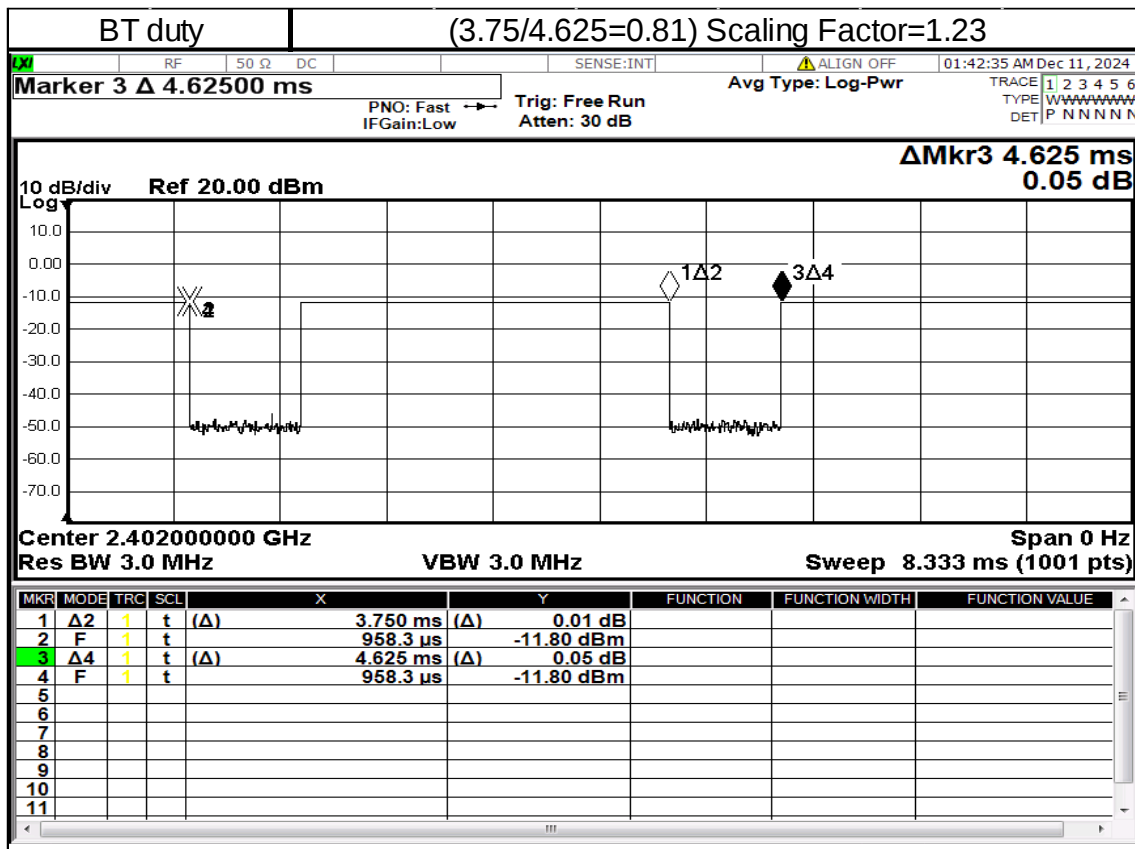
*- Not required

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6 DUTY CYCLE



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7 SUMMARY OF RESULTS

7.1 Decision rules

Reported measurement data comply with Test Methodology in section 1.1.

Determining compliance shall be based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

7.2 Summary of SAR Results

WLAN

Body

Band	Antenna	Position	Distance (mm)	Channel	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Duty cycle scaling	Power scaling	Averaged SAR over 1g (W/kg)		ID
										Measured	Reported	
Bluetooth(GFSK)	Ant 1	Back side	0	00	2402	10.00	8.52	1.23	140.60%	0.041	0.071	001
Bluetooth(GFSK)	Ant 1	Back side	0	39	2441	10.00	8.22	1.23	150.66%	0.038	0.070	-
Bluetooth(GFSK)	Ant 1	Back side	0	78	2480	10.00	8.00	1.23	158.49%	0.034	0.066	-
Bluetooth(GFSK)	Ant 1	Back side*	0	00	2402	10.00	8.52	1.23	140.60%	0.039	0.067	-

*- Spot-check for Series model Px8 S2

Extremity

Band	Antenna	Position	Distance (mm)	Channel	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Duty cycle scaling	Power scaling	Averaged SAR over 10g (W/kg)		ID
										Measured	Reported	
Bluetooth(GFSK)	Ant 1	Front side	0	00	2402	10.00	8.52	1.23	140.60%	0.024	0.042	-
Bluetooth(GFSK)	Ant 1	Top Edge	0	00	2402	10.00	8.52	1.23	140.60%	0.016	0.028	-
Bluetooth(GFSK)	Ant 1	Bottom Edge	0	00	2402	10.00	8.52	1.23	140.60%	0.012	0.021	-
Bluetooth(GFSK)	Ant 1	Right Edge	0	00	2402	10.00	8.52	1.23	140.60%	0.023	0.040	-
Bluetooth(GFSK)	Ant 1	Left Edge	0	00	2402	10.00	8.52	1.23	140.60%	0.056	0.097	-
Bluetooth(GFSK)	Ant 1	Curve	0	00	2402	10.00	8.52	1.23	140.60%	0.147	0.254	002
Bluetooth(GFSK)	Ant 1	Curve	0	39	2441	10.00	8.22	1.23	150.66%	0.135	0.250	-
Bluetooth(GFSK)	Ant 1	Curve	0	78	2480	10.00	8.00	1.23	158.49%	0.125	0.244	-
Bluetooth(GFSK)	Ant 1	Curve*	0	00	2402	10.00	8.52	1.23	140.60%	0.145	0.251	-

*- Spot-check for Series model Px8 S2

Note:

Reported SAR = measured SAR * Power scaling * Duty cycle scaling

7.3 Reporting statements of conformity

The conformity statement in this report is based solely on the test results, measurement uncertainty is excluded.

7.4 Conclusion

The device is compliant because all the standalone results are less than their corresponding criteria.

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8 INSTRUMENTS LIST

Equipment List					
Manufacturer	Device	Type	Serial number	Date of last calibration	Date of next calibration
SPEAG	Data acquisition Electronics	DAE4	547	Jan/18/2024	Jan/17/2025
SPEAG	Dosimetric E-Field Probe	EX3DV4	7466	Jan/22/2024	Jan/21/2025
SPEAG	System Validation Dipole	D2450V2	728	Aug/23/2024	Aug/22/2025
SPEAG	Dielectric Assessment Kit	DAKS-3.5	1053	Feb/21/2024	Feb/20/2025
Keysight	EXA Signal Analyzer	N9010B	MY63440390	Feb/16/2024	Feb/15/2025
R&S	MXG Analog Signal Generator	SMB100A03	182012	May/21/2024	May/20/2025
Agilent	Dual-directional coupler	772D	MY46151258	Sep/30/2024	Sep/29/2025
Agilent	Dual-directional coupler	778D	MY46151242	Sep/03/2024	Sep/02/2025
EMCI	Amplifier	ZHL-42	980189	Calibration not required	Calibration not required
EMCI	Amplifier	ZVE-8G	980190	Calibration not required	Calibration not required
R&S	Power Sensor	NRP18S	101973	Feb/27/2024	Feb/26/2025
R&S	Power Meter	NRX	102191	Feb/27/2024	Feb/26/2025
R&S	Power Sensor	NRP50S	101770	Jun/26/2024	Jun/25/2025
SPEAG	Software	DASY 8 V16.0.2.83	N/A	Calibration not required	Calibration not required
SPEAG	Phantom	SAM	N/A	Calibration not required	Calibration not required
LKM	Digital thermometer	DTM3000	EC14010603	Nov/11/2024	Nov/10/2025
TECEP	Digital thermometer	DTM-303A	TP130077	Oct/14/2024	Oct/13/2025

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9 UNCERTAINTY BUDGET

Measurement Uncertainty evaluation template for DUT SAR test (0.3-3G)

A	c	D	e		f	g	$h=c * f / e$	$i=c * g / e$	k
Source of Uncertainty	Tolerance/ Uncertainty	Probability Distributio	Div	Div Value	ci (1g)	ci (10g)	Standard uncertainty	Standard uncertainty	vi, or Veff
Measurement system									
Probe calibration	6.00%	N	1	1	1	1	6.00%	6.00%	∞
<i>Isotropy, Axial</i>	3.50%	R	$\sqrt{3}$	1.732	1	1	2.02%	2.02%	∞
<i>Isotropy, Hemispherical</i>	9.60%	R	$\sqrt{3}$	1.732	1	1	5.54%	5.54%	∞
Modulation Response	2.40%	R	$\sqrt{3}$	1.732	1	1	1.40%	1.40%	∞
Boundary Effect	1.00%	R	$\sqrt{3}$	1.732	1	1	0.58%	0.58%	∞
Linearity	4.70%	R	$\sqrt{3}$	1.732	1	1	2.71%	2.71%	∞
Detection Limits	1.00%	R	$\sqrt{3}$	1.732	1	1	0.58%	0.58%	∞
Readout Electronics	0.30%	N	1	1	1	1	0.30%	0.30%	∞
Response time	0.80%	R	$\sqrt{3}$	1.732	1	1	0.46%	0.46%	∞
Integration Time	2.60%	R	$\sqrt{3}$	1.732	1	1	1.50%	1.50%	∞
Measurement drift (class A evaluation)	1.75%	R	$\sqrt{3}$	1.732	1	1	1.01%	1.01%	∞
RF ambient condition - noise	3.00%	R	$\sqrt{3}$	1.732	1	1	1.73%	1.73%	∞
RF ambient conditions - reflections	3.00%	R	$\sqrt{3}$	1.732	1	1	1.73%	1.73%	∞
Probe positioner Mechanical restrictions	0.40%	R	$\sqrt{3}$	1.732	1	1	0.23%	0.23%	∞
Probe Positioning with respect to phantom shell	2.90%	R	$\sqrt{3}$	1.732	1	1	1.67%	1.67%	∞
Post-processing	1.00%	R	$\sqrt{3}$	1.732	1	1	0.58%	0.58%	∞
Max SAR Eval	1.00%	R	$\sqrt{3}$	1.732	1	1	0.58%	0.58%	∞
Test Sample related									
Test sample positioning	2.90%	N	1	1	1	1	2.90%	2.90%	M-1
Device Holder Uncertainty	3.60%	N	1	1	1	1	3.60%	3.60%	M-1
Drift of output power	5.00%	R	$\sqrt{3}$	1.732	1	1	2.89%	2.89%	∞
Phantom and Setup									
Phantom Uncertainty	4.00%	R	$\sqrt{3}$	1.732	1	1	2.31%	2.31%	∞
Liquid permittivity (mea.)	1.51%	N	1	1	0.64	0.43	0.97%	0.65%	M
Liquid Conductivity (mea.)	0.89%	N	1	1	0.6	0.49	0.53%	0.44%	M
Liquid conductivity σ — temperature uncertainty	2.60%	R	$\sqrt{3}$	1.732	0.78	0.71	1.17%	1.07%	∞
Liquid permittivity ϵ — temperature uncertainty	1.80%	R	$\sqrt{3}$	1.732	0.23	0.26	0.24%	0.27%	∞
Combined standard uncertainty		RSS					11.47%	11.43%	
Expant uncertainty (95% confidence interval), K=2							22.94%	22.87%	

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10 SAR MEASUREMENT RESULTS

ID: 001

Report No. : TESA2411000820E5

Measurement Report_Bluetooth(GFSK)_Body_Back Side_CH 00_0mm_Ant 1

Ambient temperature: 22.3°C; Liquid temperature: 21.1°C

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat, HSL	Back Side, 0.00	2402.0, 00	8.16	1.774	38.703

Hardware Setup

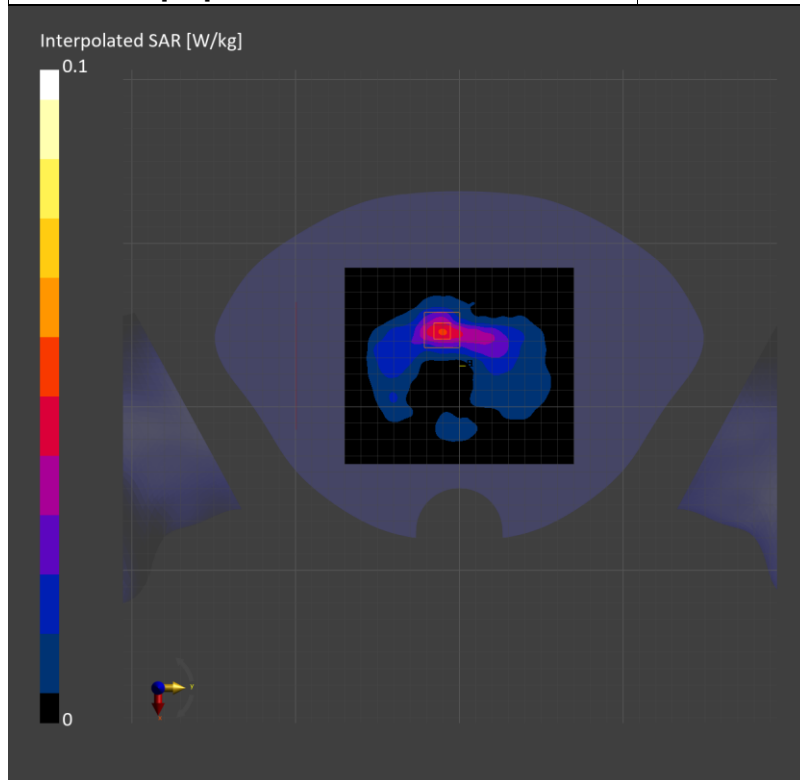
Phantom	Probe, Calibration Date	DAE, Calibration Date
Twin-SAM	EX3DV4 - SN7466, 2024-01-22	DAE4 Sn547, 2024-01-18

Scans Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	120.0 x 144.0	30.0 x 30.0 x 30.0
Grid Steps [mm]	12.0 x 12.0	5.0 x 5.0 x 5.0
Sensor Surface [mm]	3.0	1.4

Measurement Results

	Area Scan	Zoom Scan
Date	2024-12-11	2024-12-11
psSAR1g [W/kg]	0.040	0.041
psSAR8g [W/kg]	0.021	0.023
psSAR10g [W/kg]	0.019	0.021
Power Drift [dB]	0.01	0.04
M2/M1 [%]		77.7
Dist 3dB Peak [mm]		9.9



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ID: 002

Report No. : TESA2411000820E5

Measurement Report_Bluetooth(GFSK)_Limb_Curve_CH 00_0mm_Ant 1

Ambient temperature: 22.3°C; Liquid temperature: 21.1°C

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat, HSL	Curve, 0.00	2402.0, 00	8.16	1.774	38.703

Hardware Setup

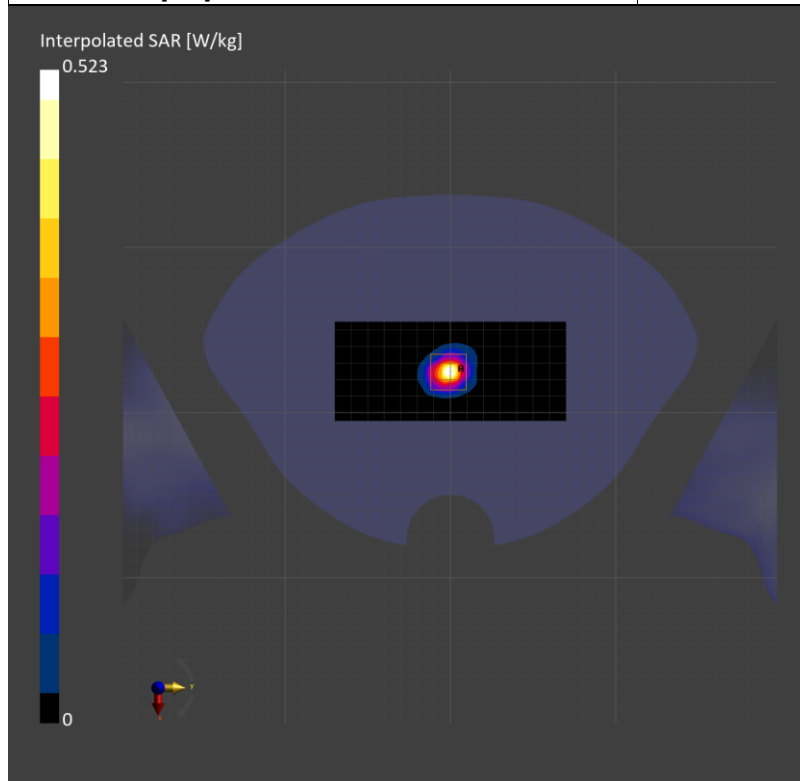
Phantom	Probe, Calibration Date	DAE, Calibration Date
Twin-SAM	EX3DV4 - SN7466, 2024-01-22	DAE4 Sn547, 2024-01-18

Scans Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	60.0 x 144.0	30.0 x 30.0 x 30.0
Grid Steps [mm]	12.0 x 12.0	5.0 x 5.0 x 5.0
Sensor Surface [mm]	3.0	1.4

Measurement Results

	Area Scan	Zoom Scan
Date	2024-12-11	2024-12-11
psSAR1g [W/kg]	0.351	0.407
psSAR8g [W/kg]	0.150	0.167
psSAR10g [W/kg]	0.132	0.147
Power Drift [dB]	-0.01	-0.05
M2/M1 [%]		72.4
Dist 3dB Peak [mm]		5.4



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11 SAR SYSTEM CHECK RESULTS

Report No. : TESA2411000820E5

Measurement Report

Dipole_D2450-SN:728

Ambient temperature: 22.3°C; Liquid temperature: 21.1°C

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat, Head Simulating Liquid	FRONT, 10.00	8.16	1.815	38.618

Hardware Setup

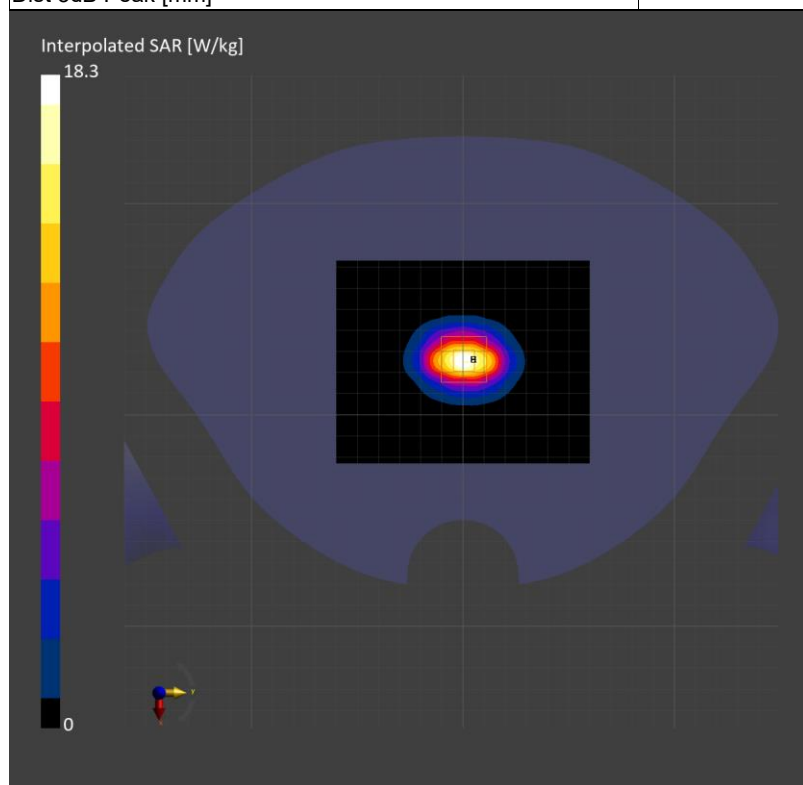
Phantom	Probe, Calibration Date	DAE, Calibration Date
Twin-SAM	EX3DV4 - SN7466, 2024-01-22	DAE4 Sn547, 2024-01-18

Scans Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	96.0 x 120.0	30.0 x 30.0 x 30.0
Grid Steps [mm]	12.0 x 12.0	5.0 x 5.0 x 5.0
Sensor Surface [mm]	3.0	1.4

Measurement Results

	Area Scan	Zoom Scan
Date	2024-12-11	2024-12-11
psSAR1g [W/kg]	13.8	13.7
psSAR8g [W/kg]	7.01	7.07
psSAR10g [W/kg]	6.34	6.38
Power Drift [dB]	-0.04	-0.01
M2/M1 [%]		58.5
Dist 3dB Peak [mm]		9.1



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Refer to separated files for the following appendixes.

12.1 SAR_Appendix A Photographs

12.2 SAR_Appendix B DAE & Probe Cal. Certificate

12.3 SAR_Appendix C Phantom Description & Dipole Cal. Certificate

- End of report -

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