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COMMERCIAL-IN-CONFIDENCE

SAR EXCLUSION DOCUMENT

Document 75952587- 26 Issue 01

FCC Standalone SAR Test Exclusion Considerations (KDB 447498 D01) Section 4.3.1 a)

100 MHz – 6 GHz – Separation Distance ≤50 mm

The 1g SAR Test exclusion thresholds for 100 MHz to 6 GHz test separation distances ≤ 50 mm are determined by:

$[(\text{max power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] [\sqrt{f} (\text{GHz})] \leq 3.0$ for 1g SAR and ≤ 7.5 for 10g extremity SAR.

- f (GHz) is the RF channel transmit frequency in GHz.
- Power and distance are rounded to the nearest mW and mm before calculation.
- The result is rounded to one decimal place for comparison
- When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied.

SAR Exclusion Result: Bluetooth

Frequency (GHz)	Power Output mW	Duty Cycle %	Maximum Power (Tune up Value) * (mW)	Test Separation Distance (mm)	SAR Test Exclusion Threshold	Limit**	SAR Test Exclusion (Yes/No)
2.402	6	100	6	50	0.2	3.0	Yes
2.480	6	100	6	50	0.2	3.0	Yes

SAR Exclusion Result: Proprietary Tracking Beacon

Frequency (GHz)	Power Output mW	Duty Cycle %	Maximum Power (Tune up Value) * (mW)	Test Separation Distance (mm)	SAR Test Exclusion Threshold	Limit**	SAR Test Exclusion (Yes/No)
2.402	1	100	1	50	0.0	3.0	Yes
2.480	1	100	1	50	0.0	3.0	Yes

* Maximum power including tolerance of the time averaged declared conducted output power of the device.

** Select ≤ 3.0 for 1g SAR and ≤ 7.5 for 10g extremity SAR.

The SAR exclusion threshold has been evaluated using the formula described above from information supplied by the manufacturer below. Based on the calculation above, the EUT is categorically excluded from SAR testing.

Approved by

J Kenny
Authorised Signatory

Date 16 December 2021

Manufacturer's Declaration of Product Information:

Equipment Description

Technical Description: (Please provide a brief description of the intended use of the equipment)	Protective Hard Hat with integrated eye protection and augmented reality
Manufacturer:	XYZ Reality Ltd
Model:	Atom Hard Hat
Part Number:	XYZ-12-01

If more than one frequency band is supported, please confirm which combinations of bands are capable of Simultaneous Transmit.	BTLE / WLAN 2.4 GHz / Proprietary ISM 2.4 GHz
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Frequency Band 1: Please detail (one entry for each band). e.g GSM 900 / WCDMA FDD I etc.

Antenna Model:	Molex Dipole 146153 series	
Antenna length:	3.5	cm
Bottom frequency:	2402	MHz
Middle frequency:	2440	MHz
Top frequency:	2480	MHz

Maximum power (input to the antenna including a tolerance):	5.5 dBm $\pm$ 2 dB	dBm
Antenna gain (or maximum gain allowed):	2.8	dB i

Or

Field Strength Measurement:		dBu A/M
Measurement Distance:		cm

Separation distance from antenna to the user/bystander	5	cm
Transmitter Duty Cycle:	100	%

Frequency Band 2: Please detail (one entry for each band). e.g GSM 900 / WCDMA FDD I etc

Antenna Model:	Molex Dipole 146153 series	
Antenna length:	3.5	cm
Bottom frequency:	2412	MHz
Middle frequency:	2437	MHz
Top frequency:	2472	MHz

Maximum power (input to the antenna including a tolerance):	20 dBm $\pm$ 1 dB	dBm
Antenna gain (or maximum gain allowed):	2.8	dB i

Or

Field Strength Measurement:		dBu A/M
Measurement Distance:		cm

Separation distance from antenna to the user/bystander	5	cm
Transmitter Duty Cycle:	100	%



Frequency Band 3: Please detail (one entry for each band). e.g GSM 900 / WCDMA FDD I etc.

Antenna Model:	Molex Dipole 146153 series	
Antenna length:	3.5	cm
Bottom frequency:	2402	MHz
Middle frequency:	2440	MHz
Top frequency:	2480	MHz

Maximum power (input to the antenna including a tolerance):	0	dBm
Antenna gain (or maximum gain allowed):	2.8	dBi

Or

Field Strength Measurement:		dBuA/M
Measurement Distance:		cm

Separation distance from antenna to the user/bystander	5	cm
Transmitter Duty Cycle:	100	%