

RF Exposure Evaluation Report

Client: 701x Inc
Address: 700 Main Ave
Fargo, ND 58103
EUT: xTag v6
Test Report No.: R240111-70-M1A

Approved By: 
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EMC Test Engineer
iNARTE EMC-50662-E

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Total Pages: 7

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Revision Page

Rev. No.	Date	Description
0	5 March 2024	Issued by BWinter Reviewed by FLane Prepared by BWinter
A	13 March 2024	Revision A by BWinter 1. Add Cell Module RF Exposure Evaluation.

1 Regulatory Requirements:

FCC Part 1.1310, 2.1091, 2.1093
KDB 447498 D01

Summary:

The purpose of this report is to evaluate the EUT's transmitter for exemption from routine SAR testing.

EUT:

Model:

FCC ID:

xTag v6

2AZT3-701XT2

Cell Module:

Model:

FCC ID:

BG770A-GL

XMR2021BG770AGL

MPE Lab

MPE Labs FCC Cab Designation:

MPE Labs ISED Cab Designation:

Nebraska Center for Excellence in Electronics

US1060

US0177

2 FCC Limits, Part 1.1310

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(A) 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
(B) 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

Calculations:

EUT

Occupational/Controlled							
General Population/uncontrolled			YES				
701x xTag v6							
Frequency	Antenna Gain	Power Conducted	Power (conducted) +10% for tolerance	Power Density	Limit at specified distance	% of limit	Result
MHz	numerical	mW	mW	mW/cm^2	mW/cm^2		
2400 - 2483.5	2.0	0.76	0.84	0.00033	1.000000	0.033%	PASS

Distance	20	cm
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Gain values were taken from the tables in the antenna datasheet.

EIRP (mW) = Conducted power (mW) x antenna gain (numeric).

Cell Module

Occupational/Controlled							
General Population/uncontrolled			YES				
701x xTag v6							
Frequency	Antenna Gain	Power Conducted	Power (conducted) +10% for tolerance	Power Density	Limit at specified distance	% of limit	Result
MHz	numerical	mW	mW	mW/cm^2	mW/cm^2		
1710 – 1755	1.82	240	264	0.087	1.000000	8.7%	PASS

Distance	20	cm
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Gain values were taken from the plots in the antenna datasheet. The selected frequency band is based on the worst-case Conducted Power/Antenna Gain product.

EIRP (mW) = Conducted power (mW) x antenna gain (numeric).

Combined RF exposure: 0.033% + 8.7% = 8.733%

8.7% was the worst-case from the cellular module.

8.733% was the worst-case from the combined RF exposure, which is below the limit.

Result:

The EUT was found to be exempt from routine SAR testing and **COMPLIANT** with RF exposure requirements.

Result:

Complies

Note:

The user's manual will stipulate that a 20cm distance from the user is to be maintained.
EIRP values in mW were multiplied by 1.1 to account for a 10% tolerance.

REPORT END