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## **Certification Exhibit**

**FCC ID: NC3-34204AVL**

**FCC Rule Part: 47 CFR Part 2.1091**

**TÜV SÜD Project Number: 72149971**

Manufacturer: Attenti US, Inc.  
Model(s): 34204AL, 34204CL, 34204VL and 34204XL

## **RF Exposure**

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TÜV SÜD America  
5610 West Sligh Ave., Suite 100  
Tampa, FL 33634

Phone: 813-284-2715  
[www.tuv-sud-america.com](http://www.tuv-sud-america.com)

**TÜV SÜD**

**TÜV<sup>®</sup>**

**General Information:**

Applicant: Attenti US, Inc.  
 Device Category: Mobile  
 Environment: General Population/Uncontrolled Exposure

The Attenti US, Inc. Model(s) 34204AL, 34204CL, 34204VL and 34204XL radios are collocated and transmit simultaneously with the Telit Model LE910C1-NF radio.

**Technical Information:**

**Table 1: Technical Information**

	Frequency Bands (MHz)	Antenna Types(s)	Antenna Gain (dBi)	Conducted Power (dBm)	Conducted Power (mW)	Maximum Peak EIRP (mW)	Maximum Peak ERP (mW)
<b>Attenti US, Inc.</b> Models 34204AL, 34204CL, 34204VL and 34204XL FCC ID: NC3-34204AVL IC: 23669-34204AVL	2412 - 2462 MHz	SMD PCB	3.6	24.36	272.90	625.17	381.07
	433.92 MHz	Stub	1.5	3.11	2.05	2.89	1.76
	433.92 MHz	Inverted-F	0.75	3.11	2.05	2.43	1.48
<b>Telit</b> Model LE910C1-NF FCC ID: R17LE910CXNF IC: 5231A-LE910CXNF	1710 - 1780 MHz	Flex	2	25.1	323.59	512.86	312.61
	1850 - 1910 MHz		2.5	24.74	297.85	529.66	322.85
	663 - 698 MHz		2	24	251.19	398.11	242.66
	699 - 716 MHz		2	24.74	297.85	472.06	287.74
	777 - 787 MHz		2	24.96	313.33	496.59	302.69
	788 - 798 MHz		2	24.38	274.16	434.51	264.85
	824 - 849 MHz		2	25.14	326.59	517.61	315.50

**MPE Calculation:**

The Power Density (mW/cm<sup>2</sup>) is calculated as follows:

$$S = \frac{PG}{4\pi R^2}$$

Where:

S = power density (in appropriate units, e.g. mW/cm<sup>2</sup>)

P = power input to the antenna (in appropriate units, e.g., mW)

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 (appropriate units, e.g., cm)

**Table 2: MPE Calculation (Including Collocated Devices)**

Transmit Frequency (MHz)	Radio Power (dBm)	Power Density Limit (mW/Cm2)	Radio Power (mW)	Antenna Gain (dBi)	Antenna Gain (mW eq.)	Distance (cm)	Power Density (mW/cm^2)	Radio
2462	24.36	1.00	272.90	3.6	2.291	20	0.124	A
433.9	3.11	0.29	2.05	1.5	1.413	20	0.001	B
1770	25.1	1.00	323.59	2	1.585	20	0.102	C
1910	24.74	1.00	297.85	2.5	1.778	20	0.105	D
695.5	24	0.46	251.19	2	1.585	20	0.079	E
715.3	24.74	0.48	297.85	2	1.585	20	0.094	F
784.5	24.96	0.52	313.33	2	1.585	20	0.099	G
795.5	24.38	0.53	274.16	2	1.585	20	0.086	H
849	25.14	0.57	326.59	2	1.585	20	0.103	I

**Note:** The worst case EIRP for the 433 MHz radio was used for the calculations. The two 433 MHz radios are not capable of transmitting simultaneously.

**Summation of MPE ratios – Simultaneous Transmissions**

This device contains multiple transmitters which can operate simultaneously; therefore, the maximum RF exposure is determined by the summation of MPE ratios. The limit is such that the summation of MPE ratios is ≤ 1.0.

**Table 3: Summation of MPE Ratios (Radios A to F)**

	Scenario 1	Scenario 2	Scenario 3	Scenario 4
Radio A (2462 MHz)	x	x	x	x
Radio B (433.9 MHz)	x	x	x	x
Radio C (1770 MHz)	x			
Radio D (1910 MHz)		x		
Radio E (695.5 MHz)			x	
Radio F (715.3 MHz)				x
Radio A MPE Ratio	0.124374155	0.124374155	0.124374155	0.124374155
Radio B MPE Ratio	0.00198807	0.00198807	0.00198807	0.00198807
Radio C MPE Ratio	0.10203053			
Radio D MPE Ratio		0.105373194		
Radio E MPE Ratio			0.170814317	
Radio F MPE Ratio				0.196939658
MPE Ratio Summation:	0.228392756	0.23173542	0.297176543	0.323301883

**Table 4: Summation of MPE Ratios (Radios A, B, G, H, I)**

	Scenario 5	Scenario 6	Scenario 7	Scenario 8
Radio A (2462 MHz)	x	x	x	
Radio B (433.9 MHz)	x	x	x	
Radio G (784.5 MHz )	x			
Radio H (795.5 MHz)		x		
Radio I (849 MHz)			x	
Radio J (-----)				
Radio A MPE Ratio	0.124374155	0.124374155	0.124374155	
Radio B MPE Ratio	0.00198807	0.00198807	0.00198807	
Radio G MPE Ratio	0.188898477			
Radio H MPE Ratio		0.162997604		
Radio I MPE Ratio			0.181933935	
Radio J MPE Ratio				
MPE Ratio Summation:	0.315260703	0.28935983	0.308296161	