Certification Exhibit

FCC ID: 2AQ4D-RFIDREADER

FCC Rule Part: 47 CFR Part 2.1091

TÜV SÜD Project Number: 72181248

Manufacturer: Welbilt, Inc
Model: 8076208

RF Exposure

TÜV SÜD America
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General Information:

Applicant: Welbilt, Inc
Device Category: Mobile
Environment: General Population/Uncontrolled Exposure

The RFID radio is collocated and transmits simultaneously with the LM Technologies Ltd. Wi-Fi radios.

Technical Information:

Table 1: Technical Information – RFID Reader

Mode of Operation:	RFID 13.56 MHz
Frequency Range:	13.56 MHz
Number of Channels:	1
Channel Separation:	N/A
Data Rate:	N/A
Modulations:	CW
Antenna Type/Gain:	6x Custom Antennas, Not User Accessible
Input Power:	208V / 60Hz (Host)
Field Strength at 3 meters	61.2 dBuV/m

Table 2: Technical Information – Wi-Fi Dongle

	Device 1 Details (LM Technologies Ltd., 2.4 GHz Wi-Fi, 808-04XX, FCC ID: VVX808-04XX, IC: 10531A-80804XX)	***Device 1 Details (LM Technologies Ltd., 5 GHz Wi-Fi, 808-04XX, FCC ID: VVX808-04XX, IC: 10531A-80804XX)***
Antenna Type(s)	Integral	Integral
Antenna Gain (dBi)	0.1	4.7
Conducted Power (dBm)	14.35	7.32
Conducted Power (mW)	27.23	5.40
Maximum Peak EIRP (mW)	27.86	15.92
Maximum Peak ERP (mW)	16.98	9.71

MPE Calculation:

RFID Reader

The Power Density (mW/cm^2) is calculated as follows:

$$S = \frac{E^2}{120\pi}$$

Table 3: MPE Calculation – RFID Module

Transmit Frequency (MHz)	Field Strength at 3m (dBuV/m)	Power Density Limit (mW/m2)	EIRP (dBm)	EIRP (W)	Distance (cm)	Power Density (mW/m^2)	Radio
13.56	62.1	0.98	-33.12879	4.87E-07	20	9.68E-08	A

S = power density (in appropriate units, e.g., mW/cm2)
E = Field Strength at MPE distance (in appropriate units, e.g., uV/m)

Wi-Fi Dongle

The Power Density (mW/cm^2) is calculated as follows:

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

Where:
S = power density (in appropriate units, e.g. mW/cm2)
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 4: MPE Calculation – 808-04XX -Wi-Fi Dongle

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
2412	14.35	1.00	27.23	0.1	1.023	20	0.006	B
5180	7.32	1.00	5.40	4.7	2.951	20	0.003	C

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

	Scenario 1	Scenario 2
Radio A (13.56 MHz)	x	x
Radio B (2.4 GHz)	x	
Radio C (5 GHz)		x
Radio A MPE Ratio	0.000000099	0.000000099
Radio B MPE Ratio	0.005542812	
Radio C MPE Ratio		0.003167599
MPE Ratio Summation:	0.005542911	0.003167697

Conclusion:

The summation of the MPE ratios is ≤ 1.0. The EUT meets the RF exposure requirements.