

# RF EXPOSURE REPORT

## CERTIFICATE OF CONFORMITY

**FCC Rule Part:** FCC Part 2 (Section 2.1091)

**Report No.:** MFBERD-WTW-P23120358

**FCC ID:** JEH7748AX5

**Product:** AX5

**Brand:** NCR Voyix

**Model No.:** 7748

**Received Date:** 2023/12/15

**Test Date:** 2024/1/18

**Issued Date:** 2024/2/5

**Applicant:** NCR Voyix Corporation

**Address:** 864 Spring Street NW, Atlanta GA 30308, USA

**Issued By:** Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch  
Lin Kou Laboratories

**Lab Address:** No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan

**Test Location:** No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kewi Shan Dist., Taoyuan City 33383, Taiwan

**FCC Registration /**

**Designation Number:** 788550 / TW0003

**Approved by:** \_\_\_\_\_

*Jeremy Lin*

**Date:** \_\_\_\_\_

**2024/2/5**

Jeremy Lin / Project Engineer

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Prepared by : Pettie Chen / Senior Specialist

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## 1 Release Control Record

Issue No.	Description	Date Issued
MFBERD-WTW-P23120358	Original release.	2024/2/5

## 2 Certificate

**Product:** AX5

**Brand:** NCR Voyix

**Test Model:** 7748

**Sample Status:** Engineering sample

**Applicant:** NCR Voyix Corporation

**Test Date:** 2024/1/18

**FCC Rule Part:** FCC Part 2 (Section 2.1091)

**Standard:** KDB 447498 D04 Interim General RF Exposure Guidance v01

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's RF characteristics under the conditions specified in this report.

### 3 Applicable RF Exposure Limit

§ 1.1310 Radiofrequency radiation exposure limits.

(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) of this part within the frequency range of 100 kHz to 6 GHz (inclusive).

(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.

(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.

(e) Maximum Permissible Exposure (MPE) to radiofrequency electromagnetic fields

➤ Limits for General Population/Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm <sup>2</sup> )	Average Time (minutes)
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 <sup>2</sup> )*	<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.

➤ Limits for Occupational/Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm <sup>2</sup> )	Average Time (minutes)
Limits For General Population / Uncontrolled Exposure				
0.3-3.0	614	1.63	*(100)	≤6
3.0-30	1842/f	4.89/f	*(900/f <sup>2</sup> )	<6
30-300	61.4	0.163	1.0	<6
300-1,500			f/300	<6
1,500-100,000			5	<6

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

### MPE-based Exemption – §1.1307(b)(3)(i)(C)

- The minimum separation distance (R in meters) from the body of a nearby person for the frequency (f in MHz) at which the source operates, the ERP (watts) is no more than the calculated value prescribed for that frequency. The MPE-based test exemption condition is in terms of ERP, defined as the product of the maximum antenna gain and the delivered maximum time-averaged power.
- Table applies to any RF source (i.e. single fixed, mobile, and portable transmitters) and specifies power and distance criteria for each of the five frequency ranges used for the MPE limits.

RF Source frequency (MHz)	Minimum Distance		Threshold ERP (watts)
	$\lambda_L / 2\pi$	$\lambda_H / 2\pi$	
0.3-1.34	159 m–35.6 m		1,920 R <sup>2</sup> .
1.34-30	35.6 m–1.6 m		3,450 R <sup>2</sup> /f <sup>2</sup> .
30-300	1.6 m–159 mm		3.83 R <sup>2</sup> .
300-1,500	159 mm–31.8 mm		0.0128 R <sup>2</sup> f.
1,500-100,000	31.8 mm–0.5 mm		19.2 R <sup>2</sup> .

R must be at least  $\lambda/2\pi$ , where  $\lambda$  is the free-space operating wavelength in meters.

### Fixed RF sources operating in the same time-averaging period – §1.1307(b)(3)(ii)(B)

- Either SAR-based or MPE-based exemption may be considered for test exemption for fixed, mobile, or portable device exposure conditions; therefore, the contributions from each exemption in conjunction with the measured SAR (Evaluated<sub>k</sub> term) should be used to determine exemption for simultaneous transmission according to Formula below,

$$\sum_{i=1}^a \frac{P_i}{P_{th,i}} + \sum_{j=1}^b \frac{ERP_j}{ERP_{th,j}} + \sum_{k=1}^c \frac{Evaluated_k}{Exposure Limit_k} \leq 1$$

The sum of the ratios of the applicable terms for SAR-based, MPE-based and measured SAR or MPE should be less than 1, to determine simultaneous transmission exposure compliance.

Where:

$a$  = number of fixed, mobile, or portable RF sources claiming exemption using [paragraph \(b\)\(3\)\(i\)\(B\)](#) of this section for  $P_{th}$ , including existing exempt transmitters and those being added.

$c$  = number of existing fixed, mobile, or portable RF sources with known evaluation for the specified minimum distance including existing evaluated transmitters.

$P_{th,i}$  = the exemption threshold power ( $P_{th}$ ) according to [paragraph \(b\)\(3\)\(i\)\(B\)](#) of this section for fixed, mobile, or portable RF source  $i$ .

$ERP_{th,j}$  = exemption threshold ERP for fixed, mobile, or portable RF source  $j$ , at a distance of at least  $\lambda/2\pi$  according to the applicable formula of [paragraph \(b\)\(3\)\(i\)\(C\)](#) of this section.

$Exposure Limit_k$  = either the general population/uncontrolled maximum permissible exposure (MPE) or specific absorption rate (SAR) limit for each fixed, mobile, or portable RF source  $k$ , as applicable from [§ 1.1310 of this chapter](#).

$b$  = number of fixed, mobile, or portable RF sources claiming exemption using [paragraph \(b\)\(3\)\(i\)\(C\)](#) of this section for Threshold ERP, including existing exempt transmitters and those being added.

$P_i$  = the available maximum time-averaged power or the ERP, whichever is greater, for fixed, mobile, or portable RF source  $i$  at a distance between 0.5 cm and 40 cm (inclusive).

$ERP_j$  = the ERP of fixed, mobile, or portable RF source  $j$ .

$Evaluated_k$  = the maximum reported SAR or MPE of fixed, mobile, or portable RF source  $k$  either in the device or at the transmitter site from an existing evaluation at the location of exposure.

#### 4 Test Results

Environmental Conditions:	21°C, 69% RH	Tested By:	Tim Chen
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##### For Single RF Source

MPE-based Exemption §1.1307(b)(3)(i)(C)							
Operation Mode	Frequency Band (MHz)	Average Power (mW)	Antenna Gain (dBi)	Maximum ERP (mW)	Distance (cm)	Limit Threshold (mW)	Test Result
Bluetooth	2402-2480	33.343	1.1	26.182	20	768	Pass
WLAN 2.4 GHz	2412-2462	190.135	1.3	156.337	20	768	Pass
WLAN 5 GHz	5180-5825	124.327	0.7	89.036	20	768	Pass
WLAN 6 GHz	5935-7115	124.179	2.8	144.228	20	768	Pass

##### For Multiple RF Sources 1 (Simultaneous Operations)

Multiple RF Sources (Simultaneous Operations)							
Exemption Evaluation					Sum of Ratios	Limit of Ratios	Test Result
Operation Mode	Frequency Band (MHz)	Maximum ERP (mW)	Limit Threshold (mW)	Ratio			
Bluetooth	2402-2480	26.182	768	0.034	0.238	1	Pass
WLAN 2.4 GHz	2412-2462	156.337	768	0.204			

##### For Multiple RF Sources 2 (Simultaneous Operations)

Multiple RF Sources (Simultaneous Operations)							
Exemption Evaluation					Sum of Ratios	Limit of Ratios	Test Result
Operation Mode	Frequency Band (MHz)	Maximum ERP (mW)	Limit Threshold (mW)	Ratio			
Bluetooth	2402-2480	26.182	768	0.034	0.15	1	Pass
WLAN 5 GHz	5180-5825	89.036	768	0.116			

##### For Multiple RF Sources 3 (Simultaneous Operations)

Multiple RF Sources (Simultaneous Operations)							
Exemption Evaluation					Sum of Ratios	Limit of Ratios	Test Result
Operation Mode	Frequency Band (MHz)	Maximum ERP (mW)	Limit Threshold (mW)	Ratio			
Bluetooth	2402-2480	26.182	768	0.034	0.222	1	Pass
WLAN 6 GHz	5935-7115	144.228	768	0.188			

## 5 Conclusion

Source-base time average power is below Exemption Criteria and/or Routine Evaluation MPE thresholds, therefore the device is compliant FCC RF exposure requirement.



## 6 Information of the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are FCC recognized accredited test firms and accredited according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

**Lin Kou EMC/RF Lab**

Tel: 886-2-26052180

Fax: 886-2-26051924

**Hsin Chu EMC/RF/Telecom Lab**

Tel: 886-3-6668565

Fax: 886-3-6668323

**Hwa Ya EMC/RF/Safety Lab**

Tel: 886-3-3183232

Fax: 886-3-3270892

**Email:** [service.adt@bureauveritas.com](mailto:service.adt@bureauveritas.com)

**Web Site:** <http://ee.bureauveritas.com.tw>

The address and road map of all our labs can be found in our web site also.

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