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Payment Revolution

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Are You Part of the Payment Revolution?

Tap to Pay (contactless) is revolutionizing the entire payments industry and system cost no longer needs to be a barrier for enterprise or SMBs. Contactless payments have become universal among global consumers and they now come to expect this payment choice everywhere they buy.

The pandemic thrust contactless payments into mainstream status, transforming them from a niche payment option to the top driver of in-store volume. Visa Inc.'s data illustrates this trajectory: in 2017, less than 1% of the company's domestic face-to-face transactions were contactless. By fiscal 2022, that figure had surged to 28%, and in 2026, it will surpass 75%.

Tap-to-pay has definitely entered the mass adoption phase, with global transaction values projected to hit $10.16 trillion this year. Industry analysis by Juniper Research estimates global contactless transaction volume will nearly double from 2026 levels to reach $19.49 trillion by 2031.



What are the Key Drivers for this Trend?

2-3
Seconds

Transactions take 2 to 3 seconds compared with 8 to 12 seconds for chip insertions.

85%
Built-In NFC

Over 85% of debit and credit cards in circulation feature built-in NFC tap capabilities. All card providers are committed to NFC capability.

POS
Android

Android POS/Kiosk based POS hardware, which embraces NFC natively, has reached over 48% of global market shipments, projected to capture 70% of the market as merchants abandon proprietary systems in coming years.

$
Secure

Contactless Payments are safer for customer transactions.

Why are Tap Transactions Safer?



Reduced Physical Contact

- One of the most apparent advantages of contactless payments is the minimal physical contact required to complete a transaction. In a world that has become hyper-aware of hygiene and the spread of germs, the ability to make purchases without handling cash or physically inserting a card into a machine is a significant safety benefit. Customers can tap their cards or devices on the payment terminal, minimizing the risk of exposure to bacteria or viruses present on surfaces.
- This reduction in physical contact aligns with public health guidelines, making contactless payments a responsible choice, especially in high-traffic areas such as public transportation, restaurants, and retail stores. As customers become increasingly conscious of hygiene, the touch-free nature of contactless transactions provides a reassuring layer of safety.



Enhanced Security Features

- Contrary to common misconceptions, contactless payments operate on robust security measures that protect customers from fraudulent activities. Most contactless transactions receive the same security standards as traditional card payments. Additionally, contactless payments often incorporate advanced security features, such as tokenization. Tokenization involves replacing sensitive information, like card numbers, with unique tokens. In the context of contactless payments, these tokens facilitate transactions without exposing the actual card details. This adds an extra layer of security, so even if someone intercepts the token, it holds no value without the encryption key.



Real-Time Transaction Notifications

- Contactless payments often come with the advantage of real-time transaction notifications. Many banks and financial institutions provide customers with instant alerts through mobile apps or text messages whenever a contactless transaction occurs. This immediate feedback allows customers to stay informed about their account activity and promptly detect any suspicious or unauthorized transactions. The real-time monitoring of transactions empowers customers to take swift action in the event of a potential security breach. Whether it's reporting a lost card, disputing a fraudulent charge, or keeping tabs on expenditures, the transparency provided by real-time notifications fosters a sense of control and security.

Lower Risk of Card Skimming

- Traditional payment methods like swiping a card through a magnetic stripe reader are vulnerable to card skimming, a technique used by thieves to capture card information for unauthorized transactions. Contactless payments significantly mitigate this risk, relying on encrypted communication and dynamic authentication methods. With contactless transactions, the card never leaves the customer's possession and does not use a swipe device, making it challenging for criminals to employ skimming tactics. Additionally, the dynamic nature of the transaction data means that even if someone reads the card NFC maliciously, it would be useless for any unauthorized transactions.

Encrypted Communications and Secure Protocols

- Contactless payments leverage encrypted communication and adhere to secure protocols, making it difficult for hackers to intercept and manipulate the transaction data. The communication between the payment device and the terminal occurs over very short distances and features protected encryption, ensuring the confidentiality and integrity of the transmitted information. This security scheme is validated in the **EMV Level 1, 2, 3 certification process**. The secure protocols employed in contactless payments continually evolve to address emerging threats. Financial institutions and technology providers invest in research and development to stay ahead of potential vulnerabilities, implementing updates and patches to enhance the overall security of the contactless payment system.



What is the Advantage of “Tap to Pay” Adoption for a Retailer?



80%

of contactless payment users report having used a contactless method for a purchase they would have made with cash in the past.

Embracing contactless payments globally has created a pivotal shift in how consumers interact with the financial world. Beyond convenience, the safety features embedded in contactless transactions make them a compelling choice for customers. From minimizing physical contact to employing advanced security measures, contactless payments align with the evolving expectations of safety-conscious customers. As technology continues to advance, the future of payments is undoubtedly touchless, offering a seamless and secure financial experience for individuals around the globe.

Surveys of consumers indicate a heightened engagement pattern when using Tap To Pay. More than four in five (82%) cardholders who have been issued a contactless card have used it at the point of sale. What’s more, consumers who receive a contactless card actively shift spending onto it. One in three consumers say that being issued a contactless card has resulted in that card being used more frequently than their non-contactless cards. For Gen Z, that figure rises to 51%, demonstrating a clear top-of-wallet impact. According to Visa, for US debit users, contactless is resulting in two additional transactions per card per month. For retailers, this equates to a tangible lift in revenue fees.

It should be noted that Eighty percent of contactless payment users report having used a contactless method for a purchase they would have made with cash in the past, with 55% doing so three or more times in the past month. For issuers, that means new interchange revenue streams in categories historically underpenetrated by cards, such as quick-service restaurants, convenience stores and transit.

In addition to user adoption advantages, typically the devices using SoftPOS are much less expensive than traditional payment hardware. The acquisition fees are minimal and the transaction fees are much lower. This makes customer use of the Tap To Pay on an NFC enabled POS terminal or Kiosk much less costly for the retailer and that goes directly to the bottom line.

How to Choose Tap-to-Pay Hardware Technology

NFC or Near Field Communications uses high frequency radio signals to read the payment card or device at the checkout instead of swiping or inserting a card. Traditionally the NFC reader was part of a standalone payment terminal that connected to the POS system. The external payment device at the POS counter or on a kiosk has been the normal methodology for many years. With contactless payment demand growing, the manufacturers of these traditional devices have simply added an NFC reader to their chassis allowing swipe, dip and tap.

These devices are generally bulky, expensive and costly to support. In addition, external readers use cables that wear out, brackets that loosen, and USB ports that break. Most of these multi-use payment devices are challenging for the consumer as they lack clear visual cues for card/ phone placement to achieve successful contactless transactions.







A Better Way

As Tap to Pay demand increased, innovative retailers began asking: **"Why not integrate an NFC reader into the POS or kiosk and eliminate the separate payment device?"** This challenge has been addressed in several ways by different POS suppliers. Some have created a peripheral device that attaches to an existing POS chassis…this is generally bulky and not aesthetically pleasing. Others have integrated a reader into the POS plastic chassis but this approach does not guide the consumer to proper swipe location making the functionality more difficult to utilize.

The ideal way to add NFC, is to integrate the reader/antenna **BEHIND the glass of a terminal/ kiosk LCD**. This method utilizes the POS/Kiosk screen to display contactless payment icon directly at the right location to ensure quick and accurate read of payment data.







Behind-Glass NFC is Complex Development

Signal Penetration

Glass is non-conductive, meaning the 13.56 MHz radio frequency (RF) magnetic field of NFC passes through it cleanly. NFC tags can be successfully read through glass up to about 6mm thick, making under-glass or behind-glass integration entirely feasible for POS and Kiosk applications. But this assumes the system integrator has properly implemented the NFC reader and antenna solution.

Read Range Limits

Standard glass thickness reduces the NFC operational read range slightly, requiring the supplier to invest in specialized antenna structures and advanced tuning of the system. Keeping antennas or tags away from metal frames, rear chassis shields, or other internal interference is crucial to successful functionality and EMV 1 certification.

NFC Behind Glass Integration

Manufacturers like MicroTouch embed NFC antennas directly behind display glass for clean, bezel-free POS payment and interactive kiosks. These solutions are then validated with official EMVCo labs to achieve certification. The advanced design, implementation and certification of behind the glass is a costly investment.

Behind the Glass Benefits Summary:

- Lower cost of acquisition as POS and Kiosk suppliers can add NFC for a fraction of the cost to add an external payment device.
- Zero-Clutter on the counter or side of Kiosk
- Ease of use: Tap icon shows consumer where to place card or phone
- Fewer Points of Failure: Embedding the sensor behind the glass creates a completely sealed, tamper-proof design and no external cables.
- Sanitizing: Hospital, retail, and food-service deployments require regular disinfecting wipe-downs of equipment. Tap to Pay behind glass requires no contact by human hands eliminating a potential health risk.



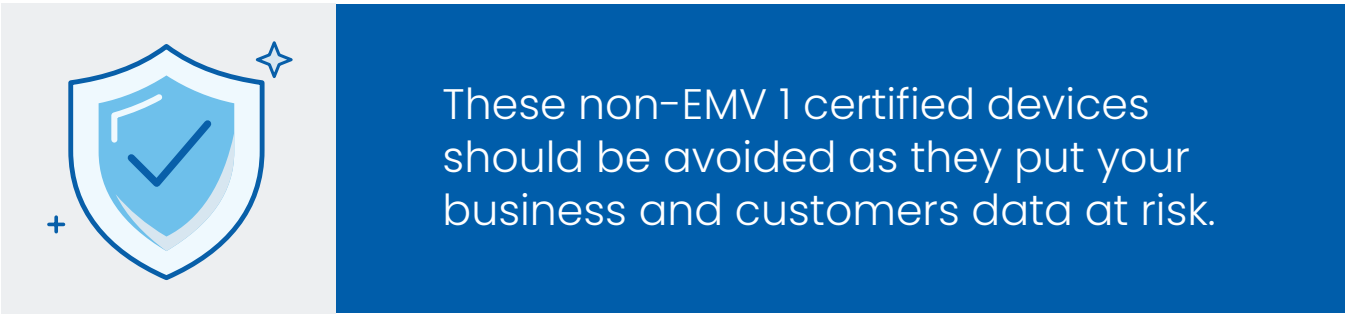


What You Need to Know About EMV Payment Certification

EMV stands for Europay, Mastercard, and Visa, representing the global standard for secure payment cards that use embedded computer chips. EMV cards are smart cards, also called chip cards, with integrated circuits, which store their data. Instead of a static magnetic stripe, EMV cards use a small microchip that generates a unique, dynamic transaction code for every purchase, making them very difficult to counterfeit.

EMV Level 1 (L1) specifications—managed by EMVCo—are technical hardware standards governing the physical, electrical, and radio frequency communication interface between a payment card or mobile device and a payment terminal reader. They are industry interoperability guidelines, not government laws but (L1) certification is vital. It is the mandatory foundational step ensuring a payment terminal's hardware and physical interfaces safely exchange power and data with chip cards or mobile devices.

Without L1 approval, a device cannot legally or safely process secure card-present transactions and credit/debit card providers will not be able to ensure consumer card data is secure. Readers should note that many market suppliers of POS and Kiosk devices with integrated NFC have ignored the requirements for EMV 1 certification.



Why EMV Level 1 Matters

- **Hardware Safety**
  Tests electrical circuits, signal timing, and power levels so the device does not damage cards or malfunction.
- **Protocol Compliance**
  Ensures adherence to ISO/IEC 7816 for contact and ISO/IEC 14443 for contactless communication.
- **Global Interoperability**
  Guarantees physical compatibility with contact (insert) and contactless (NFC) cards from major networks like Visa and Mastercard.
- **Prerequisite for L2 and L3**
  A device must pass Level 1 hardware tests before it can proceed to software kernel (Level 2) and network integration (Level 3) certifications which are REQUIRED for payment terminals and SoftPOS applications on a terminal.
- **Commercial Compliance**
  Payment networks and acquiring banks strictly require an official EMVCo Letter of Approval for L1 hardware before

As previously noted, adding NFC for Tap-To-Pay discretely behind the glass on terminals and Kiosk is not a trivial development effort. It is costly and time-consuming to properly integrate the reader/antenna system and ensure it meets EMVCo standards. To ensure the NFC Payment terminal and SoftPOS solution you are purchasing is properly certified, consult the EMVCo website or have the supplier provide you with a copy of the certification.



How Does an “NFC Solution” Integrate with POS Software

As in most “solution” environments, hardware with NFC requires a software element to enable the functionality. Traditional external payment devices are self-contained payment hardware and software which should have L1, L2 and L3 certifications for secure payment. These costly external terminals are connected to the POS via USB or serial cables and require OS drivers, whether Android or Windows, to facilitate communication. In addition, some form of POS to Payment integration is also required to enable the payment transaction interlock between POS and payment device.

For a POS system or Kiosk with integrated NFC reader, there are no external devices or cables required aside from the normal POS LAN network connection. The customer’s POS application still captures customer transactions and handle all typical POS functions. Upon getting a tender command the POS application sends payment request to the SoftPOS application. There is an integration required but it is directly to a Payment application that resides on the POS terminal/Kiosk known as SoftPOS. This EMV L2/L3 certified application runs in conjunction with the POS system which is communicating to the EMV 1 certified NFC reader.

The customer is then prompted to tap a payment card or device on the screen where an NFC icon is displayed. The SoftPOS application, which must be L2 and L3 certified, then encrypts card data and sends to a Gateway for connection with merchants and Acquirer (payment processor). Results are quickly returned to SoftPOS app. which then updates POS application.



In this scenario where the POS or Kiosk is now also the payment terminal, SoftPOS is a requirement and financial intuitions as well as dedicated SoftPOS providers make these specialized payment applications available to Retailers. Generally speaking, SoftPOS cost and fees are much lower than typical Payment device fees and have little or no acquisition cost..

Frequently Asked Questions about SoftPOS

1. Does SoftPOS meet PCI CPoC and SPoC Standards?

The quick answer is yes, but PCI didn't stop there. While the first SoftPOS solutions were launched before controls, the Payment Card Industry Security Standards Council (PCI SSC) stepped in to establish controls to keep payment data safe. PCI offers published details on SPoC, CPoC, and MPoC which work together to protect data.

2. Does SoftPOS isolate payment data from Other Apps on the Device?

Yes. PCI standards require that SoftPOS solutions use techniques like sandboxing, trusted execution environments (TEE), and application hardening to keep payment data separate and secure.

3. How does SoftPOS manage transactions securely?

SoftPOS transactions run on the same payment rails as EMV and are validated similarly with a one-time key generated for the transaction. This system puts protections in place, so if the system doesn't recognize the person trying to pay or has information that the account is invalid, it doesn't allow the transaction to go through.

4. How secure is a MACH Android device for accepting card payments?

MACH w/NFC devices are designed for data protection. Payment data is tokenized and encrypted to keep all readable data from hackers or cybercriminals.

5. Does SoftPOS ever store card data on the device?

No. This is one of the system's greatest advantages. SoftPOS uses encryption and tokenization to ensure no readable card data is ever on the device. Furthermore, data is managed by the SoftPOS solution, not the device itself.

6. What security responsibilities stay with the merchant?

Responsibility for the protection of payment data is shared between the SoftPOS provider and the merchant. Merchants bear the responsibility of ensuring devices are configured for access control and that strong user authentication protocols, such as two-factor or multi-factor authentication, are non-negotiable. The SoftPOS provider handles meeting PCI requirements and building security into workflows.

Selecting a SoftPOS Provider

- Choose a certified SoftPOS provider or merchant acquirer that supports Android contactless payments in your region. Your current provider may offer a SoftPOS solution that works agnostically with Behind the glass solutions.
- Ensure the SoftPOS provider works with Android device using Native Command Interface (NCI) for NFC reader. Note that Windows has no native payment commands but a few providers such as Felix offer Windows SDK for “Tap to Pay”.
- Ensure the SoftPOS provider can drive dynamic content to the display screen (ICON for Tap to pay symbol.)
- Ensure the SoftPOS provider has completed EMV 2 and EMV3 certification.
- Ensure the SoftPOS provider works with your choice of Acquirer/Processor
- Ensure the SoftPOS provider can supply the required SDK for your POS application and offers support for your developers

What if a Consumer Does Not Have an NFC Enabled Card/Device?

The distribution of NFC enabled cards and phones continues to expand and by 2030, should easily be above 95%. However, just like “credit only” lines were created years ago to avoid delays for checks and cash payments, a “Tap to Pay” line can be justified now to speed up the customer checkout experience. If the retailer has a single checkout location and must maintain a dip/swipe device, a smaller, lower cost unit can be deployed and only used when absolutely required to avoid the higher fees. If the retailer has multiple payment lines/ locations, external payment could be eliminated from all but one to facilitate dip and swipe transaction during these transitional years.



Summary

In today's age, consumers use contactless technology to pay for everything from food, public transit to luxury clothing. A contactless-enabled payment machine such as MACH POS or MACH Kiosk is all a business needs to accept contactless payments. When a POS transaction entry is tendered, the payment process begins. After a few seconds, the contactless symbol will appear, and the terminal will utilize SoftPOS to process the tokenized payment information and send it through to the right banks and card networks to process the transaction. And it's all extremely secure… "The bank decides, "This is one of my cards, and this is one of my clients' transactions.' It's a handshake between the point-of-sale terminal and the card issuer. All of this magic happens in literally 300 milliseconds."

Fast, simple, secure …but as discussed in this paper, there is a lot technology behind the scenes!

Join the contactless revolution today and allow your customers to pay quicker and with peace of mind their data is secure!



For more information and a list of EMV1 certified hardware, with NFC behind the glass, and SoftPOS providers contact MicroTouch Interactive.

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