

Marketing Guide For Camera-Phone Based Barcode Scanning

CTIA CODE SCAN ACTION TEAM
VERSION 1.0

Table of Contents

| | | |
|-----|--|----|
| 1. | Introducing a High-Engagement Marketing Tool for Traditional Media | 3 |
| 2. | Overview | 4 |
| 3. | Case Studies | 6 |
| 4. | Setting Up a New Campaign | 8 |
| 5. | Service Mark Overview and Usage | 15 |
| 6. | About CTIA Code Scan Action Team | 16 |
| 7. | Definitions | 17 |
| 8. | Version Control | 18 |
| 9. | Acknowledgement | 18 |
| 10. | Endnotes | 18 |

1. Introducing a High-Engagement Marketing Tool for Traditional Media

Two-dimensional (2D) barcodes are transforming traditional and electronic media into high engagement vehicles for brands and consumers. How, you ask? It's as simple as snapping a picture.



¹To illustrate, imagine an advertisement in a popular consumer magazine. In addition to the usual graphic design and copy, a 2D barcode is included with directions to “scan me” using a mobile phone. Within seconds of scanning the code, the consumer is taken to a mobile website where he can view a demo of the product, order a sample, find a local retailer, or take other actions. Alternatively, scanned 2D barcodes can automatically initiate a text message or phone call to facilitate further communication. Some advanced handsets will even

support the launch of a MMS text message, email, calendar or multimedia event.

This new “pull” marketing tool invites and enables consumer interaction while you have their attention. Users benefit from the convenient and timely interaction. Your brand benefits from having actionable and measurable engagements with consumers where there may have otherwise been limited or no interaction.

2D barcodes can be used virtually anywhere, including traditional print and product packaging, as well as the Internet and television. 2D codes can extend the impact and value of any campaign.

Like to learn more? The following high-level guide to 2D barcodes was created to help marketers, agencies, brands, and others (collectively referred to as Code Publishers in this guide) take advantage of this powerful new marketing tool.

The Guide specifically focuses on the following:

- What is 2D barcode scanning?
- How are Code Publishers using 2D barcodes?
- Best practices for 2D barcode campaigns.
- How to kick-off and manage 2D barcode campaigns.
- What is the service mark and how to use it?

2. Overview

Although there are various 2D barcode scanning initiatives worldwide, this marketing guide focuses on the US ecosystem as defined by an alliance of proactive carriers formed under the direction of CTIA - The Wireless Association®. Currently, the CTIA Code Scan Action Team (CCSAT) embraces an indirect barcode scanning method using the Data Matrix and EZ code formats.

2.1 How it Works

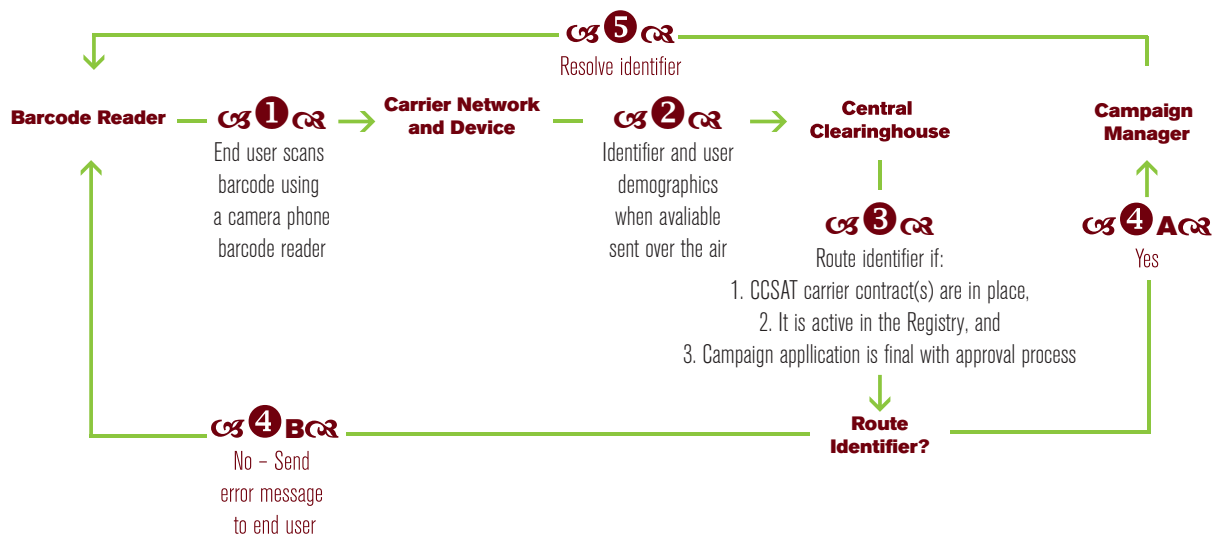


Figure 1: Resolving a 2D Barcode

The indirect method encodes an identifier, rather than the campaign content or service address, into a 2D barcode. Following the diagram above, this identifier is resolved in the following manner:

- **Step 1:** An end user employs his or her camera-phone barcode reader to scan a 2D barcode.
- **Step 2:** The request together with the decoded identifier is sent through the carrier network to a Central Clearing House.
- **Step 3:** The Clearing House then determines if the identifier meets the criteria to be routed.
- **Step 4a:** If the criteria are met the identifier is routed to the Campaign Manager.
- **Step 4b:** If the criteria aren't met an error message is sent to the end user.
- **Step 5:** In the final step the Campaign Manager resolves the destination address of the intended content or service on behalf of its customers (i.e. Code Publishers) and returns it to the barcode reader for action.

2.2 Features and Benefits

Camera-phone barcode scanning provides benefits to consumers and marketers alike. Here are some benefits of this technology:

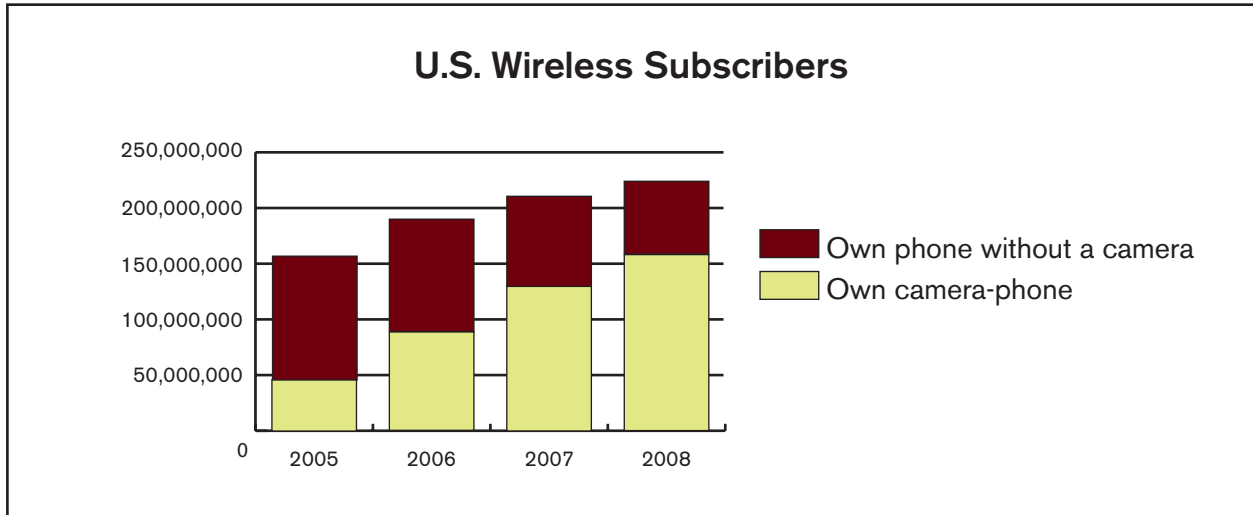
| FEATURES | CONSUMER BENEFITS |
|---------------------------------------|---|
| Media Becomes Actionable | 2D barcodes make traditional media (i.e. print, direct mail, product packaging and outdoor) actionable and measurable |
| Consumer On-Demand / User Pull | Consumers maintain control over when and where they associate with marketers. “User pull” (rather than marketer push) enables consumers to obtain more information about a product or service while the media has their attention. Users benefit from convenient and timely interaction |
| Ease of Use | Consumers are highly familiar with how to use a camera-phone. Additional steps to learn camera-phone barcode scanning should be manageable and will offer superior mobile data navigation capabilities. |

| FEATURES | MARKETER BENEFITS |
|------------------------------|---|
| Dynamic Content | Code Publishers can seamlessly refresh a campaign in response to dynamic market conditions or as part of an overall marketing plan. |
| Meaningful Engagement | Barcode scanning measures engagements which are more meaningful than measuring distribution. Consumers can have a richer experience by interacting directly with the Code Publisher. |
| Broad Reach | Code Publishers can reach the largest number of mobile users by working directly with Campaign Managers who have existing carrier relationships. This ensures a campaign is launched more quickly on a broad range of handsets and carriers. |
| Security and Trust | The code experience can dynamically be changed based on the Code Publisher’s needs. This offers more control and assurances for the marketer. 2D barcode content guidelines provide another layer of filtering that ensures the right messages get out. |

| FEATURES | TECHNOLOGY BENEFITS |
|---|--|
| More Campaign Options | Indirect codes offer more than just a single embedded experience allowing for greater campaign creation options. For example, “text-me-back” or “call-me-back” functionality. |
| Consumer Analytics and Reporting | Proving richer campaign data and results is best accomplished when a Clearing House is used. It allows marketers to clearly see where the scan is coming from as well as user demographics (on an opt-in and anonymous basis). Without a Clearing House it can be difficult to tie back reporting from both online and offline methods |
| Barcode Size | The indirect model encodes a reference to an experience rather than the full experience resulting in a smaller code. This is a benefit when dealing with space constraints on packaging. |

2.3 Coverage, Market Sizing and Addressability

As of October 2008, more than 70% of the 228,000,000 U.S. wireless subscribers own a camera-phone and sixty percent of them already take advantage of the camera features on their handset.² This well-equipped audience is ideal for driving early adoption of barcode scanning.



3

3. Case Studies

3.1 US Case Studies

Many US marketers are already realizing the benefits of 2D barcode scanning to improve their customer experience, drive traffic to their website and differentiate from the competition. Here are just a few examples of how companies are using this technology:

- **On-demand Information:**
 - CitySearch and Discovery Communications placed 2D barcodes in more than 500 San Francisco restaurants, stores, museums and public monuments to help make the city more navigable. By capturing a 2D barcode with a camera-phone, users could get audio tours of local landmarks, photos, restaurant reviews, menus and even maps.⁴
 - *Car and Driver Magazine* placed 420 2D barcodes in their annual Car Buyer's Guide with links to additional photos, reviews and specs for each car.⁵
- **Brand Loyalty Program:** *The Washington Post* created a customer loyalty program using 2D barcodes. Newspaper subscribers accumulated loyalty points when shopping at participating retail outlets by having their card scanned at the point of sale.⁶

Best Practice
Media and context placement is important
Make sure the media is mobile relevant. Media that users can spend time with has performed well (i.e. magazines, flyers).

Best Practice
Use a higher volume of codes
Place numerous codes within the same geographic area or publication. This gives a user many options to scan in one session and increase engagement.

- **Entertainment:**
 - QVC designed and managed a cross-channel marketing campaign which offered a daily sweepstakes. A single 2D code appeared on QVC banners, flyers and newspaper ads around the Case Western campus welcoming students to “Break It”. Each day when the code was scanned it would produce new content and invite users to enter the drawing.⁷
 - The 2008 DEFCON computer security conference included 2D codes on all of their conference badges. When the image was scanned it took the user to a cryptic image on the DEFCON website. The image was the first step in an online scavenger hunt. Users were still blogging about it and trying to solve the puzzle more than a month after the conference.⁸
- **Point of Sale Information:** Sears used 2D barcodes throughout a store to link shoppers to user reviews, technical specs and inventory information. By providing access to critical information at the customers’ fingertips Sears assisted with buying decisions while they were still in the store rather than at their home computer.⁹

Best Practice
Quickly communicate how to get started
 A small amount of education goes a long way.

3.2 Case Studies From Abroad

Use of mobile barcodes has been more prevalent in countries outside of the US with Asia leading the way. For example, 83% of the Japanese mobile phone owners already use 2D barcodes a little over three years after launch¹⁰. A carrier-sponsored study by IPSOS in August 2007 found that once a week scanning was most common and the heaviest percentages of users are young males (65%) and young females (48%). Although downloadable code scanning software is available in Japan, usage and penetration has increased quickly in relation to the number of handsets with preloaded software.

Below are a few examples of how this technology has been implemented overseas:

- **Interactive Game (JAPAN):** Northwest Airlines (NWA) ran a billboard campaign on the streets of Tokyo inviting users to participate in an interactive quiz via their camera-phone. Once they took a picture of the 2D code, users were taken to the NWA’s campaign mobile webpage to answer questions about international travel destinations. Since the quizzes focused on cities that NWA flies to, participants could search the NWA site and route maps to help them determine the correct answers. Winners collected prizes ranged from e-coupons for discounts on air tickets to bonus miles. In addition, NWA invited participants to submit their own poems about travel. These were voted on by other participants and the best poems won further prizes. This user-generated content drove even more traffic to the NWA site.¹¹
- **Attracting New Customers (UK):** Harrods department store featured 2D codes on a billboard outside the store and in a series of ads in London and national media, to publicize a new exhibit they were launching. The Design Icons exhibit featured fashion designer Vivienne Westwood and the architect of the new St Pancras International station. The campaign was attempting to target a new customer base of thought leaders and students.¹²

Best Practice
Scan needs to provide a value to the customer
 Additional functional, entertainment, or exclusive discounts/offers have worked well.

Best Practice
Integrate codes across marketing mix
 Mobile can assist with both products and promotion.

- **Enhanced User Experience (UK):** *The Sun* newspaper launched a mobile content service that enables users to scan their mobile phone over 2D barcodes on pages of the newspaper, which in turn uploads relevant information onto the device. The barcode on the front cover took users straight to the front page of *The Sun*'s mobile website, for example. There are also codes for the sports pages, horoscopes and even a barcode for an advertiser.¹³

4. Setting Up a New Campaign

This section provides a broad overview of how to set up a 2D barcode scanning campaign. Check with participating Campaign Managers for more details on their specific processes.

4.1 Work with a Campaign Manager

The Campaign Manager is the only necessary point of contact for Code Publishers into the CCSAT ecosystem. Other than the Code Publisher and/or Sales Agent, the Campaign Manager is the only entity that knows the target action of the code scan and associated destination address of the intended content or service. They offer a financial, technical, and user interface package for the Code Publishers. They may also provide additional services such as design and hosting 2D barcode campaigns on behalf of their clients.

Visit www.ctia.org/codescan to find interested Campaign Managers.

When evaluating which Campaign Manager(s) to work with consider the following:

- Strength of their carrier relationships
- Their right to use the CCSAT service mark (described below)
- Experience with mobile marketing, including applications development, hosting, and campaign design and measurement.
- Richness and features of customer service
- Business model variety and options
- Robustness and flexibility of reporting

4.2 Procure a Code

Code creation consists of establishing a connection between a visual 2D barcode and an experience the Code Publisher desires to make available to others. Some Code Publishers may choose to work directly with a Campaign Manager to enable codes, while others will choose to engage a third party—such as an ad agency or sales agent for this task. The business and usage agreements established between Code Publisher and Campaign Manager will define the code generation process.

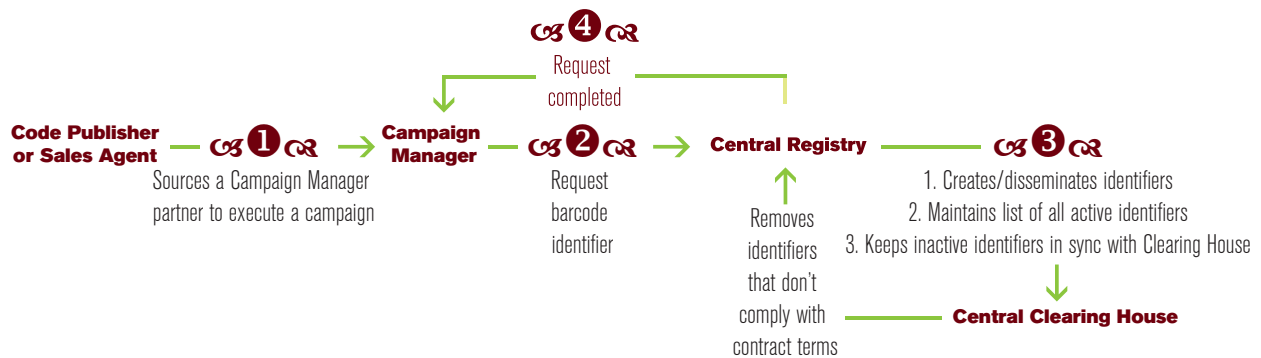


Figure 2: Procuring a 2D Barcode and Identifier

The above figure provides a typical way a Code Publisher procures a code.

- **Step 1:** A Code Publisher or Sales Agent partners with a Campaign Manager to create a 2D barcode and request an identifier for a campaign.
- **Step 2:** The Campaign Manager submits the request to the Central Registry responsible for creating and disseminating identifiers.
- **Step 3:** Once an identifier has been created by the Registry it is added to the Registry’s database of all active identifiers and kept in sync with the Central Clearing House database.
- **Step 4:** The identifier is then sent back to the Campaign Manager to be encoded into the barcode.

Note: The Clearing House serves an additional function in this process by updating the Registry if an identifier should be disabled due to non-compliance with CCSAT acceptable use guidelines or carrier contract terms.

4.3 Determine Terms of Use

A Code Publisher may need to declare to the Campaign Manager how the codes will be used. Codes used for commercial purposes will have a broad set of capabilities including the following:

- Delivery of diverse user experiences based on a variety of targeting factors including handset model, carrier network, or user demographics
- Reporting, including access to scan frequency and times, as well as some user demographics
- Varied business models as defined by the Campaign Managers and Code Publishers
- Access to a manageable set of formal or de facto barcode symbology standards for maximum economies

Codes may also be used for non-commercial purposes. These “personal usage” codes are a significant resource for driving near-term market penetration and broadening code scanning exposure. Marketers may consider integrating these into their marketing plan to help drive adoption. For example, offering free 2D barcodes that link users to their personal social networking page may help get customers excited about the technology. This approach is also an easy way to get the code reader loaded on their handset so they are primed when the Code Publisher’s campaign begins.

4.4 Integrating the Barcode into Creative

Once the code is created, getting and printing it is easy. Users work with the Campaign Manager to download and save the code to a local computer. Codes (i.e. Symbologies) are generally available in a range of common matrix or vector-based formats including GIF, JPG, and PNG.

Once the code is downloaded, the Code Publisher or its representative can incorporate it into multiple media types including:

- Print
- Electronic: Internet/Television
- Outdoor/Billboards
- Brand Packaging

Integrating 2D barcodes into creative media can be tricky. By following some simple guidelines on how to place a barcode into physical or electronic media Campaign Managers will greatly enhance the scanning success. Below are CCSAT barcode placement recommendations based on trials and vendor feedback.

4.4.1. Barcode Placement: Print Media

- **Size:** Physical codes should be at least an inch square. Any smaller and some low-end handsets may have trouble scanning at this time. Developments in handset camera optics may enable the deployment of smaller codes in the future. It is also important to ensure that the dimensions or shape of the code aren’t distorted. Note: Barcodes for product packaging will likely require smaller codes. Check with your Campaign Manager for more details.
- **Quiet Space:** There should be a “quiet space” surrounding the codes equal to or exceeding the size of two barcode matrix squares.
- **Image Type:** Use vector-oriented electronic images when publishing to preserve image quality no matter the ultimate size of the code.
- **Contrast:** Successful scanning depends on high contrast between code and background color. Although alternative color schemes are possible, black on white has proven most effective.

4.4.2. Barcode Placement: Electronic Media

- **Size:** Larger physical size can increase ease of scanning.

- **Glare and Shape Distortion:** Glare and shape distortion can affect success. Curvature of some screens may have a negative effect on some scans.

4.4.3. Barcode Placement: Outdoor Media/Billboards

- **Location:** Placement is important. Posters at transit stations and stickers on the ground, for example, offer great opportunities for commuters to get more information about a product or service while they are on the move. On the other hand, billboards positioned on highways are not good candidates for scanning for several reasons, including the potential danger of distraction.
- **Positioning:** Posting media on bus stops or at eye level on other outdoor venues provide a good user experience for a broad range of camera-phone users. By contrast, scans are unlikely to succeed at excessively tilted angles.
- **Size:** Large codes presented on the sides of buildings or billboards can be effective, but because most US handsets lack a zoom lens, they will likely work only if users scan the code from a predictable distance. For that reason, large outdoor displays intended to be scanned from a distance, though permitted, are discouraged at this point in US market development.



14

4.5. Essential Elements

4.5.1. Education

In the near future, Code Publishers should assume that potential users have not yet downloaded code scanning software to their handsets. Therefore, Code Publishers should educate users on how to download a code reader and scan the code each time a code is published. Over time this requirement will diminish, as consumers become more familiar with the technology.

When crafting usage instructions for inclusion on a campaign, Code Publishers should be aware that the barcode scanning user experience differs between handsets. Some handsets offer an auto scanning experience while others require the user to point and click. Launching the code reader from the Applications interface may be standard on some devices while it may be integrated directly into the camera on others. In addition, multiple code readers, each with a unique set of features and functionalities, may be loaded on a single device and the user needs to know which one to use for a specific code. Therefore, it is important for Code Publishers to keep this diverse landscape in mind when creating directions.

An example of concise user directions is shown below.



4.5.2. Use Cases

The following section is intended to provide a sampling of some of the things that can be done today with 2D barcode scanning.

- **Launch webpage from outdoor media:** Movie posters around the mall reveal a 2D barcode with a teaser to unlock the code by scanning the image. User scans the code and is taken to the mobile website for the movie. From here, he can play the game and then find a theater and movie times where it’s showing. He finds a theater close by then heads over to enjoy the show.
- **Pre-populate SMS from print:** A women’s publication offers 2D barcodes in the Style section allowing readers to vote on which celebrity looks better in a particular outfit. A user scans the code of the celebrity she likes best and a SMS message is automatically generated on her camera phone. This message is then sent by the user and her vote is cast for the best dressed.
- **Pre-populate phone number from electronic media:** A user is surfing the web on her home computer for a new restaurant. She finds a review with a 2D barcode included. She scans the code and the phone number of the restaurant is pre-populated on her phone. She hits “Send” and is immediately connected with the restaurant to make a reservation.
- **Brand packaging:** The packaging on a new over-the-counter pain reliever has a small 2D barcode that directs the user to learn more about the product. User scans the code with his camera-phone and is taken to a webpage with the latest information on the side effects of the product. He can now make an informed decision to purchase the product or not.

4.5.3. Refreshing a Campaign

The indirect method utilized by the CCSAT ecosystem provides Code Publishers the freedom to redirect creative to a new experience once the code has been produced. Simply work with a Campaign Manager to augment the user experience while retaining the same entry point.

4.6. Create Camera-Phone Experience

The CCSAT strives to enable a positive, consistent, predictable experience for the carrier's subscribers. Therefore, Code Publishers should take the following into consideration when creating the camera-phone experience.

4.6.1. What Happens When a Subscriber Scans a Code?

Although specific selections may vary, the following options are available and widely supported on US handsets:

- **Web Code:** Launch a WAP browser
- **SMS Code:** Pre-populate a SMS text message, ready to be sent
- **Phone Code:** Pre-populate a phone number, ready to be dialed

In addition, some advanced handsets will support advanced user experiences.

- **MMS Code:** Pre-populate a MMS message, ready to be sent
- **Email Code:** Pre-populate an email message, ready to be sent
- **Calendar Code:** Save a calendar event to a handset-based Calendar
- **Contact Code:** Present contact information and save it to the Address Book

Consult with a Campaign Manager for additional user experience decisions, like how long a code is active.

4.6.2. How To Design Creative for Display on a Camera-Phone

4.6.2.1. Determine Barcode Reader Distribution

Although code reader applications are accessible by tens of millions of subscribers with supported camera-phones, in the near term they must be downloaded by the subscriber. Therefore, Code Publishers need to determine how readers will be distributed as part of the campaign. For example, the creative could instruct a user to text a keyword to a short code in order to receive a link to download the reader.

4.6.2.2. Address Consumer Privacy and Pricing Concerns

Implementing strong consumer privacy standards helps ensure the success of mobile marketing by protecting mobile users from unwanted communications on their handsets. Marketers must work with their Campaign Managers to create campaigns that comply with the carrier's acceptable use and privacy policies before releasing it.

In addition, some consumers don't have data plans. Therefore, Publishers should be cognizant that front pages ought to be low file size and there should be advisories throughout an experience if video or other large data file will be downloaded. Marketers should work with their Campaign Manager to ensure that they comply with industry standards including the [MMA Consumer Best Practices Guidelines \(US\)](#) before implementing a campaign.

4.6.2.3. Ensure Appropriate Content

Some mobile content is classified as "Restricted Content" based on existing criteria used to rate movies, television shows, music and games. Restricted Content contains any of the following identifiers:

- Intense Profanity
- Intense violence
- Graphic depiction of sexual activity or sexual behaviors > Nudity
- Hate speech
- Graphic depiction of illegal drug use
- Any activities that are restricted by law to those 18 years of age and older, such as gambling and lotteries

As with any mobile program, restricted content must be accessible only to consumers age 18 years and older or to a consumer less than 18 years of age when specifically authorized by a parent or guardian. Code Publishers should work with their campaign managers to ensure appropriate compliance with these guidelines throughout the barcode scan process.

4.6.2.4. Understand Handset Capabilities

When designing a campaign Publishers need to be aware that not all handsets have the same capabilities. While all supported devices will be able to launch a WAP page and preload a SMS or phone number, only select handsets can send a MMS, email, or generate a calendar event. Code Publishers looking to offer one of the more advanced experiences should verify with their Campaign Managers what devices are supported.

4.7. Supported Code Symbologies, Vendors and Devices

CCSAT regularly evaluates new technologies and vendors with hopes of driving adoption for camera-phone barcode scanning. Here are the categories actively being addressed:

- **Symbologies:** Data Matrix and EZcode are the first symbologies to be supported in the CCSAT ecosystem. Please visit www.ctia.org/codescan to see the most up-to-date list of supported code symbologies.
- **Campaign Managers:** The set of Campaign Managers with access to the CCSAT will steadily expand as the market expands, diversifies, and matures. Visit www.ctia.org/codescan for a list of interested Campaign Managers.

- **Code Readers:** Code Publishers should work with the Campaign Manager to determine what readers will be supported for a campaign. Code readers are selected, tested and managed by carriers in order to ensure they work with the specific carrier handset offering. Therefore, reader types may vary by carrier.
- **Supported Devices:** To ensure a good user experience Code Publishers should work with the Campaign Manager to identify which handsets can support a campaign.

4.8. Managing a Campaign

The following information may be shared with Code Publishers when technically, ethically and legally possible. Code Publishers should work with their Campaign Manager to determine reporting availability.

- **Demographics:** Age, zip, gender and household income may be provided voluntarily and anonymously by customers.
- **Campaign Information:** Number of scans per campaign, number of unique user scans, date/time of scans, network of originating scans and handset make/model. This may vary by Campaign Manager.

5. Service Mark Overview and Usage

5.1. Service Mark Goals

The CCSAT will create a service mark that can be used by participating Campaign Managers to demonstrate that they are part of the CCSAT ecosystem and therefore readable by carrier-supported preinstalled and downloadable barcode readers. The service mark will be present both on the reader's user interface and on the barcode representation in order to help users know which codes they can successfully scan.

The CCSAT service mark is designed to build confidence in the mobile barcode scanning process and ecosystem by meeting the following goals:

- **Provide a predictable experience:** Drive confidence that a code scanning experience will be predictable and yield expected results. This confidence will result when Code Publishers use a carrier approved code reader and comply with the following CCSAT acceptable use policies:
 - CTIA Wireless Content Guidelines Classification Criteria <http://www.ctia.org/content/index.cfm/AID/10395>
 - MMA Global Code of Conduct <http://www.mmaglobal.com/codeofconduct.pdf>
 - MMA Consumer Best Practices <http://www.mmaglobal.com/bestpractices.pdf>
- **Reach a large audience:** The service mark indicates a level of ubiquity that allows users to expect scanning success. Participating Campaign Managers must have agreements with all Tier 1 carriers before they can use the service mark. Code Publishers can then reliably leverage these Campaign Manager's relationships to reach the greatest number of consumers.

- **User Education:** It is difficult for the average consumer to distinguish the various barcode types from one another. By adding a service mark CCSAT assists in user education by clarifying which codes a user can successfully scan. When the user sees the recognizable symbol on their handset's code reader and on the physical media's barcode their confidence of scanning success is bolstered. By increasing the frequency of scanning success and as a result, escalating consumer confidence, CCSAT hopes to drive adoption. Long term, as consumers become more familiar with barcode scanning this service mark may no longer be necessary.

5.2. How to Participate with the Service Mark

Code Publishers are encouraged to use the service mark as part of their campaigns by working with a Campaign Manager who has earned the right to offer the service mark.

6. About CTIA Code Scan Action Team

The CTIA Code Scan Action Team (CCSAT) is an alliance of proactive carriers formed in October 2007 under the direction of CTIA – The Wireless Association®. The team is working to identify the means to stimulate early adoption of camera-phone code scanning service with US consumers.

Although open standard definitions and underlying technology platforms for camera–phone code scanning are still evolving, the goal of the CCSAT group is to establish an early ecosystem that allows the market to grow as future code scanning symbologies, solutions and players emerge. Primary areas of focus for the team include symbology support, ecosystem definition, device application requirements, and market implementation plans.

If you would like to read more about the prior work of the CCSAT and the technology required to help start this market in the US please refer to the [CCSAT Code Scan White Paper](#) or visit <http://www.ctia.org/codescan>.

7. Definitions

1D Barcode – an optical machine-readable representation of data. It represents data in the widths (lines) and the spacings of parallel lines.

2D Barcode – contain more information than conventional one dimensional linear barcodes. Conventional barcodes get wider as more data is encoded. 2D barcodes make use of the vertical dimension to pack in more data. It represents data in patterns of squares, dots, hexagons and other geometric patterns within images.

Campaign – the term used for a 2D barcode scanning program that is offered to the subscriber. The term may refer to any program, content, or data service application that any entity chooses to provide through the process of obtaining and publishing a mobile barcode.

Campaign Content Server – hosts the target experience of a 2D barcode scan. This server may be owned and operated by a Campaign Manager, Sales Agent, Code Publisher/ Brand, or some other entity.

Campaign Manager – designs and hosts 2D barcode campaigns on behalf of its clients. Other than the Code Publisher and/or Sales Agent, the Campaign Manager is the only entity that knows the target action of the code scan and associated destination address of the intended content or service. In addition they offer a financial, technical, and user interface package for the Code Publishers. Outside of this paper, Campaign Management solutions may also be called “Campaign Aggregators”, “Code Distributors” or “Remote Code Management Platforms”.

Carrier/ Operator – the owner of the cellular network that facilitates the movement of 2D barcodes.

Carrier Subscribers – mobile subscribers from each carrier network.

Central Registry – the organization with authority to manage the creation

and dissemination of identifiers for use by Campaign Managers. Outside of this paper, the Central Registry may also be called “Code Registry Server” or “National/Regional Registry”.

Clearing House – the entity that receives an identifier from handset code reader software and sends it to the Campaign Manager assigned to manage that identifier. The Clearing House can also send the header, demographic, and scan data to Campaign Managers and acts as a scan data auditing site for carriers. Outside of this paper, the Clearing House may also be called “Home Code Management Platform” or “Gateway Server”.

Code Publisher – any entity choosing to use 2D barcodes to provide more convenient access to mobile data services and content. Outside of this paper, a Code Publisher may also be referred to as a “Brand”.

Code Reader – the application that scans the 2D barcode and decodes an identifier (data string) from the symbology. Outside of this paper, this application may also be referred to as “handset application” or “handset client”.

Data Matrix Code – a 2D matrix symbology which is made up of nominally square modules arranged within a perimeter finder pattern. Data Matrix is covered by an ISO standard, ISO/IEC16022—International Symbology Specification. 16Direct Access Model – describes the direct encoding of campaign content or service address (e.g. an URL) into a 2D barcode. In this model, the code reader application will decode and execute the service request without assistance from the network. It then initiates access to the content or service. ¹⁶

EZ code – a 2D barcode designed to be captured by camera phones (VGA up to mega-pixel cameras). ¹⁷

Header – information sent from a

code reader application or the Clearing House, which includes the subscriber’s handset model, user provided (but anonymous) demographic information, and the carrier.

Identifier – an alphanumeric data string that is encoded into a 2D barcode. Each identifier, which may include a symbology type indicator, is assigned by the Central Registry to the Campaign Manager, who uses it to uniquely link to a destination address of campaign content or service. Indexing of identifiers with the specific Campaign Manager that registered them is kept in the Registry database and is shared with the Clearing House for routing of identifiers to the correct Campaign Manager.

Indirect Access Model – describes the encoding of an identifier, rather than the campaign content or service address, into a 2D barcode. In contrast to the Direct Model, the handset application sends the identifier to a Clearing House for authentication and routing to the appropriate Campaign Manager (‘partial de referencing’). Based on the identifier, the Campaign Manager resolves the destination address of the intended content or service on behalf of its customers (‘full de referencing’), which is returned to the handset application for action.

Sales Agent – sells 2D barcode campaigns to Code Publishers and works with Campaign Managers to enact the campaigns.

Service Mark – designed to let carrier subscribers know that a code is ‘Safe to Scan’, supported by the Carrier issued coder reader, and will result in an expected outcome.

Short Codes – wireless subscribers send text messages to short numeric codes to access a wide variety of mobile content. Common short codes are easy to remember and they are compatible across all participating carriers. CSCs are either five-digit or six-digit numbers.¹⁸

8. Version Control

The following table is updated periodically to reflect agreed upon changes,

| Version | Section Name | Date | Who | Description/Reason |
|---------|--------------|---------|------------------------------------|--------------------|
| 1.0 | All | 3/31/09 | CTIA Code Scan Action Team (CCSAT) | Final version |

9. Acknowledgement

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10. Endnotes

- 1 Scanbuy
- 2 M:Metrics: collected January 2009
- 3 M:Metrics: collected January 2009
- 4 CitySearch Case Studies: <http://scanbuy.com/global.na.php?page=solutions>
- 5 *Car and Driver* Case Studies: <http://scanbuy.com/global.na.php?page=solutions>
- 6 *Washington Post* Case Studies: <http://scanbuy.com/global.na.php?page=solutions>
- 7 QVC Case Study: Mobile Discovery
- 8 Defcon Case Study: <http://2d-code.co.uk/defcon-datamatrix-barcode/>
- 9 Sears Case Studies: <http://scanbuy.com/global.na.php?page=solutions>
- 10 Source: Video Research 2007
- 11 NWA Case Study: <http://communities-dominate.blogspot.com/brands/2008/05/engagement-mark.html>
- 12 Harrod's Case Study: <http://2d-code.co.uk/harrods-poster-qr-code/>
- 13 *The Sun* Case Study: <http://2d-code.co.uk/sun-newspaper-qr-code/>
- 14 Mobile Discovery
- 15 Data Matrix: http://www.iso.org/iso/iso_catalogue/catalogue_tc/catalogue_detail.htm?csnumber=44230
- 16 EZcode: Scanbuy
- 17 Short Code: <http://www.usshortcodes.com/>

Additional Resources:

- **CTIA Code Scan Action Team Camera-Phone Barcode Scanning White Paper:** http://files.ctia.org/pdf/Final_Code_Scan_White_Paper_Rev2.pdf
- **Mobile Web Best Practices:** <http://www.w3.org/TR/mobile-bp/>
 - Design principles and style guides for Mobile Web sites.
- **MMA Mobile Advertising Guidelines:** <http://www.mmaglobal.com/mobileadvertising.pdf>
 - Global formats, guidelines and best practices for implementing a mobile advertising initiative in a variety of mobile media channels, including Web, messaging, applications and videos.
- **MMA Consumer Best Practices:** <http://www.mmaglobal.com/bestpractices.pdf>