

1 WHAT IS IPSFRP?

The Interstate Photo System Facial Recognition Pilot (IPSFRP) accepts Facial Recognition Search (FRS) requests and returns a score-ranked list of candidates in the Search Results Biometric (SRB) response, much like the current latent fingerprint search capability. For each candidate in the SRB, the user may request additional photos, if available, from the IPSFRP repository.

To support the IPSFRP project, a repository of criminal facial images will be compiled from existing CJIS biometric repositories, currently the Interstate Identification Index (III). It is important to note that the IPSFRP system is not intended to handle enrollment of photos. Rather, photos will continue to be deposited into the III database as part of the normal ten-print booking process. The III database and the IPSFRP gallery will not be synchronized on a real-time or near real-time basis. Therefore, users should keep in mind that the IPSFRP gallery will generally lag behind the III database of photos by up to 72 hours.

Note: The candidate identities returned from an FRS in the resulting SRB response shall be considered potential candidate matches or investigative leads requiring further verification. Users should not rely solely on IPSFRP search responses as the impetus for any law enforcement action. Instead, search results serve as potential links between submitted images and true identities that must be independently verified.

2 WHO CAN USE IPSFRP?

Only authorized law enforcement agencies may use the IPSFRP search and image retrieval services via the Criminal Justice Information Services (CJIS) Wide Area Network (WAN), and only after the successful completion of a Memorandum of Understanding (MOU) with the CJIS Next Generation Identification Program Office (NGIPO). Agencies with existing Facial Recognition (FR) systems may wish to replicate internal face searches into a parallel search of IPSFRP and then augment the results from their FR system with the IPSFRP search results. Agencies without existing FR systems may employ the government off the shelf (GOTS) Universal Face Workstation (UFW) software to prepare and send face searches to IPSFRP via the CJIS WAN.

NGI is bound by many Federal Bureau of Investigation (FBI) CJIS Division security policies. The IPSFRP project must adhere to these same security policies. All participants in the IPSFRP project are expected to comply with all CJIS security policies related to the dissemination and use of CJIS data.

3 HOW DO I USE IPSFRP?

Upon completion of an agency bandwidth study by the CJIS Division, IPSFRP search requests can be submitted over the CJIS WAN as Multipurpose Internet Mail Extensions (MIME) encoded e-mail attachments via Simple Mail Transfer Protocol (SMTP). IPSFRP search requests should be routed in the same manner as latent fingerprint search requests - through the agency's

State Identification Bureau (SIB) or other authorized channeling agency. Responses to IPSFRP search requests will be routed back through the contributor's SIB or other authorized channeling agency, matching the route in which the search was submitted. It is expected that facial search results will be returned in under 15 minutes.

IPSFRP search requests may use an existing or a newly created Originating Agency Identifier (ORI). For reference, agencies typically use an existing ORI when IPSFRP transactions will be sent and received from an existing agency email server (a.k.a. relay server or store & forward server) currently in operation with CJIS, while a new ORI is typically employed if a separate IPSFRP mail server will be stood up to process IPSFRP transactions.

IPSFRP search requests must be sent to the following e-mail address:

[redacted] b7E

IPSFRP responses will be sent to an agency provided email address and server (e.g.

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[redacted] **Routing to this email address from IPSFRP is done via a table that associates the agency provided email address and server with the agency ORI used within the user requests (EBTS submissions).**

The [redacted] server IP address used for routing is sensitive and will be provided after an MOU for IPSFRP participation is completed and signed. [redacted]

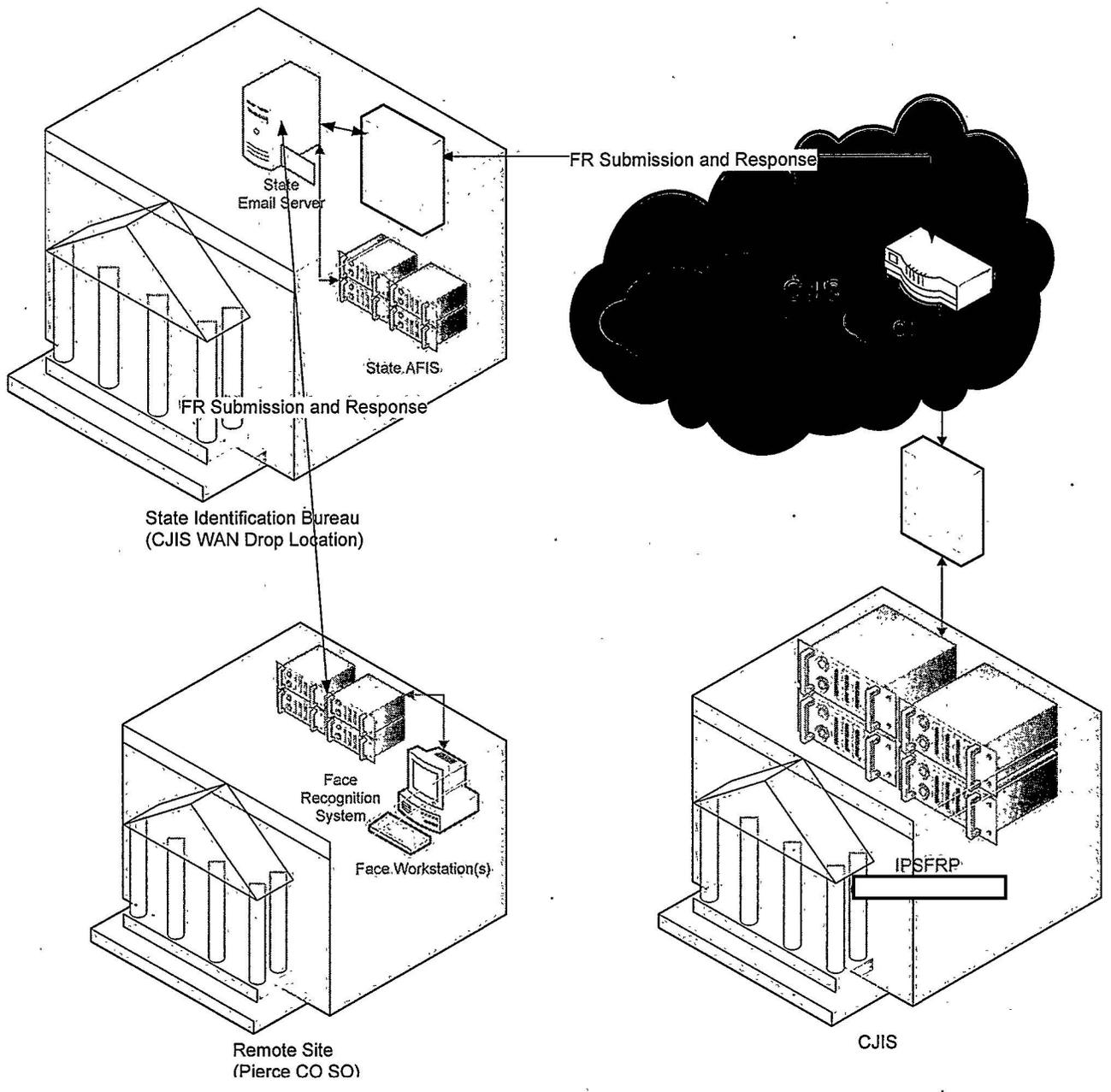
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[redacted]

Due to current capabilities of automated face recognition and the nature of the records stored within the CJIS facial image repository, **all search submissions to the IPSFRP system MUST include a single frontal photo of the search subject.**¹ Further, face images must be **compressed within the search transaction using JPEG (Joint Photographic Experts Group) encoding.** Otherwise, the submission will be rejected and an error message returned to the user.

See scenario for SIB pass-through connectivity

¹ Later versions may support multiple frontal images, angled images and profiles.



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Overview

- The Next Generation Identification (NGI) Interstate Photo System (IPS) is scheduled for full deployment during Increment 4 in 2014.
- As an early deployment of the facial recognition capability NGI began the Interstate Photo System Facial Recognition Pilot (IPSFRP) in December 2011.
- The pilot will allow authorized law enforcement agencies to submit probe images for a "lights out" facial recognition search of the FBI's national mug shot repository containing approximately 12 million images.
- Participating agencies will receive a ranked candidate list as an investigative lead.
- Initially the pilot will be limited to states or agencies currently utilizing an established facial recognition system.
- Late this summer, 2012, the FBI will release the Universal Face Workstation (UFW) software to States without established facial recognition systems yet, wanting to participate in the IPSFRP.
- The UFW is being developed unilaterally with the NGI facial recognition capability and will provide the necessary software to states without facial recognition systems to participate in the FBI face pilot and the full functionality of the IPS when deployed in 2014.
- The UFW software will be provided to State Law Enforcement agencies free of charge.

Status Update

- Since August of 2011, NGI has supported the FBI's Facial Analysis Comparison and Evaluation (FACE) team with manual facial recognition searches conducted through the IPSFRP repository. The FACE team provides direct facial recognition search support to the FBI Field Offices.
- Memorandums of Understanding (MOU)s have been executed with Michigan, Hawaii and Maryland to participate in the IPSFRP.
- The following States are currently in the MOU review process for IPSFRP participation, Pennsylvania, South Carolina, Ohio and Florida.
- States that are interested in IPSFRP participation through UFW software are Kansas, Arizona, New Mexico, Tennessee, Nebraska, Missouri and the US Border Patrol.
- NGI provided 24/7 facial recognition availability for Hawaii during the Asian Pacific Economic Cooperation (APEC) that included the President of the United States and 22 other leaders of the international community.
- In early February, Michigan successfully completed an end to end IPSFRP transaction and is currently submitting facial recognition searches.

The Ohio Bureau of Criminal Investigation (OHBCI) and the FBI CJIS Division have a long history of working together in biometric endeavors.

Pre NGI

In 2001, representatives from the OHBCI approached the FBI CJIS Division to discuss the possibility of using the FBI's IAFIS to conduct civil-applicant background checks on a national level using flat fingerprints instead of rolled fingerprints. The CJIS Division, in cooperation with the OHBCI, conducted a pilot to determine the feasibility of fielding a national, rapid, and positive fingerprint based identification background check system for authorized noncriminal justice purposes.

In 2004, as a result of the support and dedication provided by staff from the OHBCI, this study was successfully completed and approved by the APB and Compact Council.

Early NGI

In late 2007, the FBI CJIS Division began discussions with OHBCI staff to participate in the NGI CJIS RISC Pilot. Numerous on-site meetings and teleconferences were conducted with OHBCI staff and a MOU was signed for their participation.

In 2009, the OHBCI was the first agency to successfully begin submitting live transactions to the RISC pilot.

In 2010, OHBCI staff was selected to participate as a panel member speaker in the first annual NGI User Conference to share their Mobile ID experience and field questions due to their extensive knowledge and background.

Current NGI

In 2011, OHBCI staff agreed to become a partner with the FBI CJIS Division in an Operational Readiness Plan for Catastrophic Events. This plan will be enacted if an unexpected catastrophic event should occur (such as 9/11). OHBCI will provide Mobile ID resources to FBI CJIS in the event that deploying a support team to a disaster site becomes necessary.

In 2011, OHBCI staff was again selected to participate as a panel member speaker to share their Mobile ID experience and field questions.

In 2011, OHBCI provided mobile ID equipment for demonstration purposes at various presentations including the 2nd annual NGI User Conference.

In 2011, OHBCI staff hosted FBI CJIS and the DoD to share their experience with the development of their mobile ID system and provide an overview of the types of devices used, security of the data, response content, use case scenarios, and lessons learned. The DoD expressed their appreciation of the valuable information provided.

Future NGI



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The success of this partnership is primarily due to the communication with the established business Points of Contact (POC) at OHBCI, () and (). OHBCI staff have frequently offered assistance to new potential RISC users sharing their lessons learned and insight.

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Universal Facial Workstation Frequently Asked Questions

The Universal Face Workstation (UFW) software has been developed unilaterally with the facial recognition search function of the NGI Interstate Photo System initiative. The UFW software is being provided to law enforcement free of charge. UFW will provide law enforcement agencies without established facial recognition systems the ability to send, receive, and view facial recognition transactions and participate in the FBI's Interstate Photo System Facial Recognition Pilot (IPSFRP) and eventually Increment 4 full operating capability.

1. Please describe the Universal Facial Workstation (what it consists of)
UFW is software that allows users to make photo enhancements, submit probe images to the FBI for a facial recognition search and receive candidate list in return.
2. Is the FBI/CJIS providing the hardware and software or just the software?
Software
3. Is there any hardware, software, network or security requirement to participate in this Project?
The UFW software can be installed on multiple operating platforms but needs to access the CJIS WAN for submissions. The UFW meets criteria delineated in the CJIS Security Policy.
4. If the State is providing the technology, could the State be assigned more than one unit?
Upon release of the 1.0 version this summer, multiple copies of the UFW software can be delivered.
5. Would training be provided?
Yes
6. How soon the training will take place?
It can be conducted during delivery of the UFW software this summer.
7. Any limit number of State/agency staff to receive training?
No (within reason)
8. Would the FBI/CJIS provide the system support?
Yes, minor configuration will need performed on UFW and will be handled remotely from CJIS.
9. Would the State be able to access the entire database or be limited to just the mug shots we have submitted?
The State/local agency would have access to the IPSFRP repository which is approximately 12.5 million mug shots.
10. Would there be a Help Desk toll free number where to call to report problems and answer questions regarding the use of the unit(s)?
Several numbers will be provided for assistance but none are toll free.
11. Would the UFWs be using the existing connection (CJIS WAN) used by AFIS to connect with the FBI?
Yes
12. Would the FBI/CJIS staff be responsible for connecting the workstation(s) to the FBI?

FBI staff can install the UFW on site at the State/local agency if requested but it is preferred that State/local agency technical Staff perform the installation.

13. What are the requirements to participate in the project?

They are delineated in the IPSFRP MOU and Technical Specification documents.

14. For long the pilot project will last?

The IPSFRP will last until full operating capability (FOC) in 2014.

15. What is next after the pilot project?

FOC will include all enhancements (SMT text based searches, bulk submissions, easy searching of photos, access to special population files) to the NGI Interstate Photo System initiative.

16. After the pilot project is completed, is the State/local agency obligated to anything?

No, participation in the pilot and NGI FOC are on a volunteer bases. State/local agency will be asked to continue to provide success stories and statistical information (if an identity is made from a candidate list and what rank) upon transition from pilot to FOC. General feedback is always welcome.

17. How soon the FBI will be able to provide the workstation(s)?

The UFW 1.0 version is software and will be available this summer.

18. How soon the State/local agency would be able to use the workstation(s)?

The UFW 1.0 version is software and could be used shortly after installation and configuration.

19. Will the program be available to only State/local agency users or to local users too?

The software is for law enforcement agencies only and access should be determined by State/local agency

20. If available to local users, how would they access the information?

Depends on where the software is installed (at the CSA or Local Agency)

21. Can the program be placed on the State/local agency web portal?

No, the software was developed to be a standalone workstation.

North Carolina DMV

The North Carolina DMV/FBI initiative was a research project prior to the development of NGI's Facial Recognition Pilot. Evaluations were performed on candidate lists, ranking, enhancing photos, and business processes to develop the NGI Facial Recognition Pilot business line and examiner requirements.

With regard to the North Carolina Pilot, the FBI took active want/warrant photos from North Carolina and surrounding states and performed on site Facial Recognition searches of the North Carolina DMV Facial Recognition system.

The North Carolina DMV images were never ingested into any FBI database and there is no connectivity between the NGI Facial Recognition Pilot and any DMV database.

Search Accuracy

85 percent of the time the candidate will be returned in the top 50 when the true candidate exists in the gallery

For Informational Purposes Only:

The Facial Recognition Pilot does not make an identification it merely provides a candidate list for investigative purposes. Therefore **there is no false positive rate as a positive identification is never made.** Information derived from Facial Recognition Pilot search requests and resulting responses are to be used only as investigative leads. Though there are expected to be similarities between submitted images and candidate lists, results shall not be considered to be positive identifications nor considered to have active warrants. Although the emerging technology of facial recognition has made great strides over the years, facial recognition initiatives are not deemed to provide positive identifications and the **Parties are prohibited from relying solely on Facial Recognition Pilot search responses as the sole impetus for law enforcement action.** Other indicators and factors must be considered by the submitting agency prior to making identification.

Social Media Searches

Photos from social media **cannot** be submitted for retention purposes within the Facial Recognition Pilot Repository. Photos from social media can be submitted for search purposes against the national repository of criminal mug shot photos for criminal purposes from authorized criminal justice agencies.

Who Can Search

The Facial Recognition Pilot permits authorized law enforcement agencies to submit queries for a facial recognition search of the national repository of mug shots. The national repository can be queried by authorized criminal justice agencies for criminal justice purposes.

Reporting Post Processing

- Images submitted per FBI Field Office?
- How many images were rejected per FBI Field Office submission and why?
- How many potential matches were returned in the candidate lists?
 - What were their ranks and scores?
- Did the requesting agencies make a positive identification on the subject?
- Were the subjects charged?
 - If so, what was the crime?
- How many candidate lists did not produce any relevant potential matches?

IPSFRP Submission Criteria

Ad hoc settings are conditions in which neither the environment nor the subject can be controlled (e.g., surveillance, cell phones, and third party imagery). **Ad hoc acquisition** is subject to high variations in quality and content, and typically requires human review and specialized tools to identify and extract usable facial content. When selecting third-party images, please provide clearly visible faces.

Consideration should be given to capture resolution. Pictures with fewer than 40-60 pixels between the eyes are unlikely to produce usable results in automated systems and will be rejected by the system.

Please share the following guidelines with your staff to ensure our processes are as efficient as possible.

- DVDs can be dropped off to the following ITU POCs for logging.
 - [redacted] – Primary Contact - x [redacted]
 - [redacted] – Alternate - x [redacted]
 - [redacted] – Alternate - x [redacted]
 - [redacted] – Alternate - x [redacted]

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Per the EC agreement between the NGIPO and BSS please ensure the FACE team is adhering to the following;

(1) submit no more than one frontal facial photo (Electronic Biometric Transmission Specification - American National Standards Institute [EBTS - ANSI] compliant) per IPSFRP search via the CJIS WAN or other FBI approved secure web services.

(2) Request a specified number (**minimum of 2, default of 20, maximum of 50**) of returned candidates.

(3) Conduct a search of the Interstate Identification Index to ensure information derived from the IPSFRP candidate lists are up-to-date.

(4) Disseminate FBI responses to authorized criminal justice recipients as an investigative lead.

(5) Provide the CJIS Division with post processing results, such as: agency identified a subject from the candidate list and what rank, search results in an investigative lead, and search was of no value.

(6) Designate a POC for issues and concerns related to this initiative.

In addition,

- Please provide an additional blank DVD when dropping off probe request for the candidate list response.
- DVDs must be virus scanned and have appropriate classification stickers.
- Images must be Unclassified only.
- DVDs must have the name of the field office and case numbers.
- The IPSFRP will only support the JPEG compression algorithm NOT (Bitmap/GIF/PDF/MPEG/etc.)
- Images must be full front facial. DO NOT submit profile images.
- Both eyes must be visible and as close to horizontal as possible.
- Submission must be investigative in nature where the image is of an unknown subject.

Pertaining to EC criteria #1, BSS is responsible for completing photo enhancements, if needed, and choosing ONE image that will have the highest success rate. NGIPO is relying on the FACE teams training and expertise to make this decision.

Description and Disclaimer

Information derived from FBI Interstate Photo System Facial Recognition Pilot (IPSFRP) search requests and resulting responses are to be used only as investigative leads.

Though there are expected to be similarities between submitted images and candidate lists, results shall not be considered to be positive identifications nor considered to have active warrants.

Although the emerging technology of facial recognition has made great strides over the years, facial recognition initiatives are not deemed to provide positive identifications and the Parties are prohibited from relying solely on IPSFRP search responses as the sole impetus for law enforcement action. Other indicators and factors must be considered by the submitting agency prior to making identification.

The following information was derived from the FBI's Facial Recognition system and is to be used as an **INVESTIGATIVE** lead. Though there are similarities between your submitted image and the candidate list, results should **NOT** be considered a positive identification.

Facial Recognition **does NOT provide** a positive identification and your agency shall not make arrests solely on the Facial Recognition response. Other indicators and factors **must** be investigated **by your agency** prior to making the final determination of the subject's true identity.

HOW TO CAPTURE HIGH QUALITY FACE IMAGES

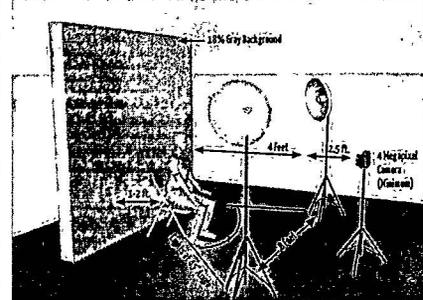
FRONTAL IMAGES



Good	Yaw	Roll	Pitch
<ul style="list-style-type: none"> ✓ The subject faces and looks straight at the camera. ✓ Camera is positioned level with the subject's eyes. 	<ul style="list-style-type: none"> ✗ Check for symmetric visibility of subject's nose, ears, and jaw line. 	<ul style="list-style-type: none"> ✗ Check that the eyes are level horizontally. 	<ul style="list-style-type: none"> ✗ Check that neither the chin nor forehead are tilted forward.

Always take at least one frontal with no observable angles

IDEAL ENVIRONMENT



Use Appropriate Equipment

- Use a DSLR (Digital single-lens reflex) camera or a point and shoot with manual exposure override features.
- Use a camera with four megapixels or higher effective image resolution.
- Ensure the focal length, shutter speed, and ISO are appropriate for the photographic environment – always look at the resulting images!

ILLUMINATION



Good	Harsh Light	Uneven Light	Interference
<ul style="list-style-type: none"> ✓ Provide even illumination and a plain, neutral gray background. 	<ul style="list-style-type: none"> ✗ Avoid harsh lights that cause hotspots and saturation. 	<ul style="list-style-type: none"> ✗ Avoid uneven lighting that causes dark shadows. 	<ul style="list-style-type: none"> ✗ Avoid blur, glare, reflections, and interference from back-light.

Ensure proper illumination and correct exposure



INCLUDE PROFILES, ANGLES, AND SCARS, MARKS, & TATTOOS. SUBJECTS WITH GLASSES SHOULD HAVE ONE IMAGE WITH AND WITHOUT GLASSES.

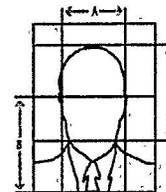
COMPOSITION



Neutral Face	No Smiling	No Faces
<ul style="list-style-type: none"> ✓ Ensure that the subject presents a neutral expression with mouth closed. 	<ul style="list-style-type: none"> ✗ Avoid smiles. 	<ul style="list-style-type: none"> ✗ Avoid extreme expressions.

Ensure correct composition and neutral expression

COMPOSITION GRID



Face width (A) and height (C) should each be about 50-60% of the height and width of the photo image.

Eyes should be about 50-70% of the distance from the bottom of the image (B).

FOR ADDITIONAL INFORMATION ON RECOMMENDED PRACTICES FOR FACE IMAGES, REFER TO THE LATEST VERSION OF THE ANSI/ITL DATA FORMAT FOR THE INTERCHANGE OF FINGERPRINT, FACIAL, AND OTHER BIOMETRIC INFORMATION.