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§	(...)	Clause title	Requirement	CSP	63B tag	index	KI_criterion (*text in red* is new this version)		2	
4		Authenticator Assurance Levels	To satisfy the requirements of a given AAL, a claimant SHALL be authenticated with at least a given level of strength to be recognized as a subscriber.	✔	63B#0010		*The CSP SHALL authenticate a Claimant at at least the ~~same requested~~ AAL .*		✔	In Scope Applicable
4		Authenticator Assurance Levels	The result of an authentication process is an identifier that SHALL be used each time that subscriber	✔	63B#0020		*The CSP SHALL ensure that, for a given Subject and authenticator, the result of a successful authentication results in a consistent identifier.*		✔	In Scope Applicable
4.2		Authenticator Assurance Level 2								
4.2 (AAL2)		Authenticator Assurance Level 2	Proof of possession and control of two distinct authentication factors is required through secure authentication protocol(s).	✔	63B#0040		*The CSP SHALL use secure authentication protocol(s) to prove that the Claimant has both possession and control over two distinct authentication factors.*		✔	In Scope Applicable
4.2.1 (AAL2)		Permitted Authenticator Types	At AAL2, authentication SHALL occur by the use of either a multi-factor authenticator or a combination of two single-factor authenticators	✔	63B#0050		*The CSP SHALL perform authentication using EITHER a multi-factor authenticator OR a combination of two single-factor authenticators.*		✔	In Scope Applicable
4.2.1 (AAL2)		Permitted Authenticator Types	When a multi-factor authenticator is used, any of the following MAY be used:	✔	63B#0060		*When a multi-factor authenticator is used,the CSP SHALL employ any one of the following:*		✔	In Scope Applicable
4.2.1 (AAL2)		Permitted Authenticator Types	· Multi-Factor OTP Device (Section 5.1.5)	✔	63B#0060	a)	*Multi-Factor OTP Device;*		✔	In Scope Applicable
4.2.1 (AAL2)		Permitted Authenticator Types	· Multi-Factor Cryptographic Software (Section 5.1.8)	✔	63B#0060	b)	*Multi-Factor Cryptographic Software;*		✔	In Scope Applicable
4.2.1 (AAL2)		Permitted Authenticator Types	· Multi-Factor Cryptographic Device (Section 5.1.9)	✔	63B#0060	c)	*Multi-Factor Cryptographic Device.*		✔	In Scope Applicable

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4.2.1 (AAL2)		Permitted Authenticator Types	When a combination of two single-factor authenticators is used, it SHALL include a Memorized Secret authenticator (Section 5.1.1) and one possession-based (i.e., "something you have") authenticator from the following list:	✓	63B#0070		When a combination of two single-factor authenticators is used, the CSP SHALL employ a Memorized Secret authenticator plus one of the following possession-based authenticators:		✔	In Scope Applicable
4.2.1 (AAL2)		Permitted Authenticator Types	· Look-Up Secret (Section 5.1.2)	✓	63B#0070	a)	Look-Up Secret;		✔	In Scope Applicable
4.2.1 (AAL2)		Permitted Authenticator Types	· Out-of-Band Device (Section 5.1.3)	✓	63B#0070	b)	Out-of-Band Device;		✔	In Scope Applicable
4.2.1 (AAL2)		Permitted Authenticator Types	· Single-Factor OTP Device (Section 5.1.4)	✓	63B#0070	c)	Single-Factor OTP Device;		✔	In Scope Applicable
4.2.1 (AAL2)		Permitted Authenticator Types	· Single-Factor Cryptographic Software (Section 5.1.6)	✓	63B#0070	d)	Single-Factor Cryptographic Software;		✔	In Scope Applicable
4.2.1 (AAL2)		Permitted Authenticator Types	· Single-Factor Cryptographic Device (Section 5.1.7)	✓	63B#0070	e)	Single-Factor Cryptographic Device.		✔	In Scope Applicable
4.2.2 (AAL2)		Authenticator and Verifier Requirements	Cryptographic authenticators used at AAL2 SHALL use approved cryptography	✓	63B#0080		The CSP SHALL ensure that all cryptographic authenticators employ cryptographic techniques approved by a Federal or industry body.		✔	In Scope Applicable
4.2.2 (AAL2)		Authenticator and Verifier Requirements	At least one authenticator used at AAL2 SHALL be replay resistant as described in Section 5.2.8.	✓	63B#0100		The CSP SHALL ensure that at least one authenticator used is replay resistant.		✔	In Scope Applicable

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4.2.2 (AAL2)		Authenticator and Verifier Requirements	Communication between the claimant and verifier (the primary channel in the case of an out-of-band authenticator) SHALL be via an authenticated protected channel to provide confidentiality of the authenticator output and resistance to MitM attacks.	✓	63B#0110		The CSP SHALL use only mutually-authenticated protected channels when communicating with Claimants		✔	In Scope Applicable
4.2.2 (AAL2)		Authenticator and Verifier Requirements	When a device such a smartphone [sic] is used in the authentication process, the unlocking of that device (typically done using a PIN or biometric) SHALL NOT be considered one of the authentication factors.	✓	63B#0130		The CSP SHALL NOT consider the unlocking of a device used in the authentication process to be an authentication factor.		✔	In Scope Applicable
4.2.2 (AAL2)		Authenticator and Verifier Requirements	When a biometric factor is used in authentication at AAL2, the performance requirements stated in Section 5.2.3 SHALL be met, …	✓	63B#0140		If a biometric factor is used in an authentication the CSP SHALL ensure that all criteria 63B#1470 to 63B#1550 are fulfilled.		✔	In Scope Applicable
4.2.4 (AAL2)		Security Controls	The CSP SHALL employ appropriately-tailored security controls from the *moderate* baseline of security controls defined in SP 800-53 or equivalent federal (e.g., FEDRAMP) or industry standard.	✓	63B#0160		The CSP SHALL employ appropriately-tailored moderate baseline security controls, as defined in SP 800-53 or equivalent Federal or industry standards.		✔	In Scope Applicable
4.2.4 (AAL2)		Security Controls	The CSP SHALL ensure that the minimum assurance-related controls for moderate-impact systems or equivalent are satisfied.	✓	63B#0170		*When fulfilling criterion 63A#0210 the CSP SHALL ensure that minimum assurance-related control needs for moderate-impact systems or equivalent are satisfied.*		✔	In Scope Applicable

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4.2.5 (AAL2)		Records Retention Policy	The CSP shall comply with its respective records retention policies in accordance with applicable laws, regulations, and policies, including any NARA records retention schedules that may apply.	✓	63B#0180		*The CSP SHALL document, periodically review and comply with, a data retention schedule, accounting for:*		✔	In Scope Applicable
4.2.5 (AAL2)				✓	63B#0180	a)	*results of a privacy and security risk assessment;*		✔	In Scope Applicable
4.2.5 (AAL2)				✓	63B#0180	b)	*applicable laws, regulations, policies, and specific record retention schedules;*		✔	In Scope Applicable
4.2.5 (AAL2)				✓	63B#0180	c)	*its own records retention policy.*		✔	In Scope Applicable
4.2.5 (AAL2)		Records Retention Policy	…. SHALL inform the subscriber of ~~that~~ its retention policy.	✓	63B#0190		*The CSP SHALL publish to Subjects its data retention schedule, to the extent appropriate to the context.*		✔	In Scope Applicable
4,4		Privacy Requirements	The CSP SHALL employ appropriately-tailored privacy controls defined in SP 800-53 or equivalent industry standard.	✓	63B#0350		*The CSP SHALL employ appropriately-tailored privacy controls, to include control enhancements (appropriate for the AAL being sought - refer to 63B#0210 and '#3200) as defined in SP 800-53 or equivalent Federal or industry standards.*		✔	In Scope Applicable
4,4		Privacy Requirements	CSPs SHALL NOT use or disclose information about subscribers for any purpose other than conducting authentication, related fraud mitigation, or to comply with law or legal process, …	✓	63B#0360		*Unless the Subject has agreed to additional use of their PII, the CSP SHALL NOT use or disclose Subjects' PII for any purpose other than conducting authentication, related fraud mitigation, or to comply with law or legal process.*		✔	In Scope Applicable
4,4		Privacy Requirements	… unless the CSP provides clear notice and obtains consent from the subscriber for additional uses .	✓	63B#0370		*The CSP SHALL provide clear notice and obtain the Subject's consent for any additional uses of their PII, prior to making any such use.*		✔	In Scope Applicable
4,4		Privacy Requirements	CSPs SHALL NOT make consent a condition of the service.	✓	63B#0380		*The CSP SHALL NOT make consent a condition of the service.*		✔	In Scope Applicable

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4,4		Privacy Requirements	Care SHALL be taken to ensure that use of such information is limited to its original purpose for collection	✓	63B#0390		The CSP SHALL ensure that use of PII is limited to the purposes for which it was collected, as stated in the Terms of Service / Privacy Policy (see 63A#0030) / CrP (see 63A#0100).		✔	In Scope Applicable
5.1.1.1		Memorized Secret Authenticators	Memorized secrets SHALL be at least 8 characters in length if chosen by the subscriber.	✓	63B#0410		The CSP SHALL require memorized secrets chosen by the Subject to be at least 8 characters in length.		✔	In Scope Applicable
5.1.1.1		Memorized Secret Authenticators	Memorized secrets chosen randomly by the CSP or verifier SHALL be at least 6 characters in length and MAY be entirely numeric.	✓	63B#0420		The CSP SHALL require memorized secrets generated by itself or a Verifier to be at least 6 characters in length and randomly-generated.		✔	In Scope Applicable
5.1.1.1		Memorized Secret Authenticators	If the CSP or verifier disallows a chosen memorized secret based on its appearance on a blacklist of compromised values, the subscriber SHALL be required to choose a different memorized secret.	✓	63B#0430		If the CSP [or Verifier] determines that a chosen memorized secret appears on a list of compromised values it SHALL require the Subject to choose a different memorized secret.		✔	In Scope Applicable
5.1.1.2		Memorized Secret Verifiers	Verifiers SHALL require subscriber-chosen memorized secrets to be at least 8 characters in length.	✓	63B#0440		The CSP SHALL require memorized secrets chosen by the Subject to be at least 8 characters in length.		✔	In Scope Applicable
5.1.1.2		Memorized Secret Verifiers	Truncation of the secret SHALL NOT be performed.	✓	63B#0450		The CSP SHALL NOT truncate Subject-chosen memorized secrets		✔	In Scope Applicable
5.1.1.2		Memorized Secret Verifiers	For purposes of the above length requirements, each Unicode code point SHALL be counted as a single character.	✓	63B#0460		If Unicode is accepted then the CSP SHALL count each Unicode code point as a single character.		✔	In Scope - Not Applicable

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5.1.1.2		Memorized Secret Verifiers	Memorized secrets that are randomly chosen by the CSP (e.g., at enrollment) or by the verifier (e.g., when a user requests a new PIN) SHALL be at least 6 characters in length and SHALL be generated using an approved random bit generator [SP 800-90Ar1].	✓	63B#0470			The CSP SHALL require memorized secrets generated by itself or a Verifier to be at least 6 characters in length and randomly-generated using an approved random-bit generator [SP 800-90Ar1].	✓	In Scope Applicable
5.1.1.2		Memorized Secret Verifiers	Memorized secret verifiers SHALL NOT permit the subscriber to store a "hint" that is accessible to an unauthenticated claimant	✓	63B#0480			The CSP SHALL NOT permit Subjects to store password-recollection hints.	✓	In Scope Applicable
5.1.1.2		Memorized Secret Verifiers	Verifiers SHALL NOT prompt subscribers to use specific types of information (e.g., "What was the name of your first pet?") when choosing memorized secrets.	✓	63B#0490			The CSP SHALL NOT prompt Subjects in any manner when Subjects are choosing secrets	✓	In Scope Applicable
5.1.1.2		Memorized Secret Verifiers	When processing requests to establish and change memorized secrets, verifiers SHALL compare the prospective secrets against a list that contains values known to be commonly-used, expected, or	✓	63B#0500			The CSP SHALL compare Subjects' chosen secrets against a list that contains values known to be commonly-used, expected, or compromised and if found:	✓	In Scope Applicable
5.1.1.2		Memorized Secret Verifiers	… SHALL provide the reason for rejection, …	✓	63B#0500	a)		provide the reason for rejection;	✓	In Scope Applicable
5.1.1.2		Memorized Secret Verifiers	… and SHALL require the subscriber to choose a different value	✓	63B#0500	b)		require the Subject to choose another secret.	✓	In Scope Applicable
5.1.1.2		Memorized Secret Verifiers	Verifiers SHALL implement a rate-limiting mechanism that …	✓	63B#0510			The Verifier SHALL implement a rate-limiting mechanism which:	✓	In Scope Applicable
5.1.1.2		Memorized Secret Verifiers	… effectively limits the number of failed authentication attempts that	✓	63B#0510	a)		protects against online guessing attacks;	✓	In Scope Applicable
5.1.1.2		Memorized Secret Verifiers	as described in Section 5.2.2.	✓	63B#0510	b)		limits consecutive failed authentication attempts on a single account to no more than 100.	✓	In Scope Applicable

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5.1.1.2		Memorized Secret Verifiers	However, verifiers SHALL force a change if there is evidence of compromise of the authenticator.	✓	63B#0520		*IF there is evidence of compromise of the Claimant's authenticator the CSP SHALL require the Claimant to select a new memorized secret, consistent with 63B#0440 - '0500.*		✔	In Scope Applicable
5.1.1.2		Memorized Secret Verifiers	The verifier SHALL use approved encryption and an authenticated protected channel when requesting memorized secrets in order to provide resistance to eavesdropping and MitM attacks.	✓	63B#0530		*The CSP SHALL use approved encryption and an authenticated protected channel when requesting memorized secrets.*		✔	In Scope Applicable
5.1.1.2		Memorized Secret Verifiers	Verifiers SHALL store memorized secrets in a form that is resistant to offline attacks.	✓	63B#0540		*The CSP SHALL store memorized secrets in a form that is resistant to offline attacks.*		✔	In Scope Applicable
5.1.1.2		Memorized Secret Verifiers	Memorized secrets SHALL be salted and hashed using a suitable one-way key derivation function.	✓	63B#0550		*The CSP SHALL salt and hash stored memorized secrets using an approved algorithm, ensuring that:*		✔	In Scope Applicable
5.1.1.2		Memorized Secret Verifiers	The salt SHALL be at least 32 bits in length and be chosen arbitrarily so as to minimize salt value collisions among stored hashes.	✓	63B#0550	a)	*a randomly-chosen salt value of at least 32 bits in length is used;*		✔	In Scope Applicable
5.1.1.2		Memorized Secret Verifiers	Both the salt value and the resulting hash SHALL be stored for each subscriber using a memorized	✓	63B#0550	b)	*both the salt value and the resulting hash are stored for each subscriber using a memorized secret authenticator;*		✔	In Scope Applicable
5.1.1.2		Memorized Secret Verifiers	This salt value, if used, SHALL be generated by an approved random bit generator [SP 800-90Ar1] and provide at least the minimum security strength specified in the	✓	63B#0560		*The CSP SHALL generate salt values using an approved random-bit generator [SP 800-90Ar1] which provides at least the minimum security strength specified in the latest revision of SP 800-131A.*		✔	In Scope Applicable
5.1.1.2		Memorized Secret Verifiers	The secret salt value SHALL be stored separately from the hashed memorized secrets (e.g., in a specialized device like a hardware	✓	63B#0570		*The CSP SHALL store secret salt value(s) separately from the hashed memorized secrets.*		✔	In Scope Applicable
5.1.1.2		Memorized Secret Verifiers	The key derivation function SHALL use an approved one-way function	✓	63B#0570		*The CSP SHALL use only approved one-way key derivation functions.*		✔	In Scope Applicable

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5.1.2		Look-Up Secrets	CSPs creating look-up secret authenticators SHALL use an approved random bit generator [SP 800-90Ar1] to generate the list of secrets and ...	✓	63B#0580		The CSP SHALL create lists of look-up secret authenticators using an approved random-bit generator [SP 800-90Ar1] which creates secrets having at least 20 bits of entropy;		✔	In Scope Applicable
5.1.2		Look-Up Secrets	... SHALL deliver the authenticator securely to the subscriber.	✓	63B#0590		The CSP SHALL securely deliver the authenticator to the Subject .		✔	In Scope Applicable
5.1.2.1		Look-Up Secret Authenticators	If distributed online, look-up secrets SHALL be distributed over a secure channel in accordance with the post-	✓	63B#0600		IF the CSP distributes lists of look-up secret authenticators it SHALL do so using a secure channel which meets the criteria defined in 63B#1400.		✔	In Scope Applicable
5.1.2.2		Look-Up Secret Verifiers	Verifiers of look-up secrets SHALL prompt the claimant for the next secret from their authenticator or for a specific (e.g., numbered) secret.	✓	63B#0610		The CSP SHALL prompt the Claimant for the next secret from their authenticator or for a specific (e.g., numbered) secret.		✔	In Scope Applicable
5.1.2.2		Look-Up Secret Verifiers	A given secret from an authenticator SHALL be used successfully only once.	✓	63B#0620		The CSP SHALL succesfully use a secret from an authenticator list only once.		✔	In Scope Applicable
5.1.2.2		Look-Up Secret Verifiers	If the look-up secret is derived from a grid card, each cell of the grid SHALL be used only once.	✓	63B#0630		IF a look-up secret is derived from a grid card, the CSP SHALL use each cell of the grid only once.		✔	In Scope - Not Applicable
5.1.2.2		Look-Up Secret Verifiers	Verifiers SHALL store look-up secrets in a form that is resistant to offline attacks.	✓	63B#0640		The CSP SHALL store look-up secrets in a form that is resistant to offline attacks.		✔	In Scope Applicable
5.1.2.2		Look-Up Secret Verifiers	Look-up secrets having at least 112 bits of entropy SHALL be hashed with an approved one-way function as described in Section 5.1.1.2.	✓	63B#0650		IF a look-up secret has at least 112 bits of entropy the CSP SHALL hash the secret iaw 63B#0550		✔	In Scope Applicable
5.1.2.2		Look-Up Secret Verifiers	Look-up secrets with fewer than 112 bits of entropy SHALL be salted and hashed using a suitable one-way key derivation function, also described in Section 5.1.1.2.	✓	63B#0660		IF a look-up secret has fewer than 112 bits of entropy the CSP SHALL hash the secret iaw 63B#0550		✔	In Scope Applicable

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5.1.2.2		Look-Up Secret Verifiers	The salt value SHALL be at least 32 in bits in length and arbitrarily chosen so as to minimize salt value collisions among stored hashes.	✓	63B#0670		*The CSP SHALL use an arbitrarily-chosen salt value of at least 32 bits length.*		✔	In Scope Applicable
5.1.2.2		Look-Up Secret Verifiers	Both the salt value and the resulting hash SHALL be stored for each look-up secret.	✓	63B#0680		*The CSP SHALL, for each look-up secret, store the salt value and the resulting hash.*		✔	In Scope Applicable
5.1.2.2		Look-Up Secret Verifiers	For look-up secrets that have less than 64 bits of entropy, the verifier SHALL implement a rate-limiting mechanism that effectively limits the number of failed authentication attempts that can be made on the subscriber's account as described in Section 5.2.2.	✓	63B#0690		*IF a look-up secret has fewer than 64 bits of entropy the CSP SHALL enforce a rate-limiting mechanism iaw 63B#0510*		✔	In Scope - Not Applicable
5.1.2.2		Look-Up Secret Verifiers	The verifier SHALL use approved encryption and an authenticated protected channel when requesting look-up secrets in order to provide resistance to eavesdropping and MitM attacks.	✓	63B#0700		*The CSP SHALL use approved encryption and an authenticated protected channel when requesting look-up secrets.*		✔	In Scope Applicable
5.1.3.1		Out-of-Band Authenticators	The out-of-band authenticator SHALL establish a separate channel with the verifier in order to retrieve the out-of-band secret or authentication request.	✓	63B#0710		*The CSP SHALL establish a separate channel with the Claimant's OOB authenticator in order to retrieve out-of-band secrets or authentication requests.*		✔	In Scope Applicable
5.1.3.1		Out-of-Band Authenticators	Methods that do not prove possession of a specific device, such as voice-over-IP (VOIP) or email, SHALL NOT be used for out-of-band authentication.	✓	63B#0720		*When performing out-of-band authentication the CSP SHALL use an authentication method which positively establishes the Claimant's possession of a specific device.*		✔	In Scope Applicable

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5.1.3.1		Out-of-Band Authenticators	The out-of-band authenticator SHALL uniquely authenticate itself in one of the following ways when communicating with the verifier:	✓	63B#0730			The CSP SHALL ensure that the Claimant's authentictor is positively authenticated by one of the following ways:	✔	In Scope Applicable
5.1.3.1		Out-of-Band Authenticators	• Establish an authenticated protected channel to the verifier using approved cryptography. The key used SHALL be stored in suitably secure storage available to the authenticator application (e.g., keychain storage, TPM, TEE, secure element).	✓	63B#0730	a)		establishing an authenticated protected channel using approved cryptography whilst ensuring that the key used is stored in suitably secure storage available to the authenticator application;	✔	In Scope Applicable
5.1.3.1		Out-of-Band Authenticators	• Authenticate to a public mobile telephone network using a SIM card or equivalent that uniquely identifies the device. This method SHALL only be used if a secret is being sent from the verifier to the out-of-band device via the PSTN (SMS or voice).	✓	63B#0730	b)		Authenticating via a public mobile telephone network using a SIM card or equivalent that uniquely identifies the device, whilst ensuring that the secret is sent to the out-of-band device via the PSTN.	✔	In Scope Applicable
5.1.3.1		Out-of-Band Authenticators	If the out-of-band authenticator sends an approval message over the secondary communication channel... rather than by the	✓	63B#0740			The CSP SHALL ensure that if the out-of-band authenticator sends an approval message over the secondary communication channel one of the following is done:	✔	In Scope Applicable
5.1.3.1		Out-of-Band Authenticators	· The authenticator SHALL accept transfer of the secret from the primary channel which it SHALL send to the verifier over the secondary channel to associate the	✓	63B#0740	a)		the OOB Authenticator accepts transfer of the secret from the primary channel which it sends to the CSP over the secondary channel to associate the approval with the authentication transactio; OR	✔	In Scope Applicable
5.1.3.1		Out-of-Band Authenticators	· The authenticator SHALL present a secret received via the secondary channel from the verifier and prompt the claimant to verify the consistency of that secret with the primary channel, ...	✓	63B#0740	b)		the OOB Authenticator accepts transfer of the secret from the primary channel which it sends to the CSP over the secondary channel to associate the approval with the authentication transaction and then:	✔	In Scope - Not Applicable

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5.1.3.1		Out-of-Band Authenticators	. … prior to accepting a yes/no response from the claimant.	✓	63B#0740	b) i)	the OOB Authenticator accepts a 'yes/no' response from the Claimant;		✔	In Scope - Not Applicable
5.1.3.1		Out-of-Band Authenticators	. … It SHALL then send that response to the verifier.	✓	63B#0740	b) ii)	the OOB Authenticator sends that response to the CSP		✔	In Scope - Not Applicable
5.1.3.2		Out-of-Band Verifiers	The verifier SHALL NOT store the identifying key itself, but SHALL use a verification method (e.g., an approved hash function or proof of possession of the identifying key) to uniquely identify the authenticator. Once authenticated, the verifier transmits the authentication secret to the authenticator.	✓	63B#0750		The CSP SHALL use a verification method to securely and uniquely identify the Claimant's authenticator without storing the actual identifying key.		✔	In Scope Applicable
5.1.3.2		Out-of-Band Verifiers	Depending on the type of out-of-band authenticator, one of the following SHALL take place:	✓	63B#0760		The CSP SHALL, according to the type of OOB authenticator used, effect one of the following three options:.		✔	In Scope Applicable
5.1.3.2		Out-of-Band Verifiers	· Transfer of secret to primary channel: The verifier MAY signal the device containing the subscriber's authenticator to indicate readiness to authenticate. It SHALL then transmit a random secret to the out-of-band authenticator. The verifier SHALL then wait for the secret to be returned on the primary communication channel.		63B#0760	a)	Transferring the secret to the primary channel; OR			In Scope Applicable

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§	(…)	Clause title	Requirement	CSP	63B tag	index	KI_criterion (*text in red* is new this version)		2	
5.1.3. 2		Out-of-Band Verifiers	· Transfer of secret to secondary channel: The verifier SHALL display a random authentication secret to the claimant via the primary channel. It SHALL then wait for the secret to be returned on the secondary channel from the claimant's out-of-band authenticator.	✓	63B#0760	b)	*transferring the secret via the secondary channel by transmitting a random authentication secret to the Claimant via the primary channel and then waiting for the secret to be returned from the Claimant's OOB authenticator via the secondary channel; OR*		✔	In Scope Applicable
5.1.3. 2		Out-of-Band Verifiers	· Verification of secrets by claimant: The verifier SHALL display a random authentication secret to the claimant via the primary channel, and SHALL send the same secret to the out-of-band authenticator via the secondary channel for presentation to the claimant. It SHALL then wait for an approval (or disapproval) message via the secondary channel.	✓	63B#0760	c)	*requiring the Claimant to verify the secret by sending a random authentication secret to the claimant via the primary channel, and also to their OOB authenticator via the secondary channel and then waiting for an approval (or disapproval) message via the secondary channel*		✔	In Scope Applicable
5.1.3. 2		Out-of-Band Verifiers	In all cases, the authentication SHALL be considered invalid if not completed within 10 minutes.	✓	63B#0770		*The CSP SHALL time-out and fail the authentication process if no response is received within 10 minutes of its initiation*		✔	In Scope Applicable
5.1.3. 2		Out-of-Band Verifiers	In order to provide replay resistance as described in Section 5.2.8, verifiers SHALL accept a given the authentication secret only once during the validity period.	✓	63B#0780		*The CSP SHALL accept a given authentication secret only once during its validity period.*		✔	In Scope Applicable
5.1.3. 2		Out-of-Band Verifiers	The verifier SHALL generate random authentication secrets with at least 20 bits of entropy using an approved random bit generator [SP 800-90Ar1].	✓	63B#0790		*The CSP SHALL create lists of look-up secret authenticators using an approved random bit generator [SP 800-90Ar1] which creates secrets having at least 20 bits of entropy;*		✔	In Scope Applicable

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§	(…)	Clause title	Requirement	CSP	63B tag	index	KI_criterion (*text in red* is new this version)		2	
5.1.3.2		Out-of-Band Verifiers	If the authentication secret has less than 64 bits of entropy, the verifier SHALL implement a rate-limiting mechanism that effectively limits the number of failed authentication attempts that can be made on the subscriber's account as described in Section 5.2.2.	✓	63B#0800		IF an authentication secret has fewer than 64 bits of entropy the CSP SHALL enforce a rate-limiting mechanism iaw 63B#0510		✔	In Scope Applicable
5.1.3.3		Authentication using the Public Switched Telephone Network	If out-of-band verification is to be made using the PSTN, the verifier SHALL verify that the pre-registered telephone number being used in	✓	63B#0810		The CSP shall determine that a pre-registered 'phone number is registered to a specific physical device before using that device in OOB verification attempts.		✔	In Scope Applicable
5.1.3.3		Authentication using the Public Switched Telephone Network	Changing the pre-registered telephone number is considered to be the binding of a new authenticator and SHALL only occur as described in Section 6.1.2.	✓	63B#0820		IF the CSP allows the Subject to register a new 'phone number as an authenticator it shall do so in a manner which fulfills the criteria in 63B#1800 & '1810.		✔	In Scope Applicable
		Single-Factor OTP Device	The secret key and its algorithm SHALL provide at least the minimum security strength	✓	63B#0830		The CSP SHALL use SF-OTP Devices whose secret key and associated algorithm provide at least the minimum security strength specified in the latest revision of SP 800-131A		✔	In Scope Applicable
5.1.4.1		Single-Factor OTP Authenticators	The nonce SHALL be of sufficient length to ensure that it is unique for	✓	63B#0840		The CSP SHALL ensure that the nonce used to generate a OTP is of sufficient length to ensure that it is unique for each operation of the		✔	In Scope Applicable
5.1.4.1		Single-Factor OTP Authenticators	OTP authenticators — particularly software-based OTP generators — SHOULD discourage and SHALL	✓	63B#0850		Thd CSP SHALL ensure that it uses SF-OTP Devices which do not facilitate the cloning of the secret key onto multiple devices.		✔	In Scope Applicable
5.1.4.1		Single-Factor OTP Authenticators	If the nonce used to generate the authenticator output is based on a real-time clock, the nonce SHALL be changed at least once every 2 minutes.	✓	63B#0860		The CSP SHALL ensure that, if the nonce used to generate the authenticator output is based on a real-time clock, the nonce is changed at least once every 2 minutes.		✔	In Scope Applicable
5.1.4.1		Single-Factor OTP Authenticators	The OTP value associated with a given nonce SHALL be accepted only once.	✓	63B#0870		The CSP SHALL ensure that,the OTP value associated with a given nonce is accepted only once.		✔	In Scope Applicable

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§	(…)	Clause title	Requirement	CSP	63B tag	index	KI_criterion (text in red is new this version)		2	
5.1.4.2		Single-Factor OTP Verifiers	Single-factor OTP verifiers effectively duplicate the process of generating the OTP used by the authenticator. As such, the symmetric keys used by authenticators are also present in the verifier, and SHALL be strongly protected against compromise.	✓	63B#0880		*The CSP SHALL employ techniques which strongly protect against compromise of symmetric keys used by authenticators.*		✔	In Scope Applicable
5.1.4.2		Single-Factor OTP Verifiers	When a single-factor OTP authenticator is being associated with a subscriber account, the	✓	63B#0890		*The CSP SHALL use approved cryptography to ensure that a Subject's SF-OTP authenticator to either:*		✔	In Scope Applicable
5.1.4.2		Single-Factor OTP Verifiers	generate and exchange OR …	✓	63B#0890	a)	*generate and exchange the secrets required to duplicate the authenticator output.*		✔	In Scope Applicable
			… to obtain the secrets required to duplicate the authenticator output.	✓	63B#0890	b	*obtain the secrets required to duplicate the authenticator output; OR*		✔	In Scope - Not Applicable
5.1.4.2		Single-Factor OTP Verifiers	The verifier SHALL use approved encryption and an authenticated protected channel when collecting the OTP in order to provide resistance to eavesdropping and MitM attacks.	✓	63B#0900		*The CSP SHALL use approved encryption and an authenticated protected channel when retrieving the OTP.*		✔	In Scope Applicable
5.1.4.2		Single-Factor OTP Verifiers	Time-based OTPs [RFC 6238] SHALL have a defined lifetime that is determined by	✓	63B#0910		*The CSP SHALL ensure that, when using time-based OTPs [RFC238], their lifetime is determined taking into account:*		✔	In Scope Applicable
5.1.4.2		Single-Factor OTP Verifiers	the expected clock drift — in either direction — of the authenticator over its lifetime, plus …	✓	63B#0910	a)	*the expected clock drift (in either direction) of the authenticator over its lifetime;*		✔	In Scope Applicable
5.1.4.2		Single-Factor OTP Verifiers	allowance for network delay and …	✓	63B#0910	b)	*allowance for network delay;*		✔	In Scope Applicable
5.1.4.2		Single-Factor OTP Verifiers	user entry of the OTP.	✓	63B#0910	c)	*an allowance for user entry of the OTP.*		✔	In Scope Applicable

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§	(…)	Clause title	Requirement	CSP	63B tag	index	KI_criterion (*text in red* is new this version)		2	
5.1.4.2		Single-Factor OTP Verifiers	In order to provide replay resistance as described in Section 5.2.8, verifiers SHALL accept a given time-based OTP only once during the validity period.	✓	63B#0920		The CSP SHALL accept a given time-based OTP only once during its validity period.		✔	In Scope Applicable
5.1.4.2		Single-Factor OTP Verifiers	If the authenticator output has less than 64 bits of entropy, the verifier SHALL implement a rate-limiting mechanism that effectively limits the number of failed authentication attempts that can be made on the subscriber's account as described in Section 5.2.2.	✓	63B#0930		IF an authentication secret has fewer than 64 bits of entropy the CSP SHALL enforce a rate-limiting mechanism iaw 63B#0510		✔	In Scope Applicable
5		Multi-Factor OTP Devices	Multi-factor OTP authenticators operate in a similar manner to single-factor OTP authenticators (see Section 5.1.4.1), except that they require the entry of either a memorized secret or the use of a biometric to obtain the OTP from the authenticator. Each use of the authenticator SHALL require the input of the additional factor.	✓	63B#0940		The CSP shall ensure that each use of a MF-OTP authenticator equires both factors to be input		✔	In Scope Applicable
5.1.5.1		Multi-Factor OTP Authenticators	The secret key and its algorithm SHALL provide at least the minimum security strength specified in the latest revision of SP 800-131A (112 bits as of the date of this publication).	✓	63B#0950		The CSP SHALL use MF-OTP Devices whose secret key and associated algorithm provide at least the minimum security strength specified in the latest revision of SP 800-131A.		✔	In Scope Applicable
5.1.5.1		Multi-Factor OTP Authenticators	The nonce SHALL be of sufficient length to ensure that it is unique for each operation of the device over its lifetime.	✓	63B#0960		The CSP SHALL ensure that the nonce used to generate a OTP is of sufficient length to ensure that it is unique for each operation of the device over its lifetime.		✔	In Scope Applicable

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§	(...)	Clause title	Requirement	CSP	63B tag	index	KI_criterion (*text in red* is new this version)		2	
5.1.5.1		Multi-Factor OTP Authenticators	OTP authenticators — particularly software-based OTP generators — SHOULD discourage and SHALL	✓	63B#0970		Thd CSP SHALL ensure that it uses MF-OTP Devices which do not facilitate the cloning of the secret key onto multiple devices.		✔	In Scope Applicable
5.1.5.1		Multi-Factor OTP Authenticators	If the nonce used to generate the authenticator output is based on a real-time clock, the nonce SHALL be changed at least once every 2 minutes.	✓	63B#0980		The CSP SHALL ensure that, if the nonce used to generate the authenticator output is based on a real-time clock, the nonce is changed at least once every 2 minutes.		✔	In Scope Applicable
5.1.5.1		Multi-Factor OTP Authenticators	The OTP value associated with a given nonce SHALL be accepted only once.	✓	63B#0990		The CSP SHALL ensure that,the OTP value associated with a given nonce is accepted only once.		✔	In Scope Applicable
5.1.5.1		Multi-Factor OTP Authenticators	A memorized secret used by the authenticator for activation SHALL be a randomly-chosen numeric secret at least 6 decimal digits in length or other memorized secret of comparable complexity as described in Section 5.1.1.2 ...	✓	63B#1000		The CSP SHALL ensure that memorized secrets used by the authenticator for activation are a randomly-chosen numeric secret at least 6 decimal digits in length or other memorized secret of equivalent complexity		✔	In Scope Applicable
5.1.5.1		Multi-Factor OTP Authenticators	.. and SHALL be rate limited as specified in Section 5.2.2.	✓	63B#1010		The CSP SHALL enforce a rate-limiting mechanism iaw 63B#1450 & '1460 (without qualification regarding the degree of entropy the memorized secret exhibits).		✔	In Scope Applicable
5.1.5.1		Multi-Factor OTP Authenticators	A biometric activation factor SHALL meet the requirements of Section 5.2.3, including limits on the number of consecutive authentication failures.	✓	63B#1020		If a biometric factor is used in an authentication the CSP SHALL ensure that all criteria 63B#1470 - '1550 are fulfilled.		✔	In Scope Applicable
5.1.5.1		Multi-Factor OTP Authenticators	The unencrypted secret key and activation secret or biometric sample (and any biometric data derived from the biometric sample	✓	63B#1030		The CSP SHALL zeroize the unencrypted secret key and the activation secret or biometric sample (including any associated biometric data) immediately after an OTP has been generated.		✔	In Scope Applicable
5.1.5.2		Multi-Factor OTP Verifiers	Multi-factor OTP verifiers effectively duplicate the process of generating the OTP used by the authenticator, but without the	✓	63B#1040		The CSP SHALL ensure that MF-OTP authenticators strongly protected against compromise the associated symmetric keys.		✔	In Scope Applicable

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§	(...)	Clause title	Requirement	CSP	63B tag	index	KI_criterion (*text in red* is new this version)		2	
5.1.5.2		Multi-Factor OTP Verifiers	When a multi-factor OTP authenticator is being associated with a subscriber account, the	✔	63B#1050		The CSP SHALL use approved cryptography to ensure that a Subject's MF-OTP authenticator to either:		✔	In Scope Applicable
5.1.5.2		Multi-Factor OTP Verifiers	… generate and exchange OR …	✔	63B#1050	a)	*generate and exchange the secrets required to duplicate the authenticator output; OR*		✔	In Scope Applicable
5.1.5.2		Multi-Factor OTP Verifiers	… to obtain the secrets required to duplicate the authenticator output.	✔	63B#1050	b)	*obtain the secrets required to duplicate the authenticator output.*		✔	In Scope - Not Applicable
5.1.5.2		Multi-Factor OTP Verifiers	The verifier or CSP SHALL also establish, via the authenticator source, that the authenticator is a multi-factor device.	✔	63B#1060		*The CSP SHALL treat all authenticators as being single-factor devices unelss they establish, via the authenticator source, that the authenticator device is multi-factor.*		✔	In Scope Applicable
5.1.5.2		Multi-Factor OTP Verifiers	In the absence of a trusted statement that it is a multi-factor device, the verifier SHALL treat the authenticator as single-factor, in accordance with Section 5.1.4.	✔	63B#1070		*Unless it is able to rely upon a statement via the authenticator source that a device is multi-factor the CSP SHALL treat the authenticator as if it was single-factor.*		✔	In Scope Applicable
5.1.5.2		Multi-Factor OTP Verifiers	The verifier SHALL use approved encryption and an authenticated protected channel when collecting the OTP in order to provide resistance to eavesdropping and MitM attacks.	✔	63B#1080		*The CSP SHALL ensure that all communication between the Claimant and Verifier use approved encryption and is via an authenticated protected channel.*		✔	In Scope Applicable
5.1.5.2		Multi-Factor OTP Verifiers	Time-based OTPs [RFC 6238] SHALL have a defined lifetime that is determined by	✔	63B#1090		*The CSP SHALL use verification methods which ensure that, when using time-based OTPs [RFC238], their lifetime is determined taking into account:*		✔	In Scope Applicable
5.1.5.		Multi-Factor OTP	the expected clock drift — in either	✔	63B#1090	a)	*the expected clock drift (in either direction) of the authenticator over its*		✔	In Scope Applicable
5.1.5.		Multi-Factor OTP	allowance for network delay and …	✔	63B#1090	b)	*allowance for network delay;*		✔	In Scope Applicable
5.1.5.		Multi-Factor OTP	user entry of the OTP.	✔	63B#1090	c)	*an allowance for user entry of the OTP.*		✔	In Scope Applicable
5.1.5.2		Multi-Factor OTP Verifiers	In order to provide replay resistance as described in Section 5.2.8, verifiers SHALL accept a given time-based OTP only once during the validity period.	✔	63B#1100		*The CSP SHALL accept a given time-based OTP only once during its validity period.*		✔	In Scope Applicable

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5.1.5.2		Multi-Factor OTP Verifiers	If the authenticator output or activation secret has less than 64 bits of entropy, the verifier SHALL implement a rate-limiting	✓	63B#1110			IF an authentication output or activation secret has fewer than 64 bits of entropy the CSP SHALL enforce a rate-limiting mechanism iaw 63B#0510	✔	In Scope Applicable
5.1.5.2		Multi-Factor OTP Verifiers	A biometric activation factor SHALL meet the requirements of Section 5.2.3, including limits on the number of consecutive authentication failures.	✓	63B#1120			If a biometric factor is used in an authentication the CSP SHALL ensure that all criteria 63B#1470 - '1550 are fulfilled.	✔	In Scope Applicable
		Single-Factor Cryptographic Software	Single-factor software cryptographic authenticators encapsulate a secret key that is unique to the authenticator. The key SHALL be stored in suitably secure storage available to the authenticator application (e.g., keychain storage, TPM, or TEE if available).	✓	63B#1130			The CSP SHALL ensure that SF-CS keys are stored in suitably secure storage available to the authenticator application.	✔	In Scope Applicable
5.1.6.1		Single-Factor Cryptographic Software Authenticators	The key SHALL be strongly protected against unauthorized disclosure by the use of access controls that limit access to the key to only those software components on the device requiring access.	✓	63B#1140			The CSP SHALL ensure that SF-CS keys are strongly protected against unauthorized disclosure by the use of access controls that limit access to the key to only those software components on the device requiring access.	✔	In Scope Applicable
5.1.6.1		Single-Factor Cryptographic Software Authenticators	Single-factor cryptographic software authenticators SHOULD discourage and SHALL NOT facilitate the cloning of the secret key onto multiple devices.	✓	63B#1150			The CSP SHALL ensure that SF-CS key authenticators DO NOT facilitate the cloning of the secret key onto multiple devices.	✔	In Scope Applicable

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§	(…)	Clause title	Requirement	CSP	63B tag	index		KI_criterion (*text in red* is new this version)	2	
5.1.6.2		Single-Factor Cryptographic Software Verifiers	The requirements for a single-factor cryptographic software verifier are identical to those for a single-factor cryptographic device verifier, described in Section 5.1.7.2.	✓	63B#1160			*Criteria 63B#1210 to '1240 SHALL be fulfilled.*	✔	In Scope Applicable
5		Single-Factor Cryptographic Devices	Single-factor cryptographic device authenticators encapsulate a secret key that is unique to the device and SHALL NOT be exportable (i.e., it cannot be removed from the device).	✓	63B#1170			*The CSP SHALL use SF-CD authenticators that are incapable of exporting their [unique] secret key.*	✔	In Scope Applicable
5.1.7.1		Single-Factor Cryptographic Device Authenticators	The secret key and its algorithm SHALL provide at least the minimum security length specified in the latest revision of SP 800-131A (112 bits as of the date of this publication).	✓	63B#1180			*The CSP SHALL use SF-CD authenticators whose secret key and associated algorithm provide at least the minimum security strength specified in the latest revision of SP 800-131A.*	✔	In Scope Applicable
5.1.7.1		Single-Factor Cryptographic Device Authenticators	The challenge nonce SHALL be at least 64 bits in length.	✓	63B#1190			*The CSP SHALL use SF-CD authenticators which employ a nonce of at least 64 bits length.*	✔	In Scope Applicable
5.1.7.1		Single-Factor Cryptographic Device Authenticators	Approved cryptography SHALL be used.	✓	63B#1200			*The CSP SHALL use SF-CD Devices that use approved cryptography*	✔	In Scope Applicable
5.1.7.2		Single-Factor Cryptographic Device Verifiers	The verifier has either symmetric or asymmetric cryptographic keys corresponding to each authenticator. While both types of keys SHALL be protected against modification, …	✓	63B#1210			*The CSP SHALL use verification methods which protect any secret keys against modification.*	✔	In Scope Applicable
5.1.7.2		Single-Factor Cryptographic Device Verifiers	… symmetric keys SHALL additionally be protected against unauthorized disclosure.	✓	63B#1220			*The CSP SHALL use verification methods which protect symmetric secret keys against unauthorized disclosure.*	✔	In Scope Applicable

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5.1.7.2		Single-Factor Cryptographic Device Verifiers	The challenge nonce SHALL be …	✔	63B#1230			*The CSP SHALL use verification methods for which the nonce is:*		✔	In Scope Applicable
5.1.7.2		Single-Factor Cryptographic Device Verifiers	… at least 64 bits in length, …	✔	63B#1230	a)		*at least 64 bits in length; AND*		✔	In Scope Applicable
5.1.7.2		Single-Factor Cryptographic Device Verifiers	… and SHALL either be …	✔	63B#1230	b)		*either:*		✔	In Scope Applicable
5.1.7.2		Single-Factor Cryptographic Device Verifiers	… unique over the authenticator's lifetime or …	✔	63B#1230	b)	i)	*unique over the authenticator's lifetime; OR*		✔	In Scope - Not Applicable
5.1.7.2		Single-Factor Cryptographic Device Verifiers	… statistically unique (i.e., generated using an approved random bit generator [SP 800-90Ar1]).	✔	63B#1230	b)	ii)	*generated using an approved random bit generator [SP 800-90Ar1]*		✔	In Scope Applicable
5.1.7.2		Single-Factor Cryptographic Device Verifiers	The verification operation SHALL use approved cryptography.	✔	63B#1240			*The CSP's verification methods SHALL use approved cryptography.*		✔	In Scope Applicable
5.1.8		Multi-Factor Cryptographic Software	A multi-factor software cryptographic authenticator is a cryptographic key stored on disk or some other "soft" media that requires activation through a second factor of authentication. Authentication is accomplished by proving possession and control of the key. The authenticator output is	✔	63B#1250			*The CSP SHALL ensure that MF-CS authenticators are activated by either something [the Claimant] knows or something [the Claimant] is.*		✔	In Scope Applicable
5.1.8.1		Multi-Factor Cryptographic Software Authenticators	The key SHALL be strongly protected against unauthorized disclosure by the use of access controls that limit access to the key to only those software components on the device requiring access.	✔	63B#1260			*The CSP SHALL ensure that MF-CS keys are strongly protected against unauthorized disclosure by the use of access controls that limit access to the key to only those software components on the device requiring access.*		✔	In Scope Applicable

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§	(…)	Clause title	Requirement	CSP	63B tag	index		KI_criterion (*text in red* is new this version)	2	
5.1.8.1		Multi-Factor Cryptographic Software Authenticators	Multi-factor cryptographic software authenticators SHOULD discourage and SHALL NOT facilitate the cloning of the secret key onto multiple devices.	✔	63B#1270			The CSP SHALL ensure that MF-CS key authenticators DO NOT facilitate the cloning of the secret key onto multiple devices.	✔	In Scope Applicable
5.1.8.1		Multi-Factor Cryptographic Software Authenticators	Each authentication operation using the authenticator SHALL require the input of both factors.	✔	63B#1280			The CSP SHALL ensure that MF-CS key authenticators require the input of all factors before performing the authentication operation.	✔	In Scope Applicable
5.1.8.1		Multi-Factor Cryptographic Software Authenticators	Any memorized secret used by the authenticator for activation SHALL be a randomly-chosen numeric value at least 6 decimal digits in length, or equivalent complexity, and …	✔	63B#1290			The CSP SHALL ensure that memorized secrets used by the authenticator for activation are a randomly-chosen numeric value at least 6 decimal digits in length or other memorized secret meeting the requirements of the applicable criteria 63B#0410 - '0450.	✔	In Scope Applicable
5.1.8.1		Multi-Factor Cryptographic Software Authenticators	… SHALL be rate limited as specified in Section 5.2.2.	✔	63B#1300			The CSP SHALL enforce a rate-limiting mechanism iaw 63B#1450 & '1460 (without qualification regarding the degree of entropy which the memorized secret exhibits).	✔	In Scope Applicable
5.1.8.1		Multi-Factor Cryptographic Software Authenticators	A biometric activation factor SHALL meet the requirements of Section 5.2.3, and SHALL include limits on the allowable number of consecutive authentication failures.	✔	63B#1310			If a biometric factor is used in an authentication the CSP SHALL ensure that all criteria 63B#1470 - '1550 are fulfilled.	✔	In Scope Applicable
5.1.8.1		Multi-Factor Cryptographic Software Authenticators	The unencrypted key and activation secret or biometric sample — and any biometric data derived from the biometric sample such as a probe produced through signal processing — SHALL be zeroized immediately after an authentication transaction has taken place.	✔	63B#1320			The CSP SHALL zeroize the unencrypted secret key and the activation secret or biometric sample (including any associated biometric data) immediately after an authentication transaction has taken place.	✔	In Scope Applicable

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§	(…)	Clause title	Requirement	CSP	63B tag	index	KI_criterion (*text in red* is new this version)	2	
5.1.8. 2		Multi-Factor Cryptographic Software Verifiers	The requirements for a multi-factor cryptographic software verifier are identical to those for a single-factor cryptographic device verifier, described in Section 5.1.7.2. Verification of the output from a multi-factor cryptographic software authenticator proves use of the activation factor.	✓	63B#1330		*Criteria 63B#1040 to '1070 SHALL be fulfilled.*	✓	In Scope Applicable
5.1.9		Multi-Factor Cryptographic Devices	A multi-factor cryptographic device is a hardware device that performs cryptographic operations using one or more protected cryptographic keys and requires activation through a second authentication factor. Authentication is accomplished by proving possession of the device and control of the key. The authenticator output is provided by direct connection to the user endpoint and is highly dependent on the specific cryptographic device and protocol, but it is typically some type of signed message. The multi-factor cryptographic device is *something you have* , and it SHALL be activated by either *something you know* or *something you are* .	✓	63B#1340		*The CSP SHALL ensure that MF-CS authenticators are activated by either something [the Claimant] knows or something [the Claimant] is.*	✓	In Scope Applicable
5.1.9. 1		Multi-Factor Cryptographic Device Authenticators	The secret key and its algorithm SHALL provide at least the minimum security length specified	✓	63B#1350		*The CSP SHALL use MF-CD authenticators whose secret key and associated algorithm provide at least the minimum security strength specified in the latest revision of SP 800-131A*	✓	In Scope Applicable

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§	(...)	Clause title	Requirement	CSP	63B tag	index	KI_criterion (*text in red* is new this version)		2	
5.1.9.1		Multi-Factor Cryptographic Device Authenticators	The challenge nonce SHALL be at least 64 bits in length.	✓	63B#1360		*The CSP SHALL use MF-CD authenticators which employ a nonce of at least 64 bits length.*		✔	In Scope Applicable
5.1.9.1		Multi-Factor Cryptographic Device Authenticators	Approved cryptography SHALL be used.	✓	63B#1370		*The CSP SHALL use MF-CD Devices that use approved cryptography*		✔	In Scope Applicable
5.1.9.1		Multi-Factor Cryptographic Device Authenticators	Any memorized secret used by the authenticator for activation SHALL be a randomly-chosen numeric value at least 6 decimal digits in length or other memorized secret	✓	63B#1380		*The CSP SHALL ensure that memorized secrets used by the authenticator for activation are a randomly-chosen numeric value at least 6 decimal digits in length or other memorized secret meeting the requirements of the applicable criteria 63B#0410 - '0450.*		✔	In Scope Applicable
5.1.9.1		Multi-Factor Cryptographic Device Authenticators	... SHALL be rate limited as specified in Section 5.2.2.	✓	63B#1390		*The CSP SHALL enforce a rate-limiting mechanism iaw 63B#0510 (without qualification regarding the degree of entropy the memorized secret exhibits).*		✔	In Scope Applicable
5.1.9.1		Multi-Factor Cryptographic Device Authenticators	A biometric activation factor SHALL meet the requirements of Section 5.2.3, and SHALL include limits on the number of consecutive authentication failures.	✓	63B#1400		*If a biometric factor is used in an authentication the CSP SHALL ensure that all criteria 63B#1470 - '1550 are fulfilled.*		✔	In Scope Applicable
5.1.9.1		Multi-Factor Cryptographic Device Authenticators	The unencrypted key and activation secret or biometric sample — and any biometric data derived from the biometric sample such as a probe produced through signal processing	✓	63B#1410		*The CSP SHALL zeroize the unencrypted secret key and the activation secret or biometric sample (including any associated biometric data) immediately after an authentication transaction has taken place.*		✔	In Scope Applicable
5.1.9.2		Multi-Factor Cryptographic Device Verifiers	The requirements for a multi-factor cryptographic device verifier are identical to those for a single-factor cryptographic device verifier,	✓	63B#1420		*Criteria 63B#1040 to '1070 SHALL be fulfilled.*		✔	In Scope Applicable
5.2.1		Physical Authenticators	CSPs SHALL provide subscriber instructions on how to appropriately protect the authenticator against theft or loss.	✓	63B#1430		*The CSP SHALL provide Subjects instructions on how to appropriately protect the authenticator against theft or loss.*		✔	In Scope Applicable

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§	(…)	Clause title	Requirement	CSP	63B tag	index	KI_criterion (*text in red* is new this version)	2	
5.2.1		Physical Authenticators	The CSP SHALL provide a mechanism to revoke or suspend the authenticator immediately upon notification from subscriber that loss or theft of the authenticator is suspected.	✓	63B#1440		The CSP SHALL provide a documented mechanism to revoke or suspend the authenticator immediately upon notification from the Subject that loss or theft of the authenticator is suspected.	✔	In Scope Applicable
5.2.2		Rate Limiting (Throttling)	When required by the authenticator type descriptions in Section 5.1, the verifier SHALL implement controls to protect against online guessing attacks.	✓	63B#1450		The CSP SHALL implement controls to protect against online guessing attacks.	✔	In Scope Applicable
5.2.2		Rate Limiting (Throttling)	Unless otherwise specified in the description of a given authenticator, the verifier SHALL limit consecutive failed authentication attempts on a single account to no more than 100.	✓	63B#1460		The CSP SHALL limit consecutive failed authentication attempts on a single account to no more than 100.	✔	In Scope Applicable
5.2.3		Use of Biometrics	Biometrics SHALL be used only as part of multi-factor authentication with a physical authenticator (*something you have*).	✓	63B#1470		The CSP SHALL only use biometric techniques as part of a multi-factor authentication which requires the Claimant to utilise a physical authenticator.	✔	In Scope Applicable
5.2.3		Use of Biometrics	An authenticated protected channel between sensor (or an endpoint containing a sensor that resists sensor replacement) and verifier SHALL be established and …	✓	63B#1480		When using biometrics for authentication, the CSP SHALL establish an authenticated protected channel between the sensor (or an endpoint containing a sensor that resists sensor replacement) and the verifier.	✔	In Scope Applicable
5.2.3		Use of Biometrics	… the sensor or endpoint SHALL be established and the sensor or endpoint authenticated prior to capturing the biometric sample from the claimant.	✓	63B#1490		When using biometrics for authentication, the CSP SHALL ensure that the sensor or endpoint is authenticated prior to capturing the biometric sample from the Claimant.	✔	In Scope Applicable

NIST SP 800-63B (rev.3) SAC & SoCA v4.0				Applies to:	Kantara Criteria			AAL	CRITERION APPLICABILITY (SoCA)
§	(...)	Clause title	Requirement	CSP	63B tag	index	KI_criterion (*text in red* is new this version)	2	
5.2.3		Use of Biometrics	The biometric system SHALL …	✓	63B#1500		The CSP shall implement biometric systems which have at least the following characteristics:	✔	In Scope Applicable
5.2.3		Use of Biometrics	… operate with an FMR [ISO/IEC 2382-37] of 1 in 1000 or better.	✓	63B#1500	a)	operate with an FMR [ISO/IEC 2382-37] of 1 in 1000 or better;	✔	In Scope Applicable
5.2.3		Use of Biometrics	This FMR SHALL be achieved under conditions of a conformant attack (i.e., zero-effort impostor attempt)	✓	63B#1500	b)	achieved that FMR operation under conditions of a conformant attack (i.e., zero-effort impostor attempt) in accordance with ISO/IEC 30107-1;	✔	In Scope Applicable
5.2.3		Use of Biometrics	Testing of presentation attack resistance SHALL be in accordance with Clause 12 of ISO/IEC 30107-3.	✓	63B#1500	c)	perform testing of presentation attack resistance in accordance with §12 of ISO/IEC 30107-3.	✔	In Scope Applicable
5.2.3		Use of Biometrics	The biometric system SHALL allow no more than 5 consecutive failed authentication attempts or 10 consecutive failed attempts if PAD meeting the above requirements is implemented.	✓	63B#1510		The CSP SHALL implement rate-limiting measures on failed authentication attempts as follows:	✔	In Scope Applicable
5.2.3		Use of Biometrics		✓	63B#1510	a)	where analysis has shown at least 90% resistance to presentation attacks for each relevant attack type (i.e., species), where resistance is defined as the number of thwarted presentation attacks divided by the number of trial presentation attacks, THEN up to 10 consecutive failed authentication attempts can occur; OTHERWISE	✔	In Scope Applicable
5.2.3		Use of Biometrics		✓	63B#1510	b)	no more than 5 consecutive failed authentication attempts can occur.	✔	In Scope Applicable
5.2.3		Use of Biometrics	Once that limit has been reached, the biometric authenticator SHALL either:	✓	63B#1520		If either limit set in 63B#1510 is reached the CSP SHALL:	✔	In Scope Applicable
5.2.3		Use of Biometrics	· Impose a delay of at least 30 seconds before the next attempt, increasing exponentially with each successive attempt	✓	63B#1520	a)	disable the biometric user authentication, and if an alternative authentication factor is already available use that other factor; OR OTHERWISE	✔	In Scope - Not Applicable

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§	(…)	Clause title	Requirement	CSP	63B tag	index	KI_criterion (text in red is new this version)		2	
5.2.3		Use of Biometrics	· Disable the biometric user authentication and offer another factor (e.g., a different biometric modality or a PIN/Passcode if it is not already a required factor) if such an alternative method is already available.	✓	63B#1520	b)	*impose a delay of at least 30 seconds before the next attempt, increasing exponentially with each successive attempt.*		✔	In Scope Applicable
5.2.3		Use of Biometrics	The verifier SHALL make a determination of sensor and endpoint performance, integrity, and authenticity.	✓	63B#1530		*When using biometric data in an authentication the CSP SHALL ensure that the sensor and endpoint performance, integrity, and authenticity are such as to not present unacceptable risk during the operation of the authentication protocol.*		✔	In Scope Applicable
5.2.3		Use of Biometrics	If comparison is performed centrally:	✓	63B#1540		*If biometric comparisom is performed centrally rather than locally the CSP SHALL:*		✔	In Scope Applicable
5.2.3		Use of Biometrics	· Use of the biometric as an authentication factor SHALL be limited to one or more specific	✓	63B#1540	a)	*limit use of the biometric as an authentication factor to one or more specific devices that are authenticated using approved cryptography;*		✔	In Scope Applicable
5.2.3		Use of Biometrics	Since the biometric has not yet unlocked the main authentication key, a separate key SHALL be used	✓	63B#1540	b)	*use a separate key to identify the device;*		✔	In Scope Applicable
5.2.3		Use of Biometrics	· Biometric revocation, referred to as biometric template protection in ISO/IEC 24745, SHALL be implemented.	✓	63B#1540	c)	*implement biometric revocation (a.k.a. biometric template protection);* Note - this is for both revocation of the credential as much as for privacy protection		✔	In Scope Applicable
5.2.3		Use of Biometrics	· All transmission of biometrics SHALL be over the authenticated protected channel.	✓	63B#1540	d)	*transmit all biometric data over an authenticated protected channel.*		✔	In Scope Applicable
5.2.3		Use of Biometrics	Biometric samples and any biometric data derived from the biometric sample such as a probe produced through signal processing SHALL be zeroized immediately after any training or research data has been derived.	✓	63B#1550		*The CSP SHALL zeroize the biometric sample (including any associated biometric data) immediately after any training or research data has been derived.*		✔	In Scope Applicable

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§	(…)	Clause title	Requirement	CSP	63B tag	index	KI_criterion (*text in red is new this version*)		2	
5.2.4		Attestation	If this attestation is signed, it SHALL be signed using a digital signature that provides at least the minimum security strength specified in the latest revision of SP 800-131A (112 bits as of the date of this publication).	✓	63B#1560		*If it signs authentication attestations the CSP SHALL use a digital signature that provides at least the minimum security strength specified in the latest revision of SP 800-131A.*		✔	In Scope Applicable
5.2.5		Verifier Impersonation Resistance	A verifier impersonation-resistant authentication protocol SHALL establish an authenticated protected channel with the verifier.	✓	63B#1570		*The CSP SHALL establish an authenticated protected channel between itself and the verifier by use of a verifier impersonation-resistant authentication protocol*			In Scope Applicable
5.2.5		Verifier Impersonation Resistance	It SHALL then strongly and irreversibly bind a channel identifier that was negotiated in establishing the authenticated protected channel to the authenticator output (e.g., by signing the two values together using a private key controlled by the claimant for which the public key is known to the verifier).	✓	63B#1580		*The CSP SHALL strongly and irreversibly bind to the authenticator output a channel identifier which was negotiated during the establishment of the authenticated protected channel*			In Scope Applicable
5.2.5		Verifier Impersonation Resistance	The verifier SHALL validate the signature or other information used to prove verifier impersonation resistance. This prevents an impostor verifier, even one that has obtained a certificate representing the actual verifier, from replaying that authentication on a different authenticated protected channel.	✓	63B#1590		*At the time of binding the channel identifier the CSP SHALL validate the information used to prove verifier impersonation-resistance.*			In Scope Applicable

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5.2.5		Verifier Impersonation Resistance	Approved cryptographic algorithms SHALL be used to establish verifier impersonation resistance where it is required. Keys used for this purpose SHALL provide at least the minimum security strength specified in the latest revision of SP 800-131A (112 bits as of the date of this publication).	✓	63B#1600		*The CSP SHALL establish the verifier impersonation resistant channel using approved cryptographic algorithms the keys for which meet at least the minimum security strength specified in the latest revision of SP 800-131A.*			In Scope Applicable
5.2.5		Verifier Impersonation Resistance	Authenticators that involve the manual entry of an authenticator output, such as out-of-band and OTP authenticators, SHALL NOT be considered verifier impersonation-resistant because the manual entry does not bind the authenticator output to the specific session being authenticated. In a MitM attack, an impostor verifier could replay the OTP authenticator output to the verifier and successfully authenticate.	✓	63B#1610		*The CSP SHALL NOT accept as verifier impersonation-resistant authenticators those that involve the manual entry of an authenticator output.*			In Scope Applicable
5.2.6		Verifier-CSP Communications	In situations where the verifier and CSP are separate entities (as shown by the dotted line in SP 800-63-3 Figure 4-1), communications between the verifier and CSP SHALL occur through a mutually-authenticated secure channel (such as a client-authenticated TLS connection) using approved cryptography.	✓	63B#1620		If the CSP uses the services of a remote/independent Verifier, all communications with that entity SHALL occur through a mutually-authenticated secure channel using approved cryptography.		✓	In Scope Applicable

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5.2.7		Verifier-Compromise Resistance	To be considered verifier compromise resistant, public keys stored by the verifier SHALL …	✔	63B#1630		*For verifier's public keys to be considered verifier compromise resistant, the CSP SHALL only store such keys when they:*		✔	In Scope Applicable
5.2.7		Verifier-Compromise Resistance	be associated with the use of approved cryptographic algorithms and …	✔	63B#1630	a)	*use approved cryptographic algorithms;*		✔	In Scope Applicable
5.2.7		Verifier-Compromise Resistance	… SHALL have at least the minimum security strength specified in the latest revision of SP 800-131A (112 bits as of the date of this publication).	✔	63B#1630	b)	*provide at least the minimum security strength specified in the latest revision of SP 800-131A.*		✔	In Scope Applicable
5.2.7		Verifier-Compromise Resistance	Other verifier compromise resistant secrets SHALL …	✔	63B#1640		*For verifier's secrets other than public key to be considered verifier compromise resistant, the CSP SHALL only only store such secrets when they:*		✔	In Scope Applicable
5.2.7		Verifier-Compromise Resistance	… use approved hash algorithms and …	✔	63B#1640	a)	*use approved hashing algorithms;*		✔	In Scope Applicable
5.2.7		Verifier-Compromise Resistance	… the underlying secrets SHALL have at least the minimum security strength specified in the latest revision of SP 800-131A (112 bits as of the date of this publication).	✔	63B#1640	b)	*provide at least the minimum security strength specified in the latest revision of SP 800-131A.*		✔	In Scope Applicable
5.2.9		Authentication Intent	Authentication intent SHALL be established by the authenticator itself, although multi-factor cryptographic devices MAY establish intent by reentry of the other authentication factor on the endpoint with which the authenticator is used.	✔	63B#1650		*The CSP SHALL use only those authenticators which demonstrate authentication intent.*		✔	In Scope Applicable
5.2.10		Restricted Authenticators	If at any time the organization determines that the risk to any party is unacceptable, then that authenticator SHALL NOT be used.	✔	63B#1660		*If the CSP employs RESTRICTED authenticators then the associated risks shall be considered in its risk assessments.*		✔	In Scope - Not Applicable

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§	(…)	Clause title	Requirement	CSP	63B tag	index	KI_criterion (text in red is new this version)		2	
5.2.10		Restricted Authenticators	Because the subscriber may be exposed to additional risk when an organization accepts a RESTRICTED authenticator and that the subscriber may have a limited understanding of and ability to control that risk, the CSP SHALL:	✓	63B#1670		If the CSP employs RESTRICTED authenticators then it SHALL:		✔	In Scope - Not Applicable
5.2.10		Restricted Authenticators	1. Offer subscribers at least one alternate authenticator that is not RESTRICTED and can be used to authenticate at the required AAL.	✓	63B#1670	a)	require at least one alternate authenticator that is not RESTRICTED;		✔	In Scope - Not Applicable
5.2.10		Restricted Authenticators	2. Provide meaningful notice to subscribers regarding the security risks of the RESTRICTED authenticator and availability of alternative(s) that are not RESTRICTED.	✓	63B#1670	b)	provide meaningful notice to subscribers regarding the security risks of the RESTRICTED authenticator and availability of alternative(s) that are not RESTRICTED;		✔	In Scope - Not Applicable
5.2.10		Restricted Authenticators	4. Develop a migration plan for the possibility that the RESTRICTED authenticator is no longer acceptable at some point in the future and include this migration		63B#1680		The CSP SHALL, in a digital identity acceptance statement (DIAS), develop a migration plan to account for the possibility that the RESTRICTED authenticator is no longer acceptable at some point in the future.		✔	In Scope - Not Applicable
6,1		Authenticator Binding	Authenticators SHALL be bound to subscriber accounts by either:	✓	63B#1690		The CSP SHALL bind authenticators to Subject accounts by either:		✔	In Scope Applicable
6,1		Authenticator Binding	· Issuance by the CSP as part of enrollment; or	✓	63B#1690	a)	issuing them at the time of enrollment; OR		✔	In Scope Applicable
6,1		Authenticator Binding	· Associating a subscriber-provided authenticator that is acceptable to the CSP.	✓	63B#1690	b)	associating a subscriber-provided authenticator that is acceptable to the CSP.		✔	In Scope Applicable

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6,1		Authenticator Binding	Throughout the digital identity lifecycle, CSPs SHALL maintain a record of all authenticators that are or have been associated with each identity.	✓	63B#1700		The CSP SHALL maintain, for the duration of the digital identity lifecycle accounting for the provisions of its data retention schedule, a record of all authenticators that are or have been associated with each identity and of all significant actions taken with regard to the maintenance of each authenticator.		✓	In Scope Applicable
6,1		Authenticator Binding	The CSP or verifier SHALL maintain the information required for throttling authentication attempts when required, as described in Section 5.2.2.	✓	63B#1710		The CSP SHALL maintain information required for throttling authentication attempts when required (see 63B#1450 & '#1460).		✓	In Scope Applicable
6,1		Authenticator Binding	The CSP SHALL also verify the type of user-provided authenticator (e.g., single-factor cryptographic device vs. multi-factor cryptographic device) so verifiers can determine compliance with requirements at each AAL.	✓	63B#1720		The CSP SHALL determine the type of user-provided authenticator and make that determination available to Verifiers to fulfill AAL2 requirements.		✓	In Scope Applicable
6,1		Authenticator Binding	The record created by the CSP SHALL contain the date and time the authenticator was bound to the account.	✓	63B#1730		The CSP SHALL maintain, for the duration of the digital identity lifecycle accounting for the provisions of its data retention schedule, a record of all authenticators that are or have been associated with each identity:		✓	In Scope Applicable
6,1		Authenticator Binding	When any new authenticator is bound to a subscriber account, the CSP SHALL ensure that the binding protocol and the protocol for provisioning the associated key(s) are done at a level of security commensurate with the AAL at which the authenticator will be used.	✓	63B#1740		The CSP SHALL ensure that, when any new authenticator is bound to a subscriber account, the binding protocol and the protocol for provisioning the associated key(s) are done at a level of security commensurate with use of the authenticator at AAL2.		✓	In Scope Applicable

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§	(…)	Clause title	Requirement	CSP	63B tag	index	KI_criterion (text in red is new this version)		2	
6,1		Authenticator Binding	Binding of multifactor authenticators SHALL require multifactor authentication or equivalent (e.g., association with the session in which identity proofing has been just completed) be used in order to bind the authenticator.	✓	63B#1750		The CSP SHALL NOT bind multifactor authenticators unless at the end of a session in which identity proofing has been completed or after multifactor authentication has already been accomplished.		✔	In Scope Applicable
6.1.1		Binding at Enrollment	The CSP SHALL bind …	✓	63B#1760		When the CSP binds an authenticator to an identity as a result of the CSP having performed a successful identity proofing of the Subject, the CSP SHALL bind to the Subject's online identity:		✔	In Scope Applicable
6.1.1		Binding at Enrollment	… at least one, and SHOULD bind at least two, physical (something you have) authenticators to the subscriber's online identity, …	✓	63B#1760	a)	at least one physical (something [the Subject] has) authenticator; AND		✔	In Scope Applicable
6.1.1		Binding at Enrollment	… in addition to a memorized secret or one or more biometrics. Binding of multiple authenticators is preferred in order to recover from the loss or theft of the subscriber's primary authenticator.	✓	63B#1760	b)	a memorized secret or at least one biometric.		✔	In Scope Applicable
6.1.1		Binding at Enrollment	… authenticators at the same AAL as the desired IAL SHALL be bound to the account.	✓	63B#1770		The CSP SHALL ensure that authenticators bound to the Subject's online identity are AAL2 or higher.		✔	In Scope Applicable
6.1.1		Binding at Enrollment	… the CSP SHALL NOT expose personal information, even if self-asserted, to the subscriber.	✓	63B#1780		The CSP SHALL NOT expose personal information to the subscriber, even if self-asserted, unless AAL2 authentication has been accomplished.		✔	In Scope Applicable
6.1.1		Binding at Enrollment	If enrollment and binding cannot be completed in a single physical encounter or electronic transaction (i.e., within a single protected session), the following methods SHALL be used to ensure that the same party acts as the applicant throughout the processes:	✓	63B#1790		If enrollment and binding cannot be completed in a single physical encounter or within a single protected electronic transactional session, the CSP SHALL employ the following methods to ensure that the same party acts as the Applicant throughout the processes:		✔	In Scope Applicable

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6.1.1		Binding at Enrollment	For remote transactions:	✓	63B#1790	a)		For remote transactions the CSP SHALL:	✔	In Scope Applicable
6.1.1		Binding at Enrollment	1. The applicant SHALL identify themselves in each new binding transaction by presenting a temporary secret which was either …	✓	63B#1790	a)	i)	require the Applicant to identify themselves in each new binding transaction by presenting a temporary secret which was either:	✔	In Scope Applicable
6.1.1		Binding at Enrollment	… established during a prior transaction, or …	✓	63B#1790	a)	i)	established during a prior transaction; or	✔	In Scope Applicable
6.1.1		Binding at Enrollment	… sent to the applicant's phone number, email address, or postal address of record.	✓	63B#1790	a)	i)	sent to the Applicant's phone number, email address, or postal address of record.	✔	In Scope - Not Applicable
6.1.1		Binding at Enrollment	2. Long-term authenticator secrets SHALL only be issued to the applicant within a protected session.	✓	63B#1790	a)	ii)	Only issue long-term authenticator secrets to the Applicant within a protected session.	✔	In Scope Applicable
6.1.1		Binding at Enrollment	For in-person transactions:	✓	63B#1790	b)		For in-person transactions the CSP SHALL:	✔	In Scope - Not Applicable
6.1.1		Binding at Enrollment	1. The applicant SHALL identify themselves in person by either	✓	63B#1790	b)	i)	require the Applicant to identify themselves in person by either:	✔	In Scope - Not Applicable
6.1.1		Binding at Enrollment	… using a secret as described in remote transaction (1) above, or …	✓	63B#1790	b)	i)	using a secret as described in remote transaction a) i) above; OR	✔	In Scope - Not Applicable
6.1.1		Binding at Enrollment	… through use of a biometric that was recorded during a prior encounter.	✓	63B#1790	b)	i)	through use of a biometric that was recorded during a prior encounter.	✔	In Scope - Not Applicable
6.1.1		Binding at Enrollment	2. Temporary secrets SHALL NOT be reused.	✓	63B#1790	b)	ii)	only accepting a temporary secret once;	✔	In Scope - Not Applicable
6.1.1		Binding at Enrollment	3. If the CSP issues long-term authenticator secrets during a physical transaction, then they SHALL be loaded locally onto a physical device that is issued in person to the applicant or delivered in a manner that confirms the address of record.	✓	63B#1790	b)	iii)	only relying upon long-term authenticator secrets during a physical transaction, if they have been loaded locally onto a physical device that is issued in person to the Applicant or delivered in a manner that confirms the Applicant's address of record.	✔	In Scope - Not Applicable

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§	(…)	Clause title	Requirement	CSP	63B tag	index	KI_criterion (*text in red* is new this version)		2	
6.1.2.1		Binding of an Additional Authenticator at Existing AAL	Before adding the new authenticator, the CSP SHALL first require the subscriber to authenticate at the AAL (or a higher AAL) at which the new authenticator will be used.	✔	63B#1800		*Prior to issuing the Subject with new/additional AAL2 authenticators the CSP SHALL first authenticate the Subject at AAL2.*		✔	In Scope Applicable
6.1.2.3		Replacement of a Lost Authentication Factor	If a subscriber loses all authenticators of a factor necessary to complete multi-factor authentication and has been identity proofed at IAL2 or IAL3,	✔	63B#1810		*If a Claimant loses all authenticators of a factor necessary to complete multi-factor authentication the CSP SHALL enable replacement of lost authentication factors by one of the following methods:*		✔	In Scope Applicable
6.1.2.3		Replacement of a Lost Authentication Factor	that subscriber SHALL repeat the identity proofing process described in SP 800-63A	✔	63B#1810	a)	*require the Claimant to present themselves for full identity proofing as per the CSP's policies and processes as operated in conformity with the applicable 63A SAC criteria; OR*		✔	In Scope Applicable
6.1.2.3		Replacement of a Lost Authentication Factor	The CSP SHALL require the claimant to authenticate using an authenticator of the remaining factor, if any, to confirm binding to the existing identity.	✔	63B#1810	b)	*IF the CSP has retained evidence from the original proofing process pursuant to a privacy risk assessment iaw 63A#0180, the CSP SHALL authenticate the Claimant using an authenticator of the remaining factor, if any, to confirm binding to the existing identity.*		✔	In Scope - Not Applicable
6.1.2.3		Replacement of a Lost Authentication Factor	The confirmation code SHALL consist of at least 6 random alphanumeric characters generated by an approved random bit generator [SP 800-90Ar1].	✔	63B#1830		*The CSP SHALL, if it supports re-proofing through binding memorized secrets using two physical authenticators, use conformation codes that consist of at least 6 random alphanumeric characters generated by an approved random-bit generator [SP 800-90Ar1].*		✔	In Scope Applicable
6.1.2.3		Replacement of a Lost Authentication Factor		✔	63B#1840		*The CSP SHALL only issue confirmation codes that have the following validities:*		✔	In Scope Applicable
6.1.2.3		Replacement of a Lost Authentication Factor	Those sent to a postal address of record SHALL be valid for a maximum of 7 days …	✔	63B#1840	a)	*7 days, when sent to a postal address of record within the contiguous United States; OR*		✔	In Scope - Not Applicable
6.1.2.3		Replacement of a Lost Authentication Factor	… but MAY be made valid up to 21 days via an exception process to accommodate addresses outside the direct reach of the U.S. Postal Service.	✔	63B#1840	b)	*21 days, when sent to a postal address of record outside the direct reach of the U.S. Postal Service; OR*		✔	In Scope - Not Applicable

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6.1.2.3		Replacement of a Lost Authentication Factor	Confirmation codes sent by means other than physical mail SHALL be valid for a maximum of 10 minutes.	✓	63B#1840	c)	*10 minutes, when sent by any means other than physical mail.*		✔	In Scope Applicable
6.1.3		Binding to a Subscriber-provided Authenticator	Binding of these authenticators SHALL be done as described in Section 6.1.2.1.	✓	63B#1850				✔	
6,2		Loss, Theft, Damage, and Unauthorized Duplication	This backup authenticator SHALL be either a memorized secret or a physical authenticator.	✓	63B#1860		*IF the CSP supports a method by which it can authenticate the Subject using a backup or alternate authenticator the CSP SHALL only accept backup authenticators which are either a memorized secret or a physical authenticator.*		✔	In Scope Applicable
6,2		Loss, Theft, Damage, and Unauthorized Duplication	The suspension SHALL be reversible if the subscriber successfully authenticates to the CSP using a valid (i.e., not suspended) authenticator and requests reactivation of an authenticator suspended in this manner.	✓	63B#1870		*The CSP SHALL, if it supports suspension of authenticators reported as having been compromised, ensure that such suspension is reversible if the Subject is successfully authenticated by the CSP using an alternative valid (i.e., not suspended) authenticator, at the same or higher assurance level, and the Subject requests reactivation of the suspended authenticator.*		✔	In Scope Applicable
6,3		Expiration	If and when an authenticator expires, it SHALL NOT be usable for authentication.	✓	63B#1880		*If the CSP issues authenticators which expire the CSP SHALL NOT accept authentication claims which attempt to use an expired authenticator.*		✔	In Scope Applicable
6,3		Expiration	The CSP SHALL require subscribers to surrender or prove destruction of any physical authenticator containing attribute certificates signed by the CSP as soon as practical after expiration or receipt of a renewed authenticator.	✓	63B#1890		*The CSP SHALL require Subjects to surrender or attest to destruction of any physical authenticator containing attribute certificates signed by the CSP as soon as practical after expiration or receipt of a renewed authenticator, or after receipt of notice of either revocation or termination.*		✔	In Scope Applicable
6,4		Revocation and Termination	CSPs SHALL revoke the binding of authenticators promptly when …	✓	63B#1900		*The CSP SHALL revoke promptly the binding of authenticators to the Subject's online identity, and give notice of such to the Subject, when any one of the following occurs:*		✔	In Scope Applicable
6,4		Revocation and Termination	… an online identity ceases to exist (e.g., subscriber's death, discovery of a fraudulent subscriber), …	✓	63B#1900	a)	*the Subject's online identity ceases to exist; OR*		✔	In Scope Applicable

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6,4		Revocation and Termination	… when requested by the subscriber, or …	✓	63B#1900	b)	the Subject requests revocation; OR	✔	In Scope Applicable
6,4		Revocation and Termination	… when the CSP determines that the subscriber no longer meets its eligibility requirements.	✓	63B#1900	c)	the CSP determines that the Subject no longer meets its eligibility requirements; OR	✔	In Scope Applicable
6,4		Revocation and Termination		✓	63B#1900	d)	the CSP is obligated to do so in response to a legal instrument.	✔	In Scope Applicable
6,4		Revocation and Termination	The CSP SHALL require subscribers to surrender or certify destruction of any physical authenticator containing certified attributes signed by the CSP as soon as practical after revocation or termination takes place. This is necessary to block the use of the authenticator's certified attributes in offline situations between revocation/termination and expiration of the certification.	✓	63B#1910		*The CSP SHALL require Subscribers/Subjects to surrender or certify destruction of any physical authenticator containing certified attributes signed by the CSP as soon as practical after revocation or termination takes place.*	✔	In Scope Applicable
7,2		Reauthentication	Continuity of authenticated sessions SHALL be based upon the possession of a session secret issued by the verifier at the time of authentication and optionally refreshed during the session.	✓	63B#1920		The CSP SHALL issue a session secret at the time of initial verification of a User and SHALL maintain that session secret OR a refreshed replacement session secret for the duration of the session.	✔	In Scope Applicable
7,2		Reauthentication	Session secrets SHALL be non-persistent. That is, they SHALL NOT be retained across a restart of the associated application or a reboot of the host device.	✓	63B#1930		The CSP SHALL NOT allow session secrets (whether ~~one~~ issued initially or ~~one~~ refreshed) to persist beyond the termination of a session.	✔	In Scope Applicable
7,2		Reauthentication	Prior to session expiration, the reauthentication time limit SHALL be extended by prompting the subscriber for the authentication factor(s) specified in Table 7-1.	✓	63B#1940		Prior to terminating a session for reason of inactivity the CSP SHALL prompt the Subject for their memorized secret or biometric attribute to extend the re-authentication time limit.	✔	In Scope Applicable

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7,2		Reauthentication	When a session has been terminated, due to a time-out or other action, the user SHALL be required to establish a new session by authenticating again.	✔	63B#1950		*The CSP SHALL require a new session to be started, with re-authentication of the Subject after any session termination (for whatever reason).*		✔	In Scope Applicable
7.2.1		Reauthentication from a Federation or Assertion	Since the CSP and RP often employ separate session management technologies, there SHALL NOT be any assumption of correlation between these sessions.	✔	63B#1960		*Unless the CSP is supporting a federation protocol which permits RPs to specify an acceptable authentication age then the CSP SHALL make no assumptions of correlation between its session with the Subscriber and those of any other party.*		✔	In Scope Applicable
7.2.1		Reauthentication from a Federation or Assertion	… the CSP SHALL reauthenticate the subscriber if they have not been authenticated within that time period.	✔	63B#1970		*If the CSP is supporting a federation protocol which permits RPs to specify a maximum acceptable authentication age then the CSP SHALL modify its conformity to [tag above re 12 hrs] so as to:*		✔	In Scope Applicable
7.2.1		Reauthentication from a Federation or Assertion		✔	63B#1970	a)	*re-authenticate the Subscriber within the RP-specified time period;*		✔	In Scope Applicable
7.2.1		Reauthentication from a Federation or Assertion	The CSP SHALL communicate the authentication event time to the RP to allow the RP to decide if the assertion is sufficient for reauthentication and to determine the time for the next reauthentication event.	✔	63B#1970	b)	*communicate the authentication event time to the RP;*		✔	In Scope Applicable