

# Waggoner

Federal Services Comparative  
Aviation Vision Chart (2020)



The 2020 - Federal Services Comparative Aviation Vision Chart was created by LT USN Stephen Jaggi, LCDR USN Kyle Dohm, and updated by LCDR USN Amanda Jimenez Myers.

Waggoner Diagnostics would like to thank them for serving our country and providing such helpful and relevant resources to the aviation community.

**2020 - FEDERAL SERVICES COMPARATIVE AVIATION VISION STANDARDS**

	Each Eye		Refractive Error (any meridian)				NPC (mm)	Each Eye		Phoria			Stereopsis		Color Vision		Refractive Surgery			Intraocular Pressure
	Flying Class	Category	Unaided Distant VA	Corrected Distance VA	Myopia	Hyperopia		Cyl	Aniso	Near VA	ESO	EXO	Hyper	Tropia	Test	Score	Test / Score	RK	PRK/LASEK	LASIK/SMILE
<b>USAF</b>	I (PA)	No Standard	20/20	-3.00	+2.00	-1.50	2.00	No Std.	C 20/20	10	6	1.5	0	Optec2300: 40 sec or A-B	CCT 55+	N	Allowed, No waivers required for uncomplicated cases if pre-op refractive error $\leq +3.00$ , $\leq -8.00$ and $\leq 3.00$ D of astigmatism. SMILE not approved for aircrew.	$\leq 21$ mmHg or $\leq 3$ mmHg difference. (DQ only for applicants). If applicant has IOP $>21$ , but $<27$ and pachs $>540$ , considered to meet std.		
	IA (CSO A)			-4.50	+3.00	-2.00	2.50													
	II (P)			N/A	N/A	N/A	N/A													
	II (FS/CSO)			N/A	N/A	N/A	N/A													
	III Untrained *			-5.50	+5.50	-3.00	3.50													
	III Trained *			No standards																
	RPA Pilot (Untrained)**			-4.00	+3.50	-2.00	2.50													
	RPA Pilot (trained)			No standards																
	GBC (Trained or untrained)			No standards																
	MOD (Trained or untrained)			No standards																
SWA (Trained or untrained)	No standards																			
<b>USA</b>	I (W/C-OF)	20/50	20/20-1	-1.50	3.00	-1.00	No Stand.	100	20/20	8	8	1	0	AFVT: 40 sec Randot: 40 sec Titmus: 40 sec	PIP 12/14 "mild"/55+ computer	N	No waiver req Pre Sx: $+4$ to $-6$ SE, $\leq 3$ Cyl; Waiver if Pre Sx: $-6$ to $-8$ SE	IOP = 8-21 $\leq 3$ mmHg diff.		
	II (Pilot)	20/400		No Standard (Designated)				UC=20/400 C=20/20												
	III (Flight Surgeon)	20/400		No Standard (Designated)				UC=20/40 C=20/20												
<b>USN</b>	I SNA (P)	20/40-0 Goodlite	20/20-0 Goodlite	Cyclo - Sph only -1.50	+3.00	-1.00	3.50	No Standard	UC=20/40 C=20/20  UC=20/40 = Must fly with Rx C=20/20	6	6	1.5	0	VTA-ND: 25sec Optec2300: A-D PASS Verhoeff: 8/8 Randot:40sec Titmus: (40sec)	PIP or Computer 12/14 PIP, "mild" WCCVT / 55+ CCT	No waivers granted.	No waiver req for App. Pre Sx: $+3.00$ to $-8.00$ SE, $\leq 3.00$ Cyl. Desig. Pre Sx: $+6.00$ to $-11.50$ SE $\leq 6.00$ Cyl	IOP $\leq 22$ , $\leq 4$ mmHg difference		
	I SG1	20/100	20/20-0**	No Standard (Designated Status)																
	I SG2	20/200	20/20-0**	No Standard (Designated Status)																
	I SG3	20/400	20/20-0**	No Standard (Designated Status)																
	IV (UAS/UAV)	No Standard	20/20-3***	-8.00	+8.00	-3.00	3.50													
	II SNFO	No Standard	20/20-3***	No Standard																
	II NFO, AMO, AC (Fixed Wing only)	No Standard	20/20-3***	No Standard																
	II Air Crew (Rotary Wing)	20/100	20/20-3***	No Standard																
III ATC	No Standard	20/20-3***	No Standard																	
<b>Coast Guard</b>	Initial Class 1 (P)	20/50	20/20-1	Note: also for Cyclo Refraction				No Standard	100	UC 20/20- 1	8	8	1	Ref. to Opto. any movement on Cover-Uncover, or Alternate  40 Sec of Arc @ 20 feet. AFVT/OPTEC 2300: A-B Titmus II Line 1-9 Randot circles Lines 1-7	PIP or Computer 12/14 PIP "mild" WCCVT / 55+ CCT	No waivers granted.	Allowed. For candidates, Pre-operative refractive limits: Sphere $-8.00$ to $+6.00$ , Cylinder: $-3.00$ to $+3.00$ , Anisometropia: 3.5 diopters. (Beyond these standards, a waiver requires NAMI endorsement.)	IOP from 8-21, $\leq 3$ mmHg difference		
	Comprehensive Class 1 (P)	20/200		-1.50	+3.00	-1.00														
	Initial Class 2	20/400		Not Required																
	ATC (Initial C 3)	20/100		Not Required																
	Air Crew (Initial C 3)	20/100		Not Required																
	Air Crew (Comp. C 3)	20/200		Not Required																
	Landing signal Officer-C 3	20/200		Not Required																
	ATC (Comp. C 3)	20/200		Not Required																
<b>FAA</b>	1st Class Airline Transport	No Standard	20/20	No standard				Near VA: C=20/40 at 16" Intermed. VA: C=20/40 at 32" if over 50 Near VA: C=20/40 at 16"	6	6	1	No Hx of diplopia	No Standard	PIP 9 of 15	Allowed. Within 2 years of surgery requires exam by optometrist stating no complications. After 2 years, just meets visual acuity requirements.	No Standard				
	2nd Class Commercial			No standard																
	3rd Class Private			No Standard	20/40	No standard														

\* NOTOSP= No Obvious Tropia Or Symptomatic Phoria. (NOHOSH = No Obvious Heterotropia Or Symptomatic Heterphoria)

\*\* Designated Class I Pilots, service group (SG) I, II, or III, must be corrected to 20/20-0, either Snellen, or 10/10 on Goodlite.

\*\*\* Class II to Class IV Navy fliers corrected vision can be 20/20-3 (7/10) on Goodlite chart, or 20/20-0 on Snellen chart.

	Reference	Definition	General Notes
USAF	I (P A)	Pilot Applicant	All refractive standards are based on most plus or most minus meridian, not spherical equivalent
	IA (CSO A)	Combat Systems Operator Applicant	
	II (P)	Trained Pilot	There are no refractive standards for trained aircrew. By definition FC II, whether pilot, CSO or FS are all trained. IFC I/IA are untrained. You can have either trained or untrained FC III and RPA Pilot
	II (FS/CSO)	Trained Flight Surgeon / CSO	
	III Untrained *		Air Battle Manager (No phoria/depth requirements), Boom Operator
	III Trained *		2324
	RPA Pilot (untrained) **		RPA Pilot applicants must meet FC II standards during Undergraduate Remote Pilot Training (URT) and then must meet RPA Pilot standards upon completion of training.
	RPA Pilot (Trained)		
	GBC (Trained or Untrained)	Ground Based Controller	RPA sensor operator, Air Traffic Control
	MOD	Misile Operations Duty	
SWA	Special Warfare Airmen	Includes Combat Rescue Officer (CRO), Special Tactics Officer (STO), Air Liaison Officer (ALO), Pararescue (PJ), Combat Control (CCT), Tactical Air Control Party (TACP), Special Operations Weather	
USA	W/C-OF	Warrant / Company Grade Officer	NOTE. Pay attention: $-1.00 - 0.75 \times 180$ might appear qualified. However, when transposed to $-1.75 + 0.75 \times 090$ it is apparent that this refraction is disqualifying because the sphere amount exceeds $-1.50$ .
USN	I SNA (P)	Class I Student Naval Aviator (Pilot)	Manifest refraction is required only for SNA who are NOT 20/20-0 on Goodlite in both eyes. Cycloplegic refraction (1% cyclopentolate) to assure $\leq +3.00$ (Note: 20/20-0 result is NOT required for cycloplegic exam nor is there an astigmatism (Cyl) standard on cyclo)
	II SNFO	Class II Student Naval Flight Officer	Selection exam: Refraction limits apply to manifest refraction (Cyclo not required)
	I SG1	Class I Service Group 1	Retention exam - Annual Carrier Landing Qualified OK for all aircraft
	I SG2	Class I Service Group 2	Retention exam - Annual Not Fixed Wing Carrier Landing Qualified HELOs OK
	I SG3	Class I Service Group 3	Retention exam - Annual Not Carrier Qualified - Must be in Dual Piloted Aircraft
	II NFO, AMO, AC(FW only)	Class II Naval Flight Officer, Weapon System Officer, AeroMedical Officer, Fixed Wing Air Crew	If a goodlite chart or AFVT is used- 7/10 on the 20/20 line is qualifying. If any other chart is used (i.e. Snellen), all letters must be read on the line in order to get credit for that line (i.e. 20/20-0 Snellen to be within standards).
	II AC-Rotary Wing	Class II Aircrew in Rotary Wing Aircraft	
	III ATC	Class III Air Traffic Controllers	
	IV UAS/UAV	Unmanned Aerial Systems, Unmanned Aerial Vehicle	
	NOTOSP	No Obvious Tropias or Symptomatic Phorias	
NOHOSH	No Obvious Heterotropia or Symptomatic Heterophoria	Moving away from using this acronym in favor of "NOTOSP" as duplicate "H" lead to confusion.	
Coast Guard	Initial Class 1 (P)	Prospective Class 1 Pilots	
	Comprehensive Class 1 (P)	Designated Class 1 Pilots	
	Initial Class 2	Prospective Class 2 Pilots	
	ATC (Initial C 3)	Air Traffic Controller Applicants, class 3	
PIP	PRK	Photorefractive Keratectomy	Oblative eximer laser refractive surgery. <b>NOTE, WHERE PRK / LASIK / LASEK IS NOTED AS "APPROVED", IT IS SERVICE SPECIFIC ON WAVIERS / RESTRICTIONS. Check with the individual Service authority for details and restrictions.</b>
	LASIK	Laser Assisted In-situ Keratectomy	Oblative eximer laser refractive surgery with corneal flap
		Pseudoisochromatic Plates	PIP testing should always be done under approved light source only (i.e. daylight lamp)
		USAF	USAF only accepts the Cone Contrast Test (CCT) for color vision.
		USA and USN	PIP or Computer testing and allows FALANT if qualified prior to 01 Jan 2017 (Grandfathered in). WCCT = Waggoner Computerized Color Vision Test; CCT = Cone Contrast Test (Rabin).
		Coast Guard	Same color vision standards as USN.
	FAA	Non-specific on color testing	