

**ANNEX XXX**

**EVLOS Operations Procedures**

**Version** 1.0 - Month Year

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Glossary

Acronyms and abbreviations

|  |  |
| --- | --- |
| Acronym / abbreviation | Description |
| GPS | Global positioning system |
| GNSS | Global navigation satellite system |
| HOTO | Hand-over/take-over |

Definitions

|  |  |
| --- | --- |
| Term | Definition |
| EVLOS operation class 1 | ***<insert conceptual definition>*** |
| EVLOS operation class 2 | ***<insert conceptual definition>*** |
| FPV system | first person view system |
| observer | a trained visual observer class 1 or class 2 |
| relevant airspace  (EVLOS operations) | In the context of an EVLOS operation, means any point of non-controlled airspace into which the crewed aircraft is flying at a particular time that is both less than 3 NM in distance and less than 1500 ft in height from any point of the airspace in which the RPA is flying at the same time. |

Reference material

|  |  |
| --- | --- |
| Document type | Title |
| <Regulation> | <Part 123 of the Civil Aviation Safety Regulations 1998> |
|  |  |

Forms

|  |  |
| --- | --- |
| Form no. | Title |
| <Form > | <ABC Initial Issue Application Form> |
|  |  |

Revision history

Revisions to this manual are recorded below in order of most recent first.

|  |  |  |  |
| --- | --- | --- | --- |
| Version no. | Date | Parts / sections | Details |
|  |  |  |  |
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# General administration

## Overview

***{ABC RPA}*** conducts EVLOS operations ***class 1 and/or class 2. <insert a brief description of the EVLOS operations conducted>***

## Statement of compliance

All ***{ABC RPA}****’*s EVLOS operations using RPAS must be conducted in accordance with these documented practices and procedures, and in accordance with the relevant CASA authorisation issued to ***{ABC RPA},*** as contained within Appendix C. of the Operations Manual.

## Remote pilots for EVLOS operations

### Remote pilot qualifications

***<list/detail any additional qualifications required for EVLOS Remote Pilots, as relevant (AROC, Flight Radio Endorsement, etc.)>***

#### Visual acuity

EVLOS RPs must have vison acuity (including when corrected) that complies with the Austroads standard for private motor vehicle licensing visual acuity, as in force from time to time.

### Remote pilot experience

RPs must have completed, in addition to the 5 hours’ experience required under paragraph 101.295 (2) (c) of CASR, ***<insert number of hours of flight time>*** operating in VLOS operations an RPA of the same type as the RPA that is to be used in the EVLOS operation.

### Remote pilot responsibilities

***<insert procedures for the responsibilities and accountabilities of RPs conducting EVLOS operations class 1 and/or class 2>***

### Remote pilot currency and proficiency requirements

Before conducting an EVLOS operation, EVLOS RPs must have successfully completed an EVLOS RP proficiency check that has been undertaken within the following periods:

* 1. Not more than 12 months before the EVLOS operation; or
  2. Not more than 24 months before the EVLOS operation, provided the remote pilot has completed at least 3 EVLOS flights in each of the 12-month periods before the EVLOS operation.

EVLOS RP proficiency check procedures and requirements are detailed at Section 10.

***<insert any additional currency and proficiency requirements procedures for RPs conducting EVLOS operations class 1 and/or class 2, as applicable>***

### Remote pilot training requirements

Prior to conducting an EVLOS operation, EVLOS RPs must have completed specific EVLOS operational training and been certified as competent to conduct EVLOS operations.

EVLOS RP training procedures and requirements are outlined within Section (**XX/8**). Each EVLOS RP shall receive training IAW Section (**XX/8**), provided by the CRP or other nominated person(s) as identified at section 5.1 of the Operations Manual.

### EVLOS remote pilot register

## The RPs identified in table 1 in Appendix A are certified to operate EVLOS class 1 and/or 2. Observers for EVLOS operations

### Observer qualifications

Any observers operating an aeronautical radio must hold an aeronautical radio operator certificate (AROC) or its equivalent.

***<list/detail any additional qualifications and experience requirements for EVLOS Observers, as relevant>***

#### Visual acuity

EVLOS observers must have visual acuity (including when corrected) that complies with the Austroads standard for private motor vehicle licensing visual acuity, as in force from time to time.

### Responsibilities of observers

#### EVLOS operations class 1

For EVLOS operations class 1, the observer must be in the same location as the RP.

IAW with section 5.04 of the Part 101 Manual of Standards (MOS), whilst the RPA is operating, an observer must have no duties other than either:

1. keep the RPA constantly within VLOS; or
2. know the exact location, direction of flight and approximate height of the RPA; and
   1. maintain constant situational awareness of the airspace surrounding, and the ground below, the RPA; and
   2. remain in continual, direct, verbal communication with the remote pilot without the use of any device; and
   3. do the following:
      1. advise the remote pilot if the RPA is likely to become a hazard to any other aircraft, or any person or property;
      2. direct the remote pilot on the action required to ensure that the RPA does not become a hazard to another aircraft, person or property;
      3. immediately direct the safe termination of the operation if:

the exact location of the RPA is lost to the relevant observer’s direct sight or knowledge; or

the RPA becomes a hazard to another aircraft, person or property and termination of the operation is the only safe course of action.

An observer must not be required to observe more than 1 RPA for more than 1 remote pilot unless the operation is approved in writing by CASA and operated in accordance with any conditions of that approval.

***<insert any additional observer responsibilities>***

#### EVLOS operations class 2

For EVLOS operations class 2, the observer is in a different location to the RP.

IAW with section 5.04 of the Part 101 MOS, whilst the RPA is operating, an observer must have no duties other than either:

1. keep the RPA constantly within VLOS; or
2. know the exact location, direction of flight and approximate height of the RPA; and
   1. maintain constant situational awareness of the air space surrounding, and the ground below, the RPA operation; and
   2. remain in continual direct, verbal communication with the remote pilot using a an effective communication system; and
   3. do the following:
      1. advise the remote pilot if the RPA is likely to become a hazard to any other aircraft, or any person or property;
      2. direct the remote pilot on the action required to ensure that the RPA operation does not become a hazard to another aircraft, person or property;
      3. immediately direct the safe termination of the operation if:

the exact location of the RPA is lost to the relevant observer’s direct sight or knowledge; or

the RPA becomes a hazard to another aircraft, person or property and termination of the operation is the only safe course of action.

An observer must not be required to observe more than 1 RPA for more than 1 remote pilot unless the operation is approved in writing by CASA and operated in accordance with any conditions of that approval.

***<insert any additional observer responsibilities>***

### Observer training requirements

All observers must be trained in accordance with the EVLOS Observer training requirements contained within ***section 8.2 and/or 8.3***, to observe, and communicate about, an RPA in an EVLOS operation class 1 or class 2. See ***section 8.2 and/or 8.3*** for observer training syllabus.

Prior to conducting an EVLOS operation, all observers must be certified by ***{ABC RPA}*** to have successfully completed EVLOS Observer training for the relevant Class of EVLOS operation.

Each EVLOS Observer shall receive training IAW Section (**XX/?**), provided by the CRP or other nominated person(s) as identified at section 5.1 of the Operations Manual.

### Devices to assist visual observers

***<insert procedures including, but not limited to devices to be used, instructions on the use of those devices, serviceability of the devices, limitations or considerations in using devices, any additional information and procedures as relevant>***

For EVLOS operations class 1 and 2, binoculars or a telescope may be used by an observer to assist in carrying out their duties. The observer must not use the device as a primary means of keeping the surrounding airspace and ground in sight.

For EVLOS operations class 2, an FPV system may be used, but not as a substitute for any observer.

### EVLOS observer register

The observers identified in table 2 of Appendix A have completed training and are certified as competent to carry out EVLOS operations in accordance with the documented practices and procedures, either class 1 and/or 2.

# RPAS equipment requirements - EVLOS operations

In addition to all existing RPA equipment and system requirements specified within the Operations Manual for normal operations, the following specific RPA equipment requirements apply for all EVLOS operations.

## RPAS equipage and capabilities

***All RPA used to conduct an EVLOS operation must be fitted with the following minimum serviceable equipment and systems:  
  
<insert details of the RPA permitted to be used in EVLOS operations, which may include:***

* ***Minimum RPA equipage and capability requirements***
  + ***GPS/GNSS***
  + ***telemetry***
  + ***lighting/conspicuity***
  + ***payloads/configurations***
* ***RPA performance specifications, including RPA manufacturer control link performance specifications and limitations>***

### Determining command and control (C2) link performance

***<insert practices and procedures for determining the required control link performance where a manufacturer’s performance figure is unavailable – for each RPA.>***

## RPA operating range and distance

In an EVLOS operation, an RPA may only be flown:

(a) while the control link performance from the remote pilot station to the RPA is reliably and consistently maintained; and

(b) while the communication link between the remote pilot and a relevant observer is maintained; and

(c) at a distance from the relevant observer that is the lesser of the following:

(i) 1 500 m; or

(ii) the distance at which the relevant observer is able to perform all of their duties.

***<Either:***

* **The maximum C2 link performance range specifications for each RPA approved for EVLOS operations is detailed within the respective RPAS Type Specific Procedures section contained with Appendix F of the Operations Manual.**
* **The maximum C2 link performance range specifications for each RPA approved for EVLOS operations, is detailed in table 3 of Appendix A**

***<insert practices, procedures and methods for* identifying and addressing any degradation in control or communication links and *safe RPA operating distances based on environmental and terrain considerations, which may include:***

* ***Radio line of sight / Viewshed analysis***
* **Link continuity and reliability**

**Mechanism for how link in monitored - in terms of signal strength, latency, spectrum and send/receive rates.**

* ***Assessment of:***
  + ***Terrain / Topography***
  + ***Obstacles***
  + ***Sources of electromagnetic interference>***

## Other supporting equipment

***<insert details of any other additional equipment or devices used to support EVLOS operations, which may include:***

* ***RPAS support equipment***
* ***Role equipment and fittings***
* ***Displays and electronic devices***
* ***Visual aid devices>***

# EVLOS procedures

## Normal procedures for EVLOS operations

### Hand-over/take-over (HOTO) procedures

In accordance with the general procedures for HOTO in flight between RPs (see section 2.5 of the Operations Manual), HOTO in flight between RPs is ***<permitted / not permitted>*** during EVLOS operations.

***<HOTO in flight between EVLOS RPs must be conducted in accordance with the following procedures>***

***<insert procedures including, but not limited to the following:***

* ***handover/takeover policy (if different from existing)***
* ***RPA operating conditions and any limitations***
* ***exchange of information between RPs***
* ***standard communication phraseology>***

### Pre-flight briefing

In accordance with general requirements and procedures for crew briefings (see section 1.5.3.4 of the Operations Manual), a pre-flight briefing involving all operational personnel (including each RP and Observer) involved in the EVLOS operation must be conducted prior to commencement of any EVLOS operation.

In addition to the general pre-flight briefing requirements and items specified within Operations Manual section 1.5.3.4, the following procedures apply for the conduct of pre-flight briefings for any EVLOS operation.

***<insert procedures including, but not limited to the following:***

* ***required documentation (pre-flight briefing template and location of template)***
* ***topics to be covered in briefing, including:***
  + ***personnel roles/responsibilities and assignment of tasks***
  + ***operating area, boundaries, and containment***
  + ***personnel positions***
  + ***communications***
  + ***normal procedures***
  + ***abnormal/emergency procedures***
  + ***incident/accident response>***

### Flight planning

In addition to normal flight planning requirements and administration specified within Operations Manual (<Appendix E>), including any procedures detailed for the specific RPA in <Appendix F>, the following procedures apply for the conduct of flight planning for any EVLOS operation.

***<insert procedures for flight planning>***

### Pre and post flight inspections

In addition to normal procedures for pre and post flight inspection specified within Operations Manual (**<Appendix E>),** including any specific instructions detailed for the specific RPA in (**<Appendix F>**), the following procedures apply for the conduct of pre and post flight inspections for any EVLOS operation.

**<insert procedures for pre and post flight inspections>**

### Flight management/monitoring systems

***<insert procedures for flight management/monitoring systems>***

### Positioning of crew

***<insert procedures for positioning of crew, including but not limited to:***

* ***RPA maximum distance from observers***
* ***Positioning of Remote Pilot***
* ***Positioning of Observer(s)>***

### Decision making boundaries

***<insert procedures for decision making boundaries and establishing areas of responsibility for RPs and Observers>***

### Operating limitations

***<insert procedures for operating limitations>***

### Operating parameters for EVLOS

***<insert procedures for determining flight details of RPA including but not limited to:***

* ***Determining location, direction of flight and approximate height of the RPA***
* ***Height reference when operating within 3NM of an aerodrome***
* ***Minimum number of GPS satellite locks required to be continuously available for the RPAS>***

## Abnormal and emergency procedures for EVLOS operations

In addition to general Emergency procedures detailed in Operations Manual <**section 2.4 / Appendix H>**,including any Emergency Procedures detailed for the specific RPA in the relevant RPA flight/user manual, the following abnormal and emergency procedures are applicable to EVLOS operations.

### Active crewed aircraft in airspace

***<insert procedures for managing crewed aircraft in airspace including but not limited to:***

* ***aircraft identification in the airspace***
* ***aircraft deconfliction***
* ***crew coordination***
* ***aeronautical communications/broadcasts, radio communications with crewed aircraft in relevant airspace>***

***With regard to aircraft deconfliction during EVLOS operations, relevant airspace is defined as any point of non-controlled airspace into which the crewed aircraft is flying at a particular time, that is both less than:***

1. ***3 NM in distance; and***
2. ***1 500 ft in height***

***From any point of the airspace in which the RPA is flying at the same time.***

### Loss of control / Degraded control

***<insert procedures for resolving RPA loss of control events including but not limited to:***

* ***loss of RPA control/C2 link***
* ***activation of fail-safes/RTH***
* ***reestablishing control***
* ***loss of GPS / navigation performance***
* ***flight termination - without creating an unreasonable hazard to another aircraft, other people or property>***

### Communication failures

***<insert procedures for communication failures including but not limited to:***

* ***breakdown of communications between crew***
* ***identification of communications systems failure***
* ***actions in the event of lost communications***
  + ***use of secondary/backup communication systems***
* ***actions in the event of lost situational awareness***
  + ***returning the RPA to VLOS or EVLOS***
  + ***flight termination without creating an unreasonable hazard to another aircraft, other people or property>***

# EVLOS communications procedures

## Inter-crew Communication systems - EVLOS Class 2

***<insert procedures including but not limited to:***

* ***communications systems to be used (hardware)***
* ***designation of primary and secondary (back-up) communication systems***
* ***spectrum usage considerations***
* ***any operating instructions/specifications for communication systems>***

## Communications between remote pilot and observer/s

***<insert procedures including not limited to:***

* ***communication protocols***
* ***standard phraseologies***
* ***format of communications, read-back, etc.***
* ***points of reference and spatial orientation (i.e. clock code, grid method)>***

## Aeronautical radio and communications

In conjunction with general procedures for the carriage and use of aeronautical radio as outlined in section 1.11 and Appendix E of the Operations Manual, aeronautical radio must be carried and used for all EVLOS operations.

Any RP or Observer required to operate an aeronautical radio must hold an appropriate qualification in accordance with section 1.11 of the Operations Manual.

***<insert procedures for use of aeronautical radio during EVLOS operations, including but not limited to:***

* ***Persons designated and responsible for carriage and use of aeronautical radio during EVLOS***
* ***Relevant aeronautical frequency/frequencies to be monitored and used***
* ***Broadcasts, and frequency of broadcasts, where applicable***

# Weather and visibility conditions for EVLOS operations

In addition to normal procedures for weather assessment and weather limitations specified within Operations Manual (**<Appendix E>**), including any limitations detailed for the specific RPA in <**Appendix F**>, the following weather policy and limitations apply for any EVLOS operation.

## Meteorological conditions for EVLOS operations

***<insert practices and procedures for determining weather conditions, including but not limited to:***

* ***Weather information to be used, sources, forecasts***
* ***Weather conditions and limitations for EVLOS***
* ***Actions in event of weather deterioration below limits>***

The RPA must only be flown in an EVLOS operation in conditions with a visibility minimum of 5000 metres. If visibility falls below 5000 metres, the RP must terminate the EVLOS operation and the RPA must be landed, as soon as safely possible

# EVLOS operations in controlled airspace

EVLOS operations conducted within controlled airspace, including operations within 3NM of a controlled aerodrome, must comply with all relevant requirements of CASR Part 101, the Part 101 MOS and any additional CASA approval permitting the operation.

The CRP and RP shall refer to Operations Manual section 2.1.5, section 3, in addition to the following specific procedures for planning and conducting any EVLOS operation in controlled airspace.

## EVLOS operations in controlled airspace procedures

***<insert practices and procedures for the conduct of EVLOS operations in controlled airspace>***

# EVLOS operations at night

## EVLOS operations at night procedures

EVLOS operations conducted at night shall be in accordance with the general requirements and provisions for the operation of an RPA at night, as detailed in section 3.2 of the Operations Manual and approval CASA 01/17 (refer Appendix C).

***<insert practices and procedures for the conduct of EVLOS operations at night, including but not limited to take-off/landing area lighting and RPA orientation/conspicuity>***

# EVLOS training syllabus - Remote pilot training

**<insert additional detail into the training syllabus>**

## EVLOS-DS: Extended visual line of sight - Description of training

### Unit description

This unit describes the skills and knowledge required to operate an RPA in EVLOS operations as described in Chapter 5 of the Part 101 (Unmanned Aircraft and Rockets) Manual of Standards 2019.

### Elements and performance criteria

#### Pre-flight preparation

The remote pilot confirms that:

1. the RPA meets the equipment requirements for an EVLOS flight.
2. the necessary communications equipment required for the EVLOS operation is adequate and serviceable.
3. a risk assessment is completed considering the relevant conditions for EVLOS operations and is incorporated into the operator’s foundation risk registry.
4. A pre-flight briefing is conducted involving all personnel involved in the operation.

#### EVLOS Operations

1. Perform all normal manoeuvres under EVLOS conditions using either manual control or an automated flight management system in accordance with the operational practices and procedures for EVLOS operations.
2. Orient and navigate the RPA efficiently and safely at distance.
3. Maintain an effective lookout for other aircraft and take appropriate action to maintain separation and prevent conflict.

#### EVLOS Landing

1. Lands the RPA safely and without damage within EVLOS procedures

### Range of variables

1. EVLOS operation class 1 or class 2.
2. Varying environments, landscapes and terrain.
3. Various payloads and RPA configurations (including the use of FPV).
4. Operations involving one or more visual observers.
5. Operations during daylight, at night or under artificial illumination.
6. Various weather conditions.

### Underpinning knowledge

The remote pilot must have underpinning knowledge of:

1. RPA equipment and performance requirements.
2. Human performance considerations.
3. EVLOS operational considerations.
4. Knowledge of rules and regulatory requirements for EVLOS operations.
5. EVLOS operational requirements for operations at a controlled or non-controlled aerodrome (if required).

## EVLOS-P: Extended visual line of sight – Practical

### Flight test requirements

#### A person operating under an extended visual line of sight (EVLOS) approval must demonstrate his or her knowledge of EVLOS flight requirements as set out in 8.2.2 and competency, in the units of competency mentioned in 8.2.3, by performing manoeuvres operating an RPA of the same type as the RPA that is to be used in the EVLOS operation, within the accuracy/tolerances specified.

#### For 8.2.1.1, a sustained deviation outside the applicable flight tolerance is not permitted.

#### Note that flight test elements for EVLOS approval may be combined into a single test or conducted over a number of flights.

### Knowledge requirements

The applicant must demonstrate his or her knowledge of the privileges and limitations of the approval and of the following topics to the chief remote pilot:

1. RPA requirements and performance limitations for EVLOS flight.
2. Additional considerations for RPA flight under EVLOS (compared to a flight conducted under VLOS).
3. Applicable rules and considerations for EVLOS operations.
4. Knows the applicable definitions as they relate to EVLOS operations as set out in the Part 101 MOS 2019.
5. Describe the normal practices and procedures governing EVLOS operations.
6. Describe the considerations and procedures for managing non-normal and emergency situations during an EVLOS operation.
7. Describe the considerations for carrying out an EVLOS flight at a controlled or non-controlled aerodrome (if applicable).
8. Understands some of the visual illusions and human performance limitations that may eventuate during EVLOS operations.

### Practical flight standards

The applicant must demonstrate his or her practical competency to perform each of the following elements to the chief remote pilot:

1. Ensures the aircraft is in a condition for safe operation, is appropriately equipped and correctly configured for EVLOS operations.
2. Competently conducts all normal manoeuvres as an EVLOS operation manually or with an automatic flight management system, as applicable.
3. Under manual or automated control is able to orient and navigate the aircraft efficiently and safely at a distance from the control station, within the applicable performance limitations of the RPA system.
4. Identifies and manages any environmental or operational threats likely to affect the safety of the operation.
5. Maintains an effective look-out for other aircraft and takes appropriate action to maintain separation and prevent conflict.
6. Conducts and maintains effective communications with visual observers to maintain situational awareness of the EVLOS operation and operating environment.

## EVLOS-T: Extended visual line of sight - Theory

### EVLOS flight theory test

1. The applicant must explain the additional considerations needed to operate an RPA during an EVLOS flight (compared to a flight under VLOS) under the following conditions:
2. As an EVLOS Operation class 1
3. As an EVLOS Operation class 2.
4. Define 'EVLOS operation' for aviation purposes.
5. Describe the aircraft equipment and RPA control link performance requirements for an EVLOS operation.
6. Describe the communications systems requirements for an EVLOS operation.
7. Describe the considerations for carrying out an EVLOS flight at a non-controlled aerodrome (if necessary).
8. Describe the additional considerations for coping with RPA equipment or communications system equipment failures during an EVLOS operation.

### Human performance

1. Explain the relevant human performance and physiological limitations for the conduct of EVLOS operations.
2. Describe strategies for establishing and maintaining effective crew coordination and communications.
3. Describe considerations and limitations regarding spatial orientation, depth perception and peripheral vision.

### Risk Assessment - EVLOS Operations

1. Describe and list any special precautions a remote pilot might take for an EVLOS operation.

### Performance criteria and required competencies

**<insert performance criteria and required competencies>**

# EVLOS training syllabus - Observer training

## Observer training for EVLOS operations class 1

***<insert procedures and a description of training and training elements>***

### Theoretical knowledge requirements

***<insert theoretical knowledge requirements>***

### Practical competency requirements

***<insert practical competency requirements>***

### Performance criteria and required competencies

**<insert performance criteria and required competencies>**

## Observer training for EVLOS operations class 2

***<insert procedures and a description of training and training elements>***

### Theoretical knowledge requirements

***<insert theoretical knowledge requirements>***

### Practical competency requirements

***<insert practical competency requirements>***

### Performance criteria and required competencies

**<insert performance criteria and required competencies>**

# EVLOS proficiency checks for remote pilots

EVLOS RP proficiency checks must be carried out in accordance with {ABC RPA’s} documented practices and procedures for proficiency checks under this section.

Records of proficiency checks are to be documented and retained IAW section 5 (5.2) of the Operations Manual.

## RP Proficiency check requirements

### Personnel authorised to conduct proficiency checks

IAW with section 5.06 of the Part 101 MOS, RPs conducting an EVLOS operation must have successfully completed a proficiency check that was conducted by:

1. the chief remote pilot; or
2. a RePL holder of the certified RPA operator who is:

(I) authorised under the operator’s ReOC to conduct the relevant proficiency check; and

(II) approved in writing for the purpose by the operator’s chief remote pilot; or

1. CASA.

### Proficiency check time intervals

IAW with section 5.06 of the Part 101 MOS, RPs conducting an EVLOS operation must have successfully completed a proficiency check that was undertaken:

1. less than 12 months before the EVLOS operation; or
2. 24 months before the EVLOS operation, provided the RP has completed at least 3 EVLOS flights in each of the 12-month periods before the EVLOS operation.

### Required theoretical and practical competencies for proficiency checks

**<insert required theoretical and practical competencies for RPs>**



|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Full name | ARN | EVLOS Class | Date certified | Expiry | Contact | Signature |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |

Table : EVLOS remote pilot register

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Full name | ARN (if applicable) | EVLOS Class | Date certified | Expiry | Contact | Signature |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |

Table : EVLOS observer register

|  |  |  |  |
| --- | --- | --- | --- |
| RPA | Configuration | C2 Link Operating Limit | Notes |
|  |  |  |  |
|  |  |  |  |

Table 3: EVLOS RPA register