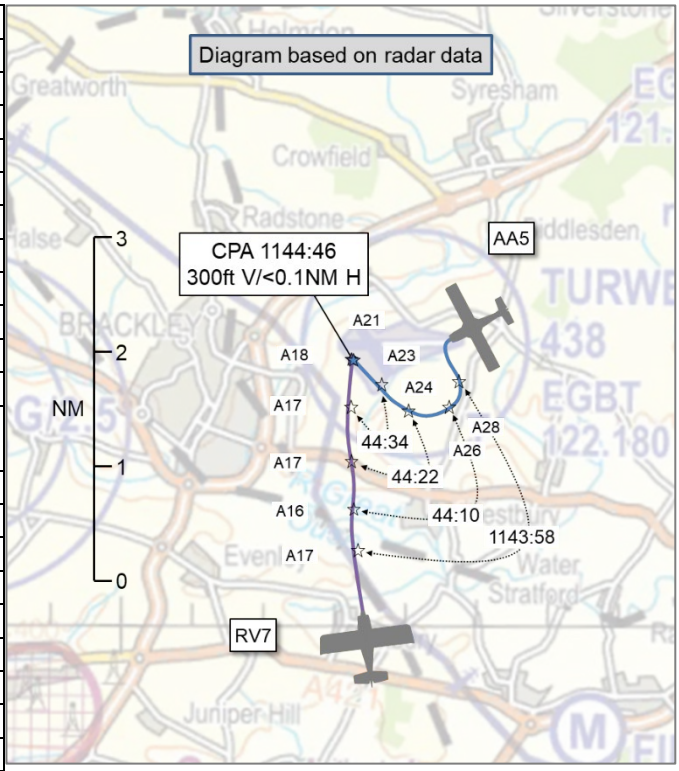
AIRPROX REPORT No 2022205

Date: 03 Sep 2022 Time: 1145Z Position: 5202N 00107W Location: Turweston aerodrome

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	AA5	RV7
Operator	Civ FW	Civ FW
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	VFR
Service	AGCS	Basic
Provider	Turweston Radio	Brize Norton
Altitude/FL	2100ft	1800ft
Transponder	A, C, S	A, C, S
Reported		
Colours	White, blue, yellow	White
Lighting	Landing, taxi, anti-col, HISL	Strobes
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	1200ft	1700ft
Altimeter	QFE (995hPa)	QNH (NK hPa)
Heading	300°	360°
Speed	85kt	120kt
ACAS/TAS	Not fitted	PilotAware
Alert	N/A	None
Separation at CPA		
Reported	50ft V/100m H	Not seen
Recorded	300ft V/<0.1NM H	



THE AA5 PILOT reports descending deadside at Turweston for RW27. No other traffic had been heard on the frequency in the same location. They descended in a gentle right bank and opted to follow the full circuit as no aircraft were departing. This placed them further to the west than if they had cut straight across the runway onto a more northerly crosswind join. They saw the RV on the right-hand side, tracking north, directly over the airfield, as they straightened up on the crosswind leg. The AA5 pilot stated that if they had flown their usual more direct crosswind join, then they believe there would have been a very high chance of collision because they would have descended on top of the RV. They called the Air Ground Radio Operator and asked if they were working an RV, crossing over the airfield, which they confirmed as negative. The AA5 pilot then advised they would be filing an Airprox.

The pilot assessed the risk of collision as 'Medium'.

THE RV7 PILOT reports straight and level, transiting to their home airfield. They routed north initially, hoping for a transit through the Brize Norton control zone. A more westerly routing was precluded by incoming weather from the west. The Brize controller declined their request to transit through the control zone, so they bypassed to the east. Subsequently they were advised by Brize Radar of parachute activity at Hinton and Weston, so they kept their distance from these aerodromes while monitoring appropriate A/G radio frequencies. This had the effect of pushing their route slightly more to the east than they had anticipated. A low overcast ceiling at [departure airfield] was gradually clearing and allowed them to climb as they proceeded north. Visibility at Turweston was great. They were proceeding with a heightened awareness because of reported local parachuting activity. They also had SkyDemon with [EC equipment] running, as well as a Garmin 795 showing ADS-B traffic. However their primary anti-collision technology was 'see and avoid'. They flew the route with a Basic Service from appropriate stations, including Popham, Brize Radar, London information, Birmingham and Hawarden. They were squawking the appropriate codes as required by the Basic Service providers. The transponder was set

up to provide ADS-B via extended squitter. They saw only one light aircraft during the Turweston transit, located visually and not electronically. It was too far away to identify, at about the same level, but several miles to the southwest. By this point they were well to the north of the circuit, so it was behind them and to the left. At no time were they aware of any aircraft 'within Airprox range'. Clearly, had they not transited so close to Turweston this correspondence probably would not be necessary. They believed their visual lookout reduced the possibility of collision to negligible. The transit path gave them a good view of Turweston runways and circuit. With hindsight, they might possibly have reduced the likelihood of an Airprox event by passing Turweston further to the east. They saw this event as a 'learning opportunity'. The RV pilot stated that they were troubled to be party to an Airprox and would be happy to learn relevant details of the event from the reporting pilot.

THE TURWESTON A/G OPERATOR reports that they were made aware of the incident by the pilot of [AA5 C/S] who asked if they 'had an RV on frequency', to which their response was negative. [The AA5 pilot] reported that a light-coloured RV had flown underneath them with very [little] vertical separation and that they would file an Airprox report in due course.

THE BRIZE NORTON LARS CONTROLLER reports working 3-4 Basic Service aircraft. Shortly before the reported time of the Airprox, they had warned [RV7 C/S] that Hinton in the Hedges was active at FL130. An additional aircraft then called on frequency, requesting a Basic Service around the time of the occurrence. After a service was given, they then began periodically scanning their aircraft, later calling a non-squawking contact to [RV7 C/S] ivo Daventry. [RV7 C/S] then shortly after requested to change enroute, to which they gave them Birmingham's frequency. This report was submitted in retrospect as the Airprox was not reported on frequency by the pilot of [RV7 C/S].

THE BRIZE NORTON SUPERVISOR reports they did not witness the incident and was not aware of it until notified by the UKAB.

Factual Background

The weather at Brize Norton and Cranfield was recorded as follows:

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METAR EGVN 031150Z 18005KT 9999 FEW023TCU BKN030 BKN065 21/15 Q1008 NOSIG RMK BLU BLU=
METAR EGTC 031150Z 19008KT 140V210 9999 SCT030 22/14 Q1009=
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Analysis and Investigation

Military ATM

An Airprox occurred on 3rd September 2022 at approximately 1145 UTC at Turweston Aerodrome between an RV7 and an AA5. The RV7 was in receipt of a Basic Service from Brize Norton LARS and the AA5 in receipt of an Air Ground Communication Service from Turweston Radio.

The Brize Norton Approach Controller, who was in charge of the shift, did not witness the occurrence.

The Brize Norton LARS controller was band-boxing LARS and Director, providing a Basic Service to 4 aircraft at the time of the occurrence. Multiple airspace warnings were passed to the RV7 pilot, including Weston on the Green, Oxford ATZ and Hinton in the Hedges active with parachute dropping up to FL130. The RV7 pilot had requested to route through the Brize Norton CTR, however the Brize Norton LARS controller reported the RV7 was too close to arrange a transit and the controller's workload was too high.

Figure 1-2 show the positions of the RV7 and the AA5 at relevant times during the Airprox. The screenshots are taken from a replay using the NATS radars, which are not utilised by the Brize Norton controllers and therefore may not be entirely representative of the picture available.

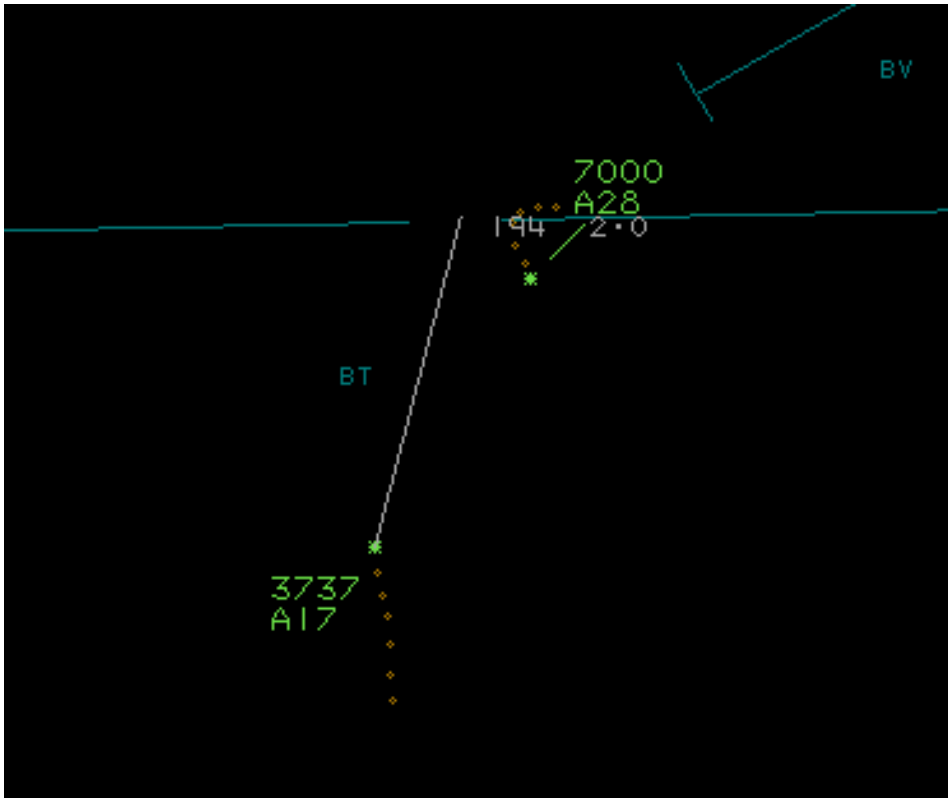


Figure 1: 11:44:00

Figure 1 representing the point at which the RV7, squawking 3737, would have penetrated the ATZ, had Turweston had one.

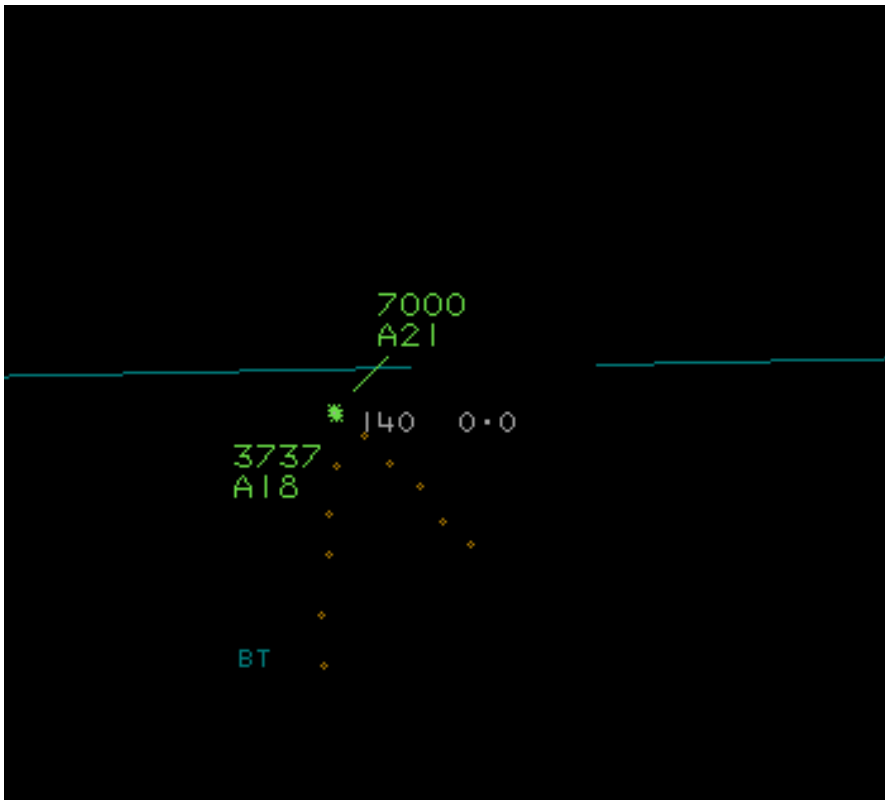


Figure 2: 11:44:47 CPA

Figure 2 shows CPA, measured at 0.0NM and 300ft. No Traffic Information was passed by the Brize Norton LARS controller. At 1147:05 the Brize Norton LARS controller passed Traffic Information on a different aircraft, indicating one mile east, similar direction, with no height information.

The Brize Norton LARS controller was operating at the limit of their radar coverage, however, traffic was probably still displayed, despite the range, and therefore it is most likely the Brize Norton LARS controller's division of attention (with a scan ranging from Gloucester to Wycombe to Turweston due to other traffic requesting a service at the time of the occurrence) resulted in traffic not sighted by the controller.

Brize Norton Occurrence Investigation

The Brize Norton Local Investigation found the following cause and causal factor:

[AA5 C/S] was indicating 1000ft above [RV7 C/S] travelling opposite direction. When horizontal separation was approximately 0.5NM, [AA5 C/S] descended rapidly and turned to their right, passing down the port side of [RV7 C/S]. The uncontrolled aircraft descended suddenly giving the controller no time to react and pass Traffic Information.

The controller had 3 other Basic Service tracks on and was responding to another [pilot who] had called when the Airprox occurred. The controller had scanned their aircraft before speaking to the caller and immediately scanned their aircraft afterwards. As the conflict was originally indicating 1000ft above there was no need to call it under the terms of a Basic Service.

UKAB Secretariat

The AA5 and RV7 pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard.[1] An aircraft operated on or in the vicinity of an aerodrome shall conform with or avoid the pattern of traffic formed by other aircraft in operation.[2]

Summary

An Airprox was reported when an AA5 and an RV7 flew into proximity at Turweston at 1145Z on Saturday 3rd September 2022. Both pilots were operating under VFR in VMC, the AA5 pilot in receipt of an AGCS from Turweston Radio and the RV7 pilot in receipt of a Basic Service from Brize LARS.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from both pilots, radar photographs/video recordings, a report from the air traffic controller involved and reports from the appropriate operating authorities. Relevant contributory factors mentioned during the Board's discussions are highlighted within the text in bold, with the numbers referring to the Contributory Factors table displayed in Part C.

The Board first discussed the RV7 pilot's actions and agreed that their choice of route and altitude had resulted in them flying into proximity with traffic intending to land at Turweston (**CF3**), in essence not avoiding the 'pattern of traffic intending to land' (**CF7**). Members felt this had essentially been due to a lack of appreciation of the extent of the circuit pattern at Turweston, including traffic that may have been joining from the overhead. The RV7 pilot had re-routed for weather and airspace and the Board commended them on their communication with various agencies, establishment of a UK FIS and the degree to which they had equipped their aircraft, including electronic conspicuity equipment. The Board also agreed with the RV7 pilot's analysis that they should perhaps have routed further to the east (**CF6**) or, if cloud-base had allowed, at an altitude that would have afforded vertical separation from circuit traffic, including joining circuit traffic. They could also have contacted Turweston Radio to advise of their routing, thereby affording valuable situational awareness to both pilots (**CF5**). The Brize LARS controller

[1] (UK) SERA.3205 Proximity.
[2] (UK) SERA.3225 Operation on and in the Vicinity of an Aerodrome.

had not been required to monitor the RV7 (**CF1**) and had not detected the conflict and Brize STCA is not utilised at low levels (**CF2**), hence the RV7 pilot had only had generic situational awareness of potential circuit traffic at Turweston and the AA5 pilot had had no situational awareness of the RV7 (**CF8**). The RV7 pilot had flown through promulgated Turweston airspace (**CF4**) but, for reasons the Board could not ascertain, had not received a warning from their TAS (**CF9**), which had left see-and-avoid as the remaining barrier to mid-air collision. The RV7 pilot had not seen the AA5 (**CF10**) until they had been well north of Turweston and the AA5 pilot had only seen the RV7 'on the right', which had been after CPA and hence effectively a non-sighting (**CF10**). Board members initially assessed that vertical separation had been such that risk of collision had been avoided but it was pointed out that neither pilot had seen the other aircraft before CPA, that the lateral separation at CPA had been minimal and that the AA5 pilot had been descending towards the crosswind leg as they had crossed overhead the RV7. A vote was taken and it was decided by a simple majority that in this case safety had been much reduced (**CF11**), Risk B.

The Board commended the RV7 pilot for their comprehensive and frank report and suggested that a methodical adherence to self-briefed TEM would help, including considerations such as the extent of airfield circuit patterns when navigating 'off route'. Finally, members emphasised the value of reporting denial of airspace transit using the CAA on-line form, FCS1522[3], not as a means of complaint but to enable the collection of data such that airspace implementation and management could be assessed accurately.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2022205			
CF	**Factor**	**Description**	**ECCAIRS Amplification**	**UKAB Amplification**
	Ground Elements			
	• Situational Awareness and Action			
1	Contextual	• ANS Flight Information Provision	Provision of ANS flight information	The ATCO/FISO was not required to monitor the flight under a Basic Service
	• Electronic Warning System Operation and Compliance			
2	Technical	• Conflict Alert System Failure	Conflict Alert System did not function as expected	The Conflict Alert system did not function or was not utilised in this situation
	Flight Elements			
	• Regulations, Processes, Procedures and Compliance			
3	Human Factors	• Use of policy/Procedures	Events involving the use of the relevant policy or procedures by flight crew	Regulations and/or procedures not complied with
	• Tactical Planning and Execution			
4	Human Factors	• Aircraft Navigation	An event involving navigation of the aircraft.	Flew through promulgated and active airspace, e.g. Glider Site
5	Human Factors	• Communications by Flight Crew with ANS	An event related to the communications between the flight crew and the air navigation service.	Pilot did not request appropriate ATS service or communicate with appropriate provider
6	Human Factors	• Insufficient Decision/Plan	Events involving flight crew not making a sufficiently detailed decision or plan to meet the needs of the situation	Inadequate plan adaption
7	Human Factors	• Monitoring of Environment	Events involving flight crew not to appropriately monitoring the environment	Did not avoid/conform with the pattern of traffic already formed
	• Situational Awareness of the Conflicting Aircraft and Action			
8	Contextual	• Situational Awareness and Sensory Events	Events involving a flight crew's awareness and perception of situations	Pilot had no, late, inaccurate or only generic, Situational Awareness
	• Electronic Warning System Operation and Compliance			

[3] https://applications.caa.co.uk/CAAPortal/servlet/SmartForm.html?formCode=fcs1522

9	Human Factors	• Response to Warning System	An event involving the incorrect response of flight crew following the operation of an aircraft warning system	CWS misinterpreted, not optimally actioned or CWS alert expected but none reported
	• See and Avoid			
10	Human Factors	• Monitoring of Other Aircraft	Events involving flight crew not fully monitoring another aircraft	Non-sighting or effectively a non-sighting by one or both pilots
	• Outcome Events			
11	Contextual	• Near Airborne Collision with Aircraft	An event involving a near collision by an aircraft with an aircraft, balloon, dirigible or other piloted air vehicles	

Degree of Risk: B

Safety Barrier Assessment[4]

In assessing the effectiveness of the safety barriers associated with this incident, the Board concluded that the key factors had been that:

Ground Elements:

Situational Awareness of the Confliction and Action were assessed as **not used** because the Brize controller was not required to monitor the RV7, under a Basic Service.

Electronic Warning System Operation and Compliance were assessed as **not used** because STCA was not utilised in this situation.

Flight Elements:

Regulations, Processes, Procedures and Compliance were assessed as **partially effective** because the RV7 pilot did not avoid the pattern of traffic formed by the other aircraft in operation at Turweston.

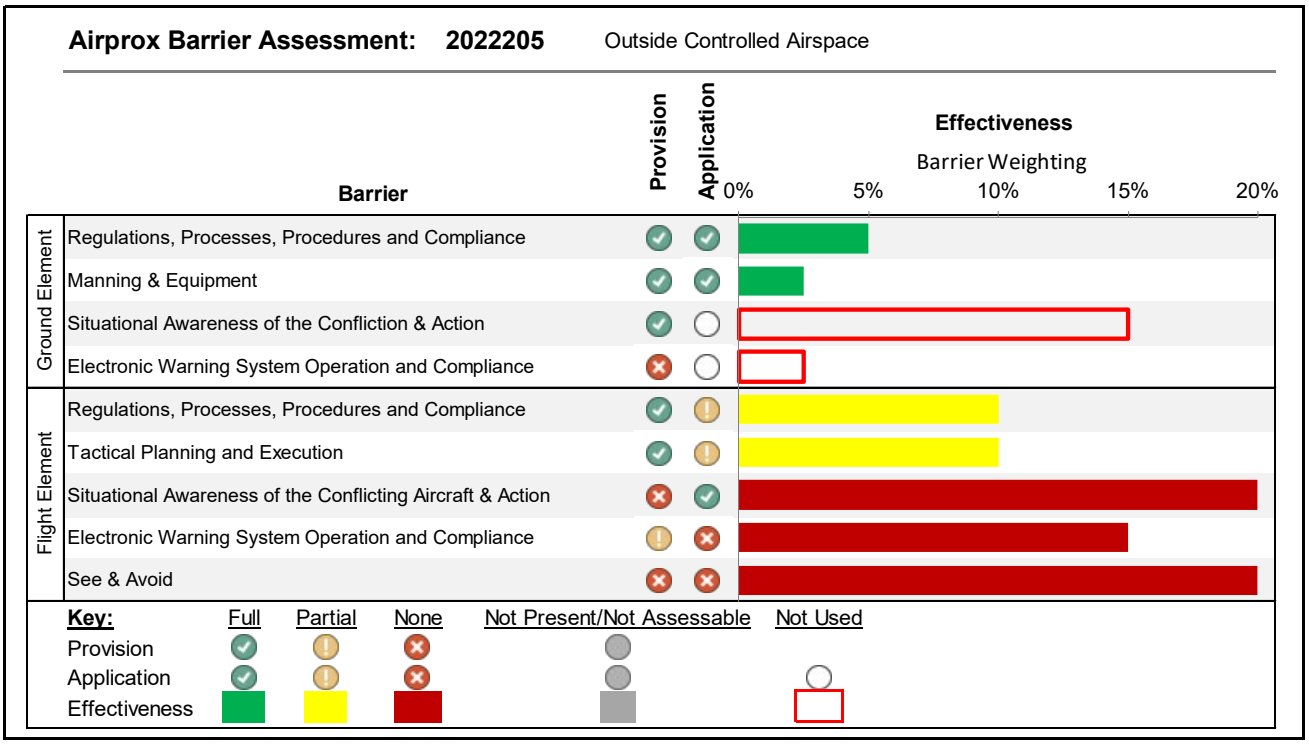
Tactical Planning and Execution was assessed as **partially effective** because the RV7 pilot did not contact Turweston Radio and transited through the Turweston circuit pattern at an attitude that did not afford sufficient vertical separation.

Situational Awareness of the Conflicting Aircraft and Action were assessed as **ineffective** because the RV7 pilot only had generic situational awareness of potential traffic at Turweston and the AA5 pilot was unaware of the RV7 until sighted, which was after CPA.

Electronic Warning System Operation and Compliance were assessed as **ineffective** because the RV7 TAS did not alert when it could be expected to do so.

See and Avoid were assessed as **ineffective** because neither pilot saw the other aircraft before CPA.

[4] The UK Airprox Board scheme for assessing the Availability, Functionality and Effectiveness of safety barriers can be found on the UKAB Website.


Airprox Barrier Assessment: 2022205
Outside Controlled Airspace
Barrier
Provision
Application
Effectiveness
Barrier Weighting
0%
5%
10%
15%
20%
Ground Element
Regulations, Processes, Procedures and Compliance
Manning & Equipment
Situational Awareness of the Confliction & Action
Electronic Warning System Operation and Compliance
Flight Element
Regulations, Processes, Procedures and Compliance
Tactical Planning and Execution
Situational Awareness of the Conflicting Aircraft & Action
Electronic Warning System Operation and Compliance
See & Avoid
Key:
Full
Partial
None
Not Present/Not Assessable
Not Used
Provision
Application
Effectiveness