

Visible Assets, Inc. GateGuard Acceptance Test Monday, August 2, 2010, Version 1-4

Purpose: Final performance metrics and acceptance tests for GateGuard configured Muster Plus as installed at a high security customer site.

Background:

GateGuard is a Visible Assets product, that is a special Muster Plus exit/entry security and access control configuration. GateGuard discovers and detects assets and people entering or exiting a secure facility inside a vehicle. Typical systems can read RuBee tags contained in vehicles on people (ID Tags) or on mission critical assets. Typical maximum vehicle speed is 5 Km/Hr, with road widths of 18 feet, and read limits for ID tags is 5-7. Any assets that have not been properly checked out (illegal or hidden assets) that have a RuBee asset tag will be detected, and any assets that have been properly checked out (legal assets) will also be detected. Additional details may be found www.rubee.com/MP.

A full two way GateGuard system was installed and tested at the main gate of an undisclosed secure facility. This is a full performance acceptance test and final report executed and prepared by Visible Assets for final transfer of the GateGuard system. The tests was monitored by an independent end customer representative KABA (Kaba FZE, Dubai Silicon Oasis HQ, office C103, Dubai phone +971 4 5015636) and the test protocol was designed by KABA to reflect end-customer specification.

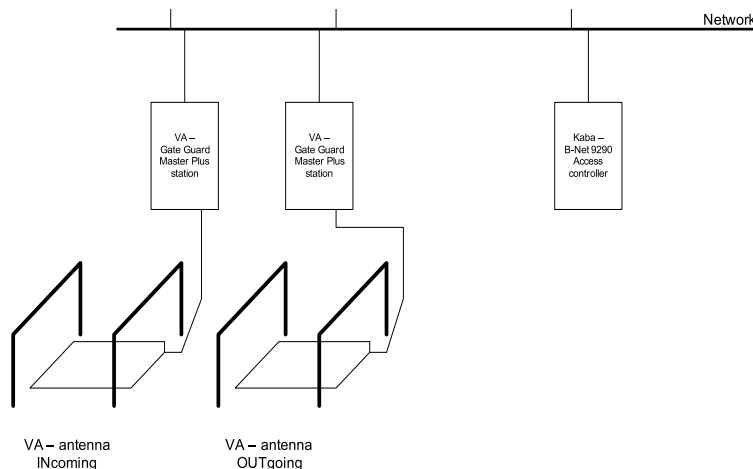
The test confirms with 56 test events and a vehicle at 5 km/Hr GateGuard found hidden assets 100% of the time and was able to discover 5 ID's 100% of the time and up to 7 ID's 99% of the time. Details follow.

Methods:

The GateGuard person and asset tracking at the main gate used the following configuration:

- VISIBLE GateGuard installed for the incoming lane and the outgoing lane. The Gate Guard consists of two components:
 - 1 Muster Plus station per lane, installed in the guard house
 - 1 Antenna construct per lane
- VISIBLE Oracle Dot tag server for monitoring technical status of the VISIBLE Gate Guards.

The configuration is outlined in figure below.



The RuBee ID tags and hidden assets in the cars passing the gates are detected by the antenna construct at the Incoming and Outgoing lane. The antenna signal is analyzed by the Muster Plus stations in the guard house which distributes the information to the different subsystems.

The ID numbers of the person tags are communicated any controller directly using XML messages. Information will be processed with Oracle Dot Tag Server to be able for offline management of single gates. If a hidden asset is detected within the vehicle a dry contact is switched by the VISIBLE muster plus station which activates an alarm.

General Protocol Assumptions

The performance acceptance test specification and protocol was created by the end-customer and KABA and reflects the normal operational use within the system description. The protocol assumptions apply to all individual test.

Persons whom are to be identified within the car are supposed to sit in a normal upright position within the car. Each person is supposed to use a normal seating position within the car.

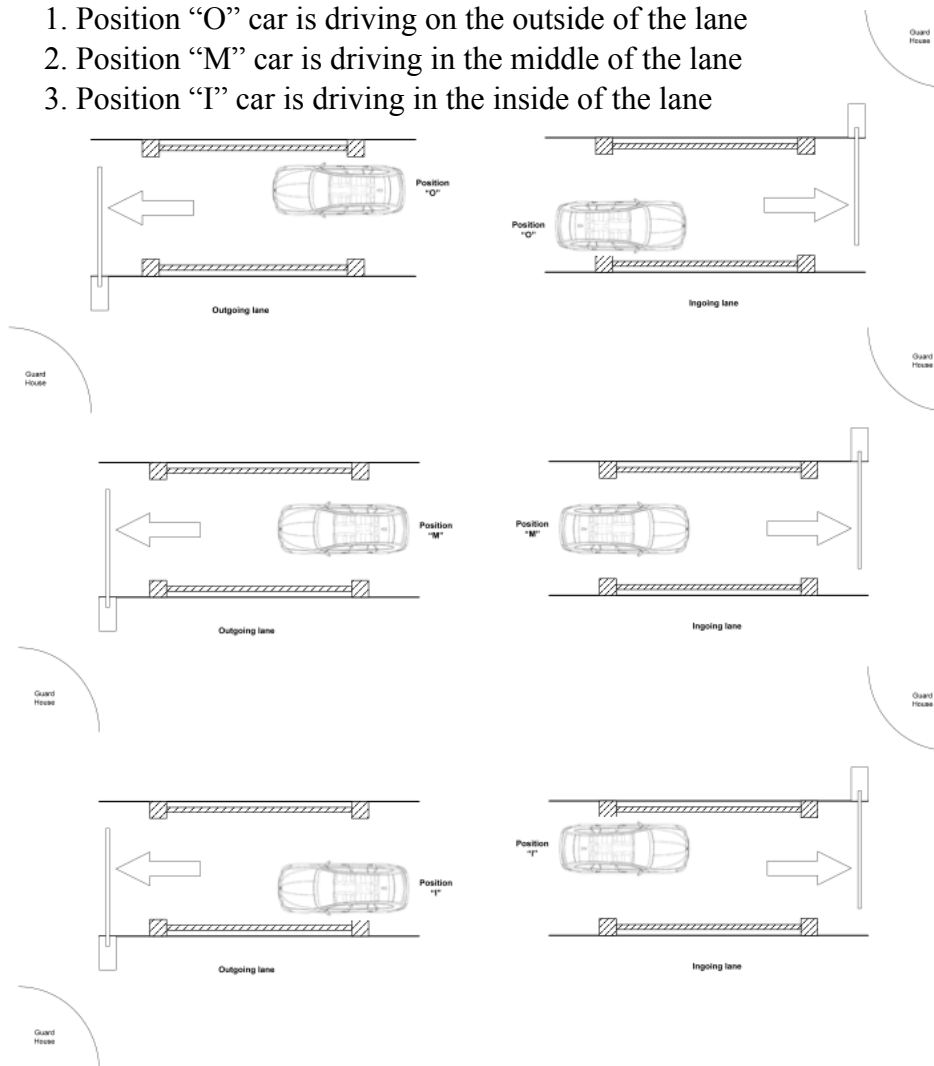
1. Each person is supposed to wear his/her ID badge visible for visual check by the guard.
2. Cars with tinted windows are supposed to lower their windows when passing the gate in order to allow the guards for visual inspection of the car.

3. It is not allowed for cars to pass the gate while drive beside one another. A normal queue is to be formed in case more than one car is trying to pass the gate.
4. The system is to be operated in normal mode during day time. This means that the barrier is closed and opened manually by the guard after verifying the number of people in the car and no hidden assets being detected
5. During rush hours the barriers will remain in the upright position allowing cars to pass the gate with a maximum speed of 5 Km/Hour.

Position of the Vehicle Within the Lane

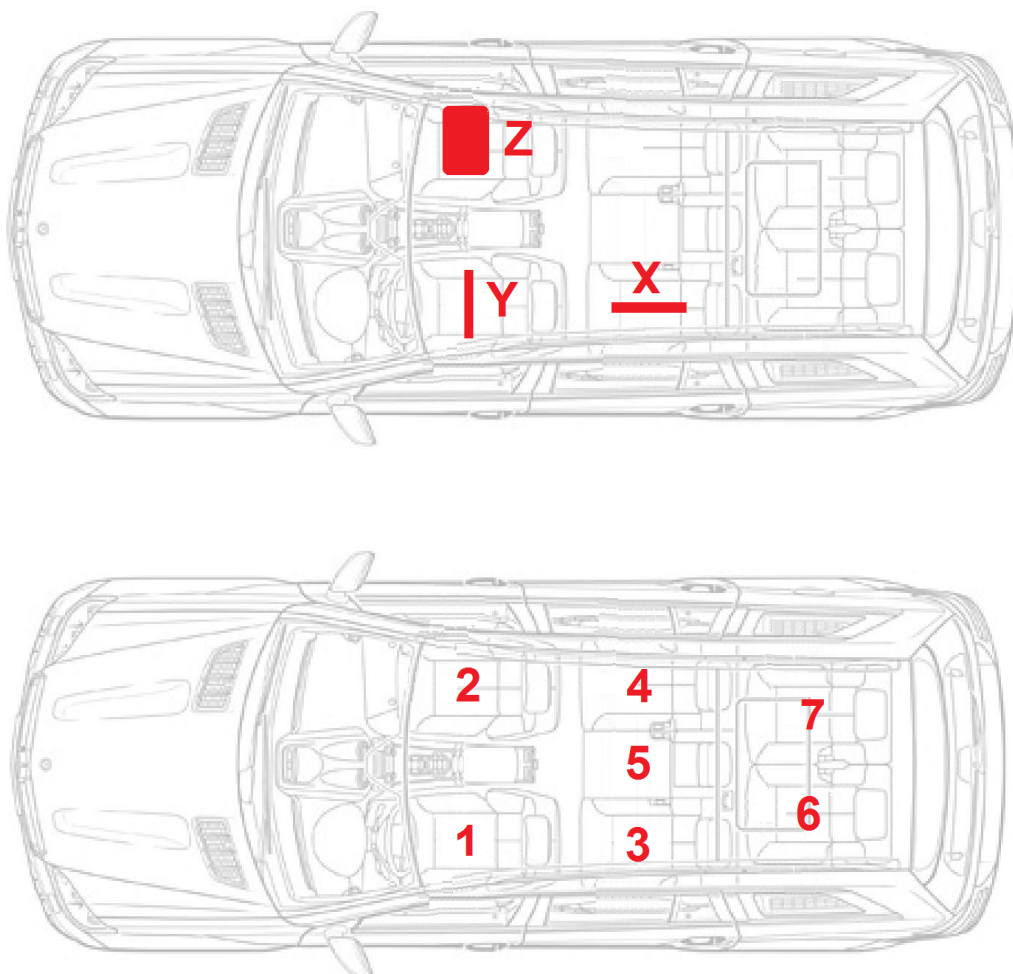
Each test had the cars driving through the lane within a defined position. There are three possible positions as shown hereafter and indicated within the tables as follows:

1. Position "O" car is driving on the outside of the lane
2. Position "M" car is driving in the middle of the lane
3. Position "I" car is driving in the inside of the lane



Position of the ID Cards Within Vehicle

The test for registration of personal ID tags was performed with unique numbered tags which can be individual identified by GateGuard. Tests were performed with various number of ID tags within the vehicle. The position of the personal ID tags is given in the below figure. In case only 1 person is in the car the tag will be in position 1. In case 2 persons are in the car the tags will be in position 1 and 2. The test was performed with a maximum of 7 personal ID tags positioned as given in the figure hereafter. Each test is to be repeated with the card in a different position as shown in the following figure and indicated as position X, Y and Z



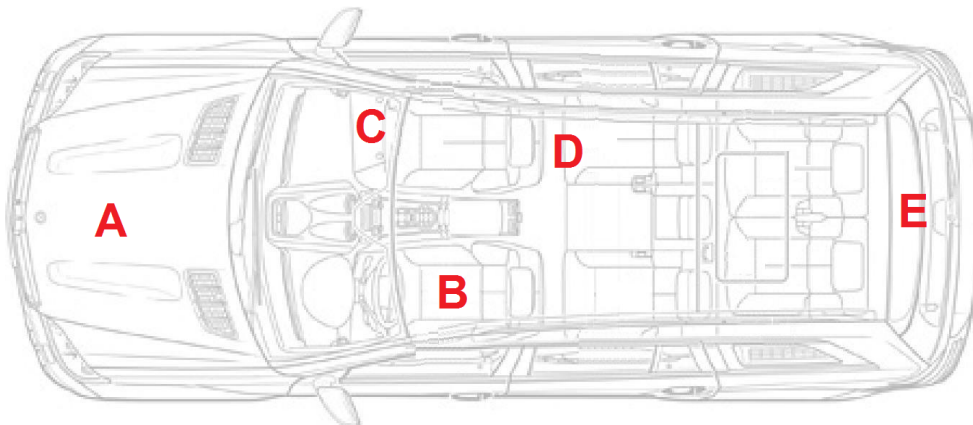
Position of the Hidden Asset Within the Vehicle

The test for detecting a hidden asset was performed with an asset that is equipped with a VISIBLE RuBee asset tag.

The detection of one or more hidden assets will always result in an alarm. The more hidden assets within the car the more likely it will be that detection is made. Therefore all tests were carried out using only one hidden asset within the car.

The following positions are used:

- 1.Position A, hidden asset in a metal container under the motor hood
- 2.Position B, hidden asset in a metal container under the drivers seat
- 3.Position C, hidden asset in a metal container in the glove compartment
- 4.Position D, hidden asset in a metal container between the front and back seat
- 5.Position E, hidden asset in a metal container under the spare tire.



Test Vehicles

The vehicles used in the test are typical for the region and gates. The ID of the vehicle used within the test results.

Vehicle ID	Make	Model	Tinted windows Y/N
V1	Nissan	Xterra	No
V2	Saab	93	No
V3	Toyota	Corolla	No
V4			
V5			
V6			
V7			
V8			
V9			

Test Assets

The assets used are listed in the following table. The ID of the asset is to be used within the test results.

Asset ID	Type of asset	VISIBLE asset tag type	Tag ID no.
AS1	No real asset attached	M4 grip	20034
AS2	No real asset attached	M4 grip	20032
AS3	No real asset attached	M4 grip	20022
AS4	No real asset attached	Generic asset tag	1048592
AS5	No real asset attached	Generic asset tag	720907
AS6	No real asset attached	Generic asset tag	917518
AS7	No real asset attached	Generic asset tag	114129
AS8	No real asset attached	Generic asset tag	851981
AS9			

Test Personal ID Tags

The personal ID tags used in the test are listed in the following table.

Personal ID	VISIBLE ID number	VISIBLE ID type	Kaba exos ID no.
ID1	196611	Prototype ID tag	00000001
ID2	262148	Prototype ID tag	00000002
ID3	327685	Prototype ID tag	00000003
ID4	589833	Prototype ID tag	00000004
ID5	65537	Prototype ID tag	00000005
ID6	458759	Prototype ID tag	00000006
ID7	655370	Prototype ID tag	00000007

Results:

We provide an example result for one of 56 test events in following table. All tables are available on request.

Outgoing lane:				
Operation mode:		Normal mode		
No. of vehicles per lane		1	Position of vehicle in lane	I
No. of personal ID's		7	Position of personal ID's	Y
Hidden Asset		-	Position of Hidden Asset	-
Incoming lane:				
Operation mode:		Normal mode		
No. of vehicles per lane		0	Position of vehicle in lane	-
No. of personal ID's		-	Position of personal ID's	-
Hidden Asset type		-	Position of Hidden Asset	-
Test results for Outgoing lane:				
Vehicle ID	ID's detected	ID's not detected	Hidden asset detected	Comments
V1	3, 5, 1, 7, 2, 6, 4			
Test results for Incoming lane:				
Vehicle ID	ID's detected	ID's not detected	Hidden asset detected	Comments

Conclusion

The System meets the required detection limits of both ID cards, and hidden assets, with 99% reads for 7 ID's, 100% for 5 ID's and 100% detection of hidden assets. Based upon the above test results following conclusions can be made:

1. In normal operation mode the test results show that a reliability of more than 99% is reached in detecting the personal ID tags even with the maximum of 7 occupants in the vehicle.
2. With reduced occupants, 100% detection is achieved, which reflects the majority of vehicles entering the secure facility.
3. In normal operating mode the test results show that the hidden assets are detected at 100% of the time.
4. The number of hidden assets in the same car does not reduce or influence the identification process for hidden assets. The tests have shown that with same accuracy of detection with multiple hidden assets.

Performance beyond customer specification can be further studied:

1. In Rush mode, which was done at speeds 4X beyond the specification, the test results show that without any measures to slow vehicles, the detection of personal ID tags is going down as much as 25% of the ID's passing the gate (in case 7 person are within the car).
2. The hidden assets were detected 100% of the time, even at the increased speeds. Therefore additional measures would be required to ensure that the speed while passing is reduced to the specified 5 to 7 Km/Hour for the detection of ID's. We will therefore provide a hump for doing an actual field test to reduce the speed during rush hour.
3. The road layout still enables two cars to pass the antenna construct in parallel. For a proper detection and signalization this needs to be adapted to prevent this.
4. Additional efforts can be made for testing the rush mode with additional personal ID tags being required to prove the concept in case several cars are driving one after another.
5. Similar tests can be done in parallel at Incoming- and Outgoing lanes and for up to 3 cars driving slowly through 1 of the antenna configuration.

Document Control

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10 Total Pages

Confidential:

Limited External Customer Circulation

Revision Control and History

TP, JS, PW, MN. JV	Data Collection	July 17-30, 2010	Version 1.1
JKS, CW	Report	Aug 1, 2010	Version 1-4
MN, CW, JKS	Review	Aug 2, 2010	Version 1-5

Signatures

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