Title	**Demonstrate knowledge of electronic security systems and equipment**		
Level	**3**	**Credits**	**10**

Purpose	This unit standard is intended for the training and assessment of people working in or intending to work in the electronic security industry and covers knowledge of electronic security systems and their functions. People credited with this unit standard are able to demonstrate knowledge of the principles of: – electronic security intruder alarm components; – electronic security access control components; – electronic security surveillance systems; and – intercom systems.

Classification	Electronic Engineering > Electronic Security

Available grade	Achieved

Prerequisites	Unit 30652, *Demonstrate knowledge of legislation, codes of practice, and Standards as applied to electronic security*, or demonstrate equivalent knowledge and skills.

Guidance Information

1 This unit standard has been developed for learning and assessment off-job.

2 Persons working or intending to work as a security officer or in related security employment may require a Security Guards Licence or, if an employee of a Security Guard Licence holder, a Certificate of Approval to be the Responsible Employee of a Security Guard. These licences are issued by the Private Security Personnel Licensing Authority available through: www.justice.govt.nz/tribunals/licences-certificates/pspla/.

3 Definitions
Artificial light – infra red, LED, fluorescent, high and low pressure sodium.
CCTV – closed circuit television.
DOTL – door open too long.
DVR – digital video recorder.
Electronic security systems and equipment – includes but is not limited to – intruder, access control, surveillance, intercom systems.
IP – internet protocol.
LED – Light emitting diode.

Lighting – illumination across the visible and invisible spectrum.
NVR – network video recorder.
PTZ – pan tilt zoom.
REX – request to exit.
Safe and sound practice – as it relates to the installation of electrical equipment is defined in AS/NZS 3000:2007, *Electrical Installations (known as the Australian/New Zealand Wiring Rules).*
Surveillance systems – may include but are not limited to – camera fixed lens, auto iris lens, video monitor, video intercom, lighting.

4 References – Specific to Electronic Security Industry
New Zealand Security Association (Inc), *Code of Practice for Alarm Monitoring Centres*, 2007;
New Zealand Security Association (Inc), *Code of Practice for Closed Circuit Television Surveillance Systems*, 2006;
New Zealand Security Association (Inc), *Code of Practice for Electronic Access Control,* 2008;
New Zealand Security Association (Inc), *Code of Practice for Intruder Alarm Systems*, 2007;
Codes of Practice available from: http://security.org.nz.

AS/NZS 2201.1:2007, *Intruder alarm systems – Client's premises – Design, installation, commissioning and maintenance;*
AS/NZS 2201.5:2008, *Intruder alarm systems – Alarm transmission systems;*
NZS 4301.3:1993, *Intruder alarm systems – Detection devices for internal use*;
NZS/AS 2201.2:1992, *Intruder alarm systems – Central stations*;
NZS/AS 2201.4:1990, *Intruder alarm systems – Wire-free systems installed in client's premises;*
and all subsequent amendments and replacements.

References – General to Electronic Security Industry
Building Act 2004;
Electricity (Safety) Regulations 2010;
Health and Safety at Work Act 1015;
Private Security Personnel and Private Investigators Act 2010;
Privacy Act 1993;
AS/NZS 3000:2007, *Electrical installations (known as the Australian/New Zealand Wiring Rules);*
NZS 4512:2010, *Fire detection and alarm systems in buildings*;
NZS 4514:2009, *Interconnected smoke alarms for houses;*
Telecommunications Act 2001;
Local territorial authority requirements;
and all subsequent amendments and replacements.

5 Range
a Candidates must refer to current legislation and Standards during assessment.
b All activities and evidence presented for all outcomes and performance criteria in this unit standard must be in accordance with:
  i legislation;
  ii policies and procedures;
  iii ethical codes;
  iv Standards;

v safe and sound practice;
vi applicable site, enterprise, and industry practice; and,
vii where appropriate, manufacturer instructions, specifications, and data sheets.

Outcomes and performance criteria

Outcome 1

Demonstrate knowledge of the principles of electronic security intruder alarm components.

Performance criteria

1.1 Describe the general operating principles, features, and purpose of components.

Range may include but is not limited to – internal audible device, external audible device, communications devices, passive infra-red (PIR) detector, microwave detector, point-to-point beam, dual and quad technology detector, reed switches, seismic sensors, glass break detectors, keypad, input expander, output expander, local bus network, power supply, battery, tamper switch;
evidence for 10 components is required.

1.2 Describe environmental influences that may interfere with component performance and explain techniques to compensate for negative effects.

Range influences – for each of the 10 components chosen above.

1.3 Explain intruder alarm system terminologies.

Range may include but is not limited to – end-of-line resistor, dual end of line resistors, system configuration, system software, upload, download, entry delay, exit delay, zone/input, output, area / partition, tamper, isolate, event flag, duress;
evidence for 10 terms is required.

Outcome 2

Demonstrate knowledge of the principles of electronic security access control components.

Performance criteria

2.1 Describe the general operating principles, features, and purpose of components.

Range components, may include but are not limited to – electric strikes, electric mortise locks, electromagnetic locks, cable transfer hinges, egress switches, point-to-point beam, vehicle detection loop, credential reader (key, card, tag), radio and infra-red transmitters, automatic door closer, auto door, v-lock, turnstiles, vehicle barrier arm; vehicle arresting devices;
evidence for 10 components is required.

2.2 Describe environmental influences may interfere with component performance and explain techniques to compensate for negative effects.

Range influences – for each of the 10 components chosen above.

2.3 Explain electronic security access control terminologies.

Range may include but is not limited to the following – REX, access group, time zone, DOTL, forced door, PTE, egress, door open time, time in attendance report, evacuation report, shunt, door group, fire release, emergency door release, anti-pass back; evidence for 10 terms is required.

Outcome 3

Demonstrate knowledge of the principles of electronic security surveillance systems.

Performance criteria

3.1 Describe the general operating principles, features, and purpose of components.

Range components, may include but are not limited to the following – cameras, fixed lenses, auto iris lenses, housings, brackets, video monitors, power supply, multiplexers, sequential switchers, matrix switchers, DVR, IP camera, network switch, system software, NVR, mega pixel cameras, PTZ camera;
evidence for 10 components is required.

3.2 Explain light in terms of units of measurement, and colour rendering in terms of wavelength.

3.3 Describe the importance of illumination levels in terms of effective CCTV operation in natural and artificial lighting situations.

Range shadows, direct sunlight, glare, rapid fluctuation, scene contrast, colour rendering.

3.4 Describe environmental influences other than illumination levels that may interfere with component performance and explain techniques to compensate for negative effects.

Range influences – a minimum of five examples is required.

3.5 Describe the relationship of lens selection to natural and artificial lighting levels and scene definition.

Range detect, observe, recognise, identify.

3.6 Use a sketch to describe the relationship between lens aperture and focal length.

3.7 Explain CCTV system terminology.

Range may include but is not limited to – frames per second, images per second, motion detection, privacy zone, CIF, pixel, resolution, lines, H.264, Mpeg4, Jpeg, text insertion archive; evidence of five examples is required.

Outcome 4

Demonstrate knowledge of the principles of intercom systems.

Performance criteria

4.1 Describe the general operating principles, features, and purpose of components.

Range may include but is not limited to – audio intercom, video intercom, power supplies, microphone, speakers, impedance matching transformers, horn speakers, hands-free systems, power supply, door release, intercom cables, lift control, IP intercoms, intercom exchange, console, door-gate unit, electric lock; evidence for 10 components is required.

4.2 Describe environmental influences that may interfere with component performance and explain techniques to compensate for negative effects.

Range influences – for each of the 10 components chosen above.

Replacement information	This unit standard replaced unit standard 5883.

Planned review date	31 December 2020

Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	19 November 2010	31 December 2022
Revision	2	17 June 2011	31 December 2022
Review	3	14 December 2017	N/A

Consent and Moderation Requirements (CMR) reference	0003

This CMR can be accessed at http://www.nzqa.govt.nz/framework/search/index.do.

Comments on this unit standard

Please contact The Skills Organisation reviewcomments@skills.org.nz if you wish to suggest changes to the content of this unit standard.