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Report on the Radio Testing

For

Magicard Ltd

on

Magicard 600

Report no. TRA-064783-47-09B

2025-04-28

RF915



Report Number: TRA-064783-47-09B  
Issue: B

REPORT ON THE RADIO TESTING OF A  
Magicard Ltd  
Magicard 600  
WITH RESPECT TO SPECIFICATION  
FCC 47CFR 15.247  
TO SATISFY MODULAR INTEGRATION REQUIREMENTS OF  
KDB 996369 D04 v01

TEST DATE: 18th June to 19th July 2024

Tested by: D Winstanley, S Hodgkinson

Written by:

D Winstanley  
Radio Senior Test Engineer

Approved by:

J Charters  
Lab Manager

Date: 2025-04-28

Disclaimers:

- [1] THIS DOCUMENT MAY BE REPRODUCED ONLY IN ITS ENTIRETY AND WITHOUT CHANGE
- [2] THE RESULTS CONTAINED IN THIS DOCUMENT RELATE ONLY TO THE ITEM(S) TESTED



## 1 Revision Record

<b><i>Issue Number</i></b>	<b><i>Issue Date</i></b>	<b><i>Revision History</i></b>
A	2024-09-05	Original
B	2025-04-28	TCB Amendment

## 2 Summary

TEST REPORT NUMBER: TRA-064783-47-09B

WORKS ORDER NUMBER: TRA-064783-00

PURPOSE OF TEST: Modular Integration

TEST SPECIFICATION: 47CFR15.247

EQUIPMENT UNDER TEST (EUT): Magicard 600

CONTAINS FCC IDENTIFIER: KA2WA131E1

EUT SERIAL NUMBER: 75852501

MANUFACTURER/AGENT: Magicard Ltd

ADDRESS: Hampshire Road  
Weymouth  
Dorset  
DT4 9XD  
United Kingdom

CLIENT CONTACT: William Macer  
☎ 07775491564  
✉ will.macer@bradycorp.com

ORDER NUMBER: 75852501

TEST DATE: 18th June to 19th July 2024

TESTED BY: D Winstanley, S Hodgkinson  
Element

## 2.1 Test Summary

Test Method and Description	Requirement Clause FCC 47 CFR	Applicable to this equipment	Result / Note
Radiated spurious emissions (restricted bands of operation and cabinet radiation)	15.205	<input checked="" type="checkbox"/>	Pass
AC power line conducted emissions	15.207	<input type="checkbox"/>	Note 1
6 dB bandwidth	15.247 (a) (2)	<input type="checkbox"/>	Note 1
Occupied bandwidth (99% bandwidth)	N/A	<input type="checkbox"/>	Note 1
Conducted output power	Peak	<input checked="" type="checkbox"/>	Info Only
	Maximum	<input type="checkbox"/>	
Undesirable / unwanted emissions	15.247 (d)	<input type="checkbox"/>	Note 1
Power spectral density	15.247 (e)	<input type="checkbox"/>	Note 1
Pulsed operation correction	15.35 (c)	<input type="checkbox"/>	Note 1

### Specific Note:

1. Limited testing was performed to check Carrier power / & transmitter radiated spurious emissions only, as requested by the client, to satisfy modular integration requirements of KDB996369 D04 v01.

### General Notes:

The results contained in this report relate only to the items tested, in the condition at time of test, and were obtained in the period between the date of initial receipt of samples and the date of issue of the report.

The apparatus was set up and exercised using the configurations, modes of operation and arrangements defined in this report only. Any modifications made are identified in Section 8 of this report.

Particular operating modes, apparatus monitoring methods and performance criteria required by the standards tested to have been performed except where identified in Section 5.2 of this test report (Deviations from Test Standards).

The decision rule for compliance is not inherent within this specification and compliance is based on the customer requesting a simple acceptance rule based on understanding and acceptance of Elements Measurement Uncertainty values.

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## 4 Introduction

This report TRA-064783-47-09B presents the results of the Radio testing on a Magicard Ltd, Magicard 600 to selected clauses of specification FCC Title 47 CFR 15 Radio Frequency Devices.

The testing was carried out for Magicard Ltd by Element, at the address detailed below.

<input checked="" type="checkbox"/>	Element Skelmersdale	<input type="checkbox"/>	Element Surrey Hills
	Unit 1		Unit 15 B
	Pendle Place		Henley Business Park
	Skelmersdale		Pirbright Road
	West Lancashire		Normandy
	WN8 9PN		Guildford
	UK		GU3 2DX
			UK

This report details the configuration of the equipment, the test methods used and any relevant modifications where appropriate.

All test and measurement equipment under the control of the laboratory and requiring calibration is subject to an established programme and procedures to control and maintain measurement standards. The quality management system meets the principles of ISO 9001, and has quality control procedures for monitoring the validity of tests undertaken. Records and sufficient detail are retained to establish an audit trail of calibration records relating to its test results for a defined period. Under control of the established calibration programme, key quantities or values of the test & measurement instrumentation are within specification and comply with the relevant traceable internationally recognised and appropriate standard specifications, which are ISO/IEC 17025:2017 accredited calibrated as such where these properties have a significant effect on results. Participation in inter-laboratory comparisons and proficiency testing ensures satisfactory correlation of results conform to Elements own procedures, as well as statistical techniques for analysis of test data providing the appropriate confidence in measurements.

Throughout this report EUT denotes equipment under test.

### FCC Site Listing:

The test laboratory is accredited for the above sites under the US-UK MRA,

### Designation number(s):

Element Surrey Hills	UK2027
Element Skelmersdale	UK2020

The test site requirements of ANSI C63.4-2014 are met up to 1GHz.

The test site SVSWR requirements of CISPR 16-1-4:2010 are met over the frequency range 1 GHz to 18 GHz.

## 5 Test Specifications

### 5.1 *Normative References*

- FCC 47 CFR Ch. I – Part 15 – Radio Frequency Devices.
- ANSI C63.10-2013 – American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices.
- ANSI C63.4-2014 – American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz.
- 996369 D04 Module Integration Guide V01 - Modular Transmitter Integration Guide - Guidance for Host Product Manufacturers.

### 5.2 *Deviations from Test Standards*

Limited testing was performed to check transmitter radiated spurious emissions only, as requested by the client, to satisfy modular integration requirements of KDB996369 D04 v01.

## 6 Glossary of Terms

<b>§</b>	denotes a section reference from the standard, not this document
<b>AC</b>	Alternating Current
<b>ANSI</b>	American National Standards Institute
<b>BW</b>	bandwidth
<b>C</b>	Celsius
<b>CFR</b>	Code of Federal Regulations
<b>CW</b>	Continuous Wave
<b>dB</b>	decibel
<b>dBm</b>	dB relative to 1 milliwatt
<b>DC</b>	Direct Current
<b>DSSS</b>	Direct Sequence Spread Spectrum
<b>EIRP</b>	Equivalent Isotropically Radiated Power
<b>ERP</b>	Effective Radiated Power
<b>EUT</b>	Equipment under Test
<b>FCC</b>	Federal Communications Commission
<b>FHSS</b>	Frequency Hopping Spread Spectrum
<b>Hz</b>	hertz
<b>IC</b>	Industry Canada
<b>ITU</b>	International Telecommunication Union
<b>LBT</b>	Listen before Talk
<b>m</b>	metre
<b>max</b>	maximum
<b>MIMO</b>	Multiple Input and Multiple Output
<b>min</b>	minimum
<b>MRA</b>	Mutual Recognition Agreement
<b>N/A</b>	Not Applicable
<b>PCB</b>	Printed Circuit Board
<b>PDF</b>	Portable Document Format
<b>Pt-mpt</b>	Point-to-multipoint
<b>Pt-pt</b>	Point-to-point
<b>RF</b>	Radio Frequency
<b>RH</b>	Relative Humidity
<b>RMS</b>	Root Mean Square
<b>Rx</b>	receiver
<b>s</b>	second
<b>SVSWR</b>	Site Voltage Standing Wave Ratio
<b>Tx</b>	transmitter
<b>UKAS</b>	United Kingdom Accreditation Service
<b>V</b>	volt
<b>W</b>	watt
<b>Ω</b>	ohm

## 7 Equipment under Test

### 7.1 EUT Identification

- Name: Magicard 600
- Serial Number: 75852501
- Model Number: Magicard 600
- Software Revision: 0.12
- Build Level / Revision Number: Production Build

### 7.2 Preapproved Module

- Manufacturer: D-Link
- Model Number: DWA-131
- FCCID: KA2WA131E1

### 7.3 System Equipment

Equipment listed below forms part of the overall test setup and is required for equipment functionality and/or monitoring during testing. The compliance levels achieved in this report relate only to the EUT and not items given in the following list.

Equipment Description	Manufacturer	Serial / Asset No(s)
CMW500	R&S	U740

### 7.4 EUT Mode of Operation

The EUT was connected to the CMW500 acting as a router to control the EUT to transmit on the required frequencies.

### 7.5 EUT Radio Parameters

#### 7.5.1 General

Frequency of operation:	2412 MHz to 2462 MHz
Channel Bandwidth:	20 MHz
Channel Spacing:	5 MHz
Nominal Supply Voltage:	24 VDC

### 7.6 EUT Description

The EUT is an ID Card Printer that makes use of a 13.56 MHz Inductive loop system. It also contains a pre approved 2.4 GHz WLAN module.

This report covers the integration testing of the 2.4 GHz WAN module.

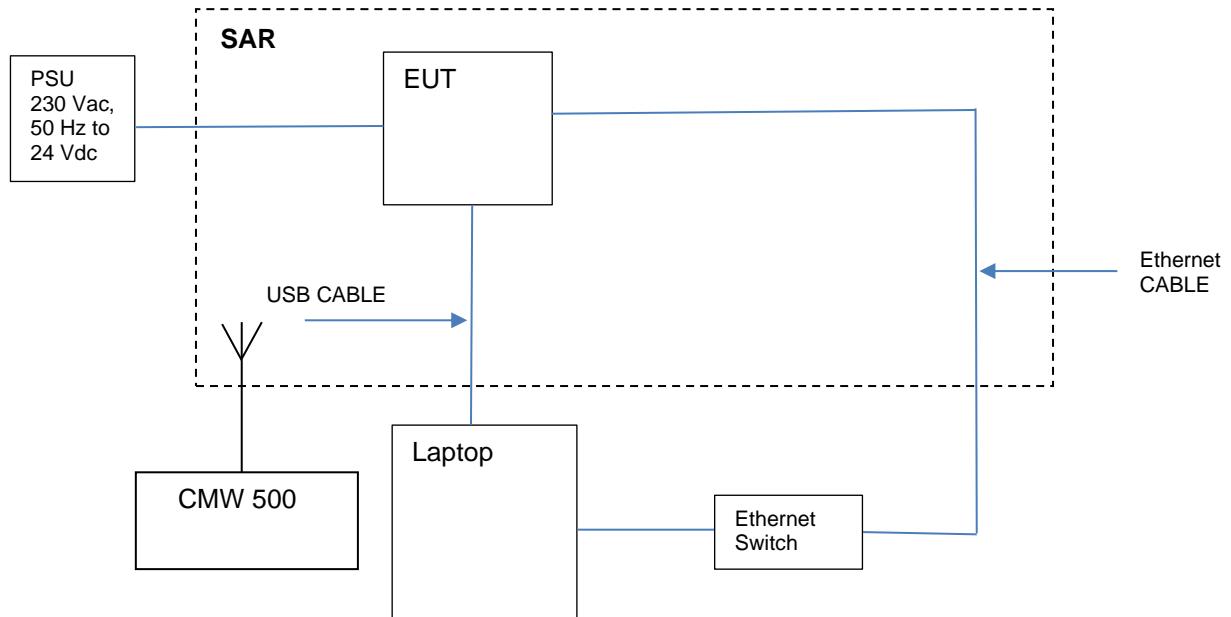
## **8 Modifications**

No modifications were performed during this assessment.

## 9 EUT Test Setup

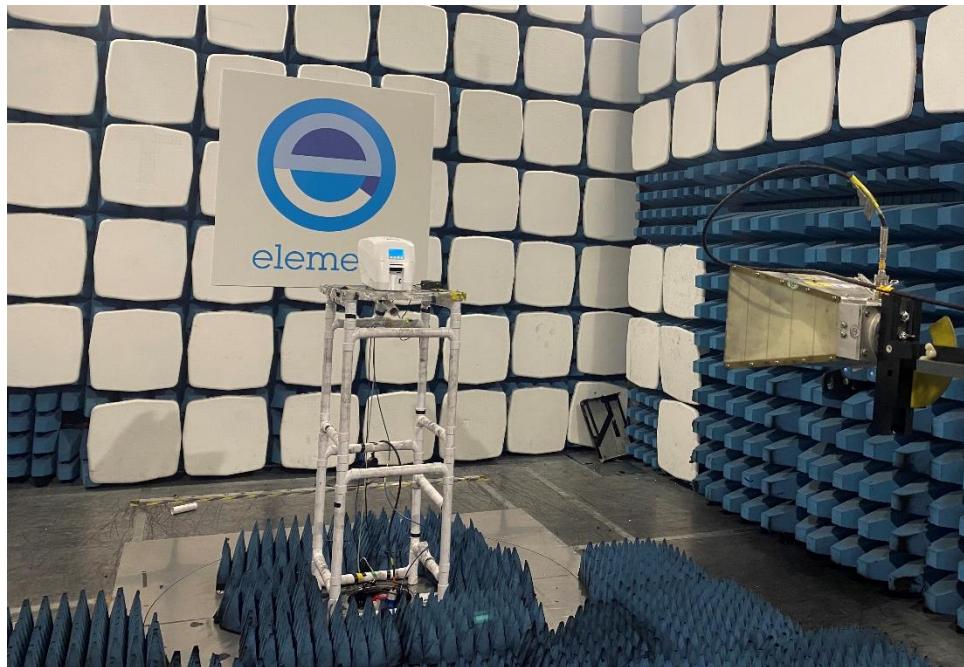
### 9.1 Block Diagram

The following diagram shows basic EUT interconnections with cable type identified:



## 9.2 General Set-up Photograph

The following photograph shows basic EUT set-up:



## 9.3 Measurement software

Where applicable, the following software was used to perform measurements contained within this report.

Element Emissions R5  
Element Transmitter Bench Test  
ETS Lindgren EMPower V1.0.4.2

## 10 General Technical Parameters

### 10.1 *Normal Conditions*

The EUT was tested under the normal environmental conditions of the test laboratory, except where otherwise stated. The normal power source applied was 24 V dc from the 110 Vac mains adaptor.

## 11 Radiated emissions

### 11.1 Definitions

#### *Spurious emissions*

Emissions on a frequency or frequencies, which are outside the necessary bandwidth and the level of which may be reduced without affecting the corresponding transmission of information. Spurious emissions include harmonic emissions, parasitic emissions, intermodulation products and frequency conversion products, but exclude out-of-band emissions.

#### *Restricted bands*

A frequency band in which intentional radiators are permitted to radiate only spurious emissions but not fundamental signals.

### 11.2 Test Parameters

Test Location:	Element Skelmersdale
Test Chamber:	SK03
Test Standard and Clause:	ANSI C63.10-2013, Clause 6.5 and 6.6
EUT Frequencies Measured:	2412 MHz / 2437 MHz / 2462 MHz
Deviations from Standard:	None
Measurement BW:	30 MHz to 1 GHz: 120 kHz; Above 1 GHz: 1 MHz
Measurement Detector:	Up to 1 GHz: quasi-peak; Above 1 GHz: CISPR average and Peak

### Environmental Conditions (Normal Environment)

Temperature: 19 °C	+15 °C to +35 °C (as declared)
Humidity: 56 % RH	20 % RH to 75 % RH (as declared)

### 11.3 Test Limit

Unwanted emissions that fall within the restricted frequency bands shall comply with the limits specified:

#### General Field Strength Limits for License-Exempt Transmitters at Frequencies above 30 MHz

Frequency (MHz)	Field Strength (µV/m at 3 m)	Field Strength (dBµV/m at 3 m)
30 to 88	100	40.0
88 to 216	150	43.5
216 to 960	200	46.0
Above 960	500	54.0

On frequencies below or equal to 1000 MHz, the limits shown are based on measuring equipment employing a CISPR quasi-peak detector function. On frequencies above 1000 MHz, the radiated emission limits are based on the use of measurement instrumentation employing an average detector function. The limit on peak radio frequency emissions is 20 dB above the maximum permitted average emission limit.

#### 11.4 Test Method

With the EUT setup as per section 9 of this report and connected as per Figure i, the emissions from the EUT were measured on a spectrum analyzer / EMI receiver.

Radiated electromagnetic emissions from the EUT are checked first by preview scans. Preview scans for all spectrum and modulation characteristics are checked, using a peak detector and where applicable worst-case determined for function, operation, orientation, etc. for both vertical and horizontal polarisations. Pre-scan plots are shown with a peak detector and 100 kHz RBW.

If the EUT connects to auxiliary equipment and is table or floor standing, the configurations prescribed in ANSI C63.10 are followed. Alternatively, a layout closest to normal use (as declared by the provider) is employed, (see EUT setup photographs for more detail).

Emissions between 30 MHz and 1 GHz are measured using calibrated broadband antennas. Emissions above 1 GHz are characterized using standard gain horn antennas. Pre-amplifiers and filters are used where required. Care is taken to ensure that test receiver resolution bandwidth, video bandwidth and detector type(s) meet the regulatory requirements.

For both horizontal and vertical polarizations, the EUT is then rotated through 360 degrees in azimuth until the highest emission is detected. At the previously determined azimuth the test antenna is raised and lowered from 1 to 4 m in height until a maximum emission level is detected, this maximum value is recorded.

Power values measured on the test receiver / analyzer are converted to field strength, FS, in dB $\mu$ V/m at the regulatory distance, using:

$$FS = PR + CL + AF - PA + DC - CF$$

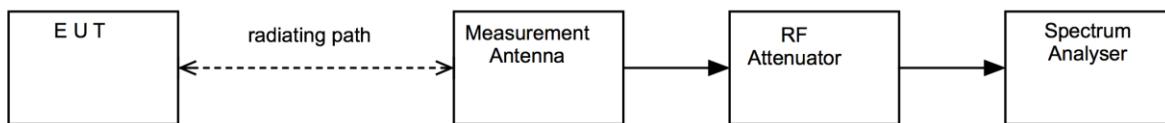
Factor = CL + AF - PA

Where,

PR is the power recorded on the receiver / spectrum analyzer in dB $\mu$ V;  
 CL is the cable loss in dB;  
 AF is the test antenna factor in dB/m;  
 PA is the pre-amplifier gain in dB (where used);  
 DC is the duty correction factor in dB (where used, e.g. harmonics of pulsed fundamental);  
 CF is the distance factor in dB (where measurement distance different to limit distance);

This field strength value is then compared with the regulatory limit.

**Figure i Test Setup**



## 11.5 Test Equipment

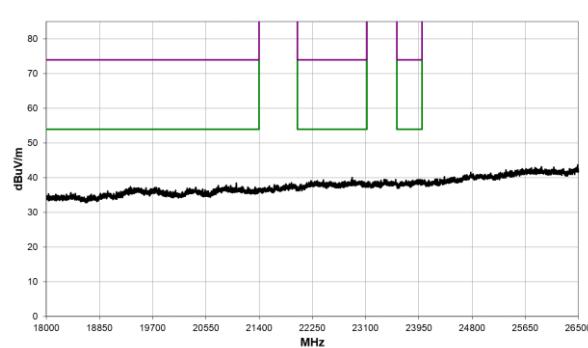
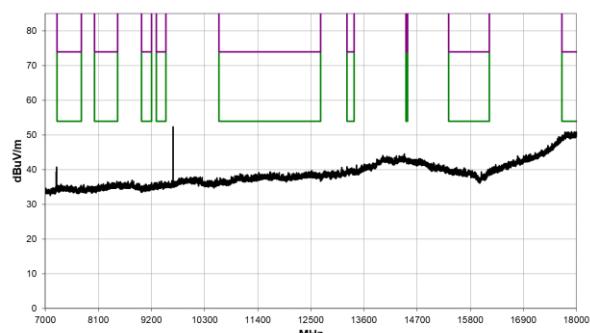
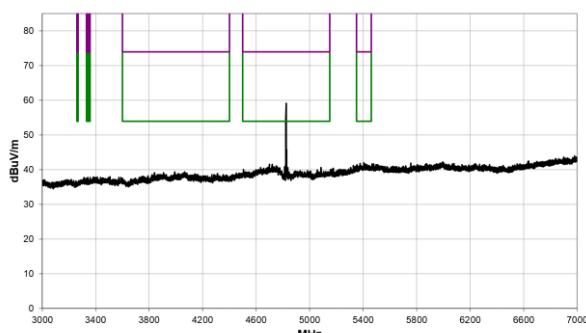
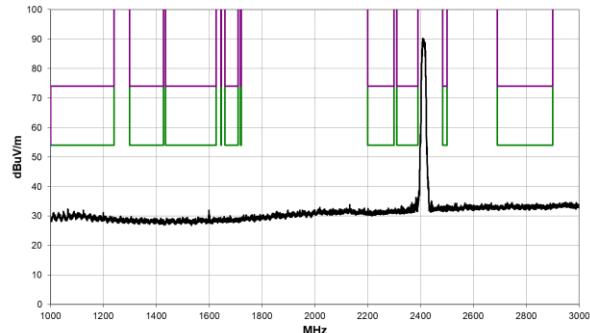
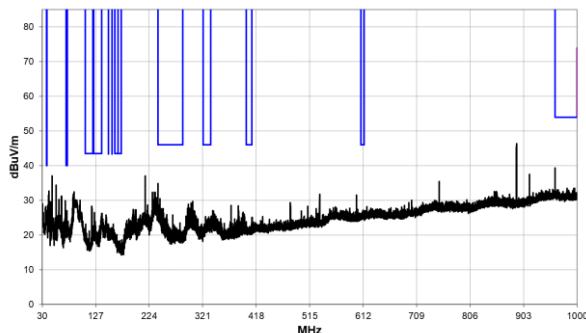
Equipment Type	Manufacturer	Equipment Description	Element No	Due For Calibration
FSU46	R&S	Spectrum Analyser	REF910	2025-01-30
ESR 7	R&S	Spectrum Analyser	U727	2025-05-17
CBL611/B	Chase	Bilog	U573	2024-10-14
6201-69	Watkins Johnson	PreAmp	U372	2025-03-15
8449B	Agilent	Pre Amp	U457	2025-01-26
3115*	EMCO	1-18GHz Horn	L139	2024-07-12
LB-180400-25-C-KF	A Info Inc	Horn Antenna	REF2246	2024-09-23
AFH-07000	Atlantic Microwave	High Pass Filter	U558	2025-02-15
SN 4478	BSC	2.4G Band Stop Filter	U543	2025-02-15

Note:3115\* The equipment was within the calibration period, the testing was performed on 17/06/2024

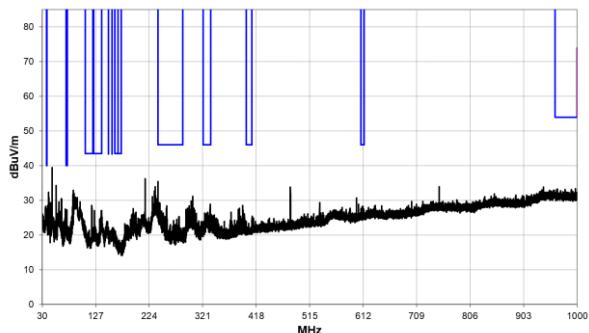
## 11.6 Test Results

Common Emissions								
Detector	Freq. (MHz)	Meas'd Emission (dB $\mu$ V)	Factor (dB)	Duty Cycle Corr'n (dB)	Distance Extrap'n Factor (dB)	Field Strength (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)
QP	240.033	45.3	-10.2	0.0	0.0	35.1	46.0	-10.9
QP	75.027	40.0	-15.4	0.0	0.0	24.6	40.0	-15.4
QP	240.033	40.1	-10.2	0.0	0.0	29.9	46.0	-16.1
QP	37.819	29.5	-7.5	0.0	0.0	22.0	40.0	-18.0
QP	120.028	34.2	-10.0	0.0	0.0	24.2	43.5	-19.3
QP	125.029	33.7	-9.7	0.0	0.0	24.0	43.5	-19.5

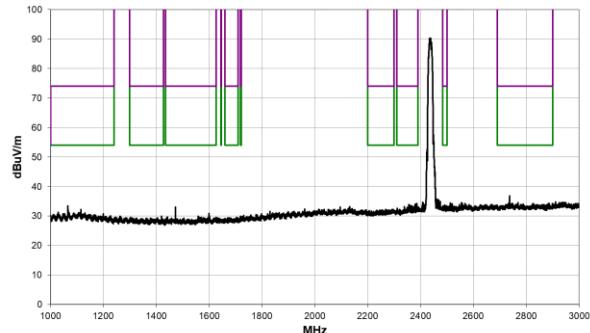
Frequency: 2412 MHz								
Detector	Freq. (MHz)	Meas'd Emission (dB $\mu$ V)	Factor (dB)	Duty Cycle Corr'n (dB)	Distance Extrap'n Factor (dB)	Field Strength (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)
AV	4824.000	40.5	5.0	0.0	0.0	45.5	54.0	-8.5
PK	4823.867	57.2	5.0	0.0	0.0	62.2	74.0	-11.8
AV	4824.067	35.1	5.0	0.0	0.0	40.1	54.0	-13.9
PK	4823.867	54.8	5.0	0.0	0.0	59.8	74.0	-14.2



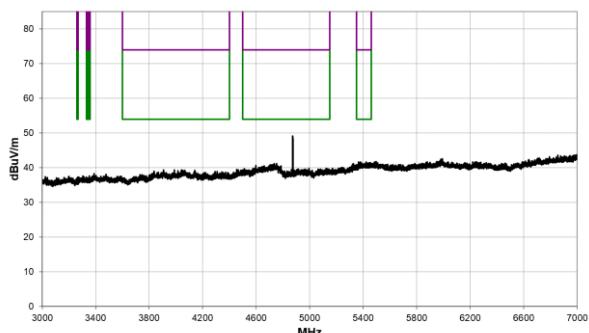
Frequency: 2437 MHz								
Detector	Freq. (MHz)	Meas'd Emission (dB $\mu$ V)	Factor (dB)	Duty Cycle Corr'n (dB)	Distance Extrap'n Factor (dB)	Field Strength (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)
AV	4873.933	35.6	5.1	0.0	0.0	40.7	54.0	-13.3
AV	4873.933	33.8	5.1	0.0	0.0	38.9	54.0	-15.1
PK	4874.000	53.4	5.1	0.0	0.0	58.5	74.0	-15.5
PK	4874.000	53.3	5.1	0.0	0.0	58.4	74.0	-15.6



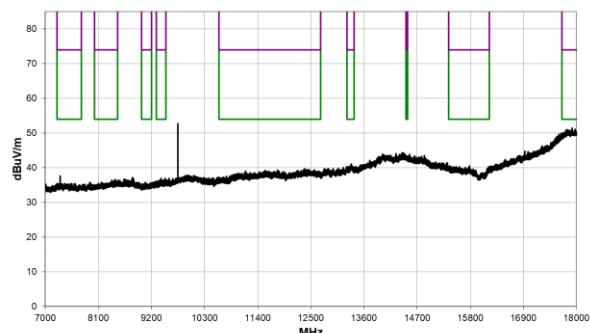
30 MHz - 1 GHz



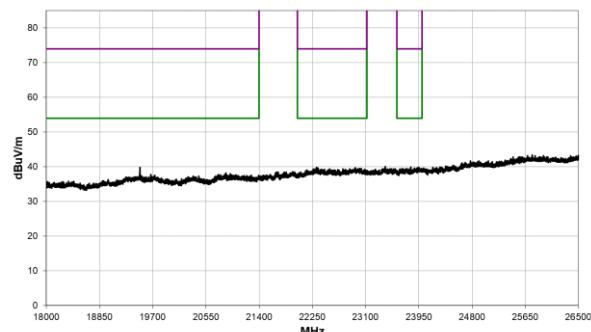
1 GHz – 3 GHz



3 GHz - 7 GHz

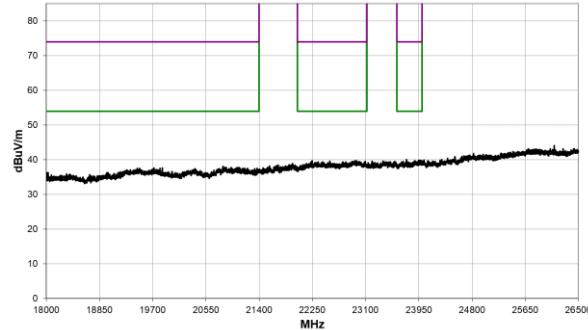
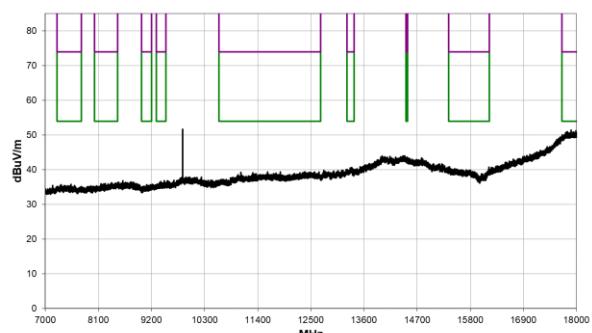
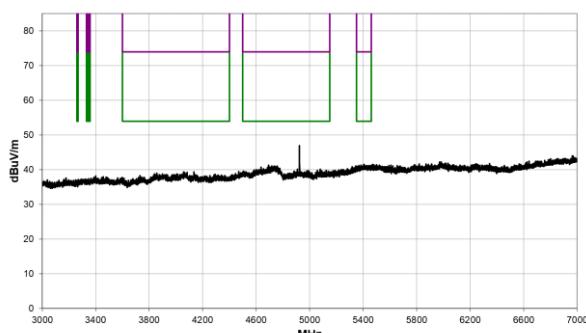
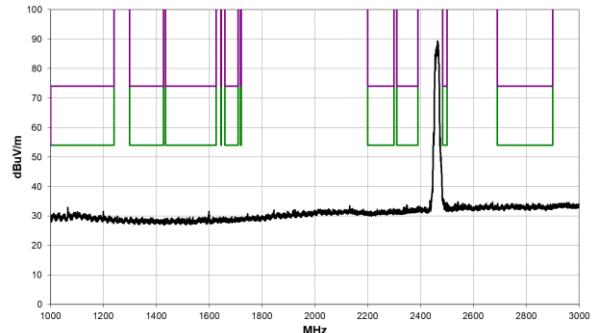
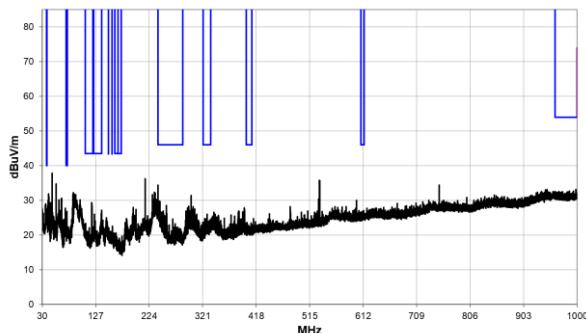


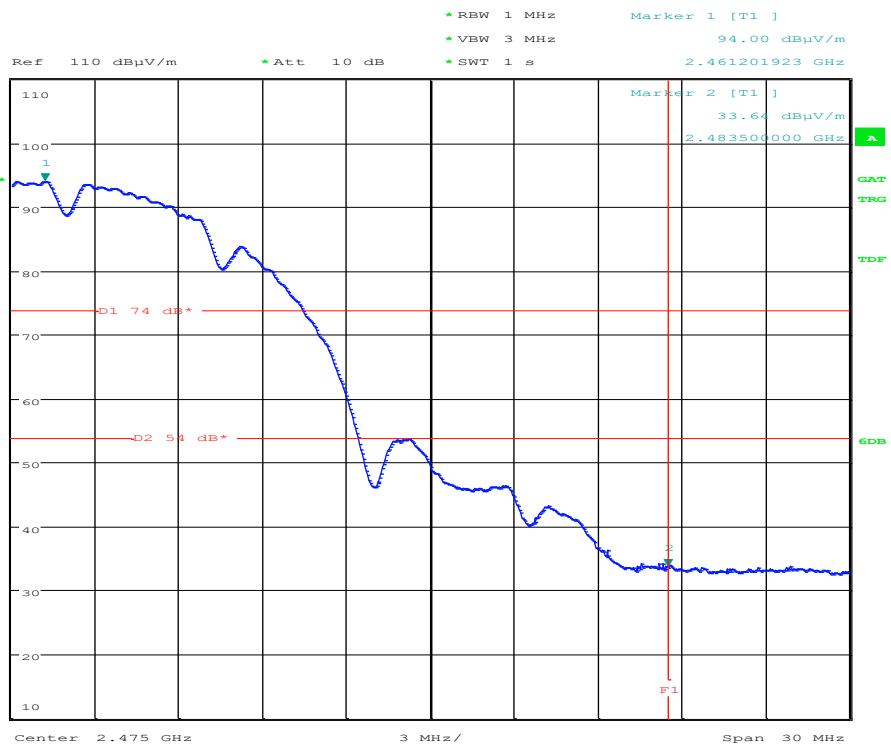
7 GHz – 18 GHz



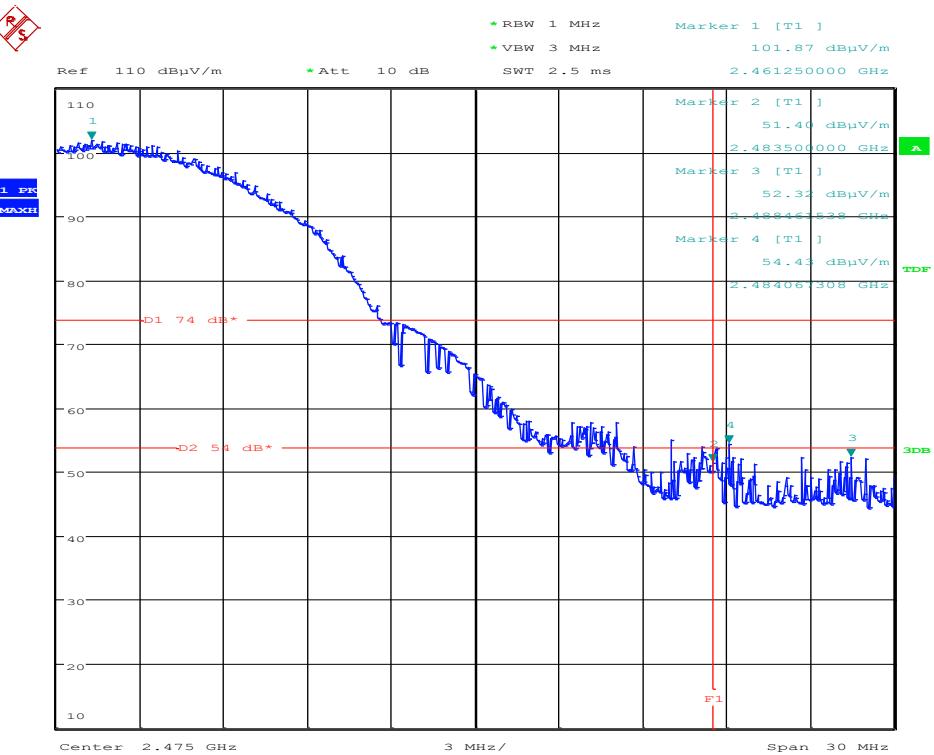
18 GHz – 26.5 GHz

Frequency: 2462 MHz								
Detector	Freq. (MHz)	Meas'd Emission (dB $\mu$ V)	Factor (dB)	Duty Cycle Corr'n (dB)	Distance Extrap'n Factor (dB)	Field Strength (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)
AV	4909.933	29.2	5.3	0.0	0.0	34.5	54.0	-19.5
AV	4928.267	29.0	5.3	0.0	0.0	34.3	54.0	-19.7
PK	4924.133	45.2	5.3	0.0	0.0	50.5	74.0	-23.5
PK	4928.200	44.7	5.3	0.0	0.0	50.0	74.0	-24.0



RF  
S

Upper Bandedge – Average Detector

RF  
S

Upper Bandedge – Peak Detector

## 12 Maximum peak conducted output power

### 12.1 *Definition*

The maximum peak conducted output power is defined as the maximum power level measured with a peak detector using a filter with width and shape of which is sufficient to accept the signal bandwidth.

The effective isotropic radiated power (EIRP) is defined as the product of the power supplied to the antenna and the antenna gain in a given direction relative to an isotropic antenna.

### 12.2 *Test Parameters*

Test Location:	Element Skelmersdale
Test Chamber:	Chamber 1 (SK01)
Test Standard and Clause:	ANSI C63.10-2013, Clause 11.9.1
EUT Frequencies Measured:	2412 MHz / 2437 MHz / 2462 MHz
EUT Channel Bandwidths:	20 MHz
Deviations From Standard:	None
Measurement BW:	30 MHz
Measurement Detector:	Peak
Voltage Extreme Environment Test Range:	Mains Power = 85 % and 115 % of Nominal (FCC only requirement); Battery Power = new battery.

### Environmental Conditions (Normal Environment)

Temperature: 19 °C	+15 °C to +35 °C (as declared)
Humidity: 56 % RH	20 % RH to 75 % RH (as declared)

### 12.3 *Test Limit*

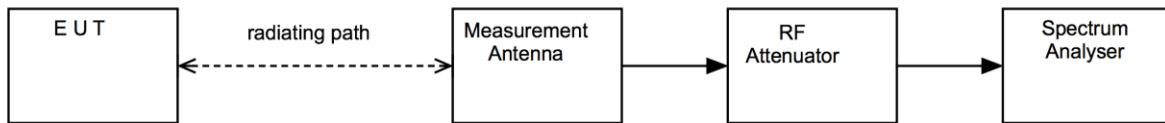
For systems employing digital modulation techniques operating in the bands 902 to 928 MHz, 2400 to 2483.5 MHz and 5725 to 5850 MHz, the maximum peak conducted output power shall not exceed 1 W.

## 12.4 Test Method

With the EUT setup as per section 9 of this report and connected as per Figure iv, the resolution bandwidth of the spectrum analyser was increased above the EUT occupied bandwidth and the peak emission data noted.

The measurements were performed with EUT set at its maximum duty. All modulation schemes, data rates and power settings were used to observe the worst-case configuration in each bandwidth.

**Figure iv Test Setup**



## 12.5 Test Equipment

Equipment Type	Manufacturer	Equipment Description	Element No	Due For Calibration
FSU46	R&S	Spectrum Analyser	REF910	2025-01-30
8449B	Agilent	Pre Amp	U457	2025-01-26
3115*	EMCO	1-18GHz Horn	U223	2026-01-17

Note: 3115\* The equipment was within the calibration period, the testing was performed on 17/06/2024

## 12.6 Test Results

The following formula was used to convert field strength ( $E$ ) in volts/metre to conducted output power in watts:

$$\text{Conducted Output Power} = (E \times d)^2 / (30 \times G)$$

Where,

$E$  is the electric field strength in V/m

$d$  is the measurement distance in meters (m)

$G$  is the antenna numerical gain referenced to isotropic gain (< 0dBi)

<b>Modulation: DSSS; Data rate: 1Mbps</b>					
<b>Frequency (MHz)</b>	<b>Peak Field Strength (dB<math>\mu</math>V/m)</b>	<b>Peak Field Strength (V/m)</b>	<b>Distance (m)</b>	<b>Maximum peak conducted output power (mW)</b>	<b>Result</b>
2412	108.2	0.26	3	20.28	PASS
2437	107.9	0.25	3	18.75	PASS
2462	107.2	0.23	3	15.87	PASS

## 13 Measurement Uncertainty

### Radio Testing – General Uncertainty Schedule

All statements of uncertainty are expanded standard uncertainty using a coverage factor of 1.96 to give a 95 % confidence where no required test level exists.

<b>Test/Measurement</b>	<b>Budget Number</b>	<b>MU</b>
<b>Conducted RF Power, Power Spectral Density, Adjacent Channel Power and Spurious emissions</b>		
Absolute RF power (via antenna connector) Sampling Power Meter to 8 GHz	MU4001	<b>0.9 dB</b>
Carrier Power and PSD - Spectrum Analysers	MU4004	<b>1.7 dB</b>
Adjacent Channel Power	MU4002	<b>1.9 dB</b>
Transmitter conducted spurious emissions (Including emissions due to intermodulation)	MU4041	<b>0.9 dB</b>
Conducted power and spurious emissions 40 GHz to 50 GHz	MU4042	<b>2.4 dB</b>
Conducted power and spurious emissions 50 GHz to 75 GHz	MU4043	<b>2.5 dB</b>
Conducted power and spurious emissions 75 GHz to 110 GHz	MU4044	<b>2.4 dB</b>
<b>Radiated RF Power and Spurious emissions ERP and EIRP</b>		
Effective Radiated Power Reverb Chamber	MU4020	<b>3.7 dB</b>
Effective Radiated Power	MU4021	<b>4.7 dB</b>
TRP Emissions 30 MHz to 1 GHz using CBL6111 or CBL6112 Bilog Antenna	MU4046	<b>5.3 dB</b>
TRP Emissions 1 GHz to 18 GHz using HL050 Log Periodic Antenna	MU4047	<b>5.1 dB</b>
TRP Emissions 18 GHz to 26.5 GHz using Standard Gain Horn	MU4048	<b>2.7 dB</b>
TRP Emissions 26.5 GHz to 40 GHz using Standard Gain Horn	MU4049	<b>2.7 dB</b>
In-band (3450-3650 MHz) TRP using CATR_ASH_B2	MU4051	<b>4.1 dB</b>
Cellular Radiated Spurious Emissions in a SAC 30 MHz to 180 MHz	MU4052	<b>6.3 dB</b>
Cellular Radiated Spurious Emissions in a SAC 180 MHz to 18 GHz	MU4052	<b>3.6 dB</b>
Cellular Radiated Spurious Emissions in a FAR 30 MHz to 180 MHz	MU4052	<b>5.4 dB</b>
Cellular Radiated Spurious Emissions in a FAR 180 MHz to 18 GHz	MU4052	<b>3.0 dB</b>
<b>Spurious Emissions Electric and Magnetic Field</b>		
Radiated Spurious Emissions 30 MHz to 1 GHz (Including emissions due to intermodulation)	MU4037	<b>4.8 dB</b>
Radiated Spurious Emissions 1-18 GHz (Including emissions due to intermodulation)	MU4032	<b>4.5 dB</b>
E Field Emissions 18 GHz to 26 GHz	MU4024	<b>3.2 dB</b>
E Field Emissions 26 GHz to 40 GHz	MU4025	<b>3.3 dB</b>
E Field Emissions 40 GHz to 50 GHz	MU4026	<b>3.5 dB</b>
E Field Emissions 50 GHz to 75 GHz	MU4027	<b>3.6 dB</b>
E Field Emissions 75 GHz to 110 GHz	MU4028	<b>3.6 dB</b>
Radiated Magnetic Field Emissions	MU4031	<b>2.3 dB</b>

<b>Test/Measurement</b>	<b>Budget Number</b>	<b>MU</b>
<b>Frequency Measurements</b>		
Frequency Deviation	MU4022	<b>3.7 kHz</b>
Frequency error using CMTA test set	MU4023	<b>113.441 Hz</b>
Frequency error using GPS locked frequency source	MU4045	<b>0.0413 ppm</b>
<b>Bandwidth/Spectral Mask Measurements</b>		
Channel Bandwidth	MU4005	<b>3.87%</b>
Transmitter Mask Amplitude	MU4039	<b>1.3 dB</b>
Transmitter Mask Frequency	MU4040	<b>2.59%</b>
<b>Time Domain Measurements</b>		
Transmission Time	MU4038	<b>4.40%</b>
<b>Dynamic Frequency Selection (DFS) Parameters</b>		
DFS Analyser - Measurement Time	MU4006	<b>678.984 μs</b>
DFS Generator - Frequency Error	MU4007	<b>91.650 Hz</b>
DFS Threshold Conducted	MU4008	<b>1.3 dB</b>
DFS Threshold Radiated	MU4009	<b>3.2 dB</b>
<b>Receiver Parameters</b>		
EN 300 328 Receiver Blocking	MU4010	<b>1.1 dB</b>
EN 301 893 Receiver Blocking	MU4011	<b>1.1 dB</b>
EN 303 340 Adjacent Channel Selectivity	MU4012	<b>1.1 dB</b>
EN 303 340 Overloading	MU4013	<b>1.1 dB</b>
EN 303 340 Receiver Blocking	MU4014	<b>1.1 dB</b>
EN 303 340 Receiver Sensitivity	MU4015	<b>0.9 dB</b>
EN 303 372-1 Image Rejection	MU4016	<b>1.4 dB</b>
EN 303 372-1 Receiver Blocking	MU4017	<b>1.1 dB</b>
EN 303 372-2 Adjacent Channel Selectivity	MU4018	<b>1.1 dB</b>
EN 303 372-2 Dynamic Range	MU4019	<b>0.9 dB</b>
Receiver Blocking Talk Mode Conducted	MU4033	<b>1.2 dB</b>
Receiver Blocking Talk Mode- radiated	MU4034	<b>3.4 dB</b>
Rx Blocking, listen mode, blocking level	MU4035	<b>3.2 dB</b>
Rx Blocking, listen mode, radiated Threshold Measurement	MU4036	<b>3.4 dB</b>
Adjacent Sub Band Selectivity	MU4003	<b>4.2 dB</b>

<i>Test/Measurement</i>	<i>Budget Number</i>	<i>MU</i>
<b>Rohde &amp; Schwarz TS8997</b>		
Carrier frequency	MU4050	<b>5.2 ppm</b>
RF Output Power	MU4050	<b>1.0 dB</b>
Peak Power	MU4050	<b>0.8 dB</b>
Power Spectral Density	MU4050	<b>1.0 dB</b>
Occupied Channel Bandwidth	MU4050	<b>2.08 %</b>
Transmitter unwanted emissions in-band	MU4050	<b>0.9 dB</b>
Transmitter unwanted emissions in the spurious domain 30 MHz to 1 GHz	MU4050	<b>0.6 dB</b>
Transmitter unwanted emissions in the spurious domain 1 GHz to 12.75 GHz	MU4050	<b>1.8 dB</b>
Receiver Spurious emission 30 MHz to 1 GHz	MU4050	<b>0.6 dB</b>
Receiver Spurious emission 1 GHz to 12.75 GHz	MU4050	<b>1.8 dB</b>
Duty Cycle	MU4050	<b>0.02 %</b>
Tx Sequence	MU4050	<b>0.02 %</b>
Tx Gap	MU4050	<b>0.02 %</b>
Medium Utilisation	MU4050	<b>0.1 %</b>
Accumulated Transmit Time	MU4050	<b>0.01 %</b>
Minimum Frequency Occupation Time	MU4050	<b>0.01 %</b>
Hopping Frequency Separation	MU4050	<b>0.6 %</b>
Receiver blocking (for bit streams)	MU4050	<b>3.0 dB</b>
Channel Access Mechanism / Adaptivity / DFS / Contention Based Protocol	MU4050	<b>1.8 dB</b>