

Report Number: TRA-064783-47-10B
Issue: B

REPORT ON THE RADIO TESTING OF A
Magicard Ltd
Magicard 600
Testing for FCC
with respect to specification
996369 D04 Module Integration Guide V02
(Intermodulation Investigation)

TEST DATE: 18th June to 19th July 2024

Tested by: D Winstanley

Written by:

D Winstanley
Radio Senior Test Engineer

Approved by:

J Charters
Lab Manager

Date: 25th April 2025

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**

<i>Issue Number</i>	<i>Issue Date</i>	<i>Revision History</i>
A	14 th August 2024	Original.
B	25 th April 2025	TCB amendment.

2 Summary

TEST REPORT NUMBER:	TRA-064783-47-10B
WORKS ORDER NUMBER:	TRA-064783-00
PURPOSE OF TEST:	Intermodulation evaluation
TEST SPECIFICATION:	996369 D04 Module Integration Guide V02
TECHNOLOGY TYPES:	2.4 GHz WLAN / RFID
EQUIPMENT UNDER TEST (EUT):	Magocard 600
EUT SERIAL NUMBER:	75852501
MANUFACTURER/AGENT:	Magocard Ltd
ADDRESS:	Hampshire Road Weymouth Dorset DT4 9XD United Kingdom
CLIENT CONTACT:	William Macer ☎ 07775491564 ✉ will.macer@bradycorp.com
ORDER NUMBER:	13660
TEST DATE:	18th June to 19th July 2024
TESTED BY:	D Winstanley Element

2.1 Test Summary

<i>Test Method and Description</i>	<i>Applicable to this equipment</i>	<i>Result / Note</i>
Radiated spurious emissions (Intermodulation Investigation)	<input checked="" type="checkbox"/>	<i>Information Only</i>

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 test specifications have been performed except as 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-064783-47-10B presents the results of the Radio testing on a Magicard Ltd, Magicard 600 to specification 996369 D04 Module Integration Guide V02 - Modular transmitter integration guide -Guidance for host product manufacturers.

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

<input checked="" type="checkbox"/>	Element Skelmersdale Unit 1 Pendle Place Skelmersdale West Lancashire WN8 9PN UK	<input type="checkbox"/>	Element Surrey Hills Unit 15 B Henley Business Park Pirbright Road Normandy Guildford GU3 2DX UK
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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 Skelmersdale UK2020

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

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

- 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.
- ANSI C63.26-2015- American National Standard for Compliance Testing of Transmitters Used in Licensed Radio Services
- 996369 D04 Module Integration Guide V01 - Modular Transmitter Integration Guide - Guidance for Host Product Manufacturers.
- FCC 47 CFR Ch. I – Part 15 – Radio Frequency Devices.
- KDB 174176 D01 Line Conducted FAQ v01r01 - AC Power-Line Conducted Emissions Frequently Asked Questions.

5.2 Deviations from Test Standards

There were no deviations from the test standard.

6 Glossary of Terms

§	denotes a section reference from the standard, not this document
AC	Alternating Current
AC/DC	Alternating Current/Direct Current
ACK	Acknowledgement signal
AFH	Adaptive Frequency Hopping
BW	bandwidth
C	Celsius
CCA	Clear Channel Assessment
COT	Channel Occupancy Time
CSD	Cyclic Shift Diversity
CW	Continuous Wave
DAA	Detect And Avoid
dB	decibel
dB_i	dB relative to an isotropic antenna
dB_m	dB relative to 1 milliwatt
DC	Duty Cycle
DSSS	Direct Sequence Spread Spectrum
EFTA	European Free Trade Association
EIRP	Equivalent Isotropically Radiated Power
ERP	Effective Radiated Power
EN	European Normative document
EUT	Equipment Under Test
FAR	Fully Anechoic Room
FER	Frame Error Rate
FFT	Fast Fourier Transformation
FHSS	Frequency Hopping Spread Spectrum
HT	High Throughput
Hz	hertz
ITU	International Telecommunication Union
LBT	Listen Before Talk
LPDA	Logarithmic Periodic Dipole Antenna
m	metre
max	maximum
MCS	Modulation and Coding Scheme
MIMO	Multiple-Input/Multiple-Output
MS/s	Mega-Samples per second
min	minimum
MU	Medium Utilization
N/A	Not Applicable
OATS	Open Air Test Site
OCBW	Occupied Channel Bandwidth
OFDM	Orthogonal Frequency Division Multiplexing
OOB	Out Of Band
PCB	Printed Circuit Board
PDF	Portable Document Format
PER	Packet Error Rate
PFD	Power Flux Density
PSD	Power Spectral Density
RBW	Resolution BandWidth
RE	Radio Equipment
RF	Radio Frequency
RH	Relative Humidity
RMS	Root Mean Square
Rx	receiver
s	second
SAR	Semi Anechoic Room
Tx	transmitter
UKAS	United Kingdom Accreditation Service
UUT	Unit Under Test
UWB	Ultra Wide Band
V	volt
VBW	Video BandWidth
VDC	Volts in Direct Current
W	watt
Ω	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 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)
Network Switch	TpLink	TL-R470T
Support Laptop	HP Pro Book	5CD01315SG
CMW500	R&S	U740

7.3 EUT Mode of Operation

7.3.1 Intermodulation

The mode of operation for Intermodulation tests was as follows.

The Wi-Fi and either RFID device can be active simultaneously. Wi-Fi was setup using a connection to CMW500 acting as an access point and the required RFID operation was activated on the EUT.

7.4 EUT Radio Parameters

7.4.1 General

Radio Type:	Wi-Fi Dongle	RFID	RFID
Manufacturer:	D-Link	Magicard	Elatec
Model:	DWA-131	Magicard 600	TWN4F3
FCCID:	XDW3652-0900	KA2WA131E1	WP5TWN4F3
Frequency of Operation:	2412 MHz – 2472 MHz	13.56 MHz	13.56 MHz /125 kHz
Modulation Type(s):	DSSS	ASK	ASK
Channel Bandwidth(s):	20 MHz	Wideband	Wideband
Channel Spacing:	5 MHz	N/A	N/A
Nominal Supply Voltage:	24 Vdc		

7.5 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 and a pre approved RFID device.

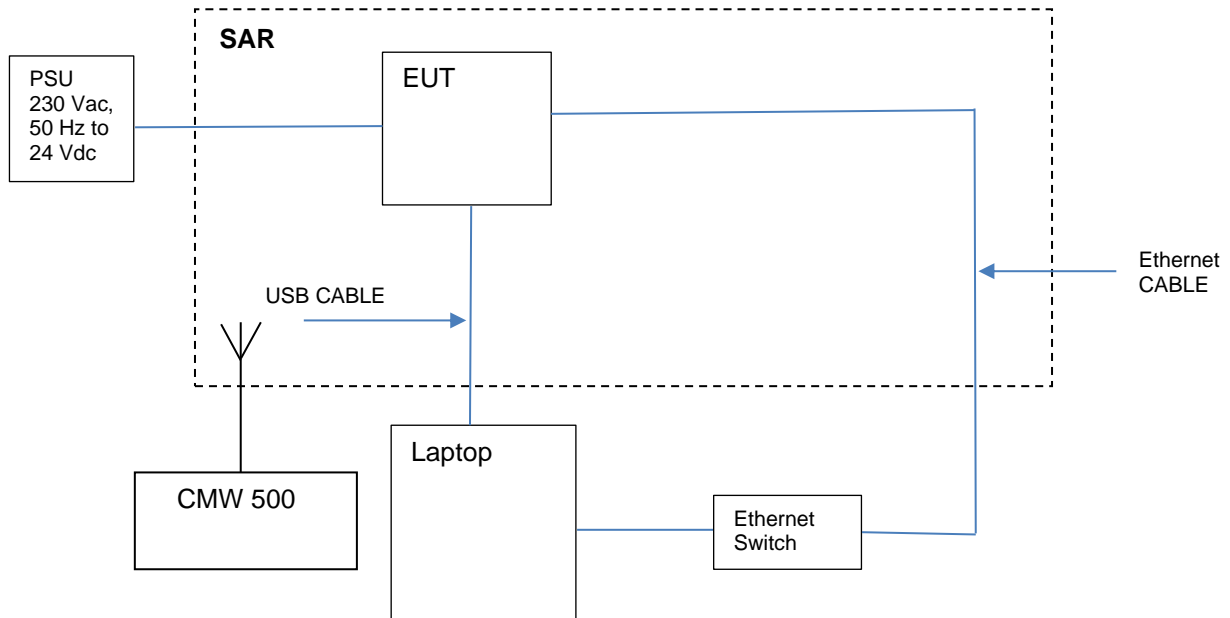
8 Modifications

No modifications were performed during this assessment.

9 EUT Test Setup

9.1 Block Diagram

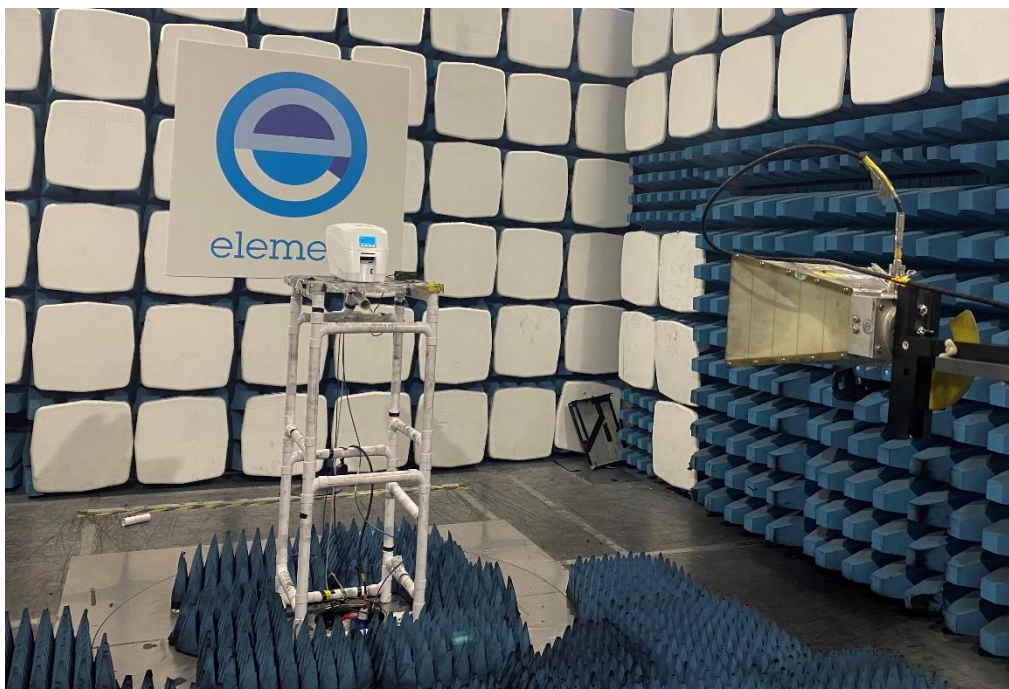
The following diagram shows basic EUT interconnections with cable type identified:



For all tests the EUT was configured with a customer provided support laptop and diagnostic cable. An application program was run on the support laptop to configure the EUT.

9.2 General Set-up Photograph

The following photograph shows basic EUT set-up:



10 General Technical Parameters

10.1 Normal Conditions

The E U T 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 120 Vac mains adaptor.

11 Transmitter unwanted intermodulation emissions

11.1 Definitions

Inter-transmitter intermodulation

The phenomenon where one or more transmitters on a site inter-modulate, either within the transmitters themselves or within a non-linear component on site to produce intermodulation products.

11.2 Test Parameters

Test Location:	Element Skelmersdale
Test Chamber:	Radio Chamber SK03
Test Standard and Clause:	ANSI C63.10-2013, Clause 6.5 and 6.6
Intermodulation combinations assessed:	Wi-Fi & 125 kHz / Wi-Fi & 13.56 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: Peak / Average

Environmental Conditions (Normal Environment)

Temperature: 25 °C

Humidity: 52 %RH

11.3 Test Limits

Part 15

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 Below 30 MHz

Frequency, <i>f</i> (kHz)	Field Strength	Measurement Distance (m)
9 to 490	$2,400 / 377.f$ (μA/m) $2,400 / f$ (μV/m)	300
490 to 1,750	$24,000 / 377.f$ (μA/m) $24,000 / f$ (μV/m)	30
1,750 to 30,000	30 (μV/m)	30

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

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

For selected Clauses (e.g 15.247) emissions that fall within the restricted frequency bands shall comply with the limits specified:

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

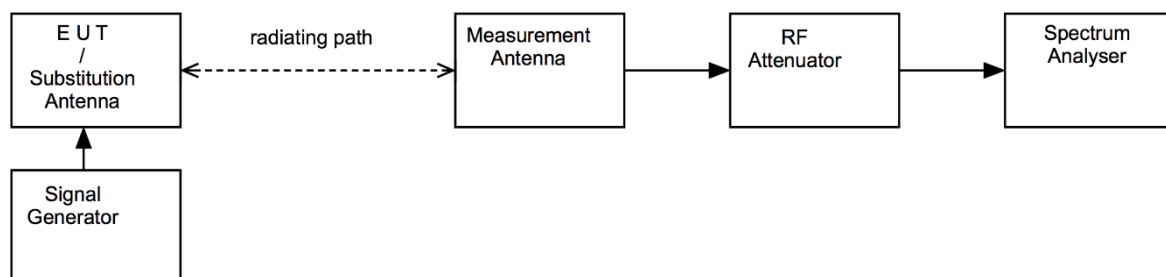
With the EUT setup as per section 9 of this report and connected as per Figure viii the emissions from the EUT were measured on a spectrum analyzer / EMI receiver.

The EUT was rotated in three orthogonal planes and the measurement antenna height scanned (below 1GHz, from 1 to 4 m; above 1GHz as necessary) in order to maximise emissions.

The measurements were performed with EUT set at its maximum gain. The combinations of transmitters / operating frequencies were tested as required.

Pre-scan plots are shown with a peak detector and 100kHz RBW.

Figure i-b Test Setup



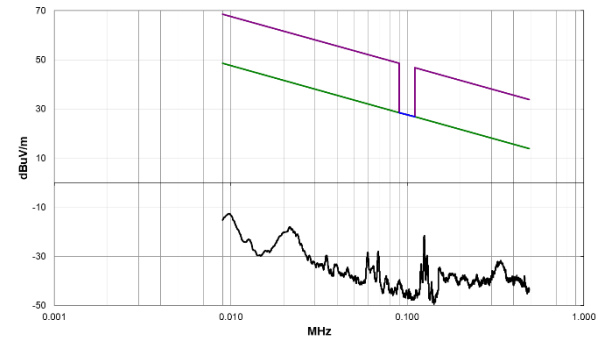
11.5 Test Equipment

<i>Equipment Description</i>	<i>Manufacturer</i>	<i>Equipment Type</i>	<i>Element No</i>	<i>Due For Calibration</i>
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
ESR 7	R&S	Spectrum Analyser	U727	2025-05-17
hfh2	R&S	Loop Antenna	L007	2024-10-11
ATS	Rainford EMC	Radio Chamber - PP	REF940	2026-01-29
Emissions R5	Element	Radiated Test Software	REF9000	Cal Not Required

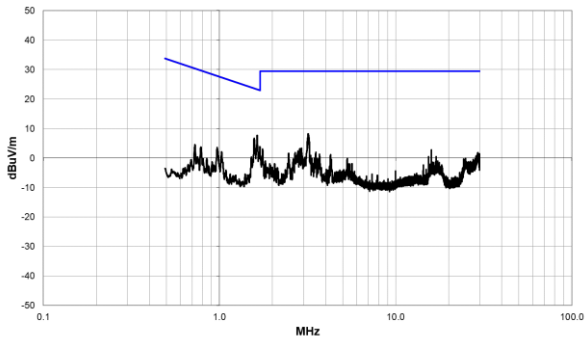
Note: 3115* was within the calibration period, the testing was performed on the 18/06/2024

11.6 Test Results

Below 30 MHz					
Wi-Fi; 2412 MHz & RFID; 125 kHz					
Emission Frequency (MHz)	Receiver Level (dBμV/m)	Measurement Distance (m)	Limit Distance (m)	Extrapolation Factor (dB)	Field Strength (μV/m)
No Intermodulation Products					

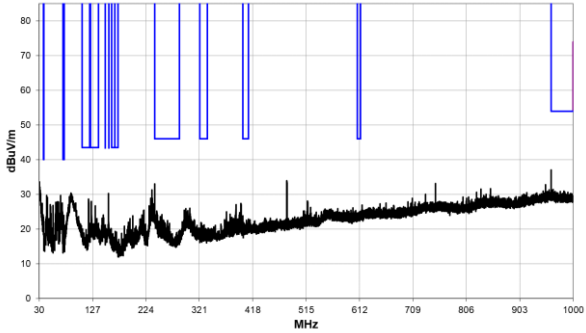


9 kHz – 490 kHz

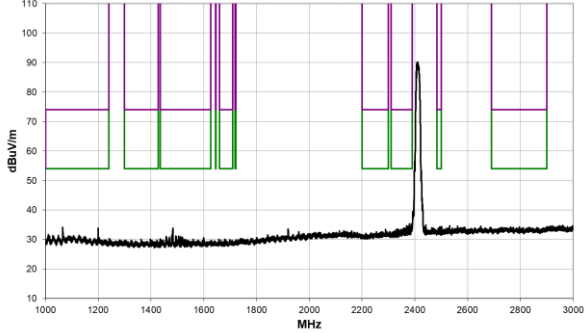


490 kHz – 30 MHz

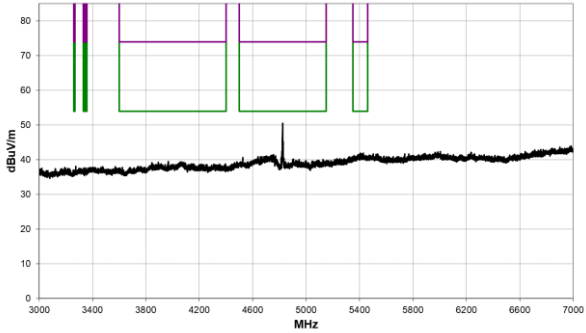
Above 30 MHz								
Wi-Fi; 2412 MHz & RFID; 125 kHz								
Detector	Freq. (MHz)	Meas'd Emission (dBµV)	Factor (dB)	Duty Cycle Corr'n (dB)	Distance Extrap'n Factor (dB)	Field Strength (dBµV/m)	Limit (dBµV/m)	Margin (dB)
No Intermodulation Products								



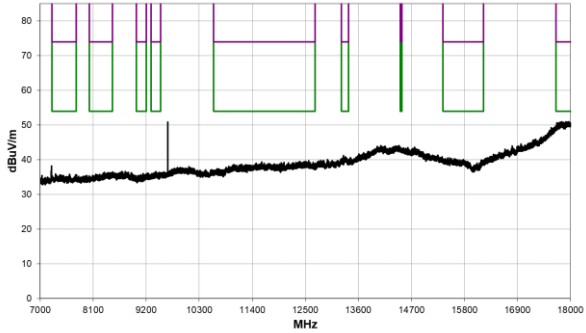
30 MHz - 1 GHz



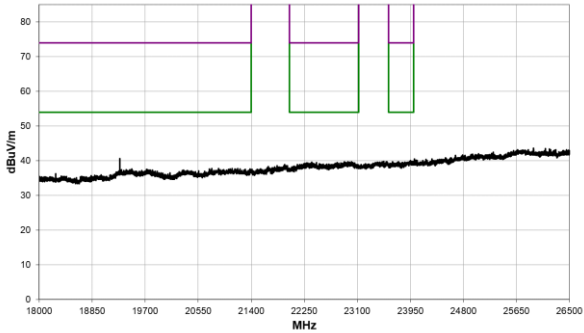
1 GHz - 3 GHz



3 GHz - 7 GHz

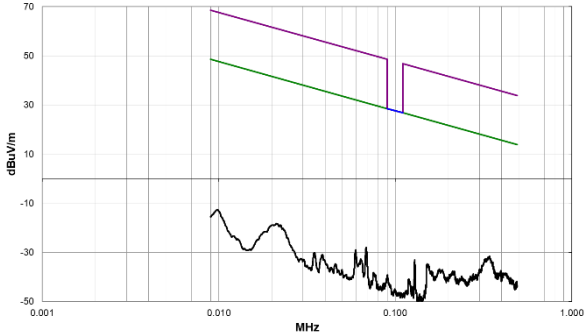


7 GHz - 18 GHz

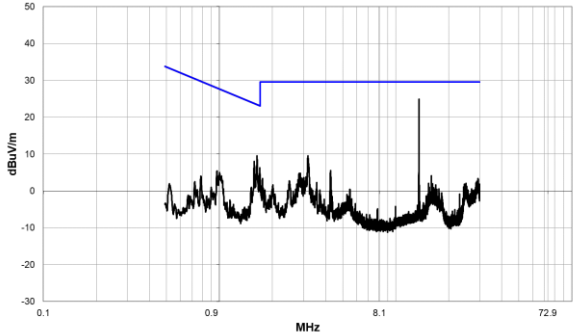


18 GHz - 26.5 GHz

Below 30 MHz					
Wi-Fi; 2412 MHz & RFID; 13.56 MHz					
Emission Frequency (MHz)	Receiver Level (dBμV/m)	Measurement Distance (m)	Limit Distance (m)	Extrapolation Factor (dB)	Field Strength (μV/m)
No Intermodulation Products					

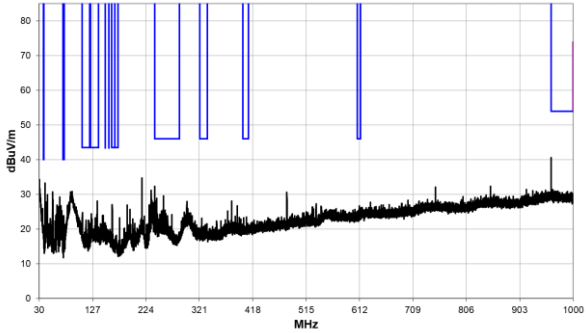


9 kHz – 490 kHz

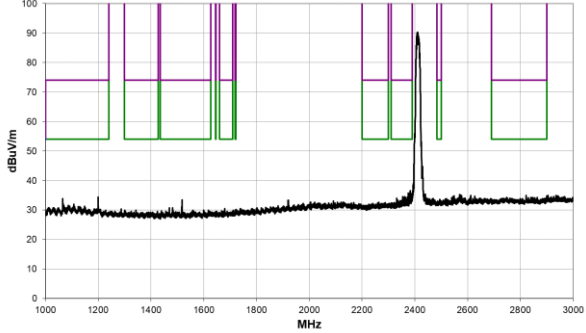


490 kHz – 30 MHz

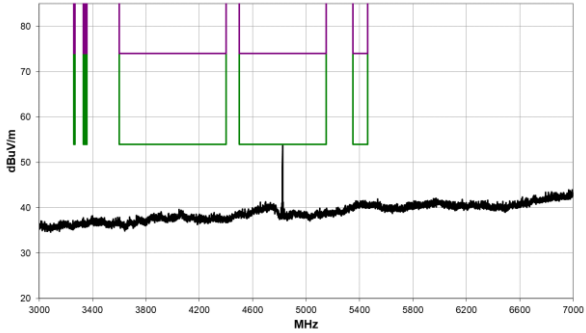
Above 30 MHz								
Wi-Fi; 2412 MHz & RFID; 13.56 MHz								
Detector	Freq. (MHz)	Meas'd Emission (dBµV)	Factor (dB)	Duty Cycle Corr'n (dB)	Distance Extrap'n Factor (dB)	Field Strength (dBµV/m)	Limit (dBµV/m)	Margin (dB)
No Intermodulation Products								



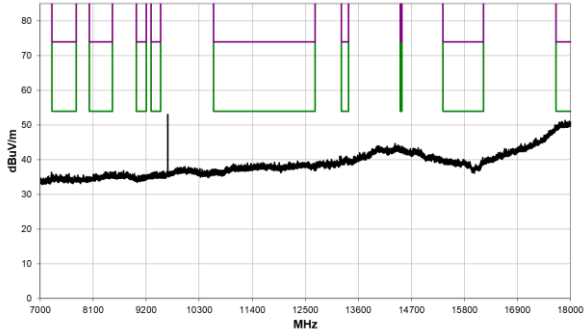
30 MHz - 1 GHz



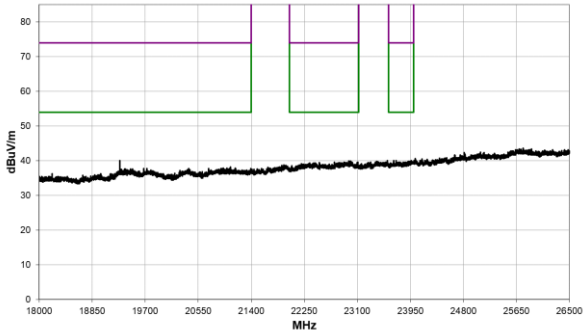
1 GHz – 3 GHz



3 GHz - 7 GHz



7 GHz – 18 GHz



18 GHz – 26.5 GHz

12 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.

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

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

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

13 Appendix A

13.1 General SAR test reduction & exclusion guidance

KDB 447498

Section 4.3 General SAR test reduction and exclusion guidance

For Standalone SAR exclusion consideration, when SAR Exclusion Threshold requirement in KDB 447498 is satisfied, standalone SAR evaluation for general population exposure conditions by measurement or numerical simulation is not required.

The SAR Test Exclusion Threshold for frequencies in the range 100 MHz to 6 GHz, and for test separation distance of ≤ 50 mm, is determined as follows.

$$\text{SAR Exclusion Threshold (SARET)} = (\text{NT} \times \text{TSD}_A) / \sqrt{f_{\text{GHz}}}$$

Where,

NT = Numeric Threshold (3.0 for 1-g SAR and 7.5 for 10-g SAR)
 TSD_A = Minimum Test separation distance or 50 mm (whichever is lower)
 f_{GHz} = Transmit frequency in GHz

The SAR Test Exclusion Threshold for frequencies below 100 MHz, and for test separation distance of ≤ 50 mm, is determined as follows.

$$\text{SAR Exclusion Threshold (SARET)} = [(\text{NT} \times \text{TSD}_A) / \sqrt{0.1}] \times [1 + \text{Log} (100 / F_{\text{MHz}})] \times 1/2$$

Where,

NT = Numeric Threshold (3.0 for 1-g SAR and 7.5 for 10-g SAR)
 TSD_A = 50 mm
 f_{MHz} = Transmit frequency in MHz

125 kHz Operation - Eletec:

<i>Radio Type</i>	<i>Frequency (MHz)</i>	<i>Maximum Conducted Power (mW)</i>	<i>SAR Exclusion Threshold at 14 mm (mW)</i>	<i>Ratio</i>	<i>Sum of Ratios</i>	<i>SAR Evaluation</i>
RFID	0.125	0.000000018	925.7	0.000	0.936	Not Required
Wi-Fi	2437	25.2	26.9	0.936		

Note: Wi-Fi maximum conducted power taken from FCC SAR test report - <https://fcc.report/FCC-ID/KA2WA131E1/2348815.pdf>

13.56 MHz Operation – Eletec:

<i>Radio Type</i>	<i>Frequency (MHz)</i>	<i>Maximum Conducted Power (mW)</i>	<i>SAR Exclusion Threshold at 14 mm (mW)</i>	<i>Ratio</i>	<i>Sum of Ratios</i>	<i>SAR Evaluation</i>
RFID	13.56	0.000004	443.0	0.000	0.936	Not Required
Wi-Fi	2437	25.2	26.9	0.936		

Note: Wi-Fi maximum conducted power taken from FCC SAR test report - <https://fcc.report/FCC-ID/KA2WA131E1/2348815.pdf>

13.56 MHz Operation – Consumable:

<i>Radio Type</i>	<i>Frequency (MHz)</i>	<i>Maximum Conducted Power (mW)</i>	<i>SAR Exclusion Threshold at 14 mm (mW)</i>	<i>Ratio</i>	<i>Sum of Ratios</i>	<i>SAR Evaluation</i>
RFID	13.56	0.000010	443.0	0.000	0.936	Not Required
Wi-Fi	2437	25.2	26.9	0.936		

Note: Wi-Fi maximum conducted power taken from FCC SAR test report - <https://fcc.report/FCC-ID/KA2WA131E1/2348815.pdf>

Therefore standalone SAR evaluation for general population exposure conditions by measurement or numerical simulation is not required.