

Report on the Radio Testing

For

GKD Technik Ltd

on

Body Worn Tag

Report no. TRA-051350-47-03A

8th October 2021

RF915 8.0



Report Number: TRA-051350-47-03A
Issue: A

REPORT ON THE RADIO TESTING OF A
GKD Technik Ltd
Body Worn Tag
WITH RESPECT TO SPECIFICATION
FCC 47CFR 15.247

TEST DATE: 1st July 2021

Tested by: Daniel Winstanley/ Michael Else

Written by:

Steven Hodgkinson
Radio Test Engineer

Approved by:

John Charters
Laboratory Manager

Date: 8th October 2021

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	8 October 2021	Original

2 Summary

TEST REPORT NUMBER: TRA-051350-47-03A

WORKS ORDER NUMBER: TRA-051350-04

PURPOSE OF TEST: Certification

TEST SPECIFICATION: 47CFR15.247

EQUIPMENT UNDER TEST (EUT): Body Worn Tag

FCC IDENTIFIER: 2A2IY-P3100007

EUT SERIAL NUMBER: Not Supplied

MANUFACTURER/AGENT: GKD Technik Ltd

ADDRESS: 17 Cobham Road
Ferndowne Industrial Estate
Wimborne
Dorset
BH21 7PE
United Kingdom

CLIENT CONTACT: Rowan Beale
☎ 01202 861961
✉ Rowan.Beale@42technology.com

ORDER NUMBER: 602220

TEST DATE: 1st July 2021

TESTED BY: Daniel Winstanley/ Michael Else
Element

2.1 Test Summary

Test Method and Description		Requirement Clause 47CFR15	Applicable to this equipment	Result / Note
Radiated spurious emissions (restricted bands of operation and cabinet radiation)		15.247 (d)	<input checked="" type="checkbox"/>	Pass
AC power line conducted emissions		15.207	<input type="checkbox"/>	Note 1
Occupied bandwidth		15.247 (a) (2)	<input checked="" type="checkbox"/>	Pass
Conducted carrier power	Peak	15.247 (b) (3)	<input checked="" type="checkbox"/>	Pass
	Max.		<input type="checkbox"/>	
Out of band emissions		15.247 (d)	<input type="checkbox"/>	Note 2
Power spectral density		15.247 (e)	<input checked="" type="checkbox"/>	Pass
Calculation of duty correction		-	<input type="checkbox"/>	

Specific Note:

1. The EUT is a 3.6 Vdc battery powered device
2. The EUT could not be connected via an antenna port

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).

3 Contents

1	Revision Record.....	3
2	Summary.....	4
2.1	Test Summary.....	5
3	Contents.....	6
4	Introduction	7
5	Test Specifications	8
5.1	Normative References	8
5.2	Deviations from Test Standards	8
6	Glossary of Terms.....	9
7	Equipment under Test.....	10
7.1	EUT Identification.....	10
7.2	System Equipment.....	10
7.3	EUT Mode of Operation	10
7.4	EUT Radio Parameters	10
7.4.1	General	10
7.4.2	Antennas	10
7.5	EUT Description	10
8	Modifications	11
8.1	Block Diagram.....	11
8.2	General Set-up Photograph	12
8.3	Measurement software.....	13
9	General Technical Parameters	14
9.1	Normal Conditions.....	14
9.2	Varying Test Conditions	14
10	Radiated emissions.....	15
10.1	Definitions	15
10.2	Test Parameters.....	15
10.3	Test Limit	15
10.4	Test Method	16
10.5	Test Equipment.....	17
10.6	Test Results	18
11	Occupied Bandwidth	20
11.1	Definition	20
11.2	Test Parameters.....	20
11.3	Test Limit	20
11.4	Test Method	21
11.5	Test Equipment.....	21
11.6	Test Results	22
12	Maximum peak conducted output power.....	23
12.1	Definition	23
12.2	Test Parameters.....	23
12.3	Test Limit	23
12.4	Test Method	24
12.5	Test Equipment.....	24
12.6	Test Results	24
13	Power spectral density	25
13.1	Definition	25
13.2	Test Parameters.....	25
13.3	Test Limit	25
13.4	Test Method	26
13.5	Test Equipment.....	26
13.6	Test Results	26
14	RF Exposure	27
15	Radio Testing – General Uncertainty Schedule	28

4 Introduction

This report TRA-051350-47-03A presents the results of the Radio testing on a GKD Technik Ltd, Body Worn Tag to specification 47CFR15 Radio Frequency Devices.

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

<input type="checkbox"/> Element Hull	<input checked="" type="checkbox"/> Element Skelmersdale
Unit E	Unit 1
South Orbital Trading Park	Pendle Place
Hedon Road	Skelmersdale
Hull	West Lancashire
HU9 1NJ	WN8 9PN
UK	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 UKAS 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:

Element is accredited for the above sites under the US-UK MRA, Designation number 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.

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

7 Equipment under Test

7.1 EUT Identification

- Name: Body Worn Tag
- Serial Number: Not Supplied
- Model Number: P3100007
- Software Revision: 4.4.2
- Build Level / Revision Number: 3.3.3

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.

HP ProBook 4540s

7.3 EUT Mode of Operation

The EUT was programmed to operate on the frequencies indicated in this test report. The EUT was programmed via client supplied test software (Smart RF studio).

7.4 EUT Radio Parameters

7.4.1 General

Frequency of operation:	916 MHz
Modulation type(s):	GFSK
Nominal Supply Voltage:	3.6 Vdc Lithium Battery

7.4.2 Antennas

Type:	Wire
--------------	------

7.5 EUT Description

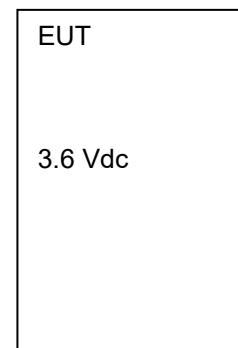
The EUT is a body worn Tag, The EUT is part of a proximity warning system, to be used with off-road vehicles, to alert drivers to the presence of personnel on the ground.

8 Modifications

No modifications were performed during this assessment.

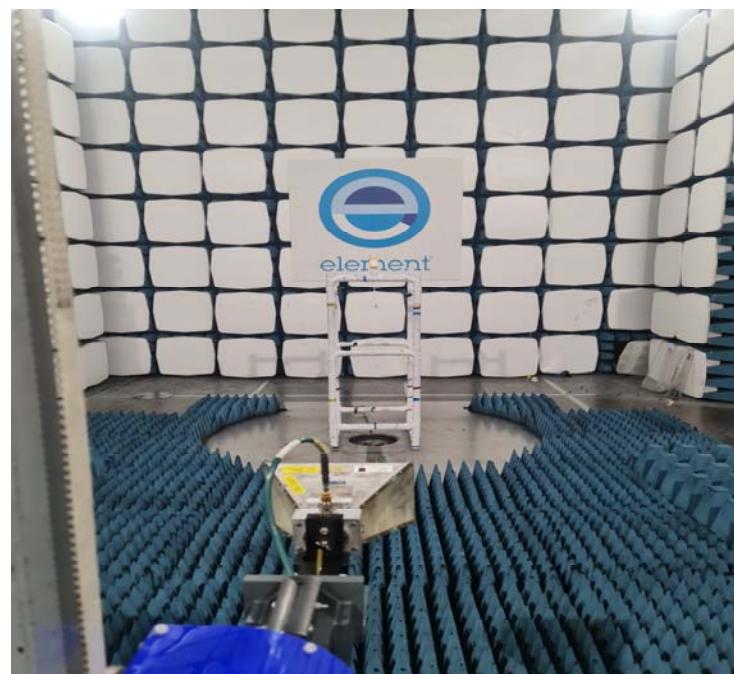
8.1 *Block Diagram*

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



8.2 General Set-up Photograph

The following photograph shows basic EUT set-up:



8.3 *Measurement software*

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

Element Emissions R5
Element Transmitter Bench Test

9 General Technical Parameters

9.1 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 3.6 Vdc from Lithium batteries

9.2 Varying Test Conditions

There are no specific frequency stability requirements for the type of device. The results contained in this report demonstrate that the occupied bandwidth is contained within the authorised band

Variation of supply voltage is required to ensure stability of the declared output power. During carrier power testing the following variations were made:

	<i>Category</i>	<i>Nominal</i>	<i>Variation</i>
<input type="checkbox"/>	Mains	110 Vac +/- 2 %	85 % and 115 %
<input checked="" type="checkbox"/>	Battery	New battery	N/A

10 Radiated emissions

10.1 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.

10.2 Test Parameters

Test Location:	Element Skelmersdale
Test Chamber:	
Test Standard and Clause:	ANSI C63.10-2013, Clause 6.5 and 6.6
EUT Frequencies Measured:	
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: RMS average and Peak

Environmental Conditions (Normal Environment)

Temperature: 22 °C	+15 °C to +35 °C (as declared)
Humidity: 53% RH	20 % RH to 75 % RH (as declared)
Supply: 3.6 Vdc	

10.3 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.

10.4 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 μ V/m at the regulatory distance, using:

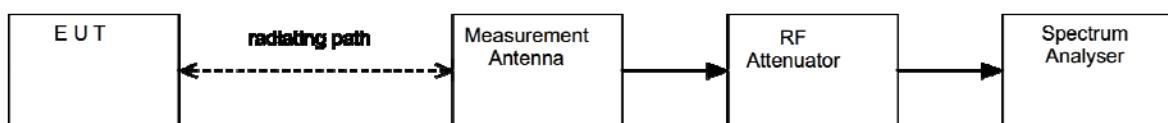
$$FS = PR + CL + AF - PA + DC - CF$$

Where,

- PR is the power recorded on the receiver / spectrum analyzer in dB μ 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.

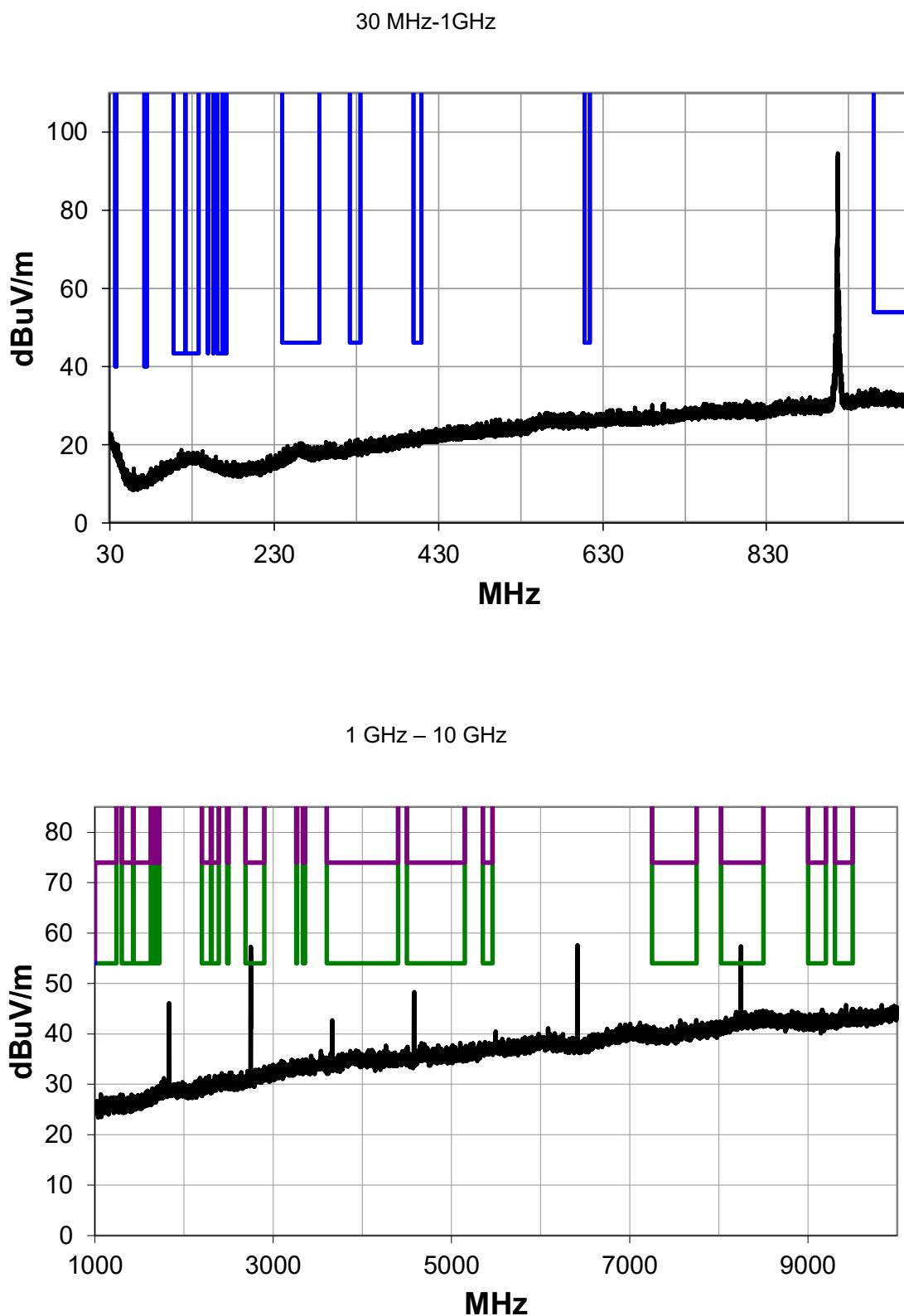
Figure i Test Setup



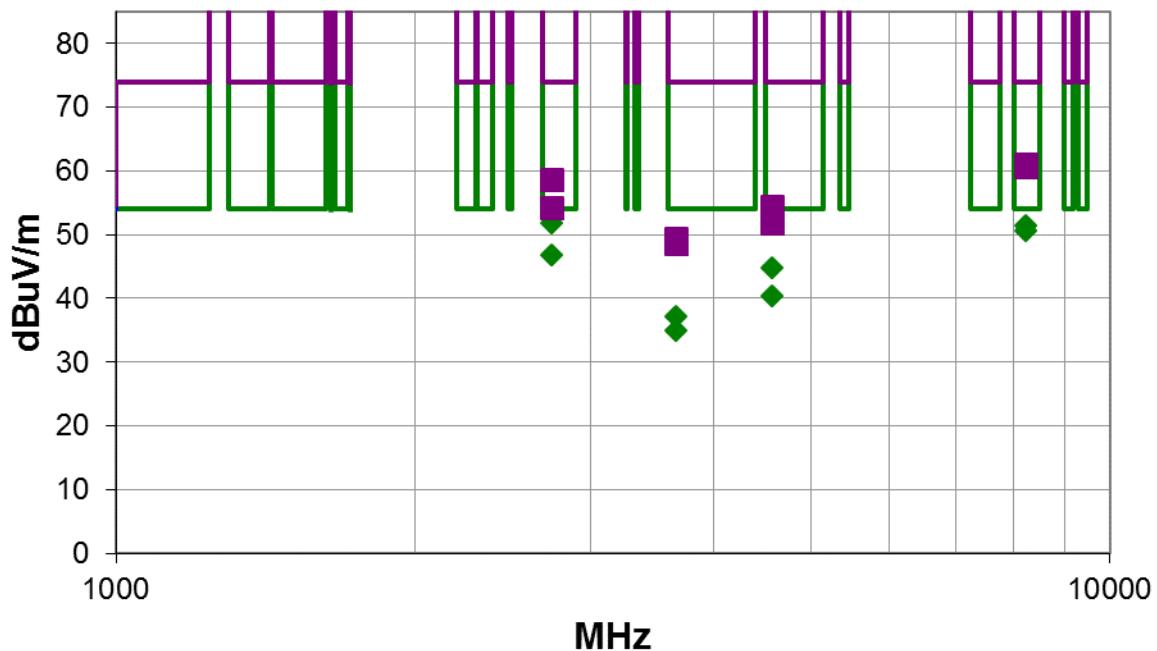
10.5 Test Equipment

Equipment Type	Manufacturer	Equipment Description	Element No	Due For Calibration
Emissions R5	Element	Radiated Test Software	REF9000	Cal not required
ATS	Rainford EMC	Chamber 1	U387	2021-09-09
6201-69	Watkins Johnson	PreAmp	U372	2022-03-01
8449B	Agilent	Pre Amp	L572	2021-10-19
CBL611/B	Chase	Bilog	U573	2023-01-28
3115	EMCO	1-18GHz Horn	L139	2021-07-16
AFH-07000	Atlantic Microwave	High Pass Filter	U558	2022-01-30
VHF-1500+	MiniCircuits	High Pass Filter	U519	2022-01-30
VLF-575+	Mini-Circuits	Low Pass Filter	U685	2022-01-30
EMI TEST RECIEVER	R&S	ESR 26	UH489	2022-03-08

10.6 Test Results



1 GHz – 10 GHz Maximised



Fact or (dB/m)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/Transducer Type	Detect or	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)
-2.8	1.25	291.9	3.0	0.0	Vert	AV	0.0	51.7	54.0	-2.3
8.4	1.14	199.0	3.0	0.0	Vert	AV	0.0	51.4	54.0	-2.6
8.4	1.0	159.0	3.0	0.0	Horz	AV	0.0	50.5	54.0	-3.5
-2.8	1.1	195.9	3.0	0.0	Horz	AV	0.0	46.6	54.0	-7.4
1.7	1.92	2.1	3.0	0.0	Horz	AV	0.0	44.7	54.0	-9.3
8.4	1.14	199.0	3.0	0.0	Vert	PK	0.0	61.0	74.0	-13.0
8.4	1.0	159.0	3.0	0.0	Horz	PK	0.0	60.5	74.0	-13.5
1.7	3.86	94.0	3.0	0.0	Vert	AV	0.0	40.3	54.0	-13.7
-2.8	1.25	291.9	3.0	0.0	Vert	PK	0.0	58.5	74.0	-15.5
0.8	1.0	290.0	3.0	0.0	Horz	AV	0.0	37.0	54.0	-17.0
0.8	1.33	299.1	3.0	0.0	Vert	AV	0.0	34.8	54.0	-19.2
1.7	1.92	2.1	3.0	0.0	Horz	PK	0.0	54.4	74.0	-19.6
-2.8	1.1	195.9	3.0	0.0	Horz	PK	0.0	54.2	74.0	-19.8
1.7	3.86	94.0	3.0	0.0	Vert	PK	0.0	51.8	74.0	-22.2
0.8	1.0	290.0	3.0	0.0	Horz	PK	0.0	49.4	74.0	-24.6
0.8	1.33	299.1	3.0	0.0	Vert	PK	0.0	48.5	74.0	-25.5

11 Occupied Bandwidth

11.1 Definition

The emission bandwidth (x dB) is defined as the frequency range between two points, one above and one below the carrier frequency, at which the spectral density of the emission is attenuated x dB below the maximum in-band spectral density of the modulated signal.

11.2 Test Parameters

Test Location:	Element Skelmersdale
Test Chamber:	Radio Laboratory
Test Standard and Clause:	6dB ANSI C63.10-2013, Clause 11.8
EUT Frequencies Measured:	916.0 MHz
EUT Test Modulations:	GFSK
Deviations from Standard:	None
Measurement BW: (6dB requirement: 100 kHz)	6 dB - 100 kHz;
Spectrum Analyzer Video BW:	6 dB - 300 kHz;
Measurement Span: (requirement 2 to 5 times OBW)	3 MHz
Measurement Detector:	Peak

Environmental Conditions (Normal Environment)

Temperature: 24 °C	+15 °C to +35 °C (as declared)
Humidity: 50 % RH	20 % RH to 75 % RH (as declared)
Supply: 3.6 Vdc	

11.3 Test Limit

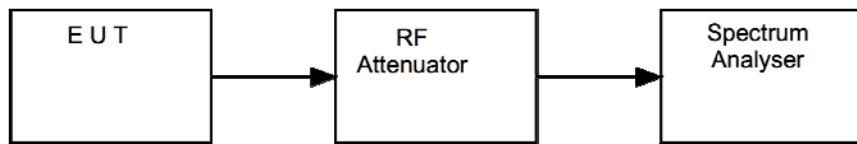
The minimum -6 dB bandwidth shall be at least 500 kHz.

11.4 Test Method

With the EUT setup as per section 9 of this report and connected as per Figure iii, the bandwidth of the EUT was measured on a spectrum analyser.

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 iii Test Setup



11.5 Test Equipment

Equipment Type	Manufacturer	Equipment Description	Element No	Due For Calibration
FSW 43	R&S	Spectrum Analyser	U728	2022-04-20

11.6 Test Results

6dB Bandwidth. Modulation: GFSK				
Channel Frequency (MHz)	F_L (MHz)	F_H (MHz)	6dB Bandwidth (kHz)	Result
916.0	915.6883	916.3536	665.3	Pass



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 maximum conducted output power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level.

12.2 Test Parameters

Test Location:	Element Skelmersdale
Test Chamber:	Radio Chamber SK03
Test Standard and Clause:	ANSI C63.10-2013, Clause 11.9.1
EUT Frequency Measured:	916.0 MHz
Deviations from Standard:	None
Measurement BW:	1 MHz
Spectrum Analyzer Video BW: (requirement at least 3x RBW)	3 MHz
Measurement Detector:	Peak
Voltage Extreme Environment Test Range:	Battery Power = new battery.

Environmental Conditions (Normal Environment)

Temperature: 22 °C	+15 °C to +35 °C (as declared)
Humidity: 52 % RH	20 % RH to 75 % RH (as declared)
Supply: 3.6 Vdc	

12.3 Test Limit

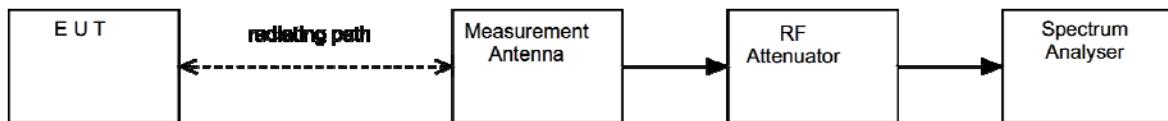
For systems employing digital modulation techniques operating in the bands 902 to 928 MHz, 2400 to 2483.5 MHz and 5725 to 5850 MHz, the maximum peak conducted output power shall not exceed 1 W.

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
CBL611/A	Chase	Bilog	U573	2023-01-28
6201-69	Watkins Johnson	PreAmp	U372	2022-03-01
FSU46	R&S	Spectrum Analyser	REF910	2021-11-18

12.6 Test Results

$$TP = (FS \times D)^2 / (30 \times G)$$

where D is the distance in metres between the two antennas and G is the antenna numerical gain referenced to isotropic gain.

Modulation: GFSK					
Channel Frequency (MHz)	Peak Field Strength (dB μ V/m)	Distance (m)	Antenna Gain	Max. Power (mW)	Result
916.0	96.4	3	0	1.31	PASS

13 Power spectral density

13.1 Definition

The power per unit bandwidth.

13.2 Test Parameters

Test Location:	Element Skelmersdale
Test Chamber:	Radio Chamber (SK03)
Test Standard and Clause:	ANSI C63.10-2013, Clause 11.10
EUT Frequency Measured:	916.0 MHz
Deviations From Standard:	None
Measurement BW:	100 kHz
Spectrum Analyzer Video BW: (requirement at least 3x RBW)	300 kHz
Measurement Span: (requirement 1.5 times Channel BW)	1 MHz
Measurement Detector:	Peak

Environmental Conditions (Normal Environment)

Temperature: 22 °C	+15 °C to +35 °C (as declared)
Humidity: 53 % RH	20 % RH to 75 % RH (as declared)
Supply: 3.6 Vdc	

13.3 Test Limit

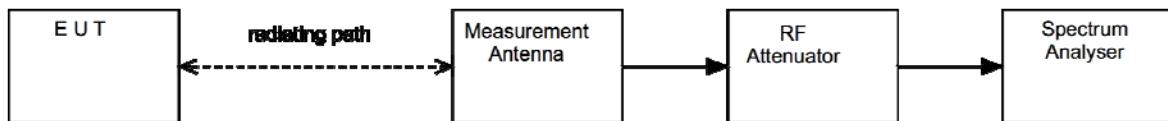
The transmitter power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

13.4 Test Method

With the EUT setup as per section 9 of this report and connected as per Figure vi, the peak emission of the EUT was measured on a spectrum analyser, with path losses taken into account.

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 vi Test Setup



13.5 Test Equipment

Equipment Type	Manufacturer	Equipment Description	Element No	Due For Calibration
CBL611/A	Chase	Bilog	U573	2023-01-28
6201-69	Watkins Johnson	PreAmp	U372	2022-03-01
FSU46	R&S	Spectrum Analyser	REF910	2021-11-18

13.6 Test Results

The following formula may be used to convert field strength (FS) in volts/metre to transmitter output power (TP) in watts:

$$TP = (FS \times D)^2 / (30 \times G)$$

where D is the distance in metres between the two antennas and G is the antenna numerical gain referenced to isotropic gain.

Modulation: GFSK					
Channel Frequency (MHz)	Peak Field Strength (dB μ V/m)	Distance (m)	Antenna Gain	Max. Power (dBm)	Result
916.0	91.1	3	0	-4.13	PASS

14 RF Exposure

MPE Calculation

Prediction of MPE limit at a given distance

For purposes of these requirements mobile devices are defined by the FCC as transmitters designed to be used in other than fixed locations and to generally be used in such a way that a separation distance of at least 20 centimeters is normally maintained between radiating structures and the body of the user or nearby persons. These devices are normally evaluated for exposure potential with relation to the MPE limits. As the 20 cm separation specified under FCC rules may not be achievable under normal operation of the EUT, an RF exposure calculation is needed to show the minimum distance required to be less than the power density limit, as required under FCC rules.

Equation from IEEE C95.1

$$S = \frac{EIRP}{4 \pi R^2} \text{ re - arranged} \quad R = \sqrt{\frac{EIRP}{S 4 \pi}}$$

Where:

S = power density

R = distance to the centre of radiation of the antenna

EIRP = EUT Maximum power

Result

Channel Frequency (MHz)	EIRP (mW)	Power density limit (S) (mW/cm ²)	Distance (R) cm required to be less than the power density limit
916	1.31	0.61	0.42

FCC SAR Exemption (KDB 447498 Section 4.3.1 for <= 50 mm)			
Distance (mm)	5		
Frequency (MHz)	Maximum Output Power (mW)	SAR Exclusion Threshold at a distance of 5 mm (mW)	SAR Evaluation
916	1.31	15.7	Not Required

15 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*

Reference Number	Parameter	Description	Value	Unit
1	Adjacent Channel Power	Uncertainty in test result	1.9	dB
2	Carrier Power	Uncertainty in test result (power meter) upto 40 GHz	0.9	dB
		Uncertainty in test result (Spectrum Analyser) upto 40 GHz	1.7	
		40 to 50 GHz	2.4	
		50 to 75 GHz	2.5	
		75 GHz to 110 GHz	2.4	
3	Effective Radiated Power	Uncertainty in test result	4.71	dB
4	Radiated Spurious Emissions	Uncertainty in test result 30 MHz – 1 GHz	4.75	dB
		Uncertainty in test result 1 MHz – 18 GHz	4.46	dB
5	Maximum Frequency Error	Uncertainty in test result (CMTA)	113.441	Hz
		Uncertainty in test result (Spectrum Analyser) Using GPS locked frequency Source	0.0413	ppm
6	Radiated spurious emissions Field Strength, OAT'S 9 kHz -110 GHz	Uncertainty in test result (9 kHz-30 MHz)	2.3	dB
		Uncertainty in test result (30 MHz-1GHz)	4.75	dB
		Uncertainty in test result (1 GHz-18 GHz)	4.46	dB
		Uncertainty in test result (18 GHz-26 GHz)	3.2	dB
		Uncertainty in test result (26 GHz-40 GHz)	3.3	dB
		Uncertainty in test result (40 GHz-50 GHz)	3.5	dB
		Uncertainty in test result (50 GHz-75 GHz)	3.6	dB
		Uncertainty in test result (75 GHz-110 GHz)	3.6	dB
7	Frequency Deviation	Uncertainty in test result	3.7	%
	Magnetic Field Emissions	Uncertainty in test result	2.3	dB
9	Conducted Spurious Emissions	Uncertainty in test result Upto 40 GHz	0.921	dB
		Uncertainty in test result 40 GHz-50 GHz	2.4	dB
		Uncertainty in test result 50 GHz-75 GHz	2.5	dB
		Uncertainty in test result 75 GHz-110 GHz	2.4	dB
10	Channel Bandwidth	Uncertainty in test result	7.75	%
11	Spectrum Mask Measurements	Uncertainty in test result (Frequency)	2.59	%
		Uncertainty in test result (Amplitude)	1.32	dB
12	Adjacent Sub Band Selectivity	Uncertainty in test result	1.24	dB
13	Receiver Blocking-Listen Mode, Radiated	Uncertainty in test result	3.23	dB
14	Receiver Blocking-Talk Mode, Radiated	Uncertainty in test result	3.36	dB