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## **RADIO REPORT FOR CERTIFICATION** 47 CFR PART 15 SUBPART C (SECTION 15.247)

**Client: Device Under Test / PMN:** 

> Model Number / HVIN: FCC ID:

**IMAGINASTIX PTY LTD LONE WORKER 2.0** (REMOTE MODULE) LW2 REMOTE 2AOJ3-LW2REM-AU-US

**Report Number:** Date of Issue:

M170836-2 2 July 2018

EMC Technologies Pty Ltd reports apply only to the specific samples tested under stated test conditions. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. EMC Technologies Pty Ltd shall have no liability for any deductions, inferences or generalisations drawn by the client or others from EMC Technologies Pty Ltd issued reports. This report shall not be used to claim, constitute or imply product endorsement by EMC Technologies Pty Ltd.



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Report Number: M170836-2 FCC ID: 2AOJ3-LW2REM-AU-US



## RADIO REPORT CERTIFICATE OF COMPLIANCE

Device / PMN: Model Number / HVIN: Manufacturer:	Lone Worker 2.0 (Remote Module) LW2 Remote Wavetronics Pty Ltd					
Tested for: Address: Phone: Contact: Email:	Imaginastix Pty Ltd 57 Crawshaw Crescent, Manning, 0402 300 800 Steve Melitzky stevem@imaginastix.com	WA 6152				
Standards:	<b>47 CFR Part 15</b> – Radio Frequenc <b>Subpart C</b> – Intentional Radiators <b>Section 15.247</b> – Operation wit 2483.5 MHz, and 5725-5850 MHz	y Devices hin the bands 902-928 MHz, 2400-				
Result:		Module) complied with the applicable Subpart C for a Frequency Hopping				
Test Dates:	30 August 2017 to 30 January 201	8				
Issue Date:	2 July 2018					
Issued by:	EMC TECHNOLOGIES PTY. LTD 176 Harrick Road, Keilor Park, VIC Phone: +61 3 9365 1000, Web: ww	3042, Australia.				
	While					
Test Officer:	William Alam Test Engineer	lan Ng Test Engineer				

C. Compola

Authorised Signatory:

Chris Zombolas Technical Director

Attestation:

I hereby certify that the device(s) described herein were tested as described in this report and that the data included is that which was obtained during such testing.



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#### RADIO REPORT FOR CERTIFICATION to 47 CFR Part 15 Subpart C (section 15.247) and

#### 1.0 INTRODUCTION

Radio tests were performed on the Lone Worker 2.0 (Remote Module) in accordance with the applicable requirements of 47 CFR, Part 15 Subpart C – Section 15.247 for a Frequency Hopping Spread Spectrum Transceiver (FHSS) operating within the band 902 to 928 MHz.

#### 1.1 Test Procedure

Radio measurements were performed in accordance with the appropriate procedures of ANSI C63.10: 2013.

The measurement instrumentation conformed to the requirements of ANSI C63.2: 2009.

#### 1.2 Summary of 47 CFR Part 15 Subpart C Results

FCC	Test Performed	Results
15.203	Antenna requirement	Complied
15.205	Restricted bands of operation	Complied
15.207	Conducted limits	Not Applicable
15.209	Radiated emissions limits; general requirements	Complied
15.247 (a)	Channel Separation	Complied
	Number of channels and time of occupancy	Complied
15.247 (b)	Peak Output Power	Complied
15.247 (c)	Antenna Gain > 6 dBi	Not Applicable
15.247 (d)	Out of Band Emissions	Complied
15.247 (e)	Peak Power Spectral Density	Not Applicable
15.247 (f)	Hybrid Systems	Not Applicable
15.247 (g)	FHS with continuous data streams and short bursts	Complied
15.247 (h)	Adaptivity	
15.247 (i)	Radio Frequency Hazard	Complied
2.1049	Occupied Bandwidth	Complied



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#### 2.0 GENERAL INFORMATION (Information supplied by the Client)

## 2.1 EUT (Transmitter) Details

Radio: Frequency Band: Frequency Range:	Frequency Hopping Spread Spectrum (FHSS) 902 to 928 MHz 916 to 927 MHz Ch. Low: 916.175 MHz Ch. Mid: 921.480 MHz					
Modulation: Emission Designator: Antenna type and gain:	Ch. High: 926.780 MHz FHSS X1D PCB Spring Antenna, Antenna gain unknowr assume 0 dBi					

## 2.2 EUT (Host) Details

Device under Test / PMN:	Lone Worker 2.0 (Remote Module)
Model Number / HVIN:	LW2 Remote
Manufacturer:	Wavetronics Pty Ltd
Power Supply:	4.2 VDC external supply

Product is a man-down or lone worker system that primarily includes a Remote worn by a worker that communicates with an Antenna Module in the vehicle to ensure that the user is within range and if required can provide reliable duress scenarios from the worker to the vehicle including GPS position of the worker.

## 2.3 Test Configuration

The EUT was configured to transmit at lowest, middle, highest frequency and hopping mode.

#### 2.4 Modifications by EMC Technologies

No modifications were performed.

#### 2.5 Test Facility

#### 2.5.1 General

EMC Technologies Pty Ltd has also been accredited as a Conformity Assessment Body (CAB) by Australian Communications and Media Authority (ACMA) under the APECTEL MRA and is designated to perform compliance testing on equipment subject to Declaration of Conformity (DoC) and Certification under Parts 15 and 18 of the FCC Commission's rules – **Registration Number 494713 & Designation number AU0001.** 

EMC Technologies indoor open are test site (iOATS) have been accepted by Industry Canada for the performance of radiated measurements in accordance with RSS-Gen, Issue 8 - Industry Canada iOATS number - IC 3569B

Measurements in this report were performed at EMC Technologies' laboratory in Keilor Park, Victoria Australia.



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## 2.5.2 NATA Accreditation

EMC Technologies is accredited in Australia by the National Association of Testing Authorities (NATA). All testing in this report has been conducted in accordance with EMC Technologies' scope of NATA accreditation.

NATA is the Australian National laboratory accreditation body and has accredited EMC Technologies to IEC/ISO17025. A major requirement for accreditation is the assessment of the company and its personnel as being technically competent in testing to the standards. This requires documented test procedures, continued calibration of measurement equipment, traceable to the National Standard at the National Measurements Institute (NMI) and an internal quality system to ISO 9002. NATA has mutual recognition agreements with the National Voluntary Laboratory Accreditation Program (NVLAP) and the American Association for Laboratory Accreditation (A<sup>2</sup>LA).

The current full scope of accreditation can be found on the NATA website: www.nata.com.au

#### 2.6 Test Equipment Calibration

Measurement instrumentation and transducers were calibrated in accordance with the applicable standards by an independent NATA registered laboratory such as Agilent Technologies (Australia) Pty Ltd or the National Measurement Institute (NMI) or in-house. All equipment calibration is traceable to Australian national standards at the National Measurements Institute.

Equipment Type	Make/Model/Serial Number	Last Cal. dd/mm/yyyy	Due Date dd/mm/yyyy	Cal. Interval
Chamber	Frankonia SAC-10-2 (R-139)	22/03/2017	22/03/2018	1 Year, *1
EMI Receiver	R&S ESW26, 2 Hz – 26.5 GHz Sn: 101306 (R-143)	31/03/2017	31/03/2018	1 Year, *2
Antennas	EMCO 6502 Active Loop 9 kHz – 30 MHz Sn. 9311-2801 (A-231)	20/07/2015	20/07/2018	3 Year, *2
	SUNOL JB6 Biconilog 30 – 6000 MHz Sn. A012312 (A-363)	26/05/2016	26/05/2018	2 Year, *2
	EMCO 3115 Double Ridge Horn 1 – 18 GHz Sn: 8908-3282 (A-004)	15/07/2016	15/07/2019	3 Year, *1
Cables	Room 12 inbuilt cable Panel 1 to 10 m (C-422)	31/05/2017	31/05/2018	1 Year, *1
	Room 12 inbuilt cable Panel 1 to 3 m (C-421)	31/05/2017	31/05/2018	1 Year, *1
	Room 12 Antenna cable (C-437)	31/05/2017	31/05/2018	1 Year, *1
	Sucoflex 104 Huber & Suhner 18 GHz, 5 m cable (C-337)	03/01/2017	03/01/2018	1 Year, *1

Note \*1. Internal NATA calibration. Note \*2. External NATA / A2LA calibration



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#### 3.0 TEST RESULTS

## 3.1 §15.203 Antenna Requirement

The antenna was internal to the device ensuring that it could not be replaced.



## 3.2 §15.207 Conducted Limits

The device did not connect directly or indirectly to the AC mains network.

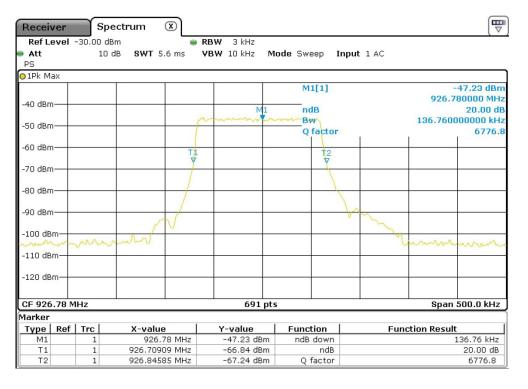
## 3.3 §15.247(a1) Channel Separation

In the band 902 - 928 MHz, the channel separation must be more than 25 kHz or the 20 dB bandwidth, whichever is greater.

#### 20 dB Emission Bandwidth

Centre Frequency [MHz]	20 dB Bandwidth [kHz]
916.175	136.8
921.480	136.0
926.780	136.8

The largest 20 dB bandwidth was measured on highest channel:





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## **Channel Separation**

Channel Separation [kHz]	Limit [kHz]	Result
204.78	159.80	Complied

Receiver Spec	ctrum 🗷				
Ref Level 77.00 dBµV	/ 🗕 🖪	RBW 10 kHz			
Att 10 dB	8 SWT 1.1 ms 👄 V	/BW 30 kHz M	lode Sweep	Input 1 AC	
PS					
⊖1Pk View					
			M1[1]		65.39 dBµV
70 dBµV	MI		(pola)	D2	921.375540 MHz
		-m	D2[1]		204.780 kHz
60 dBµV					
50 d6μV					
40 dBuV					
30 dBµV					
$\gamma$					$\langle \rangle$
20 dBµV					V
10 dBμV					
0 dBµV					
-10 dBµV					
-20 dBµV					
CF 921.4754 MHz		691 pt	s		Span 500.0 kHz
Marker					
Type Ref Trc	X-value	Y-value	Function	Fun	nction Result
M1 1 D2 M1 1	921.37554 MHz 204.78 kHz	65.39 dBµV 1.24 dB			

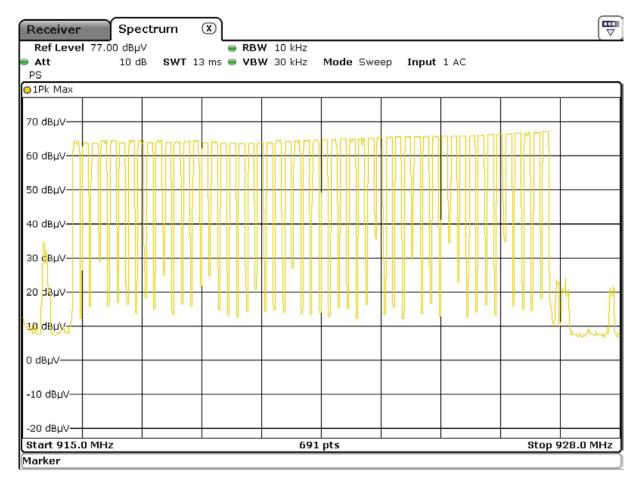


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## 3.4 §15.247(a1) Number of channels and time of occupancy

There must be at least 50 hopping channels employed by devices operating in the band 902-928 MHz. The Lone Worker 2.0 (Remote Module) utilised 52 channels:





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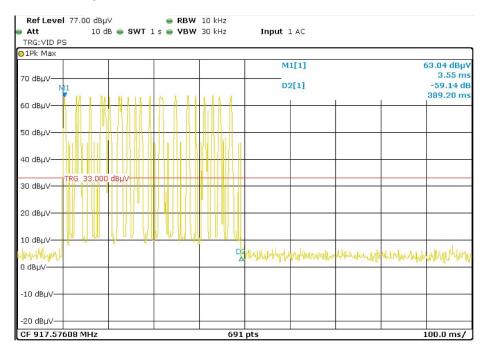
#### **Time of Occupancy**

The average time of occupancy on any channel shall not be greater than 0.4 seconds within a 20 seconds period.

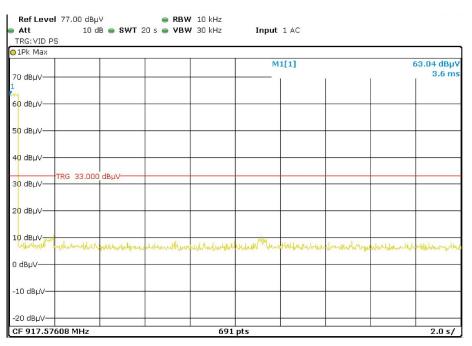
On time of one pulse= 389.20Number of pulses in 20 seconds= 1 pulsTotal on time in 20 seconds= 389.20

= 389.20 ms = 1 pulse = **389.20 ms** (limit = 400 ms)

### Duration of one pulse:



#### Pulses in 20 seconds:



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## 3.5 §15.247(b3) Peak Output power

Testing was performed in a semi-anechoic chamber at a distance of 3 metres. Different configurations of EUT and antenna polarization were investigated to produce highest emission EIRP and the EUT was set to transmit in continuous transmission mode without modulation.

#### **Results:**

Freq.	3 m Field	EIRP		Limit	Ant. Gain	Conduct	ed power	Limit	Margin
(MHz)	(dBµV/m)	(dBm)	(W)	(W)	(dBi)	(dBm)	(W)	(W)	(W)
916.175	104.6	9.37	0.009	4	0	9.37	0.009	1	-0.991
921.480	103.6	8.37	0.007	4	0	8.37	0.007	1	-0.993
926.780	102.3	7.07	0.005	4	0	7.07	0.005	1	-0.995

dBµV/m to dBm conversion:

$$E = 20.\log\left(\frac{\sqrt{30.P}}{d}\right) + 120$$

Where:  $E = \text{electric field strength } (dB\mu V/m)$ 

P = EIRP in Watts

d = measurement distance in metres

MultiView 😁 Spectrum		1		
Ref Level         117.00 dBµV/m           Att         20 dB           Input         1 AC	● RBW 1 MHz SWT 1.01 ms ● VBW 3 MHz Mo PS Off Notch Off	de Sweep	Frequ	ency 916.1820000 MHz
1 Frequency Sweep				●1Pk Max
				M1[1] 104.60 dBµV/m 916.18200 MHz
110 dBµV/m-		M1		
100 dBµV/m				
90 dBµV/m				
	Auron and a second s			
80 dBuV/m				and the second second second
70 dBµV/m				
60 dBµV/m				
50 dBµV/m				
40 dBµV/m				
30 dBµV/m				
20 dBµV/m				
CF 916.182 MHz	1001 pts	50	0.0 kHz/	Span 5.0 MHz

#### Channel 916.175 MHz



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MultiView	🖽 Spectrui	n 🖾	Receiver (	X					
Ref Level 11 Att Input TDS			● RBW 1 MHz s ● VBW 3 MHz f Notch Off	Mode Sweep			Frequen	cy <b>921.48</b>	49000 MHz
1 Frequency S	Sweep								• 1Pk Max
110 dBµV/m									103.57 dBµV/m 921.48490 MHz
100 dBµV/m					1				
90 dBµV/m									
80 dBµV/m	alwellin hat	and the second s					Mark and a second s	March 1	
<mark>и / Ш</mark>	not be all a second and a second a s								fthore and the second
, o app1,									
60 dBµV/m									
50 dBµV/m									
40 dBµV/m									
30 dBµV/m									
20 dBµV/m			1001						Crear E O Mille
CF 921.4849 N	VIENZ		1001 pt	LS	50	00.0 kHz/			Span 5.0 MHz

## Channel 921.480 MHz

MultiView 88				X					
Ref Level 117.0 Att Input	00 dBµV/m 20 dB 1 AC	SWT 1.01 ms 🖷	RBW 1MHz VBW 3MHz M Notch Off	Mode Sweep			Frequ	ency <b>926.7</b>	700000 MHz
1 Frequency Sw	reep								•1Pk Max
									102.40 dBµV/m 926.77000 MHz
110 dBµV/m				M	4				
100 10 11/					i da				
100 dBµV/m									
90 dBµV/m		- And							
80 dBµV/m		and a start of the				c	North March	<u></u>	
where hill have no more thank	Adress of Andrews	for the second se						Martin all	ununununun
70 dBµV/m			·						
60 dBµV/m									
50 dBµV/m									
40 dBµV/m			-	-	v				<i>x</i>
30 dBµV/m									
20 dBµV/m									
CF 926.77 MHz			1001 pt	5	50	0.0 kHz/			Span 5.0 MHz

#### Channel 926.780 MHz



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### 3.6 §15.205 Restricted Bands of Operation

The restricted band limits were applied.

#### 3.7 §15.209 Radiated emission limits; general requirements

The limits given in §15.247 applied, however attenuation below the general levels was not required.

### 3.8 §15.247(d) Out of Band Emissions

#### 3.8.1 Radiated Spurious Measurements

Radiated spurious emission measurements were performed in a semi-anechoic chamber compliant with ANSI C63.4: 2014.

The test frequency range was sub-divided into smaller bands with sufficient frequency resolution to permit reliable display and identification of emissions.

Frequency range [MHz]	Measurement Bandwidth [kHz]	Measurement Distance [m]	Antenna
0.009 to 0.150	0.2	10	0.6 metre loop
0.150 to 30	9	10	0.0 metre 100p
30 to 1000	120	10	Biconilog hybrid
1000 to 18 000	1000	3	Standard gain or broad
18 000 to 40 000	1000	1	band horns

The sample was slowly rotated with the spectrum analyser set to Max-Hold. This was performed for at least two antenna heights. When an emission was located, it was positively identified and its maximum level found by rotating the automated turntable and by varying the antenna height. Devices design for a fixed position were tested in that position, portable devices were tested in three orthogonal orientations.

The measurement data for each frequency range was corrected for cable losses, antenna factors and preamplifier gain. This process was performed for both horizontal and vertical antenna polarisations.

#### Calculation of field strength

The field strength was calculated automatically by the software using the pre-stored calibration data. The method of calculation is shown below:

#### E = V + AF - G + L

Where: E = Radiated Field Strength in dBµV/m.

V = EMI Receiver Voltage in  $dB\mu V/m$ .

AF = Antenna Factor in dB. (stored as a data array)

G = Preamplifier Gain in dB. (stored as a data array)

L = Cable loss in dB. (stored as a data array of Insertion Loss versus frequency)





## Field strength conversion over distance

To convert a limit given at a certain distance to a limit at the measurement distance or vice-versa the following equation was applied:

$$E_x = 20 \times \log\left(\frac{d_y \times 10^{E_y/20}}{d_x}\right)$$

Where:  $E_x = Electric field at x metres (dB\mu V/m)$ 

 $E_y$  = Electric field at y metres (dBµV/m)

 $d_x$  = Measurement distance of x metres

dy = Measurement distance of y metres

## 3.8.2 Spurious Emission Limit

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power.

Channel	100 kHz BW		Limit	
[MHz]	Power at 3 m	10 m	3 m	1 m
	[dBµV/m]	[dBµV/m]	[dBµV/m]	[dBµV/m]
916.175	104.4	74.0	84.4	94.0



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## 3.8.3 Radiated Spurious Emission Tabulated Results

#### Frequency Band: 9 kHz - 30 MHz

Limit 15.209 was applied over the full range, 9 kHz to 30 MHz. No emissions detected above the measurement system noise floor.

#### Frequency Band: 30 - 1000 MHz

Limit 15.209 was applied over the full range, 30 MHz to 1000 MHz. No emissions detected above the measurement system noise floor.

#### Frequency Band: 1 000 – 10 000 MHz

Average Detector Results:

Channel [MHz]	Polarity	Frequency [GHz]	3 m Average [dBµV/m]	Limit [dBµV/m]	Margin [dB]
926.780	Vertical	2.783	48.24	54	-5.76
921.480	Vertical	2.764	47.60	54	-6.40
916.175	Vertical	3.66	47.10	54	-6.90
921.480	Vertical	3.686	47.04	54	-6.96
916.175	Vertical	2.745	46.61	54	-7.39
926.780	Horizontal	5.026	46.51	54	-7.49
926.780	Vertical	5.034	46.48	54	-7.52
921.480	Horizontal	5.021	46.46	54	-7.54
916.175	Horizontal	5.034	46.44	54	-7.56
915.75	Horizontal	4.576	45.49	54	-8.51
921.480	Horizontal	4.607	45.31	54	-8.69
916.175	Vertical	8.237	43.95	54	-10.05

Peak Detector Results:

Channel [MHz]	Polarity	Frequency [GHz]	3 m Peak [dBµV/m]	Limit [dBµV/m]	Margin [dB]
926.780	Vertical	5.058	60.81	74	-13.19
926.780	Horizontal	5.041	60.56	74	-13.44
916.175	Vertical	5.024	60.54	74	-13.46
921.480	Horizontal	4.987	60.47	74	-13.53
921.480	Vertical	5.019	60.36	74	-13.64
921.480	Vertical	9.078	55.77	74	-18.23

#### Band-edge measurement results:

Channel [MHz]	Frequency [GHz]	3 m Peak [dBµV/m]	Limit [dBµV/m]	Margin [dB]
916.175	902.00	66.08	84.40	-18.32
916.175	902.00	66.54	84.40	-17.86
926.780	928.00	64.86	84.40	-19.54
926.780	928.00	66.08	84.40	-18.32



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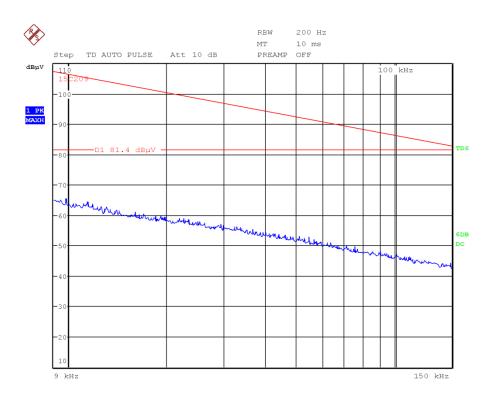
#### 3.8.4 Frequency Band: 9 kHz - 30 MHz

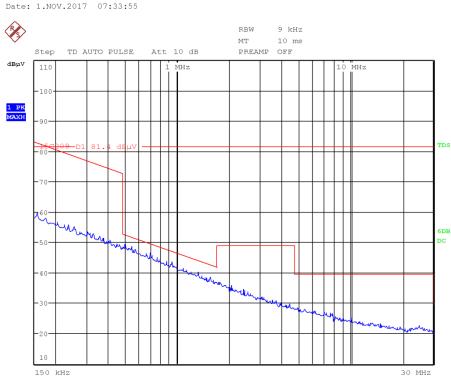
Measurements were made at a distance of 10 metres. The measurement of emissions between 9 kHz – 150 kHz were made with a resolution bandwidth (RBW) of 200 Hz and the video bandwidth (VBW) of 3 kHz, 150 kHz – 30 MHz were measured with the resolution bandwidth (RBW) of 9 kHz and the video bandwidth (VBW) of 30 kHz. Measurements were made with the loop antenna oriented perpendicular, parallel and ground-parallel with respect to the sample. The emissions with the sample transmitting on the lowest, middle and highest channels were measured. Only the graphs of maximum emissions have been reported.



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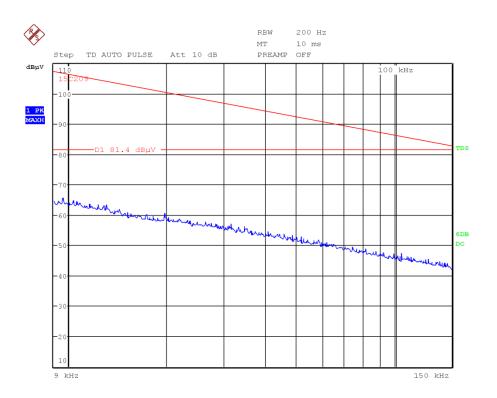
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## Channel 916.175 MHz - Parallel

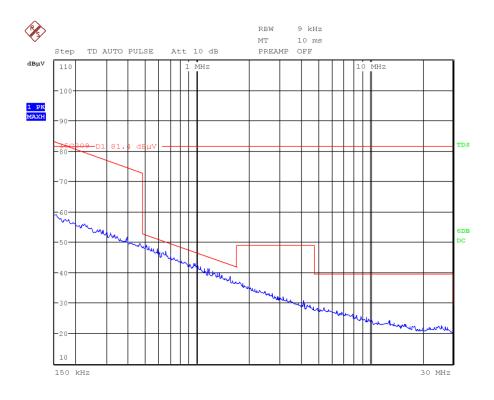


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Date: 1.NOV.2017 07:39:38



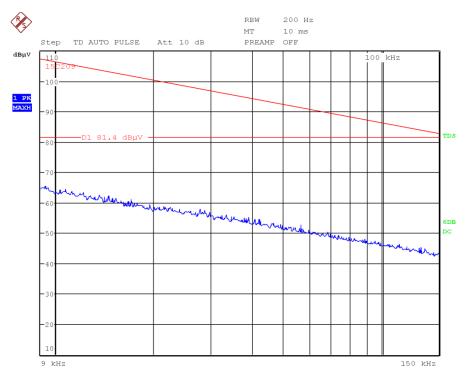
Date: 1.NOV.2017 07:42:08

## Channel 916.175 MHz – Perpendicular

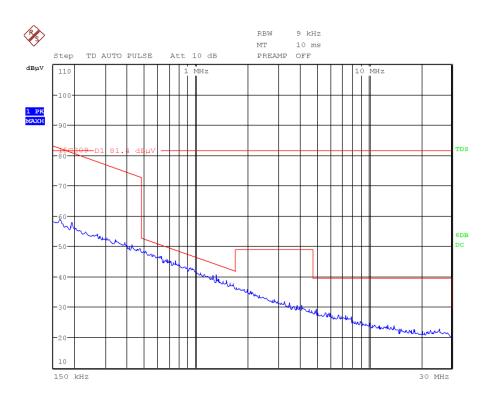


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Date: 1.NOV.2017 07:45:51



Date: 1.NOV.2017 07:48:21

#### Channel 916.175 MHz – Ground Parallel

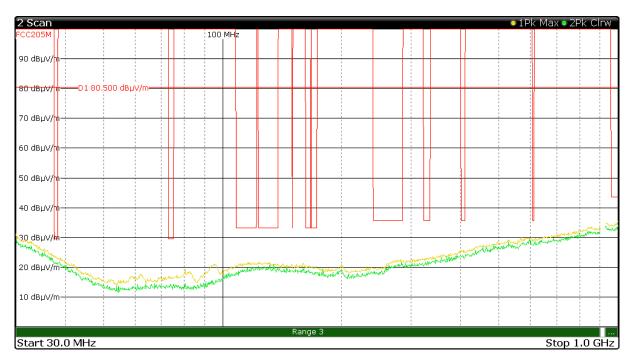


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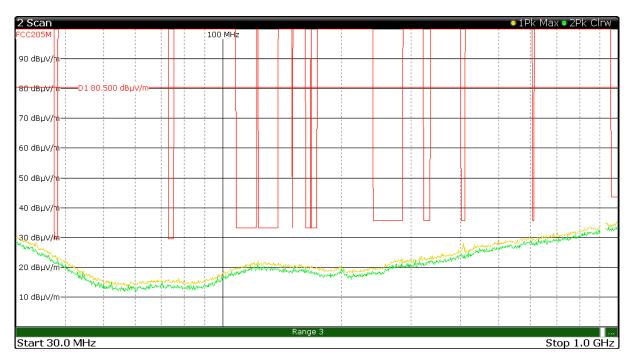


## 3.8.5 Frequency Band: 30 - 1000 MHz

Measurements were made at a distance of 10 metres. The measurement of emissions between 30 - 1000 MHz were made with a resolution bandwidth (RBW) of 120 kHz and the video bandwidth (VBW) of 300 kHz.



Channel 916.175 MHz - Vertical

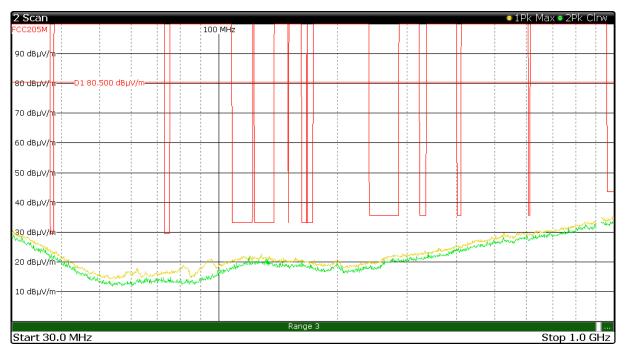


Channel 916.175 MHz - Horizontal

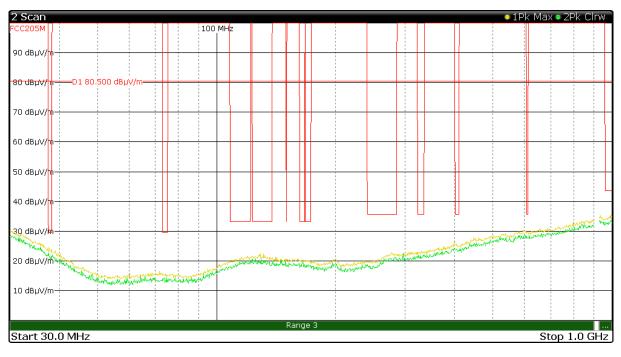


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Channel 921.480 MHz - Vertical

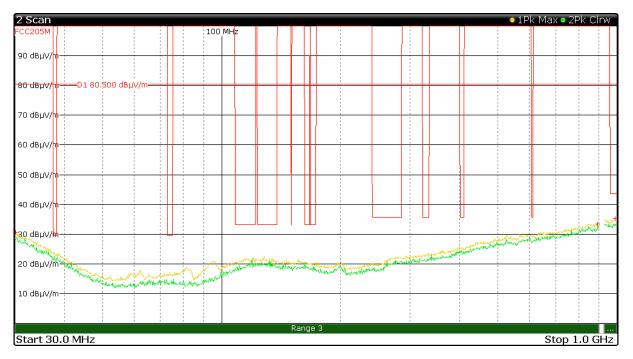


Channel 921.480 MHz - Horizontal

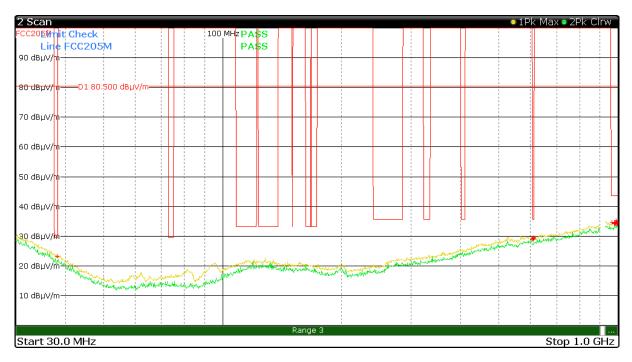


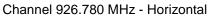
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Channel 926.780 MHz - Vertical







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## 3.8.6 Frequency Band: 1 000 – 10 000 MHz

Measurements to 10 GHz were made at a distance of 3 metres. The measurements were made with a resolution bandwidth (RBW) of 1000 kHz and the video bandwidth (VBW) of 1000 kHz.

2 Scan Limit Cl <mark>Rad¥0.000 dBµV/m</mark> Line FCC205G- <mark>A</mark> V		PASS							Ma:
Line FCC205G-AV		PASS							
Line FCC205G-PK		PASS							
Line FC205G-PK			<u>              </u>						
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2 Scan CC20EGANE C D3C90.000 dBµV/m Line FCC205G-AV		PASS PASS	Range 5				• 1Pk	Stop 8.0 Max • 2Av	GH Ma
2 Scan CC20EGANE C D3C90.000 dBµV/m Line FCC205G-AV		PASS	Range 5				• 1Pk	Stop 8.0 Max • 2Av	GH Ma
2 Scan cc20EGANt C Rach0.000 dBµV/m		PASS PASS	Range 5				• 1Pk	Stop 8.0 Max • 2Av	GH Ma
2 Scan CC20EGANE C D3C90.000 dBµV/m Line FCC205G-AV		PASS PASS	Range 5				• 1Pk	Stop 8.0 Max • 2Av	GH Ma
2 Scan CC20E9 Alt C Pac40.000 dBµV/m Line FCC205G-AV Line FCC205G-PK 0 dBµV/m		PASS PASS	Range 5				• 1Pk	Stop 8.0 Max   2Av	GH Ma
2 Scan CC20EGAŁ C PacAD.000 dBµV/m Line FCC205G-AV Line FCC205G-PK 0 dBµV/m		PASS PASS	Range S				• 1Pk	Stop 8.0 Max • 2Av	GH
2 Scan CC20EGANE C D3C90.000 dBµV/m Line FCC205G-AV		PASS PASS	Range 5				• 1Pk	Stop 8.0 Max • 2Av	<b>G</b> H Ma
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Scan           CC20En AL C RECRODOD dBµV/m           Line FCC205G-AV           Line FCC205G-PK           0 dBµV/m		PA\$S PA\$S PA\$S					• 1Pk	Stop 8.0 Max • 2Av	
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Channel 916.175 - Vertical



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2 Scan	b b	ASS					1Pk Max 🕻	
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Line FC205G-PK	P	ASS						
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2 Scan <sup>CC20</sup> ይፍብ¥ <u>t</u> C <mark>/፬<u>ፈ</u> \$0.000 dBµV/m</mark>		ASS	nge 5			•	stor 1Pk Max •	o <b>8.0 G</b> H ⊇Av Ma
2 Scan CC20EGANE CR3C40.000 dBµV/m Line FCC205G-AV	P	ASS ASS	nge 5			•	Stor 1Pk Max •	o <b>8.0 GH</b> ⊇Av Ma
2 Scan CC20EGANE CR3C40.000 dBµV/m Line FCC205G-AV	P	ASS	ige 5			•	Stor 1Pk Max	o <b>8.0 GH</b> ≥2Av Ma:
2 Scan <sup>CC20</sup> ይፍብ¥ <u>t</u> C <mark>/፬<u>ፈ</u> \$0.000 dBµV/m</mark>	P	ASS ASS	ıge 5			•	Stor 1Pk Max (	o <b>8.0 GH</b> ≥2Av Ma
2 Scan CC20EGANE CR3C40.000 dBµV/m Line FCC205G-AV	P	ASS ASS	inge 5			•	Stop 1Pk Max	o <b>8.0 GH</b> ≥2Av Ma
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2 Scan CC20En Alt C Racko 000 dbuV/m Line FCC205G-AV Line FCC205G-PK 0 dbuV/m 0 dbuV/m 0 dbuV/m 0 dbuV/m 0 dbuV/m 0 dbuV/m 0 dbuV/m 0 dbuV/m 0 dbuV/m 0 dbuV/m	P P	ASS ASS					Stop 1Pk Max	2 8.0 GH
Scan           CC20E% AV           Line FCC205G-AV           Line FCC205G-PK           0 dBµV/m           0 dBµV/m	P P		nge 5				Stop 1Pk Max	2 Av Ma

Channel 916.175 - Horizontal



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2 Scan Limit Cl <mark>QadQ0.000 dBµV/m</mark>	D A & C			● 1Pk Max ● 2Av Ma
Line ECC205G-AV	PASS PASS			
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10 dBµV/m				
30 dBµV/m	~~~~			
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20 dBµV/m				
			1	
		Range 5		
Start 1.0 GHz		Range 5		Stop 8.0 GH
2 Scan		Range 5		Stop 8.0 GH • 1Pk Max • 2Av Ma
2 Scan <sup>çc20</sup> ընդիկ <mark>c/pac%</mark> 0.000 dBµV/m	PASS	Range 5		Stop 8.0 GH • 1Pk Max • 2Av Ma
2 Scan CC20ERANE C Dad 000 dBµV/m Line FCC205G-AV	PASS	Range 5		Stop 8.0 GH
2 Scan <sup>çc20</sup> ընդիկ <mark>c/pac%</mark> 0.000 dBµV/m		Range 5		Stop 8.0 GH
2 Scan CC20ERANE C Dad 000 dBµV/m Line FCC205G-AV	PASS	Range 5		Stop 8.0 GH
2 Scan CC20EGAL C(DECRO.000 dBµV/m Line FCC205G-AV Line FCC205G-PK 0 dBµV/m	PASS	Range 5		Stop 8.0 GH
2 Scan CC20ERANE C Dad 000 dBµV/m Line FCC205G-AV	PASS	Range 5		Stop 8.0 GH
2 Scan CC20EGAL C(DBCM0.000 dBµV/m Line FCC205G-AV Line FCC205G-PK 0 dBµV/m	PASS	Range 5		Stop 8.0 GH
2 Scan CC20EGAH C (раско.000 dbuv/m Line FCC205G-AV Line FCC205G-PK 0 dbuv/m 0 dbuv/m	PASS	Range 5		Stop 8.0 GH
Scan           CC20E%+%E C/pac%0.000 dbµV/m           Line FGC205G-AV           Line FGC205G-PK           0 dbµV/m	PASS PASS			Stop 8.0 GH
2 Scan CC20EGAH C (расир.000 dBµV/m Line FCC205G-AV 0 dBµV/m 0 dBµV/m 0 dBµV/m 0 dBµV/m 0 dBµV/m	PASS			Stop 8.0 GH
2 Scan CC20EGAH C (раско.000 dbuv/m Line FCC205G-AV Line FCC205G-PK 0 dbuv/m 0 dbuv/m	PASS PASS			Stop 8.0 GH
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2 Scan CC20EGAH C (рескр. 000 dBµV/m Line FCC205G-AV Line FCC205G-AV 0 dBµV/m 0 dBµV/m 0 dBµV/m 0 dBµV/m 0 dBµV/m 0 dBµV/m	PASS PASS			Stop 8.0 GH
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Scan           C20E%nHŁ Creacko.000 dbµV/m           Line FGC205G-AV           Line FGC205G-PK           0 dbµV/m	PASS PASS			Stop 8.0 GH
Scan           CC20E%AHE C/Back0.000 dbµV/m           Line FCC205G-AV           Line FCC205G-PK           0 dbµV/m	PASS PASS			Stop 8.0 GH
Scan           C20E%rAHE C/pack0.000 dbµV/m           Line FCC205G-AV           Line FCC205G-PK           0 dbµV/m           10 dbµV/m	PASS PASS			Stop 8.0 GH

Channel 921.480 MHz - Vertical



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2 Scan Limit Cl 2400.000 dBµV/m Line FC 2205G-4 V Line FC 2205G-FK 80 dBµV/m		PASS				• 1PK	Max • 2Av Max
Line FCC205G-AV Line FCC205G-PK		PASS PASS					
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Start 1.0 GHz 2 Scan		D the	Range 5			• 1Pk	Stop 8.0 GH Max • 2Av Max
2 Scan cc20 <u>E%A¥{ C</u> {Q3C\$Q.000 dBµV/m	1	PASS PASS	Range 5			• 1Pk	Stop 8.0 GH Max • 2Av Max
2 Scan <sup>CC20</sup> Eନନ୍ନିର୍ଣ୍ଣ C ହୁଣ୍ଡଡ଼.୦୦୦ dBµV/m Line FCC205G-AV		PASS PASS PASS	Range 5			•1Pk	Stop 8.0 GH Max • 2Av Max
2 Scan <sup>CC20</sup> Eନନ୍ନିର୍ଣ୍ଣ C ହୁଣ୍ଡଡ଼.୦୦୦ dBµV/m Line FCC205G-AV		PASS	Range 5			• 1Pk	Stop 8.0 GH Max • 2Av Max
2 Scan CC20ESAL C(Radio 000 dBµV/m Line FCC205G-AV Line FCC205G-PK dBµV/m		PASS	Range 5			• 1Pk	Stop 8.0 GH Max = 2Av Max
2 Scan CC20ERAN C(Radio.000 dbpv/m Line FCC205G-AV Line FCC205G-PK 0 dbpv/m		PASS	Range 5			• 1Pk	Stop 8.0 GH Max = 2Av Max
2 Scan CC20EGANE C QLODO dBµV/m Line FCC205G-AV Line FCC205G-PK 0 dBµV/m 70 dBµV/m		PASS	Range 5			• 1Pk	Stop 8.0 GH Max = 2Av Max
2 Scan CC20ERAN C (Radio.000 dbjv/m Line FCC205G-AV Line FCC205G-PK 0 dbjv/m 70 dbjv/m 50 dbjv/m		PASS PASS				• 1Pk	Stop 8.0 GH
2 SCan CC20EGAH C (Rack0.000 dbµV/m Line FCC205G-AV Line FCC205G-PK 0 dbµV/m 70 dbµV/m 60 dbµV/m 60 dbµV/m		PASS				• 1Pk	Stop 8.0 GH Max = 2Av Max
2 Scan CC20EGAX C Qade0.000 dbpV/m Line FC205G-AV Line FC205G-PK 0 dbpV/m 70 dbpV/m 0 dbpV/m 0 dbpV/m		PASS PASS				• 1Pk	Stop 8.0 GH Max = 2Av Max
2 Scan CC20EGAH C Q40000 dBuV/m Line FCC205G-AV Line FCC205G-PK 0 dBuV/m 70 dBuV/m 50 dBuV/m 50 dBuV/m		PASS PASS				• 1Pk	Stop 8.0 GH
2 Scan CC20EGAH C Q40000 dBuV/m Line FCC205G-AV Line FCC205G-PK 0 dBuV/m 70 dBuV/m 50 dBuV/m 50 dBuV/m		PASS PASS				• 1Pk	Stop 8.0 GH
2 Scan CC20ERAH C (Rack0.000 dBµV/m Line FCC205G-AV Line FCC205G-PK 0 dBµV/m 0 dBµV/m 0 dBµV/m 0 dBµV/m 0 dBµV/m 0 dBµV/m		PASS PASS				• 1Pk	Stop 8.0 GH
2 Scan CC20EGAX C (Radko.000 dbµV/m Line FCC205G-AV Line FCC205G-PK 0 dbµV/m 70 dbµV/m 50 dbµV/m		PASS PASS				• 1Pk	Stop 8.0 GH
2 Scan CC20ERAH C (Dad 0.000 dbuV/m Line FC205G-AV Line FC205G-PK 0 dbuV/m 0 dbuV/m 0 dbuV/m 10 dbuV/m 10 dbuV/m		PASS PASS				• 1Pk	Stop 8.0 GH
2 Scan CC20EGAH C Q40000 dBµV/m Line FCC205G-AV Line FCC205G-AV AD dBµV/m 70 dBµV/m 50 dBµV/m 40'dBµV/m 30 dBµV/m 30 dBµV/m		PASS PASS				• 1Pk	Stop 8.0 GH
2 Scan CC20ERAH C (Dad 0.000 dbuV/m Line FC205G-AV Line FC205G-PK 0 dbuV/m 0 dbuV/m 0 dbuV/m 10 dbuV/m 10 dbuV/m		PASS PASS				• 1Pk	Stop 8.0 GH
2 Scan           CC20EGAL Claudo.000 dBuV/m           Line FCC205G-AV           Line FCC205G-PK           0 dBuV/m		PASS PASS				• 1Pk	Stop 8.0 GH

Channel 921.480 MHz - Horizontal



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2 Scan				●1Pk Max●2Av Max
Limit Clad 0.000 dBpV/m	PASS			
Line FCC205G-AV	PASS PASS			
80 dBµV/m	PASS			
FCC205G-PK				
70 dBµV/m				
				and the second
60 dBµV/m				A Contraction of the second second
				North Martin
FCC205G-AV			Mehrowshipsohutadad	
50 dBµV/m		harden werden har and and	5,#CT%	
	handlikerennensen	Manger Marketter X	× C	
40 dBµV/m	bespen where			
40 dBµV/m-				
30 dBµV/m				
have been and the second second				
20 dBµV/m				
		Range 5		
Start 1.0 GHz				Stop 8.0 GHz
2 Scan Fcc20 <u>EGANt</u> C <mark>Dac40.000 dBµV/m</mark>	PASS			●1Pk Max●2Av Max
Line FCC205G-AV	PASS			
BD dBµV/m	PASS			
	-			
7 <mark>0</mark> dBµV/m				
60 dBu//m				
60 dBµV/m				
	-	ang tu ang	man and and and	entranser and and the resonant and the
60 dBµV/m	angut makamatur da parta p	and a second state of a second s	man <mark>e , <sub>en s</sub>ense</mark> nnit	and manufacture and a star and a sta
an and a superior of the second se	angel methomotoch participants for participants	ner and a star and a st	man <u>e a se a se a</u> ndre a se a	entrature of anti-light and a start
50 dBµV/m		nde de altre de la deservation de la de		entrature and a start a start a start a start a start a start a
an and a superior of the second se		«Ag Agagge of the Agage and and		entrature and the terminal states
50 dBµV/m	ungel maller and a part of the second	«Ag. Agagga and a salar		entrature and the termination of the second se
50 dBµV/m				
50 dBµV/m				
50 dBµV/m 30 dBµV/m				
50 dBµV/m				
50 dBµV/m 40 dBµV/m 30 dBµV/m				
50 dBµV/m 40 dBµV/m 30 dBµV/m				
50 dBµV/m 40 dBµV/m 30 dBµV/m		Range 6		Stop 10.0 GHz

Channel 926.780 MHz - Horizontal



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2 Scan								IPk Max	<●2Av Max
Limit C	<mark>1рдс)</mark> 0.000 <mark>4</mark> 8µV/m		PA						
Line FC	C205G-AV		PA	S					
Line FC 80 dBµV/m	C205G-PK		PA	5					
FCC205G-PK									
70 dBµV/m									
60 dBµV/m							,t		monter
							. M	Marine M	
FCC205G-AV						medermina	personal and a second		
50 dBµV/m					white the way and a started				Marine
			aprilia mourisman	and all an and and and		1	× ∫		~
40 dBµV/m—	an server that for many server also	add a draw					- And		
warmitalentershill be	Anna an				minum	ward have a second			
30 dBµV/m			-						
10 000000		مسمسمس							
und man the									
20 dBµV/m									
Start 1.0 G	Hz			Ran	ge 5			St	op 8.0 GHz
2 Scan	112							• 1Pk Ma	
FCC20EGAN C	<b>₽₫_\$</b> 0.000 dBµV/m		PA	ss					
Line FC	C205G-AV		PA						
BD dBµV/m	C205G-PK		PA	ss					
70 dBµV/m									
6 <mark>0 dBµV/m</mark>									
and when the	Asher much show for the	www.mahare	mannahan	America	and marking the second as	and the second second second		Martin Martin	manda
ED down	halfen on al al and a constant	when when	or more thank	mmm	ana ang dipang	and the start of the second start of the secon	and the second and the second s	madestan and the second	manda
чн <u>а акумичит</u> 50 dBµV/m	the forth on the state of the s	<u>nami</u> ngkanga	on Marganetakaka	www.	on managely a poleo,	and a start and a second start and a	and the second and the	Maddalan an Albaharan.	manna
50 dBµV/m	hand and a start of the start o	<u>nam</u> nafilanar	ra Maranahana	Monarchan	ter the second	englen vien (here and here and	<u>an an a</u>	Mathlation and Mathlation	mm
с		<u></u>		mm	<u></u>				
		<u></u>			<u></u>				
'40'αέμν/m		nun hallen							
			~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		<u></u>		<u></u>		
'40'αέμν/m		<u></u>			<u></u>				
'40'αέμν/m					<u></u>				
¥ð авµV/m 30 dBµV/m		<u></u>			<u></u>				
¥ð авµV/m 30 dBµV/m		<u></u> no(k-eyu			<u></u>				
¥0 авµV/m		<u></u> no(k-ey)		Ran	<u> </u>				

Channel 926.780 MHz - Vertical



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## 3.8.7 Band-Edge Emission Measurements

Emissions within 0.5 MHz of an authorised band edge were measured. The measurements were made with the sample and antenna orientated for maximum power level.

MultiView 8	Spectrun	n 🖾 Re	eceiver (	X					
Ref Level 117 Att Input	20 dB	SWT 1.04 ms • PS Off	RBW100 kHzVBW300 kHzNotchOff	Mode Sweep			Frequen	cy <b>902.0</b>	000000 MHz
1 Frequency Sv	veep								•1Pk Max
110 dBµV/m								D3[1]	0.42 dB -4.8720 MHz 104.52 dB <b>µ∀</b> /m
100 dBµV/m								0.0	916.1160 MHz
90 dBµV/m									
80 dBµV/m	H1 84.400 dBµV/	m							
70 dBµV/m			D3	M2		17.47	and the second of the	-	ano ta
60 dBµV/m	hannan	younant	hours hours	montemant	Myse when be	han han an a	unnorman	minister	migrined he
50 dBµV/m						0			
40 dBµV/m									
30 dBµV/m									
20 dBµV/m		5	1	V1					
CF 902.0 MHz			1001 pt	S	3	.0 MHz/			Span 30.0 MHz
2 Marker Table Type Ref M1 M2	Trc   1 1	X-Value 916.116 Mi 902.0 Mi	lz 104 lz 66	Y-Value 1.52 dBµV/m 5.08 dBµV/m		Function		Function R	esult
D3 M2	1	-4.872 MI	lz	0.42 dB					

#### Channel 916.175 MHz, Hopping Off

MultiView	Spectrum	n 🖾 Re	ceiver	X					
Ref Level 117 Att Input TDS	20 dB	SWT 1.04 ms 🖷	RBW 100 kHz VBW 300 kHz Notch Off	Mode Sweep			Frequer	ncy <b>902.0</b> (	000000 MHz
1 Frequency S	weep								🔍 1Pk Max
		6		0			8	D3[1]	0.51 dB
110 dBµV/m		-					A	MALEAL	-5.0210 MHz 104.36 dBµ\//m
								MILI	916.4460 MHz
100 dBµV/m	2	-							510.4400 0012
90 dBµV/m									
90 08pV/m									
	H1 84.400 dBµV/r	0							10 T
80 dBµV/m									
70 dBµV/m			D3	W2					
Annone	mouth mollow	mound	monanda	intranen	monitor	mount	whomanital	munulur	mound
60 dBµV/m	Conselling and		- A THEOLOGICAL STREET	1997-935 - 1995 - 1995 - 1995 - 1995 - 1995 - 1995 - 1995 - 1995 - 1995 - 1995 - 1995 - 1995 - 1995 - 1995 - 19		TT (NON)00610	March 1992 (1993) - All Pr		
50 JD 4/4									
50 dBµV/m									
40 dBµV/m									
30 dBµV/m									
20 dBµV/m				VI					
CF 902.0 MHz		22-	1001 pt		3	0 MHz/			Span 30.0 MHz
2 Marker Table	2		1001 pt	2		0 00 12/			span ooro winz j
Type Ref		X-Value	1	Y-Value		Function		Function R	esult
M1		916.446 MH	lz 104	.36 dBµV/m					oourc
M2	1	902.0 MH	lz 66	$.54 \text{ dB}\mu\text{V/m}$					
D3 M2	1	-5.021 MF	IZ	0.51 dB					

#### Channel 916.175 MHz, Hopping On



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MultiView 😁	Spectrur	n 🖾	Receive	er [	X)						
Ref Level 117. Att Input TDS	20 dB	<b>SWT</b> 1.01 m P <b>S</b> 0			Mode Swe	ер			Frequ	ency <b>928.0</b>	300000 MHz
1 Frequency Sw	/eep										🔍 1 Pk Max
		6			С.					D3[1]	1.67 dB
110 dBµV/m						-		2		MILII	179.90 kHz
M1											102.03 dBµV/m 926.78320 MHz
100 dBµV/m	S										52017 0020 11112
90 d <mark>8µV/m</mark>			-		-	_					
1/2	1 84.400 dBµV/	-									
80 dBµV/m	11 84.400 ubpv)										
1											
/70 dBµV/m	1	n - manual fitter of		ne al march	an the tree	M2	D3	Part and a second		CHANNERS THE REPORT	a concernance -
	Nur	minin	rounder	minim	mound	mon	man	runnen	manima	man	minim
60 dBµV/m		-				_					
50 dBµV/m											
oo abpijin											
40 dBµV/m											
30 dBµV/m		-									-
20 dBµV/m						VI					
CF 928.03 MHz			-	1001 pt	s		30	0.0 kHz/			Span 3.0 MHz
2 Marker Table				pt			00	/			apart and think (
Type Ref	Trc	X-Valu	ie		Y-Value			Function		Function R	esult
M1		926.7832	MHz	102	2.03 dBµ'	V/m	10 - 10 - 10 - 10 - 10 - 10 - 10 - 10 -				
M2	1	928.0		65	5.35 dBµ	V/m					
D3 M2	1	179.9	€ kHz		1.6	7 dB					

### Channel 926.780 MHz, Hopping Off

MultiView 88	Spectrum	Re	ceiver [	X)					
Ref Level 117. Att Input TDS	20 dB :	SWT 1.01 ms 🖷	RBW 100 kHz VBW 300 kHz Notch Off	Mode Sweep			Freque	ency <b>927.7</b> (	000000 MHz
1 Frequency Sw	еер								1Pk Max
				8	8			D3[1]	1.86 dB
110 dBµV/m									185.80 kHz
MI									102.05 dBµV/m 926.40260 MHz
<b></b>									926.40260 MHz
100 dBµV/m									
N									
90 dBµV/m			0						-
	1 84.400 dBµV/n	5							
80 dBµV/m		1							
70 dBµV/m					N	p D3			
	non	mommon	minon	manhim	mon	mont	minint	monter	minim
60 dBµV/m				1		a state whether a			
50 dBµV/m						8			1
40 dBµV/m			1						
io apprint									
30 dBµV/m			-			-			
20 dBµV/m					V	1			
CF 927.7 MHz			1001 pts		30	0.0 kHz/			Span 3.0 MHz
			1001 pts	<b>,</b>	JL				opan 5.0 Minz
2 Marker Table Type   Ref	Trc	X-Value	1	Y-Value		Function		Function R	ocult
M1		926.4026 MI	17 102	.05 dBµV/n	)	ranction		TUICUUTIK	court
M2	1	928.0 MI	iz 64	.86 dBuV/n	1				
D3 M2	1	185.8 kł		1.86 di	3				

#### Channel 926.780 MHz, Hopping On



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## 3.9 §15.247(i) Maximum Permissible Exposure

The Lone Worker 2.0 (Remote Module) was considered a portable device and could be operated within 50 mm of the body of a user or nearby person. SAR measurement exclusion requirements of KDB 447498 D01 General RF Exposure Guidance v06 were applied. The following equation was applicable:

1-g Head and Body SAR:

 $\left(\frac{max. channel power, mW}{min. separation distance, mm}\right) \times \sqrt{f(GHz)} \le 3.0$ 

Maximum measured power, E.I.R.P.= 74 mWTime-averaged power= E.I.R.P. + 10log(duty cycle)= 18.67 dBm + 10log(1.4/45)= 3.59 dBm = 2.29 mWMinimum separation distanceHighest frequency= 0.928 GHz

 $(2.29 \ mW/_{5 \ mm}) \times \sqrt{0.928 \ GHz} = 0.44$ 

#### **Co-location consideration:**

A Bluetooth Low Energy (BLE) transmitter having FCC ID: WAP2005 was incorporated within the device and could transmit simultaneously with the 902-928 MHz transmitter. The BLE details were taken from the module exposure report QuieTek 16A2076C-RF-US-P20V02 downloaded from the FCC website.

SAR test exclusion applies when the sum of the 1g SAR ratios for all simultaneously transmitting antennas incorporated in a host device is  $\leq 3.0$ :

$$\left[ \left( \frac{2.29 \ mW}{_{5 \ mm}} \right) \times \sqrt{0.928 \ GHz} \right] + \left[ \left( \frac{0.76 \ mW}{_{5 \ mm}} \right) \times \sqrt{2.48 \ GHz} \right] = 0.68$$

#### **Conclusion:**

The Lone Worker 2.0 (Remote Module) FHSS transceiver complied with the RF exposure requirements of FCC 1.1307.



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## 3.10 §2.1049 Occupied bandwidth – 99% power

The bandwidth containing 99% power of the transmitted signal was measured using the procedure from ANSI C63.10 section 6.9.

Channel [MHz]	99% Bandwidth [kHz]	Low Frequency [MHz]	High Frequency [MHz]
916.175	125.904	916.114	916.239
921.480	126.628	921.413	921.540
926.780	126.628	926.713	926.839

Receiver	Sp	ectrum 🛛	อโ						
Ref Level	-30.00 d	Bm	😑 RB	W 3 kHz					
🖷 Att	10	dB SWT 5.6	ms VB	W 10 kHz N	lode Swe	eep In	put 1 AC		
PS									
⊖1Pk Max									
					M	1[1]			49.74 dBm
-40 dBm									74810 MHz
10 0.011			1.122	MI	00	cc Bw		125.9044	86252 kHz
-50 dBm			The	مد میمی می می	بالمرسيماليسيا	MI2			
						Ť.			
-60 dBm									
						1			
-70 dBm		+ +							
			-f			1			
-80 dBm		+	<u>r</u> !			1			
							2		
-90 dBm			2				1		
100 10-1							m		
-100 dBm		mont	5					much	No. do no Dan
-110 dBm-								a man	mound
-110 0800									
-120 dBm-									
120 0011									
CF 916.174	81 MHz			691 pt	5			Span -	500.0 kHz
Marker									
Type Ref		X-value		Y-value	Funct	tion	Fund	ction Result	
M1	1	916.17481		-49.74 dBm		_			
T1	1	916.114029		-52.07 dBm	0	CC BW		125.9044	86252 kHz
T2	1	916.239933	MHZ	-52.70 dBm					

Channel 916.175 MHz



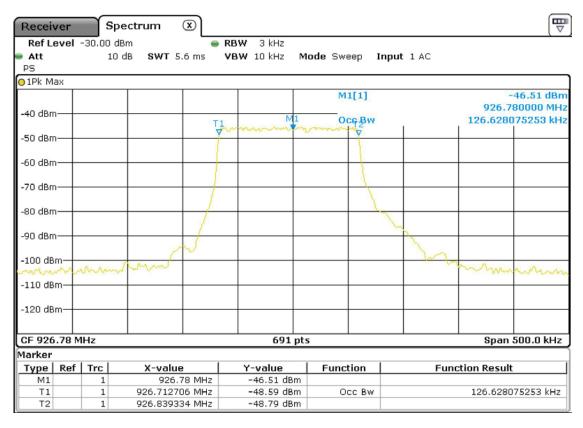
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Receiver		Spectrum 🗵	<u>ן</u>						
Ref Level	-30.00	l dBm	😑 RB1	🖌 3 kHz					
Att		10 dB <b>SWT</b> 5.6 i	ms VBN	<b>W</b> 10 kHz 🛛 M	lode Sweep	o Inpu	t 1 AC		
PS									
O1Pk Max									
					M1[:	1]			46.46 dBm
-40 dBm				M1					30000 MHz
			T1	month	Occ	2	1	126.6280	75253 kHz
-50 dBm			1		1	7			
-60 dBm									
-70 dBm						1			
-70 abm						1			
-80 dBm						1			
oo abiii			1			1			
-90 dBm						5			
		1							
-100 dBm-	11 Jan		<u>(</u>				Nr.	100 S 800	
mon	min	mound					100	mm	man
-110 dBm-									
-120 dBm-									
-120 uBiii—									
CF 921.48	MHz			691 pt	s			Span (	500.0 kHz
Marker									
Type Ref		X-value		Y-value	Functio	<u>n</u>	Fund	tion Result	
M1	1	921.48		-46.46 dBm		<b>D</b>		104 4000	aroso ku
T1 T2	1	921.41343		-49.18 dBm	Occ	BW		126.6280	75253 kHz

#### Channel 921.480 MHz



#### Channel 926.780 MHz



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## 4.0 COMPLIANCE STATEMENT

The Lone Worker 2.0 (Remote Module) tested on behalf of Imaginastix Pty. Ltd. **complied** with the requirements of 47 CFR, Part 15 Subpart C - Rules for Radio Frequency Devices (intentional radiators) for a Frequency Hopping Spread Spectrum Transceiver (FHSS) operating within the band: 902 MHz to 928 MHz.

## 5.0 MEASUREMENT UNCERTAINTY

EMC Technologies has evaluated the equipment and the methods used to perform the emissions testing. The estimated measurement uncertainties for emissions tests shown within this report are as follows:

Conducted Emissions:	9 kHz to 30 MHz	±3.2 dB
Radiated Emissions:	9 kHz to 30 MHz 30 MHz to 300 MHz 300 MHz to 1000 MHz 1 GHz to 18 GHz	±4.1 dB ±5.1 dB ±4.7 dB ±4.6 dB

The above expanded uncertainties are based on standard uncertainties multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95%.



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