

# SimpliSafe, Inc.

# **TEST REPORT**

SCOPE OF WORK FCC TESTING-SSCM2

**REPORT NUMBER** 210428034SZN-001

ISSUE DATE

[REVISED DATE]

[-----]

24 June 2021

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Intertek Report No.: 210428034SZN-001

# SimpliSafe, Inc.

Application For Certification

#### FCC ID: U9K-CM2001

#### **IP** camera

# Model: SSCM2

#### 2.4GHz Wi-Fi Transceiver

Report No.: 210428034SZN-001

We hereby certify that the sample of the above item is considered to comply with the requirements of FCC Part 15, Subpart C for Intentional Radiator, mention 47 CFR [10-1-19]

Prepared and Checked by:

Approved by:

Ron Fan Engineer Peter Kang Senior Technical Supervisor Date: 24 June 2021

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#### Intertek Testing Services Shenzhen Ltd. Longhua Branch

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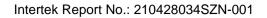
# **MEASUREMENT/TECHNICAL REPORT**

This report concerns (check one)	Original Grant <u>X</u> Class II Change
Equipment Type: <u>DTS - Part 15 Digital T</u>	ransmission Systems (Wi-Fi transmitter portion)
Deferred grant requested per 47 CFR 0	0.457(d)(1)(ii)? Yes No
	If yes, defer until : date
Company Name agrees to notify the Co	ommission by:
	date
of the intended date of announcemen that date.	nt of the product so that the grant can be issued on
Transition Rules Request per 15.37?	Yes NoX
If no, assumed Part 15, Subpart C fo 19] Edition] provision.	or intentional radiator - the new 47 CFR [10-01-
Report prepared by:	
	Ron Fan
	Intertek Testing Services Shenzhen Ltd. Longhua Branch 101, 201, Building B, No. 308 Wuhe Avenue, Zhangkengjing Community, GuanHu Subdistrict, LongHua District, Shenzhen, P.R. China. Tel: (86 755) 8614 0680 Fax: (86 755) 8601 6661



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#### 1.0 Summary of Test results

Applicant: SimpliSafe, Inc.

Applicant Address: 294 Washington St, Floor 9, Boston, MA 02108 USA.

#### Model: SSCM2 FCC ID: U9K-CM2001

TEST ITEM	REFERENCE	RESULTS
Max. Output power	15.247(b)(3)	Pass
6 dB Bandwidth	15.247(a)(2)	Pass
Max. Power Density	15.247(e)	Pass
Out of Band Antenna Conducted Emission	15.247(d)	Pass
Radiated Emission in Restricted Bands	15.247(d), 15.209, FCC 15.205	Pass
AC Conducted Emission	15.207	Pass
Antenna Requirement	15.203	Pass (See Notes)

Notes: The EUT uses an Integral Antenna which in accordance to Section 15.203 is considered sufficient to comply with the provisions of this section.



#### 2.0 General Description

#### 2.1 Product Description

The Equipment Under Test (EUT) is a IP camera with Wi-Fi function operating at 2412-2462MHz for 802.11b/g/n-HT20, 11 channels with 5MHz channel spacing. The EUT is powered by DC5V,1.5A (power by AC to DC adaptor). For more detailed features description, please refer to the user's manual.

Type of Modulation: BPSK, QPSK, 16QAM, 64QAM for OFDM; CCK, DQPSK, DBPSK for DSSS. Antenna Type: Integral Antenna Antenna Gain: 2.9dBi

For electronic filing, the brief circuit description is saved with filename: descri.pdf.

#### 2.2 Related Submittal(s) Grants

This is an application for certification of:

DTS- Part 15 Digital Transmission Systems (2.4GHz Wi-Fi transmitter portion). and there is no other corresponding unit for certification.

#### 2.3 Test Methodology

Both AC mains line-conducted and radiated emission measurements were performed according to the procedures in ANSI C63.10 (2013) and KDB 558074 D01 v05r02. Radiated emission measurement was performed in semi-anechoic chamber and conducted emission measurement was performed in shield room. For radiated emission measurement, preliminary scans were performed in the semi-anechoic chamber only to determine the worst case modes. All radiated tests were performed at an antenna to EUT distance of 3 meters, unless stated otherwise in the "Justification Section" of this Application.

#### 2.4 Test Facility

The Semi-anechoic chamber and shielded room used to collect the radiated data and conducted data are **Intertek Testing Services Shenzhen Ltd. Longhua Branch** and located at 101, 201, Building B, No. 308 Wuhe Avenue, Zhangkengjing Community, GuanHu Subdistrict, LongHua District, Shenzhen, P.R. China. This test facility and site measurement data have been fully placed on file with File Number: CN1188.



#### 3.0 System Test Configuration

#### 3.1 Justification

For emissions testing, the equipment under test (EUT) setup to transmit continuously to simplify the measurement methodology. Care was taken to ensure proper power supply voltages during testing. During testing, all cables were manipulated to produce worst case emissions. The EUT was powered by DC5V,1.5A (power by AC to DC adaptor) during the test.

On 802.11b/g/n-HT20 mode, only one antenna is used, and all data rate were tested and only the worst case data is shown in the report.

For maximizing emissions, the EUT was rotated through 360°, the EUT was placed on the styrene turntable with 0.8m up to 1GHz and 1.5 m above 1GHz. The antenna height and polarization are varied during the search for maximum signal level. The antenna height is varied from 1 to 4 meters. Radiated emissions are taken at three meters unless the signal level is too low for measurement at that distance. If necessary, a pre-amplifier is used and/or the test is conducted at a closer distance.

All readings are extrapolated back to the equivalent three meter reading using inverse scaling with distance. Analyzer resolution is 100 kHz or greater for frequencies below 1000 MHz. The resolution is 1 MHz or greater for frequencies above 1000 MHz. The spurious emissions more than 20 dB below the permissible value are not reported.

The EUT and transmitting antenna was centered on the turntable.

Radiated emission measurement were performed the lowest radio frequency signal generated in the device which is greater than 9 kHz to the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower.

#### 3.2 EUT Exercising Software

The EUT exercise program (provided by client) used during radiated and conducted testing was designed to exercise the various system components in a manner similar to a typical use. The worst case configuration is used in all specified testing.

The parameters of test software setting:

During the test, Channel and power controlling software provided by the applicant was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the application and is going to be fixed on the firmware of the end product.

Test Software: Tera Term Version 4.105

#### 3.3 Special Accessories

N/A.



#### 3.4 Measurement Uncertainty

When determining of the test conclusion, the Measurement Uncertainty of test has been considered.

#### 3.5 Equipment Modification

Any modifications installed previous to testing by SimpliSafe, Inc. will be incorporated in each production model sold / leased in the United States.

No modifications were installed by Intertek Testing Services Shenzhen Ltd. Longhua Branch.

#### 3.6 Support Equipment List and Description

Description	Manufacturer	Model No.	
		Model: SPS-10-0515	
AC Adapter	SimpliSafe, Inc.	Input: AC 100-240V, 50/60Hz, 0.4A max	
		Output: DC 5V, 1.5A	
USB Cable	SimpliSafe, Inc.	unshielded, Length 310cm	



Applicant: SimpliSafe, Inc. Date of Test: 17 May, 2021

Model: SSCM2

#### 4.0 Measurement Results

4.1 Maximum Conducted Output Power at Antenna Terminals, FCC Rules 15.247(b)(3):

The antenna power of the EUT was connected to the input of a broadband peak RF power meter. The power meter have a video bandwidth that is greater than DTS bandwidth and utilize a fast-responding diode detector. Power was read directly at the EUT antenna terminals with cable loss added.

For antennas with gains of 6 dBi or less, maximum allowed Transmitter output is 1 watt (+30 dBm).

IEEE 802.11b (Antenna Gain = 2.9dBi) (CCK, 1Mbps)						
Frequency (MHz)Output in dBm (Peak Reading)Output in mWat						
Low Channel: 2412	19.04	80.17				
Middle Channel: 2437	18.46	70.16				
High Channel: 2462	17.70	58.88				

IEEE 802.11g (Antenna Gain = 2.9dBi) (16QAM, 6Mbps)						
Frequency (MHz)	Output in mWatt					
Low Channel: 2412	22.61	182.39				
Middle Channel: 2437	22.10	162.18				
High Channel: 2462	21.20	131.83				

IEEE 802.11n-HT20 (Antenna Gain = 2.9dBi) (64QAM, 6Mbps)					
Frequency (MHz)Output in dBm (Peak Reading)Output in mW					
Low Channel: 2412	22.50	177.83			
Middle Channel: 2437	21.40	138.04			
High Channel: 2462	21.10	128.82			



Cable loss: <u>1.0</u> dB External Attenuation: 0 dB

Cable loss, external attenuation has been included in OFFSET function

EUT max. output level = 22.61dBm EUT max. E.I.R.P = 22.61dBm + 2.9dBi = 25.51dBm = 355.63mW

For RF Exposure, the information is saved with filename: RF exposure.pdf.



Applicant: SimpliSafe, Inc. Date of Test: 11 May, 2021

Model: SSCM2

#### 4.2 Minimum 6 dB RF Bandwidth, FCC Rule 15.247(a) (2):

The antenna port of the EUT was connected to the input of a spectrum analyzer. Analyzer RES BW was set to 100 KHz according to FCC KDB 558074 D01 v05r02. For each RF output channel investigated, the spectrum analyzer center frequency was set to the channel carrier. A PEAK output reading was taken, a DISPLAY line was drawn 6 dB lower than PEAK level. The 6dB bandwidth was determined from where the channel output spectrum intersected the display line.

Limit: The 6 dB Bandwidth is at least 500 kHz.

IEEE 802.11b (CCK, 1Mbps)				
Frequency (MHz)	6 dB Bandwidth (MHz)			
2412	8.423			
2437	8.640			
2462	8.379			

IEEE 802.11g (16QAM, 6Mbps)				
Frequency (MHz)6 dB Bandwidth (MHz)				
2412	16.020			
2437	16.324			
2462	16.281			

IEEE 802.11n-HT20 (64QAM, 6Mbps)				
Frequency (MHz) 6 dB Bandwidth (MH				
2412	16.324			
2437	17.279			
2462	16.932			

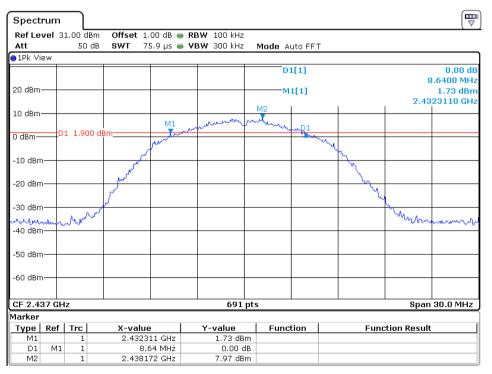
The test plots are attached as below.



#### 802.11b

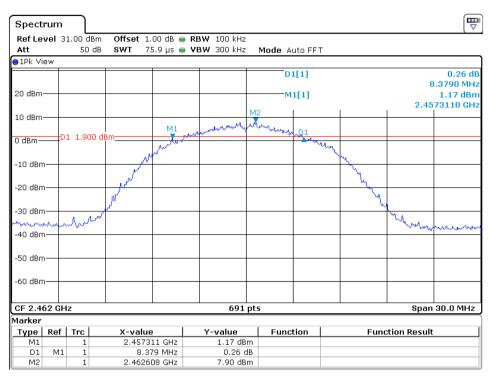
₩ Spectrum Ref Level 31.00 dBm Offset 1.00 dB 👄 RBW 100 kHz 75.9 µs 🖷 **VBW** 300 kHz 50 dB SWT Mode Auto FFT Att ●1Pk View 1.55 dBm 2.4074850 GHz M1[1] 20 dBm· 8.58 dBm M2[1] 2.4115220 GHz MS 10 dBmmin mon M1 7.Л 2.580 d 0 dBm· n. -10 dBm -20 dBm--30 dBmmound man m -40 dBm--50 dBm--60 dBm-CF 2.412 GHz 691 pts Span 30.0 MHz Marker Type | Ref | Trc | X-value 2.407485 GHz Y-value 1 Function Function Result 1.55 dBm M1 1 D1 Μ1 1 8.423 MHz 0.51 dB M2 1 2.411522 GHz 8.58 dBm

Date: 11.MAY.2021 12:36:06



Date: 11.MAY.2021 12:34:52





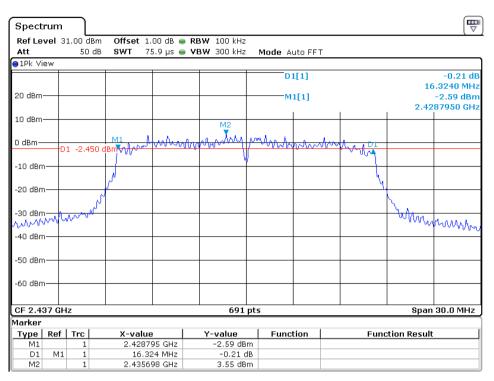
Date: 11.MAY.2021 12:29:49

#### 802.11g

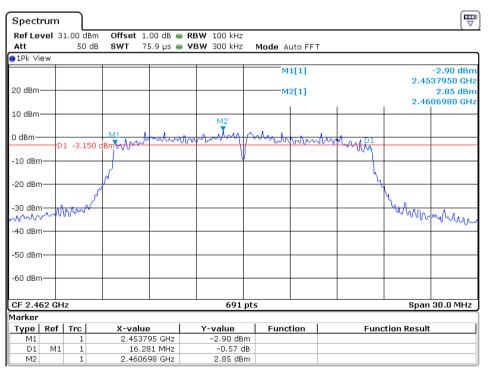
Spect	rum									
Ref Le Att	vel 3	1.00 di 50			RBW 100 kH			-		
ALL ■1Pk Vi	e.w	50	ub 3WI	75.9 µs 🖷	• <b>VBW</b> 300 kH	z Mode /	Auto FF1			
JIFK VI						P	41[1]			-2.21 dBr
									2.40	137950 GH
20 dBm						N	42[1]			3.92 dB
									2.41	LO6980 GH
10 dBm	_				M2	-				
			M1	Alanda		malazza				
0 dBm—	n	1 -2.08			And Marcin	H Mar Park	motor	And p1		
		1 2.00				V		" "ULAM		
-10 dBr	+-י									
			4							
-20 dBm			M							
			N						L.	
-30 dBn	Wro.	lqad-y				+			Win	mm
										MANNAN AND
-40 dBrr	דרי									
-50 dBr	ד י									
-60 dBrr	דרי									
CF 2.4	12 GH	z			69:	1 pts			Spar	n 30.0 MHz
darker						1 -				-
Type M1	Ref	Trc 1	X-va	lue 13795 GHz	<u>Y-value</u> -2,21 d		ction	Fund	ction Result	t
D1	M1	1		13795 GHZ 16.02 MHz	-2.21 u -0.04					
M2		1		.0698 GHz	3.92 d					

Date: 11.MAY.2021 13:04:42





Date: 11.MAY.2021 13:02:35



Date: 11.MAY.2021 12:38:12



#### 802.11n-HT20

₩ Spectrum Ref Level 31.00 dBm Offset 1.00 dB 👄 RBW 100 kHz Att 50 dB SWT 75.9 µs 😑 **VBW** 300 kHz Mode Auto FFT ⊖1Pk View M2[1] 3.88 dBm 2.4132160 GH -1.79 dBm 2.4037950 GHz 20 dBm-M1[1] 10 dBm-M2 MALAA D1 -2.120 dBm mm 0 dBm-Anno Indiana MA -10 dBm--20 dBm--30 dBm----JYWW Manufacture -40 dBm--50 dBm--60 dBm-CF 2.412 GHz 691 pts Span 30.0 MHz Marker Type | Ref | Trc | Function **Function Result** Y-value 1 X-value -1.79 dBm -0.34 dB 3.88 dBm 2.403795 GHz Μ1 1 16.324 MHz 2.413216 GHz D1 Μ1 M2 1

Date: 11.MAY.2021 13:07:07

Spect	rum						
Ref Le <sup>.</sup> Att	vel 3	1.00 dE 50 i			Mode Auto FFT		
⊖1Pk Vi	ew						
20 dBm·					M2[1]		2.76 dBm 2.4356980 GHz
20 ubiii-					M1[1]		-3.12 dBm 2.4281430 GHz
10 dBm-	_			M2			
0 dBm—		1 2 24	o dBm www.	monton	Martin	Withou D1	
-10 dBm		1 -3.24		¥		WWW	
-20 dBm							A
-30 dBm			/				
-30 abri Imr	Mor	Mr.					mallyman
-40 dBm							0 00 00 00 00 00 00 00 00 00 00 00 00 0
-50 dBm	-						
-60 dBm							
CF 2.43	37 GH	Iz		691 pts	;		Span 30.0 MHz
Marker				· · · ·			•
Туре	Ref		X-value	Y-value	Function	Func	tion Result
M1		1	2.428143 GHz	-3.12 dBm			
D1 M2	M1	1	17.279 MHz 2.435698 GHz	-0.53 dB 2.76 dBm			

Date: 11.MAY.2021 13:08:34



Spect	rum					Ĩ
Ref Le		1.00 d£ 50			Mode Auto FFT	<u>,</u>
1Pk Vi	ew		10 53	540 (Da		
20 dBm					M1[1] M2[1]	-3.92 d 2.4531430 ( 2.32 d 2.4632160 (
10 dBm	+				M2	
0 dBm—	-0	1 -3.68	BO dameter when her			MANDI
-10 dBm		1 0 00	1.000			allow
-20 dBm	<u>+</u> -		1			
-30 dBm	m	Unan	/*			monon
-40 dBm	+				-	
-50 dBm	<u>+</u>			-	di i	
-60 dBm	+					
CF 2.40	62 GH	z		691 pts		Span 30.0 Mi
Marker		a	in a second s			
Type M1	Ref	International Property in which the	2.453143 GHz	Y-value -3.92 dBm	Function	Function Result
D1	M1	1	2.453143 GHz 16.932 MHz	-3.92 dBm 0.12 dB		
M2	1411	1	2.463216 GHz	2.32 dBm		

Date: 11.MAY.2021 13:10:06



Applicant: SimpliSafe, Inc. Date of Test: 11 May, 2021

Model: SSCM2

4.3 Maximum Power Density Reading, FCC Rule 15.247(e):

The Measurement Procedure PKPSD was set according to the FCC KDB 558074 D01 v05r02.

Antenna output of the EUT was coupled directly to spectrum analyzer; if an external attenuator and/or cable was used, these losses are compensated for with the analyzer OFFSET function.

Limit: The Power Density does not exceed 8dBm/3 kHz.

IEEE 802.11b (CCK, 1Mbps)						
Frequency (MHz)	Power Density with RBW 100KHz					
2412	7.87					
2437	7.43					
2462	6.60					

IEEE 802.11g (16QAM, 6Mbps)						
Frequency (MHz)	Power Density with RBW 100KHz					
2412	2.35					
2437	1.70					
2462	1.14					

IEEE 802.11n-HT20 (64QAM, 6Mbps)						
Frequency (MHz)	Power Density with RBW 100KHz					
2412	2.44					
2437	1.99					
2462	1.46					

The test plots are attached as below.



#### 802.11b

**B** Spectrum 
 Ref Level
 30.00 dBm
 Offset
 1.00 dB ●
 RBW
 100 kHz

 Att
 50 dB
 SWT
 37.8 µs
 ●
 VBW
 300 kHz
 Mode Auto FFT 1Pk Max M1[1] 7.87 dBm 2.4124390 GHz 20 dBm-M 10 dBm· -1 0 dBm m Two. -10 dBm -20 dBm -30 dBm--40 dBm--50 dBm--60 dBm-CF 2.412 GHz Span 12.63 MHz 691 pts Date: 11.MAY.2021 13:36:52 **B** Spectrum Ref Level 30.00 dBm Offset 1.00 dB . RBW 100 kHz Att 50 dB SWT 37.9 µs 🖷 VBW 300 kHz Mode Auto FFT ●1Pk View M1[1] 7.43 dBm 2.4376190 GHz 20 dBm-10 dBm· M1 The m in man 0 dBm Mor mo -10 dBm -20 dBm--30 dBm -40 dBm -50 dBm--60 dBm-Span 12.96 MHz CF 2.437 GHz 691 pts

Date: 11.MAY.2021 13:44:27



Ref Level         30.00 dBm Offset         1.00 dB ⊕         RBW         100 kH           Att         50 dB         SWT         38 µs         ●         VBW         300 kH		
1Pk View		
	M1[1]	6.60 dBm 2.4622915 GHz
20 dBm		
10 dBm	MI	_
mound	munning	
10 dBm 0 dBm	a a a a a a a a a a a a a a a a a a a	- Community - Mark
-10 dBm		- my
-20 dBm		
-30 dBm		
-40 dBm		
-50 dBm		
-60 dBm		

#### 802.11g

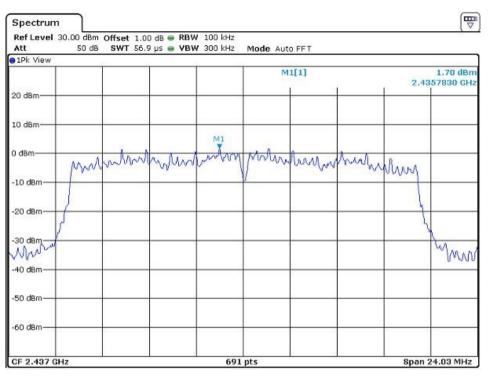
**B** Spectrum 
 Ref Level
 30.00 dBm
 Offset
 1.00 dB
 ●
 RBW
 100 kHz

 Att
 50 dB
 SWT
 56.9 µs
 ●
 VBW
 300 kHz
 Mode Auto FFT ●1Pk View 2.35 dBm 2.4107830 GHz M1[1] 20 dBm-10 dBm M1 when when the when he have mound 0 dBm man -10 dBm--20 dBm--30 dBm www -40 dBm--50 dBm--60 dBm-CF 2.412 GHz 691 pts Span 24.03 MHz

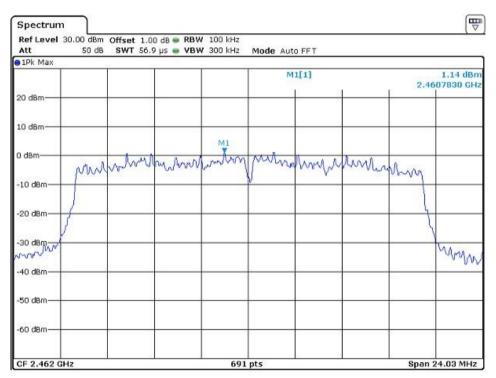
Date: 11.MAY.2021 13:57:50

Date: 11.MAY.2021 13:45:55





Date: 11.MAY.2021 14:00:15



Date: 11.MAY.2021 14:01:03

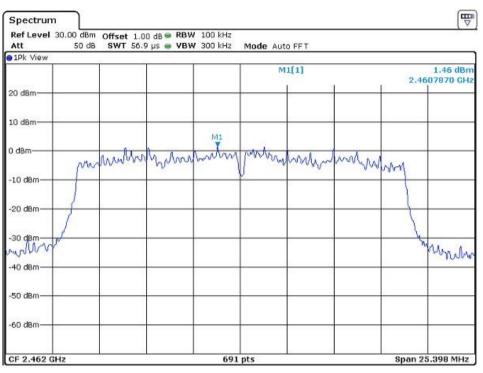


#### 802.11n-HT20

₽ Spectrum Ref Level 30.00 dBm Offset 1.00 dB @ RBW 100 kHz Att 50 dB SWT 56.8 µs 🖷 VBW 300 kHz Mode Auto FFT o 1Pk View M1[1] 2.44 dBm 2.4107950 GHz 20 dBm 10 dBm M1 when how have particular the think when 0 dBm mm -10 dBm -20 dBm -30 dBm Turky -40 dBm--50 dBm--60 dBm-CF 2.412 GHz Span 24.486 MHz 691 pts Date: 11.MAY.2021 14:19:46 **B** Spectrum Ref Level 30.00 dBm Offset 1.00 dB 👄 RBW 100 kHz Att 50 dB SWT 75.8 µs 🖷 VBW 300 kHz Mode Auto FFT ●1Pk View M1[1] 1.99 dBm 2.4357985 GHz 20 dBm-10 dBm M1 under have been propried with a propried with the second s 0 dBm MA -10 dBm -20 dBm--30 dBm 10 marily mon -40 dBm -50 dBm--60 dBm-Span 25.945 MHz CF 2.437 GHz 691 pts

Date: 11.MAY.2021 14:22:06





Date: 11.MAY.2021 14:23:20



Applicant: SimpliSafe, Inc. Date of Test: 11 May, 2021

Model: SSCM2

4.4 Out of Band Conducted Emissions, FCC Rule 15.247(d)

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, based on either an RF conducted or a radiated measurement. The Measurement Procedure was set according to the FCC KDB 558074 D01 v05r02.

All other types of emissions from the EUT shall meet the general limits for radiated frequencies outside the passband.

Refer to the attached test plots for out of band conducted emissions data with rate of 1Mbps for 802.11b and 6Mbps for 802.11g and 6Mbps for 802.11n-HT20.

The test plots showed all spurious emission up to the tenth harmonic were measured and they were found to be at least 20 dB below the highest level of the desired power in the passband.

The test plots are attached as below.



#### 802.11b

# Channel 01 (2412MHz) Reference Level: 7.87dBm

₽ Spectrum Ref Level 30.00 dBm Offset 1.00 dB @ RBW 100 kHz 50 dB SWT 24 ms 💩 VBW 300 kHz Mode Auto Sweep Att 1Pk Max -34.47 dBm 2.40000 GHz M1[1] 20 dBm 10 dBm 0 dBm -10 dBm-01 -12 130 d8m -20 dBm--30 dBm ophnese 40.dBh the mouth the 50 dBm -60 dBm Start 1.0 MHz 691 pts Stop 2.4 GHz Date: 11.MAY.2021 13:38:55 1 Spectrum 
 Ref Level
 30.00
 dBm
 Offset
 1.00
 dB
 RBW
 100
 kHz

 Att
 50
 dB
 SWT
 226
 ms
 VBW
 300
 kHz
 Mode Auto Sweep ● 1Pk Max M1[1] -34.26 dBm 15.5995 GHz 20 d8m 10 dBm 0 dBm -10 dBm 01 -12.130 d8m -20 dBm -30 dBm rel not Min here rene Muhanth whyte Maudin WARDely Source Ununun HO BBM 1 Mar -50 dBm -60 dBm-

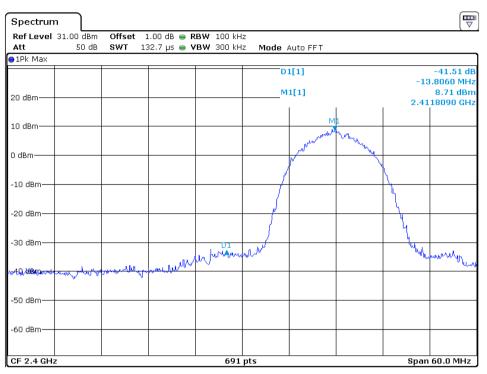
Date: 11.MAY.2021 13:41:36

Start 2.4835 GHz

691 pts

Stop 25.0 GHz





Date: 11.MAY.2021 13:25:05



#### Channel 06 (2437MHz) Reference Level: 7.43dBm

**B** Spectrum 
 Ref Level
 30.00
 dBm Offset
 1.00
 dB @
 RBW
 100
 kHz

 Att
 50
 dB
 SWT
 24
 ms
 @
 VBW
 300
 kHz
 Mode Auto Sweep ● 1Pk Max -38.70 dBm 1.02000 GHz M1[1] 20 dBm 10 dBm 0 dBm -10 dBm-01 -12.570 d8m -20 dBm--30 dBm-M1 149 Borrell work der the dertaunt th. Historic -50 dBm -60 dBm-Start 1.0 MHz 691 pts Stop 2.4 GHz Date: 11.MAY.2021 13:52:30 **B** Spectrum 
 Ref Level
 30.00
 dBm
 Offset
 1.00
 dB
 RBW
 100
 kHz

 Att
 50
 dB
 SWT
 226
 ms
 WBW
 300
 kHz
 Mode Auto Sweep ●1Pk View M1[1] -34.87 dBm 23.3875 GHz 20 dBm-10 dBm 0 dBm -10 dBm-D1 -12.570 d8m--20 dBm--30 dBm man and the state of the man and the second and the second s mummun 1 Marin whomener Anderin -50 dBm -60 dBm-Span 22.5165 GHz CF 13.74175 GHz 691 pts

Date: 11.MAY.2021 13:51:56



# Channel 11 (2462MHz) Reference Level: 6.60dBm

Att	50 dB	SWT 24	ms 🥃 VBW	300 kH2	Mode Auto	Sweep			
1Pk Max	-	<u></u>	-						
					M	1[1]			-37.92 dBn .15870 GH
20 dBm	- 1)	2				1000 C			
10 dBm		5	ia					-	
0 d8m									
-10 dBm—	-01 -13.400	dem							
-20 dBm—	01 -10.000		-			2			
-30 dBm—									
pAQ. dBaid-w	an and the second second	and and the second	ماديلة اليديكين وريان الم	- Martharth	conservation	and and the	<del>dan dutato</del> t		1 tendachundurta
-50 dBm—			a			i			
-60 dBm—									

Date: 11.MAY.2021 13:47:57

Att	30.00 dBm 50 dB		oda 👄 RBW		Mode Auto	o Sween			
1Pk Max					THE REAL PROPERTY AND A DECIMAL OF A DECIMALO OF A DECIMALO OF A DECIMALO OF A DECIMAL OF A DECIMAL OF A DECI	noop			
-					M	1[1]			33.23 dBn 5.6315 GH
20 d8m				1		-			
10 dBm		<u>.</u>							
0 d8m									
-10 dBm	01 -13.400	40 m							
-20 dBm	01 -13.400	Gen				2			
-30 dBm					M1				
2 <b>40-d6</b> M-41	mont	horilystellyw-ye	- marchan	Mulduly	untracture	endeneru	Henry helper	whenward	Heldensenshare
-50 dBm				-					
-60 dBm									

Date: 11.MAY.2021 13:49:36





Date: 11.MAY.2021 13:23:42



# 802.11g

#### Channel 01 (2412MHz) Reference Level: 2.34dBm

**B** Spectrum 
 Ref Level 30.00 dBm Offset 1.00 dB RBW 100 kHz

 Att
 50 dB
 SWT 24 ms
 VBW 300 kHz
 Mode Auto Sweep 1Pk Max M1[1] -32.38 dBn 2.39830 GHz D1[1] 0.00 dB 20 dBm 0 Hz 10 dBm 0 dBm -10 dBm D1 -17.660 dBr -20 dBm -30 dBm 14Q1dBm water 50 dBm -60 dBm Stop 2.4 GHz Start 1.0 MHz 691 pts Date: 11.MAY.2021 14:06:11 ₩ Spectrum 
 Ref Level
 30.00
 dBm
 Offset
 1.00
 dB
 RBW
 100
 kHz

 Att
 50
 dB
 SWT
 226
 ms
 w
 VBW
 300
 kHz
 Mode Auto Sweep ●1Pk View M1[1] -33.88 dBm 6.7685 GHz D1[1] -7.48 dB 20 dBm -4.2850 GHz 10 dBm 0 dBm -10 dBm D1 -17.660 dBm -20 dBm--30 dBm windy purky mappipalities a bland Marsha Land Men all all and arre ADUBIN -50 dBm -60 dBm-Stop 25.0 GHz Start 2.4835 GHz 691 pts

Date: 11.MAY.2021 14:06:50



RefLevel 30.00 dBm Att 50 dB	Offset 1.00 dB SWT 1 ms	<ul> <li>RBW 100 kHz</li> <li>VBW 300 kHz Mode</li> </ul>	Auto Sweep	
1Pk View		-		
0 dBm		D1[ M1[		-33.89 dE -11.650 MH: 2.63 dBn 2.410840 GH:
0 dBm				
d8m		madinha	tool and public to she water	h
10 dBm	· · · · ·		1	
20 dBm				
30 dBm	meethopmenterest	more and a second		William and water water
40,d800.1000 beccharacherar	understation and the second			- unthridgtug-du
50 dBm				
60 dBm				

Date: 11.MAY.2021 14:04:27



# Channel 06 (2437MHz) Reference Level: 1.7dBm

	n ]								1
Ref Level	30.00 dBm	Offset 1.00	dB 🖷 RBW	100 kHz					
Att	50 dB	<b>SWT</b> 24	ms 曼 VBW	300 kHz	Mode Auto	Sweep			
1Pk View	r	<u> </u>	_	-					
					M.	1[1]			38.97 dBn 01300 GH
20 dBm						3			
10 dBm									
) d8m								-	
10 dBm-				· · ·		8			
		10							
20 dBm —	D1 -18.300	dam						-	
-30 dBm			-						
				M1					
40, dBm,	a. a. ballofa 1	d lost a stress of	and many many	- Why why	www.	a take at a state	allouth an	. hundertates	ana alaha sala
and the second	Manage de autores	- Andrew Andrew Co			www.holichians	and the second second	ally was been	dan dan en i	adda porce
50 dBm									
60 dBm									
00 ubm—				· · · · · · · · · · · · · · · · · · ·				· · · · · ·	
Start 1.0	MHz			691	pts			Sto	p 2.4 GHz
Spectrur	n								(m
									( <del>"</del>
			0 dB 👄 RBW		Mode Auto	Sween			
Att	30.00 dBm 50 dB		0 dB 👄 RBW 5 ms 👄 VBW		Mode Auto	) Sweep			
Att									
Att					M:	1(1)			34.43 dBn 9.6725 GH
Att )1Pk View					M:			19	34.43 dBn ).6725 GH -6.34 dI
Att )1Pk View					M:	1(1)	1	19	34.43 dBn ).6725 GH -6.34 dl
Att 1Pk View 20 dBm					M:	1(1)		19	34.43 dBn ).6725 GH -6.34 dl
Att 1Pk View 20 dBm					M:	1(1)		19	34.43 dBn ).6725 GH -6.34 dl
Att )1Pk View 20 dBm					M:	1(1)		19	34.43 dBn ).6725 GH -6.34 dl
Att )1Pk View 20 dBm					M:	1(1)		19	34.43 dBn ).6725 GH -6.34 dI
Att ) 1Pk View 20 dBm					M:	1(1)		19	34.43 dBn ).6725 GH -6.34 dl
Att ) 1Pk View 20 dBm					M:	1(1)		19	34.43 dBn ).6725 GH -6.34 dl
Att 1Pk View 20 dBm 10 dBm 10 dBm 10 dBm 10 dBm		SWT 226			M:	1(1)		19	34.43 dBn ).6725 GH -6.34 dl
Att 1Pk View 20 dBm	50 dB	SWT 226			M:	1(1)		19	34.43 dBn ).6725 GH -6.34 dl
Att ) 1Pk View 20 dBm 10 dBm 10 dBm 10 dBm 20 dB	50 dB	SWT 226			M:	1(1)		19	34.43 dBn ).6725 GH -6.34 dl
Att ) 1Pk View 20 dBm 10 dBm 10 dBm 10 dBm 20 dB	50 dB	SWT 226		/ 300 kHz	M:D1	L[1] L[1]	MI	-1	34.43 dBn ).6725 GH -6.34 dI
Att ) 1Pk View 20 dBm 10 dBm ) dBm 10 dBm 20 dBm 30 dBm 30 dBm	50 dB	SWT 226	9 ms • VBW	/ 300 kHz	M:D1	1(1)		-1	34.43 dBn 9.6725 GH -6.34 dI 7.1888 GH
Att 1Pk View 20 dBm 10 dBm 10 dBm 20 dBm 30 dBm 30 dBm 30 dBm	50 dB	SWT 226	9 ms • VBW	/ 300 kHz	M:	1(1)		-1	34.43 dBr 9.6725 GH -6.34 dl 7.1888 GH
Att 1Pk View 20 dBm 10 dBm 10 dBm 10 dBm 20 dBm 30 dBm 40 dBm	50 dB	SWT 226	9 ms • VBW	/ 300 kHz	M:D1	1(1)		-1	34.43 dBn 9.6725 GH -6.34 dI 7.1888 GH
Att ) 1Pk View 20 dBm 10 dBm 0 dBm 10 dBm 20 dBm -10 dBm -	50 dB	SWT 226	9 ms • VBW	/ 300 kHz	M:D1	1(1)		-1	34.43 dBn 9.6725 GH -6.34 dI 7.1888 GH
Att ) 1Pk View 20 dBm 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -30 dBm -40 dBm	50 dB	SWT 226	9 ms • VBW	/ 300 kHz	M:D1	1(1)		-1	(♥ 34.43 dBn 9.6725 GH: -6.34 df 7.1888 GH:
Ref Level           Att           1Pk View           20 dBm           20 dBm           10 dBm           -10 dBm           -20 dBm           -30 dBm           -30 dBm           -50 dBm           -50 dBm	50 dB	SWT 226	9 ms • VBW	/ 300 kHz	M:D1	1(1)		-1	34.43 dBn 9.6725 GH -6.34 dF 7.1888 GH
Att ) 1Pk View 20 dBm	50 dB	SWT 226	9 ms • VBW	/ 300 kHz	M:D1	1(1)		-1	34.43 dBn 9.6725 GH -6.34 dF 7.1888 GH

Date: 11.MAY.2021 14:07:50



#### Channel 11 (2462MHz) Reference Level: 1.14dBm

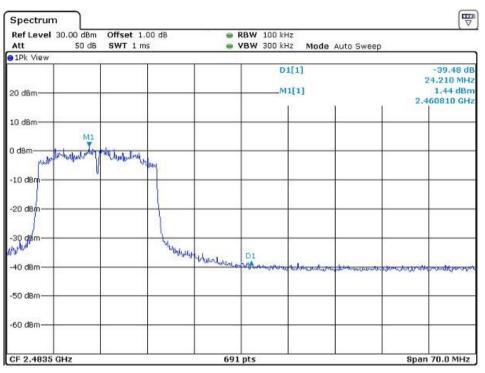
**B** Spectrum 
 Ref Level
 30.00
 dBm Offset
 1.00
 dB @
 RBW
 100
 kHz

 Att
 50
 dB
 SWT
 24
 ms
 @
 VBW
 300
 kHz
 Mode Auto Sweep ●1Pk View -38.55 dBm 1.08250 GHz M1[1] 20 dBm 10 dBm 0 dBm -10 dBm D1 -18.860 d8m; -20 dBm--30 dBm-MI -50 dBm -60 dBm-Start 1.0 MHz 691 pts Stop 2.4 GHz Date: 11.MAY.2021 14:10:35 **B** Spectrum 
 Ref Level
 30.00
 dBm
 Offset
 1.00
 dB
 RBW
 100
 kHz

 Att
 50
 dB
 SWT
 226
 ms
 m
 VBW
 300
 kHz
 Mode Auto Sweep ●1Pk View M1[1] -33.99 dBm 20.3895 GHz 20 dBm-10 dBm 0 dBm -10 dBm D1 -18.860 d8m -20 dBm--30 dBm and and the work of the hard and the second and a Malali president to the presidence Mr. Mr. Aaldeth hu -50 dBm -60 dBm-Stop 25.0 GHz Start 2.4835 GHz 691 pts

Date: 11.MAY.2021 14:11:09





Date: 11.MAY.2021 14:03:00



#### 802.11n-HT20 Channel 01 (2412MHz) Reference Level: 2.44dBm

**B** Spectrum 
 Ref Level
 30.00
 dBm Offset
 1.00
 dB @
 RBW
 100
 kHz

 Att
 50
 dB
 SWT
 24
 ms
 @
 VBW
 300
 kHz
 Mode Auto Sweep 1Pk Max M1[1] -32.38 dBn 2.39830 GHz 20 dBm· 10 dBm 0 dBm -10 dBm 01 -17.560 dBm -20 dBm--30 dBmand a state of the way and the way AQ. dBto ++ 14.1 -50 dBm--60 dBm Start 1.0 MHz 691 pts Stop 2.4 GHz Date: 11.MAY.2021 14:26:24 Spectrum Ref Level 31.00 dBm Offset 1.00 dB 👄 RBW 100 kHz Att 50 dB SWT 226 ms 😑 **VBW** 300 kHz Mode Auto Sweep ●1Pk View M1[1] -33.65 dBm 6.2145 GH 20 dBm-10 dBm-0 dBm -10 dBm-D1 -17.560 dBm -20 dBm-

all the work the work they have the

Span 22.5165 GHz

Justilition

Date: 11.MAY.2021 14:31:37

1 Malla

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-30 dBm

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-50 dBm

-60 dBm-

CF 13.74175 GHz

691 pts



Ref Level 30.00 Att 5	dBm Offset 1.00 0 dB SWT 1 ms	dB      RBW 100 kHz     VBW 300 kHz		
1Pk Max				
20 d8m			D1[1] M1[1]	-34.02 dt -10.840 MH: 2.85 dBn 2.410740 GH:
10 dBm				
0 d8m			prover and a prover and a prover a prover a prover a proving a pro	adodudan
-10 dBm				
-20 dBm	-			
-30 dBm			y unv	meternin meterner
HQ alatan many the	water and the second	nd a man was here to be		- and all all and a second
50 dBm				
-60 dBm				

Date: 11.MAY.2021 14:25:22



#### Channel 06 (2437MHz) Reference Level: 2.01dBm

₩ Spectrum Ref Level 31.00 dBm Offset 1.00 dB 🖷 RBW 100 kHz 50 dB SWT 24 ms 🖷 VBW 300 kHz Mode Auto Sweep Att ●1Pk Max -37.91 dBm 967.90 MHz M1[1] 20 dBm-10 dBm 0 dBm -10 dBm -17.990 dBm -20 dBm--30 dBma Mst <del>ለ</del>ዓለያ የመ whentypity MANDU -50 dBm· -60 dBm-CF 1.2005 GHz 691 pts Span 2.399 GHz Date: 11.MAY.2021 14:34:08 Spectrum Ref Level 31.00 dBm Offset 1.00 dB 👄 RBW 100 kHz Att 50 dB SWT 226 ms 👄 **VBW** 300 kHz Mode Auto Sweep ⊖1Pk View M1[1] -33.04 dBm 5.8565 GH 20 dBm-10 dBm· 0 dBm -10 dBm--17.990 dBm -20 dBm--30 dBm Low month marken MM Mr. HI W warden war بهارسه المسالي madelle i M Annal 40 dBm -50 dBm--60 dBm-CF 13.74175 GHz 691 pts Span 22.5165 GHz

Date: 11.MAY.2021 14:31:01

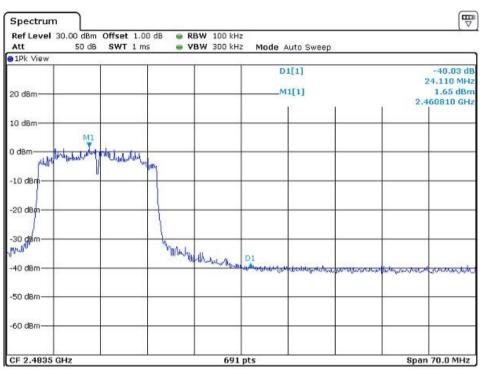


### Channel 11 (2462MHz) Reference Level: 1.57dBm

₩ Spectrum Ref Level 31.00 dBm Offset 1.00 dB 🖷 RBW 100 kHz 50 dB SWT 24 ms 🖷 VBW 300 kHz Mode Auto Sweep Att ●1Pk Max -37.87 dBm 1.06510 GHz M1[1] 20 dBm-10 dBm-0 dBm -10 dBm -18.430 dBm -20 dBm--30 dBmм1 40 dBm M. Apriliation -50 dBm--60 dBm-Start 1.0 MHz 691 pts Stop 2.4 GHz Date: 11.MAY.2021 14:33:24 Spectrum Ref Level 31.00 dBm Offset 1.00 dB 👄 RBW 100 kHz Att 50 dB SWT 226 ms 👄 **VBW** 300 kHz Mode Auto Sweep ⊖1Pk View M1[1] -34.39 dBm 16.2505 GHz 20 dBm-10 dBm· 0 dBm--10 dBm--18.430 dBm--20 dBm--30 dBm wounded mythe with the Martin walk would be a server and the serve Nut. aboldwar mother mot ыð ad abhill -50 dBm -60 dBm-CF 13.74175 GHz 691 pts Span 22.5165 GHz

Date: 11.MAY.2021 14:32:54





Date: 11.MAY.2021 14:24:34



Applicant: SimpliSafe, Inc. Date of Test: 11 May, 2021

Model: SSCM2

4.5 Out of Band Radiated Emissions (for emissions in 4.4 above that are less than 20dB below carrier), FCC Rule 15.247(d):

For out of band emissions that are close to or that exceed the 20dB attenuation requirement described in the specification, radiated measurements were performed at a 3m separation distance to determine whether these emissions complied with the general radiated emission requirement.

- [×] Not required, since all emissions are more than 20dB below fundamental
- [ ] See attached data sheet



Applicant: SimpliSafe, Inc. Date of Test: 11 May, 2021

Model: SSCM2

4.6 Transmitter Radiated Emissions in Restricted Bands, FCC Rule 15.35(b) (c):

Data is included of the worst case configuration (the configuration which resulted in the highest emission levels). A sample calculation, configuration photographs and data tables of the emissions are included. All measurements were performed with peak detection unless otherwise specified.

The data on the following pages list the significant emission frequencies, the limit and the margin of compliance.



Applicant: SimpliSafe, Inc. Date of Test: 11 May, 2021

Model: SSCM2

#### 4.7 Field Strength Calculation

The field strength is calculated by adding the reading on the Spectrum Analyzer to the factors associated with preamplifiers (if any), antennas, cables, pulse desensitization and average factors (when specified limit is in average and measurements are made with peak detectors). A sample calculation is included below.

#### FS = RA + AF + CF - AG + PD

Where	FS = Field Strength in dBμV/m
	RA = Receiver Amplitude (including preamplifier) in $dB\mu V$
	CF = Cable Attenuation Factor in dB
	AF = Antenna Factor in dB
	AG = Amplifier Gain in dB
	PD = Pulse Desensitization in dB

In the radiated emission table which follows, the reading shown on the data table may reflect the preamplifier gain. An example of the calculations, where the reading does not reflect the preamplifier gain, follows:

FS = RA + AF + CF - AG + PD

Example

Assume a receiver reading of 62.0 dB $\mu$ V is obtained. The antenna factor of 7.4 dB and cable factor of 1.6 dB is added. The amplifier gain of 29 dB is subtracted. The pulse desensitization factor of the spectrum analyzer was 0 dB. The net field strength for comparison to the appropriate emission limit is 42 dB $\mu$ V/m. This value in dB $\mu$ V/m was converted to its corresponding level in  $\mu$ V/m.

RA = 62.0 dBµV AF = 7.4 dB CF = 1.6 dB AG = 29.0 dB PD = 0 dB FS = 62 + 7.4 + 1.6 - 29 + 0 = 42 dBµV/m

Level in mV/m = Common Antilogarithm [(42 dB $\mu$ V/m)/20] = 125.9  $\mu$ V/m



Applicant: SimpliSafe, Inc. Date of Test: 11 May, 2021

Model: SSCM2

4.8 Radiated Spurious Emission

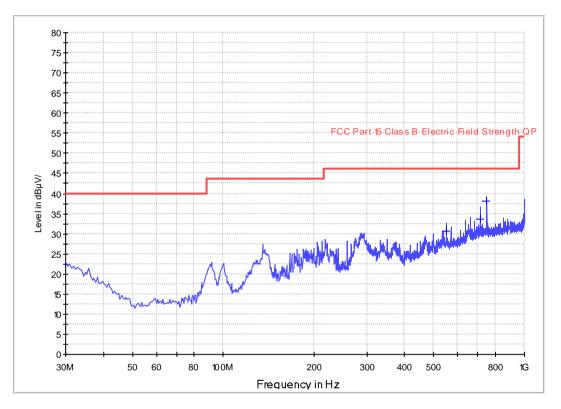
## Worst Case Radiated Spurious Emission at 130.88MHz is passed by 4.5dB margin.

For the electronic filing, the worst case radiated emission configuration photographs are saved with filename: radiated photos.pdf.



Model: SSCM2 Transmitting (802.11b-Channel 01)

#### ANT Polarity: Horizontal



#### FCC Part 15

Frequency (MHz)	QuasiPeak (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBuV/m)
549.920000	30.7	1000.0	120.000	0.0	н	22.4	15.3	46.0
713.365000	33.7	1000.0	120.000	0.0	н	25.6	12.3	46.0
750.225000	38.1	1000.0	120.000	0.0	Н	25.8	7.9	46.0

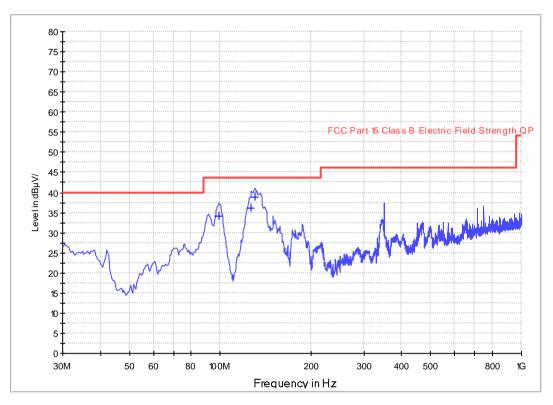
Remark:

- 1. Corr. = Antenna Factor (dB/m) + Cable Loss (dB)
- 2. QuasiPeak (dBµV/m)= Corr. (dB/m)+ Read Level (dBµV)
- 3. Margin (dB) = Limit Line(dB $\mu$ V/m) Level (dB $\mu$ V/m)



Model: SSCM2 Transmitting (802.11b-Channel 01)

#### ANT Polarity: Vertical



FCC Part 15

Frequency (MHz)	QuasiPeak (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBuV/m)
99.355000	34.2	1000.0	120.000	0.0	v	9.9	9.3	43.5
127.000000	36.0	1000.0	120.000	0.0	v	9.8	7.5	43.5
130.880000	39.0	1000.0	120.000	0.0	v	9.9	4.5	43.5

Remark:

1. Corr. = Antenna Factor (dB/m) + Cable Loss (dB)

2. QuasiPeak (dBµV/m)= Corr. (dB/m)+ Read Level (dBµV)

3. Margin (dB) = Limit Line(dB $\mu$ V/m) – Level (dB $\mu$ V/m)



Model: SSCM2 Transmitting (802.11b-Channel 01)

Polarization	Frequency (MHz)	Reading (dBµV)	Pre- Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
Horizontal	*4824.000	42.4	36.8	33.5	39.1	74.0	-34.9
Horizontal	*7236.000	51.9	36.4	29.1	44.6	74.0	-29.4

#### Radiated Emissions (above 1GHz)

Polarization	Frequency (MHz)	Reading (dBµV)	Pre- Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
Horizontal	*4824.000	34.3	36.8	33.5	31.0	54.0	-23.0
Horizontal	*7236.000	41.8	36.4	29.1	34.5	54.0	-19.5

- 2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
- 3. Negative value in the margin column shows emission below limit.
- 4. Horn antenna used for the emission over 1000MHz.
- \* Emission within the restricted band meets the requirement of section 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.



Model: SSCM2 Transmitting (802.11b-Channel 06)

Polarization	Frequency (MHz)	Reading (dBµV)	Pre- Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
Horizontal	*4874.000	42.8	36.7	33.4	39.5	74.0	-34.5
Horizontal	*7311.000	46.6	36.6	35.8	45.8	74.0	-28.2

#### Radiated Emissions (above 1GHz)

Polarization	Frequency (MHz)	Reading (dBµV)	Pre- Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
Horizontal	*4874.000	35.1	36.7	33.4	31.8	54.0	-22.2
Horizontal	*7311.000	41.2	36.6	35.8	40.4	54.0	-13.6

- All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
- 3. Negative value in the margin column shows emission below limit.
- 4. Horn antenna used for the emission over 1000MHz.
- \* Emission within the restricted band meets the requirement of section 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.



Model: SSCM2 Transmitting (802.11b-Channel 11)

Polarization	Frequency (MHz)	Reading (dBµV)	Pre- Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
Horizontal	*4924.000	43.7	36.8	33.3	40.2	74.0	-33.8
Horizontal	*7386.000	53.9	36.5	29.3	46.7	74.0	-27.3

#### Radiated Emissions (above 1GHz)

Polarization	Frequency (MHz)	Reading (dBµV)	Pre- Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
Horizontal	*4924.000	35.8	36.8	33.3	32.3	54.0	-21.7
Horizontal	*7386.000	48.8	36.5	29.3	41.6	54.0	-12.4

- 2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
- 3. Negative value in the margin column shows emission below limit.
- 4. Horn antenna used for the emission over 1000MHz.
- \* Emission within the restricted band meets the requirement of section 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.



Model: SSCM2 Transmitting (802.11g-Channel 01)

Polarization	Frequency (MHz)	Reading (dBµV)	Pre- Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Peak Limit at 3m (dBμV/m)	Margin (dB)
Horizontal	*4824.000	45.4	36.8	33.5	42.1	74.0	-31.9
Horizontal	*7236.000	53.0	36.4	29.1	45.7	74.0	-28.3

#### Radiated Emissions (above 1GHz)

Polarization	Frequency (MHz)	Reading (dBµV)	Pre- Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
Horizontal	*4824.000	33.6	36.8	33.5	30.3	54.0	-23.7
Horizontal	*7236.000	49.4	36.4	29.1	42.1	54.0	-11.9

- 2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
- 3. Negative value in the margin column shows emission below limit.
- 4. Horn antenna used for the emission over 1000MHz.
- \* Emission within the restricted band meets the requirement of section 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.



Model: SSCM2 Transmitting (802.11g-Channel 06)

Polarization	Frequency (MHz)	Reading (dBµV)	Pre- Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
Horizontal	*4874.000	43.6	36.7	33.4	40.3	74.0	-33.7
Horizontal	*7311.000	48.9	36.6	35.8	48.1	74.0	-25.9

### Radiated Emissions (above 1GHz)

Polarization	Frequency (MHz)	Reading (dBµV)	Pre- Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
Horizontal	*4874.000	34.9	36.7	33.4	31.6	54.0	-22.4
Horizontal	*7311.000	50.2	36.6	35.8	41.4	54.0	-4.6

- All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
- 3. Negative value in the margin column shows emission below limit.
- 4. Horn antenna used for the emission over 1000MHz.
- \* Emission within the restricted band meets the requirement of section 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.



Model: SSCM2 Transmitting (802.11g-Channel 11)

Polarization	Frequency (MHz)	Reading (dBµV)	Pre- Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
Horizontal	*4924.000	45.0	36.8	33.3	41.5	74.0	-32.5
Horizontal	*7386.000	56.4	36.5	29.3	49.2	74.0	-24.8

#### Radiated Emissions (above 1GHz)

Polarization	Frequency (MHz)	Reading (dBµV)	Pre- Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
Horizontal	*4924.000	34.1	36.8	33.3	30.6	54.0	-23.4
Horizontal	*7386.000	49.6	36.5	29.3	42.4	54.0	-11.6

- 2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
- 3. Negative value in the margin column shows emission below limit.
- 4. Horn antenna used for the emission over 1000MHz.
- \* Emission within the restricted band meets the requirement of section 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.



Model: SSCM2 Transmitting (802.11n20-Channel 01)

Polarization	Frequency (MHz)	Reading (dBµV)	Pre- Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
Horizontal	*4824.000	43.4	36.8	33.5	40.1	74.0	-33.9
Horizontal	*7236.000	56.0	36.4	29.1	48.7	74.0	-25.3

#### Radiated Emissions (above 1GHz)

Polarization	Frequency (MHz)	Reading (dBµV)	Pre- Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
Horizontal	*4824.000	33.5	36.8	33.5	30.2	54.0	-23.8
Horizontal	*7236.000	47.4	36.4	29.1	40.1	54.0	-13.9

- 2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
- 3. Negative value in the margin column shows emission below limit.
- 4. Horn antenna used for the emission over 1000MHz.
- \* Emission within the restricted band meets the requirement of section 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.



Model: SSCM2 Transmitting (802.11n20-Channel 06)

Polarization	Frequency (MHz)	Reading (dBµV)	Pre- Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
Horizontal	*4874.000	44.5	36.7	33.4	41.2	74.0	-32.8
Horizontal	*7311.000	50.1	36.6	35.8	49.3	74.0	-24.7

### Radiated Emissions (above 1GHz)

Polarization	Frequency (MHz)	Reading (dBµV)	Pre- Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
Horizontal	*4874.000	33.4	36.7	33.4	30.1	54.0	-23.9
Horizontal	*7311.000	42.8	36.6	35.8	42.0	54.0	-12.0

- All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
- 3. Negative value in the margin column shows emission below limit.
- 4. Horn antenna used for the emission over 1000MHz.
- \* Emission within the restricted band meets the requirement of section 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.



Model: SSCM2 Transmitting (802.11n20-Channel 11)

Polarization	Frequency (MHz)	Reading (dBµV)	Pre- Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
Horizontal	*4924.000	45.3	36.8	33.3	41.8	74.0	-32.2
Horizontal	*7386.000	56.9	36.5	29.3	49.7	74.0	-24.3

#### Radiated Emissions (above 1GHz)

Polarization	Frequency (MHz)	Reading (dBµV)	Pre- Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
Horizontal	*4924.000	33.8	36.8	33.3	30.3	54.0	-23.7
Horizontal	*7386.000	49.0	36.5	29.3	41.8	54.0	-12.2

- 2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
- 3. Negative value in the margin column shows emission below limit.
- 4. Horn antenna used for the emission over 1000MHz.
- \* Emission within the restricted band meets the requirement of section 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.



Applicant: SimpliSafe, Inc. Date of Test: 11 May, 2021 Model: SSCM2

4.9 Conducted Emission

## Worst Case Conducted Emission (802.11b-Channel 01) at 0.470MHz is passed by 6.7dB margin.

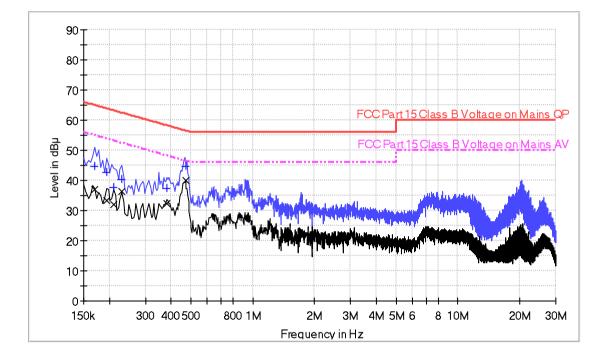
For the electronic filing, the worst case radiated emission configuration photographs are saved with filename: conducted photos.pdf.



Applicant: SimpliSafe, Inc. Date of Test: 11 May, 2021 Model: SSCM2 Worst Case Operating Mode: WIFI Link Phase: Live

# Graphic / Data Table

## Conducted Emissions Pursuant to FCC 15.207: Emissions Requirement



# Limit and Margin QP

	0	•				
Frequency	QuasiPeak	Bandwidth	Line	Corr.	Margin	Limit
(MHz)	(dBuV)	(kHz)		(dB)	(dB)	(dBuV)
0.170000	44.7	9.000	L1	9.6	20.3	65.0
0.194000	42.5	9.000	L1	9.6	21.4	63.9
0.210000	37.5	9.000	L1	9.6	25.7	63.2
0.230000	40.2	9.000	L1	9.6	22.2	62.4
0.382000	37.2	9.000	L1	9.6	21.0	58.2
0.470000	44.5	9.000	L1	9.6	12.0	56.5

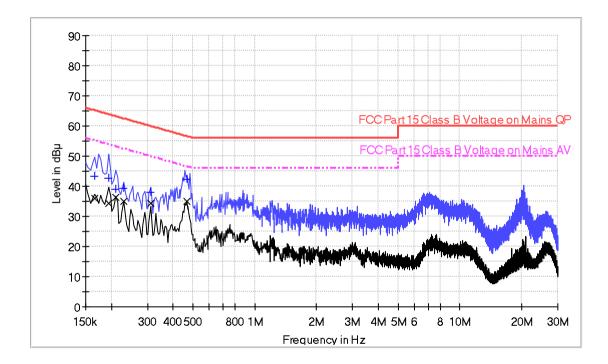
# Limit and Margin AV

Frequency	Average	Bandwidth	Line	Corr.	Margin	Limit
(MHz)	(dBuV)	(kHz)		(dB)	(dB)	(dBuV)
0.170000	36.9	9.000	L1	9.6	18.1	55.0
0.194000	33.3	9.000	L1	9.6	20.6	53.9
0.210000	32.1	9.000	L1	9.6	21.1	53.2
0.230000	36.3	9.000	L1	9.6	16.1	52.4
0.382000	32.5	9.000	L1	9.6	15.7	48.2
0.470000	39.8	9.000	L1	9.6	6.7	46.5



Applicant: SimpliSafe, Inc. Date of Test: 11 May, 2021 Model: SSCM2 Worst Case Operating Mode: WIFI Link Phase: Neutral

# Graphic / Data Table



# Conducted Emissions Pursuant to FCC 15.207: Emissions Requirement

# **Limit and Margin QP**

Frequency	QuasiPeak	Bandwidth	Line	Corr.	Margin	Limit
(MHz)	(dBuV)	(kHz)		(dB)	(dB)	(dBuV)
0.166000	43.4	9.000	Ν	9.5	21.8	65.2
0.194000	42.8	9.000	Ν	9.5	21.1	63.9
0.210000	39.1	9.000	Ν	9.5	24.1	63.2
0.230000	39.2	9.000	N	9.5	23.2	62.4
0.310000	37.9	9.000	N	9.5	22.1	60.0
0.466000	42.2	9.000	N	9.5	14.4	56.6

# Limit and Margin AV

Frequency	Average	Bandwidth	Line	Corr.	Margin	Limit
(MHz)	(dBuV)	(kHz)		(dB)	(dB)	(dBuV)
0.166000	36.0	9.000	Ν	9.5	19.2	55.2
0.194000	34.3	9.000	Ν	9.5	19.6	53.9
0.210000	36.3	9.000	Ν	9.5	16.9	53.2
0.230000	35.1	9.000	Ν	9.5	17.3	52.4
0.310000	34.2	9.000	Ν	9.5	15.8	50.0
0.466000	34.9	9.000	Ν	9.5	11.7	46.6



Applicant: SimpliSafe, Inc. Date of Test: 11 May, 2021 Model: SSCM2

4.10 Radiated Emissions from Digital Section of Transceiver, FCC Ref: 15.109

- [ ] Not required No digital part
- [ ] Test results are attached
- [x] Included in the separated report.



Applicant: SimpliSafe, Inc. Date of Test: 11 May, 2021 Model: SSCM2

4.11 Transmitter Duty Cycle Calculation and Measurements, FCC Rule 15.35(b), (c)

The EUT antenna output port was connected to the input of the spectrum analyzer. The analyzer center frequency was set to EUT RF channel carrier. The SWEP function on the analyzer was set to ZERO SPAN. The Transmitter ON time was determined from the resultant time-amplitude display:

	See attached spectrum analyzer chart (s) for Transmitter timing
	See Transmitter timing diagram provided by manufacturer
x	Not applicable, duty cycle was not used.



#### 5.0 Equipment Photographs

For electronic filing, the photographs are saved with filename: external photos.pdf & internal photos.pdf.

#### 6.0 **Product Labeling**

For electronic filing, the FCC ID label artwork and location is saved with filename: label.pdf.

#### 7.0 <u>Technical Specifications</u>

For electronic filing, the block diagram and circuit diagram are saved with filename: block.pdf and circuit.pdf respectively.

#### 8.0 Instruction Manual

For electronic filing, a preliminary copy of the Instruction Manual is saved with filename: manual.pdf.

This manual will be provided to the end-user with each unit sold/leased in the United States.

#### 9.0 <u>Confidentiality Request</u>

For electronic filing, the confidentiality request of the tested EUT is saved with filename: request.pdf.

#### 10.0 Discussion of Pulse Desensitization

The determination of pulse desensitivity was made in accordance with Hewlett Packard Application Note 150-2, *Spectrum Analysis ... Pulsed RF.* 

Pulse desensitivity is not applicable for this device since the transmitter transmits the RF signal continuously.



TEST REPORT

# 11.0 Test Equipment List

Equipment No.	Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Due Date
SZ182-02	RF Power Meter	Anritsu	ML2496A	1302005	27-May-2020	27-May-2021
SZ182-02-01	Power Sensor	Anritsu	MA2411B	1207429	27-May-2020	27-May-2021
SZ061-12	BiConiLog Antenna	ETS	3142E	00166158	14-Sep-2018	14-Sep-2021
SZ185-01	EMI Receiver	R&S	ESCI	100547	22-Dec-2020	22-Dec-2021
SZ061-08	Horn Antenna	ETS	3115	00092346	07-Sep-2019	07-Sep-2021
SZ061-06	Active Loop Antenna	Electro- Metrics	EM-6876	217	24-May-2019	24-May-2021
SZ056-03	Spectrum Analyzer	R&S	FSP 30	101148	27-May-2020	27-May-2021
SZ056-06	Signal Analyzer	R&S	FSV 40	101101	22-Dec-2020	22-Dec-2021
SZ181-04	Preamplifier	Agilent	8449B	3008A02474	27-May-2020	27-May-2021
SZ188-01	Anechoic Chamber	ETS	RFD-F/A- 100	4102	15-Dec-2018	15-Dec-2021
SZ062-02	RF Cable	RADIALL	RG 213U		01-Dec-2020	01-Jun-2021
SZ062-05	RF Cable	RADIALL	0.04- 26.5GHz		01-Dec-2020	01-Jun-2021
SZ062-12	RF Cable	RADIALL	0.04- 26.5GHz		01-Dec-2020	01-Jun-2021
SZ067-04	Notch Filter	Micro-Tronics	BRM50702- 02		27-May-2020	27-May-2021
SZ185-02	EMI Test Receiver	R&S	ESCI	100692	27-Oct-2020	27-Oct-2021
SZ187-01	Two-Line V- Network	R&S	ENV216	100072	27-Oct-2020	27-Oct-2021
SZ188-03	Shielding Room	ETS	RFD-100	4100	07-Jan-2020	07-Jan-2023