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FCC REPORT

Report Reference No. ..... :	**CHTEW21080074**	Report Verification:
Project No..... :	**SHT2107024301EW**	
FCC ID ..... :	**XO9-IGT02**	
Applicant's name ..... :	**SureFlap Ltd**	
Address..... :	Ground Floor, Building 2030, Cambourne Business Park, Cambourne Cambridgeshire CB23 6DW UNITED KINGDOM	
Test item description ..... :	**Animo GPS**	
Trade Mark ..... :	SURE PETCARE	
Model/Type reference..... :	iGT02	
Listed Model(s) ..... :	-	
Standard ..... :	**FCC CFR Title 47 Part 2** **FCC CFR Title 47 Part 24** **FCC CFR Title 47 Part 27**	
Date of receipt of test sample..... :	Jul. 12, 2021	
Date of testing..... :	Jul. 13, 2021- Aug. 12, 2021	
Date of issue..... :	Aug. 13, 2021	
Result..... ..... :	**Pass**	

Compiled by (position+printedname+signature)... :	File administrators Silvia Li	Silvia Li
Supervised by (position+printedname+signature).... :	Project Engineer Aaron Fang	Aaron.Fang
Approved by (position+printedname+signature).... :	Manager Hans Hu	Hans Hu

Testing Laboratory Name ..... :	**Shenzhen Huatongwei International Inspection Co., Ltd.**
Address..... :	1/F, Bldg 3, Hongfa Hi-tech Industrial Park, Genyu Road, Tianliao, Gongming, Shenzhen, China

Contents

1. TEST STANDARDS AND REPORT VERSION

1.1. Applicable Standards

The tests were performed according to following standards:

FCC Rules Part 2: FREQUENCY ALLOCATIONS AND RADIO TREATY MATTERS; GENERAL RULES AND REGULATIONS
FCC Rules Part 24: PERSONAL COMMUNICATIONS SERVICES
FCC Rules Part 27: MISCELLANEOUS WIRELESS COMMUNICATIONS SERVICES
ANSI C63.26: 2015: American National Standard for Compliance Testing of Transmitters Used in Licensed Radio Services
KDB 971168 D01 Power Meas License Digital Systems v03: MEASUREMENT GUIDANCE FOR CERTIFICATION OF LICENSED DIGITAL TRANSMITTERS

1.2. Report version information

Revision No.	Date of issue	Description
N/A	2021-08-13	Original

2. Test Description

Test Item	Section in CFR 47	Result	Test Engineer
Conducted Output Power	Part 2.1046 Part 24.232(c) Part 27.50	Pass*	N/A
Peak-to-Average Ratio	Part 24.232 Part 27.50	Pass*	N/A
99% Occupied Bandwidth & 26 dB Bandwidth	Part 2.1049 Part 24.238(b) Part 27.53	Pass*	N/A
Band Edge	Part 2.1051 Part 24.238 Part 27.53	Pass*	N/A
Conducted Spurious Emissions	Part 2.1051 Part 24.238 Part 27.53	Pass*	N/A
Frequency stability VS Temperature	Part 2.1055(a)(1)(b) Part 24.235 Part 27.54	Pass*	N/A
Frequency stability VS Voltage	Part 2.1055(d)(1)(2) Part 24.235 Part 27.54	Pass*	N/A
ERP and EIRP	Part 24.232(b) Part 27.50	Pass*	N/A
Radiated Spurious Emissions	Part 2.1053 Part 24.238 Part 27.53	Pass	Pan Xie

The measurement uncertainty is not included in the test result.
* reference to module report , which FCC ID is P27-TPM540.

3. SUMMARY

3.1. Client Information

Applicant:	SureFlap Ltd
Address:	Ground Floor, Building 2030, Cambourne Business Park, Cambourne Cambridgeshire CB23 6DW UNITED KINGDOM
Manufacturer:	SureFlap Ltd
Address:	Ground Floor, Building 2030, Cambourne Business Park, Cambourne Cambridgeshire CB23 6DW UNITED KINGDOM

3.2. Product Description

Name of EUT:	Animo GPS		
Trade Mark:	SURE PETCARE		
Model No.:	iGT02		
Listed Model(s):	-		
SIM Information:	Support One SIM Card		
Power supply:	DC3.8V		
Adapter information:	-		
Hardware version:	2.06.00		
Software version:	41		
4G(eMTC)			
Operation Band:	☒ FDD Band 2	☒ FDD Band 4	☒ FDD Band 12
Transmit frequency:	FDD Band 2:	1850.7 MHz – 1909.3 MHz	
	FDD Band 4:	1710.7 MHz – 1754.3 MHz	
	FDD Band 12:	699.7 MHz – 715.3 MHz	
Receive frequency:	FDD Band 2:	1930.7 MHz – 1989.3 MHz	
	FDD Band 4:	2110.7 MHz – 2154.3 MHz	
	FDD Band 12:	729.7 MHz – 745.3 MHz	
Channel bandwidth:	FDD Band 2:	1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz	
	FDD Band 4:	1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz	
	FDD Band 12:	1.4MHz, 3MHz, 5MHz, 10MHz	
Power Class:	Class 3		
Modulation type:	QPSK, 16QAM		
Antenna type	internal antenna		
Antenna Gain	Band2:-1.5dBi Band4:-0.7dBi Band12:-5.5dBi		

3.3. Operation state

➢ **Test frequency list**

FDD Band 2

Test Frequency ID	Bandwidth [MHz]	N_{UL}	Frequency of Uplink [MHz]	N_{DL}	Frequency of Downlink [MHz]
Low Range	1.4	18607	1850.7	607	1930.7
	3	18615	1851.5	615	1931.5
	5	18625	1852.5	625	1932.5
	10	18650	1855	650	1935
	15 [1]	18675	1857.5	675	1937.5
	20 [1]	18700	1860	700	1940
Mid Range	1.4/3/5/10 15 [1]/20 [1]	18900	1880	900	1960
High Range	1.4	19193	1909.3	1193	1989.3
	3	19185	1908.5	1185	1988.5
	5	19175	1907.5	1175	1987.5
	10	19150	1905	1150	1985
	15 [1]	19125	1902.5	1125	1982.5
	20 [1]	19100	1900	1100	1980

NOTE 1: Bandwidth for which a relaxation of the specified UE receiver sensitivity requirement (TS 36.101 [27] Clause 7.3) is allowed.

FDD Band 4

Test Frequency ID	Bandwidth [MHz]	N_{UL}	Frequency of Uplink [MHz]	N_{DL}	Frequency of Downlink [MHz]
Low Range	1.4	19957	1710.7	1957	2110.7
	3	19965	1711.5	1965	2111.5
	5	19975	1712.5	1975	2112.5
	10	20000	1715	2000	2115
	15	20025	1717.5	2025	2117.5
	20	20050	1720	2050	2120
Mid Range	1.4/3/5/10/15/20	20175	1732.5	2175	2132.5
High Range	1.4	20393	1754.3	2393	2154.3
	3	20385	1753.5	2385	2153.5
	5	20375	1752.5	2375	2152.5
	10	20350	1750	2350	2150
	15	20325	1747.5	2325	2147.5
	20	20300	1745	2300	2145

FDD Band 12

Table 4.3.1.1.12-1: Test frequencies for E-UTRA channel bandwidth for operating band 12

Test Frequency ID	Bandwidth [MHz]	N_{UL}	Frequency of Uplink [MHz]	N_{DL}	Frequency of Downlink [MHz]
Low Range	1.4	23017	699.7	5017	729.7
	3	23025	700.5	5025	730.5
	5 [1]	23035	701.5	5035	731.5
	10 [1]	23060	704	5060	734
Mid Range	1.4/3 5 [1]/10 [1]	23095	707.5	5095	737.5
High Range	1.4	23173	715.3	5173	745.3
	3	23165	714.5	5165	744.5
	5 [1]	23155	713.5	5155	743.5
	10 [1]	23130	711	5130	741

NOTE 1: Bandwidth for which a relaxation of the specified UE receiver sensitivity requirement (TS 36.101 [27] Clause 7.3) is allowed.

3.4. EUT operation mode

For RF test items
The EUT has been tested under typical operating condition. Testing was performed by configuring EUT to maximum output power status.

Test Items	Band	Bandwidth (MHz)						Modulation		RB #		
		1.4	3	5	10	15	20	QPSK	16QAM	1	Half	Full
Conducted Output Power	2	○	○	○	○	○	○	○	○	○	○	○
	4	○	○	○	○	○	○	○	○	○	○	○
	12	○	○	○	○	-	-	○	○	○	○	○
Peak-to-Average Ratio	2	○	○	○	○	○	○	○	○	○	-	○
	4	○	○	○	○	○	○	○	○	○	-	○
	12	○	○	○	○	-	-	○	○	○	-	○
99% Occupied Bandwidth & 26 dB Bandwidth	2	○	○	○	○	○	○	○	○	-	-	○
	4	○	○	○	○	○	○	○	○	-	-	○
	12	○	○	○	○	-	-	○	○	○	-	○
Band Edge	2	○	○	○	○	○	○	○	○	○	-	○
	4	○	○	○	○	○	○	○	○	○	-	○
	12	○	○	○	○	-	-	○	○	○	-	○
Conducted Spurious Emission	2	○	○	○	○	○	○	○	○	○	-	-
	4	○	○	○	○	○	○	○	○	○	-	-
	12	○	○	○	○	-	-	○	○	○	-	-
Frequency Stability	2	○	○	○	○	○	○	○	○	-	-	○
	4	○	○	○	○	○	○	○	○	-	-	○
	12	○	○	○	○	-	-	○	○	-	-	○
ERP and EIRP	2	○	○	○	○	○	○	○	○	○	-	-
	4	○	○	○	○	○	○	○	○	○	-	-
	12	○	○	○	○	-	-	○	○	○	-	-
Radiated Spurious Emission	2	○	○	○	○	○	○	○	○	○	-	-
	4	○	○	○	○	○	○	○	○	○	-	-
	12	○	○	○	○	-	-	○	○	○	-	-
Remark	1. The mark " ○"means that this configuration is chosenfor testing 2. The mark "-"means that this bandwidth is not test. 3. The device is investigatedfrom 30MHz to10 times offundamental signal for radiated spurious emission test under different RB size/offset and modulations in exploratory test. Subsequently, only the worst case emissions are reported.											

3.5. EUT configuration

The following peripheral devices and interface cables were connected during the measurement:

- ● - supplied by the manufacturer
- ○ - supplied by the lab

○	/	Manufacturer:	/
		Model No.:	/
○	/	Manufacturer:	/
		Model No.:	/

3.6. Modifications

No modifications were implemented to meet testing criteria.

4. TEST ENVIRONMENT

4.1. Testing Laboratory Information

Laboratory Name	Shenzhen Huatongwei International Inspection Co., Ltd.	
Laboratory Location	1/F, Bldg 3, Hongfa Hi-tech Industrial Park, Genyu Road, Tianliao, Gongming, Shenzhen, China	
Connect information:	Tel: 86-755-26715499 E-mail: cs@szhtw.com.cn http://www.szhtw.com.cn	
Qualifications	Type	Accreditation Number
	FCC	762235

4.2. Equipments Used during the Test

● Radiated Spurious Emission							
Used	Test Equipment	Manufacturer	Equipment No.	Model No.	Serial No.	Last Cal. Date (YY-MM-DD)	Next Cal. Date (YY-MM-DD)
●	Semi-Anechoic Chamber	Albatross projects	HTWE0122	SAC-3m-01	N/A	2018/09/27	2021/09/26
●	Spectrum Analyzer	R&S	HTWE0098	FSP40	100597	2020/10/20	2021/10/19
●	Loop Antenna	R&S	HTWE0170	HFH2-Z2	100020	2021/04/06	2022/04/05
●	Broadband Horn Antenna	SCHWARZBECK	HTWE0103	BBHA9170	BBHA9170472	2018/10/11	2021/10/11
●	Ultra-Broadband Antenna	SCHWARZBECK	HTWE0123	VULB9163	538	2021/04/06	2022/04/05
●	Horn Antenna	SCHWARZBECK	HTWE0126	9120D	1011	2020/04/01	2023/03/31
●	Pre-amplifier	CD	HTWE0071	PAP-0102	12004	2020/11/13	2021/11/12
●	Broadband Preamplifier	SCHWARZBECK	HTWE0201	BBV 9718	9718-248	2021/03/05	2022/03/04
●	RF Connection Cable	HUBER+SUHNER	HTWE0120-01	6m 18GHz S Serisa	N/A	2021/02/26	2022/02/25
●	RF Connection Cable	HUBER+SUHNER	HTWE0120-02	6m 3GHz RG Serisa	N/A	2021/02/26	2022/02/25
●	RF Connection Cable	HUBER+SUHNER	HTWE0120-03	6m 3GHz RG Serisa	N/A	2021/02/26	2022/02/25
●	RF Connection Cable	HUBER+SUHNER	HTWE0120-04	6m 3GHz RG Serisa	N/A	2021/02/26	2022/02/25
●	RF Connection Cable	HUBER+SUHNER	HTWE0121-01	6m 18GHz S Serisa	N/A	2021/02/26	2022/02/25
●	EMI Test Software	Audix	N/A	E3	N/A	N/A	N/A

4.3. Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Voltage	VN=Nominal Voltage	DC 3.80V
	VL=Lower Voltage	DC 3.60V
	VH=Higher Voltage	DC 4.35V
Temperature	TN=Normal Temperature	25 °C
	Extreme Temperature	From −30° to + 50° centigrade
Humidity	30~60 %	
Air Pressure	950-1050 hPa	

4.4. Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to TR-100028-01"Electromagnetic compatibilityand Radio spectrum Matters (ERM);Uncertainties in the measurementof mobile radio equipment characteristics;Part 1"and TR-100028-02 "Electromagnetic compatibilityand Radio spectrum Matters (ERM);Uncertainties in the measurementof mobile radio equipment characteristics;Part 2 " and is documented in the Shenzhen Huatongwei International Inspection Co., Ltd quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Hereafter the best measurement capability for Shenzhen Huatongweilaboratory is reported:

Test Items	Measurement Uncertainty	Notes
Transmitter power conducted	0.51 dB	(1)
Transmitter power Radiated	2.66dB for <1GHz 3.44dB for >1GHz	(1)
Conducted spurious emissions 9kHz~40GHz	0.51 dB	(1)
Radiated spurious emissions	2.66dB for <1GHz 3.44dB for >1GHz	(1)
Occupied Bandwidth	15Hz for <1GHz 70Hz for >1GHz	(1)
Frequency error	15Hz for <1GHz 70Hz for >1GHz	(1)

(1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=1.96.

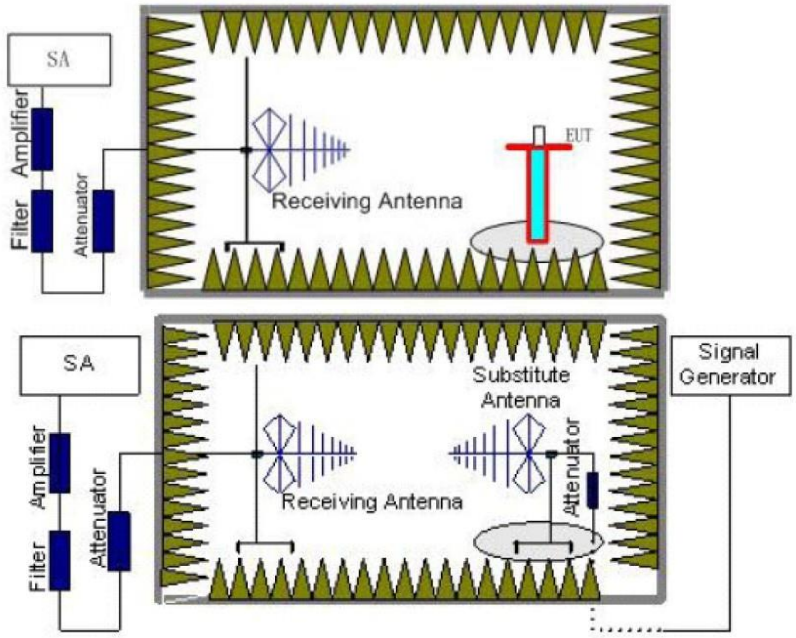
5. TEST CONDITIONS AND RESULTS

5.1. Radiated Spurious Emission

LIMIT

LTE Band 2/4/12: -13dBm;

TEST CONFIGURATION



TEST PROCEDURE

1. Place the EUT in the center of the turntable.
   a) For radiated emissions measurements performed at frequencies less than or equal to 1 GHz, the EUT shall be placed on a RF-transparent table at a nominal height of 80 cm above the reference ground plane
   b) For radiated measurements performed at frequencies above 1 GHz, the EUT shall be placed on an RF transparent table at a nominal height of 1.5 m above the ground plane.
2. Unless the EUT uses an integral antenna, the EUT shall be terminated with a non-radiating transmitter load. In cases where the EUT uses an adjustable antenna, the antenna shall be adjusted through typical positions and lengths to maximize emissions levels.
3. The EUT shall be tested while operating on the frequency per manufacturer specification. Set the transmitter to operate in continuous transmit mode.
4. Receiver or Spectrum set as follow:

   Below 1GHz, RBW=100kHz, VBW=300kHz, Detector=Peak, Sweep time=Auto

   Above 1GHz, RBW=1MHz, VBW=3MHz, Detector=Peck, Sweep time=Auto
5. Each emission under consideration shall be evaluated:
   a) Raise and lower the measurement antenna from 1 m to 4 m, as necessary to enable detection of the maximum emission amplitude relative to measurement antenna height.
   b) Rotate the EUT through 360° to determine the maximum emission level relative to the axial position.
   c) Return the turntable to the azimuth where the highest emission amplitude level was observed.
   d) Vary the measurement antenna height again through 1 m to 4 m again to find the height associated with the maximum emission amplitude.
   e) Record the measured emission amplitude level and frequency

6. Repeat step 5 for each emission frequency with the measurement antenna oriented in both the horizontal and vertical polarizations to determine the orientation that gives the maximum emissions amplitude.
7. Set-up the substitution measurement with the reference point of the substitution antenna located as near as possible to where the center of the EUT radiating element was located during the initial EUT measurement.
8. Maintain the previous measurement instrument settings and test set-up, with the exception that the EUT is removed and replaced by the substitution antenna.
9. Connect a signal generator to the substitution antenna; locate the signal generator so as to minimize any potential influences on the measurement results. Set the signal generator to the frequency where emissions are detected, and set an output power level such that the radiated signal can be detected by the measurement instrument, with sufficient dynamic range relative to the noise floor.
10. For each emission that was detected and measured in the initial test
    a) Vary the measurement antenna height between 1 m to 4 m to maximize the received (measured) signal amplitude.
    b) Adjust the signal generator output power level until the amplitude detected by the measurement instrument equals the amplitude level of the emission previously measured directly in step 5 and step 6.
    c) Record the output power level of the signal generator when equivalence is achieved in step b).
11. Repeat step 8 through step 10 with the measurement antenna oriented in the opposite polarization.
12. Calculate the emission power in dBm referenced to a half-wave dipole using the following equation:

    Pe = Ps(dBm) − cable loss (dB) + antenna gain (dBd)

    where

    Pe = equivalent emission power in dBm

    Ps = source (signal generator) power in dBm

    NOTE—dBd refers to the measured antenna gain in decibels relative to a half-wave dipole.
13. Correct the antenna gain of the substitution antenna if necessary to reference the emission power to a half-wave dipole. When using measurement antennas with the gain specified in dBi, the equivalent dipole-referenced gain can be determined from:

    gain (dBd) = gain (dBi) − 2.15 dB.

    If necessary, the antenna gain can be calculated from calibrated antenna factor information
14. Provide the complete measurement results as a part of the test report.

TEST MODE:

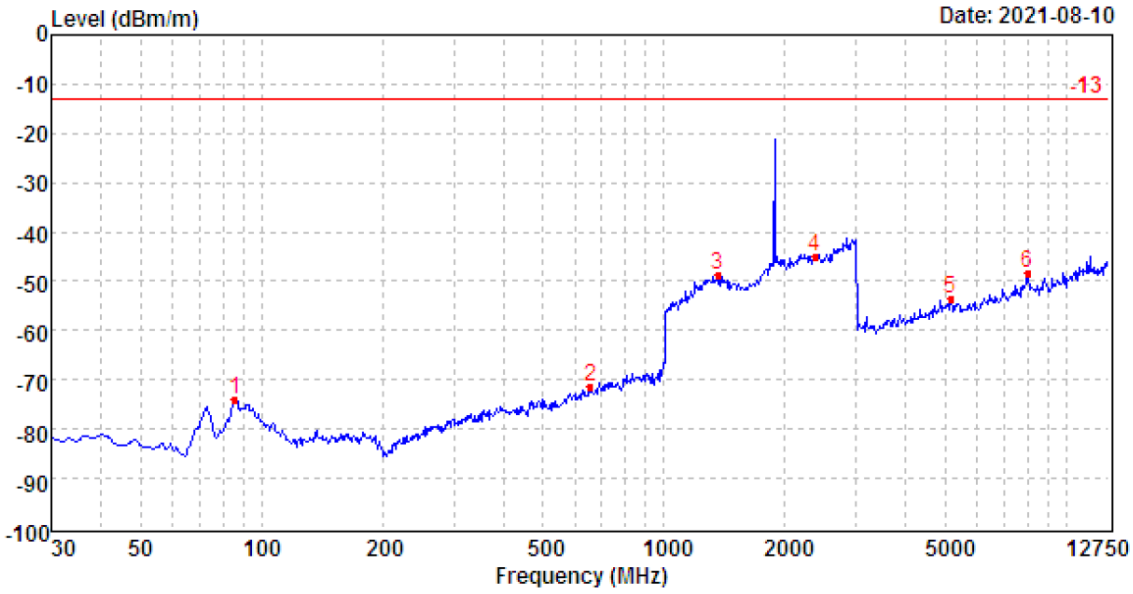
Please refer to the clause 3.3

TEST RESULTS

☒ **Passed** ☐ **Not Applicable**

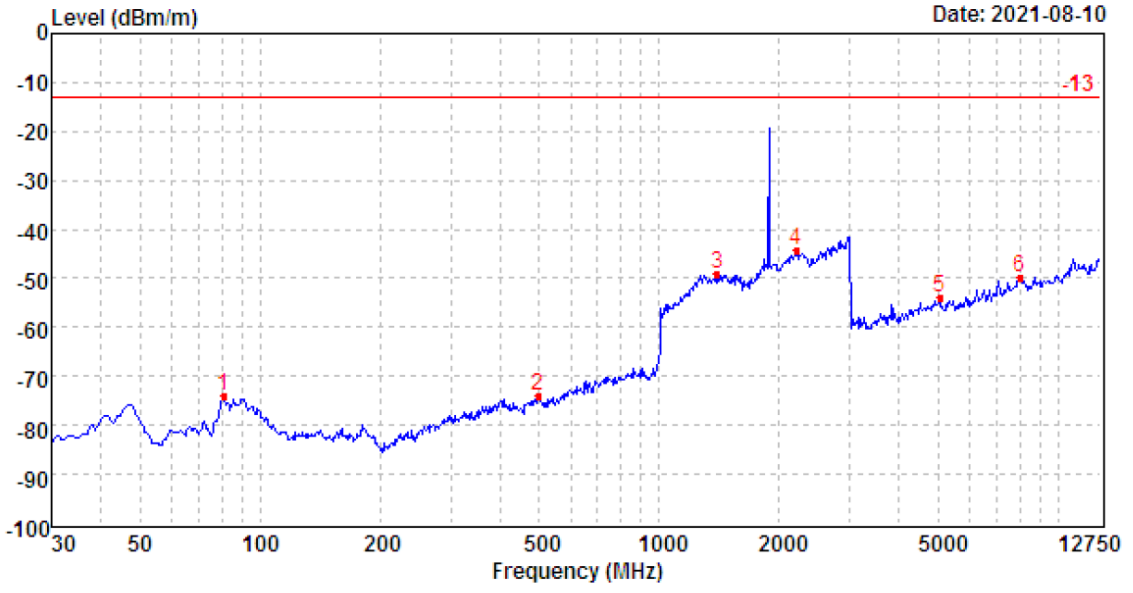
Note: only show the worse case for QPSK modulation.

Test mode	Band 2	Polarity	Horizontal
Bandwidth	20MHz	Test channel	Middle



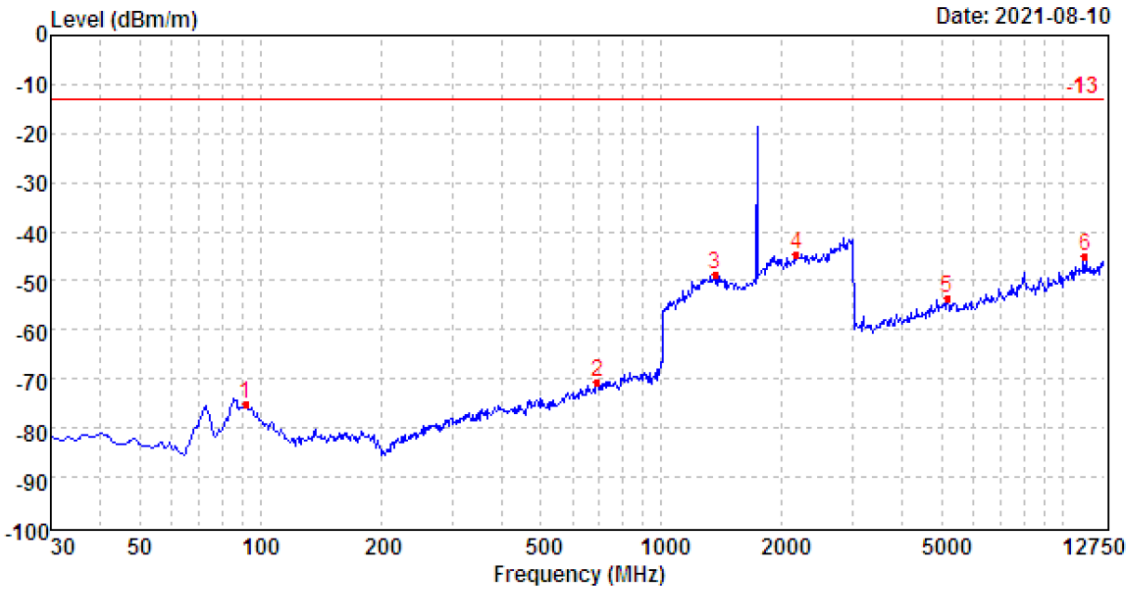
Mark	Frequency MHz	Reading dBm	Antenna dB	Cable dB	Preamp dB	Level dBm	Limit dBm	Over limit	Remark
1	85.85	-69.57	19.43	6.89	30.79	-74.04	-13.00	-61.04	Peak
2	655.35	-79.04	28.47	9.10	29.81	-71.28	-13.00	-58.28	Peak
3	1360.17	-69.51	37.08	12.64	28.95	-48.74	-13.00	-35.74	Peak
4	2368.86	-70.37	39.99	13.09	27.52	-44.81	-13.00	-31.81	Peak
5	5158.11	-71.01	44.03	8.96	35.44	-53.46	-13.00	-40.46	Peak
6	8004.46	-74.14	48.11	10.91	33.31	-48.43	-13.00	-35.43	Peak

Test mode	Band 2	Polarity	Vertical
Bandwidth	20MHz	Test channel	Middle



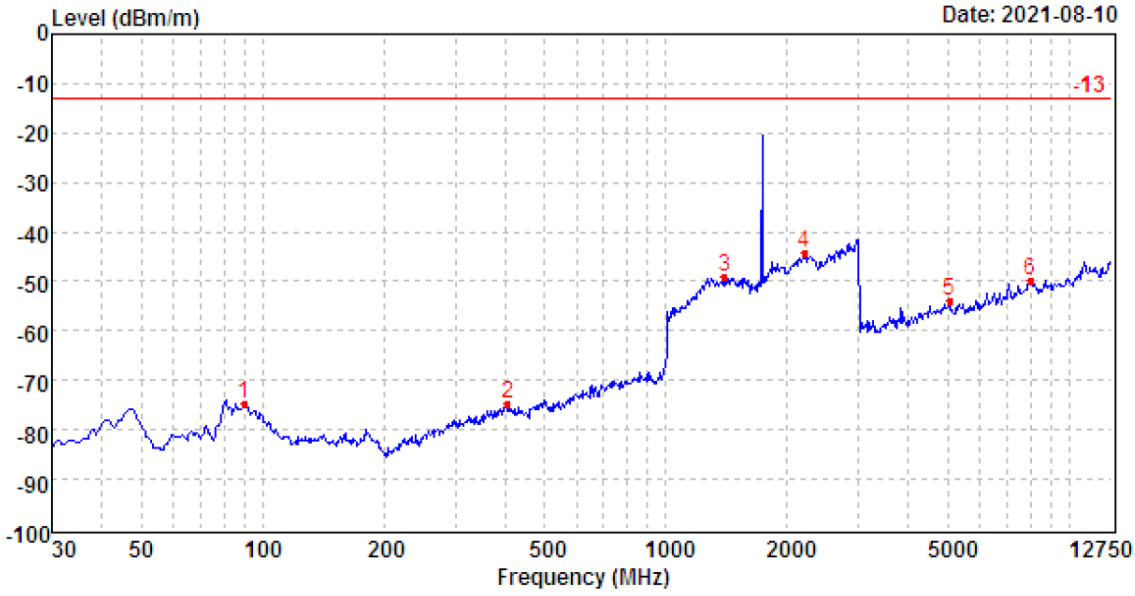
Mark	Frequency MHz	Reading dBm	Antenna dB	Cable dB	Preamp dB	Level dBm	Limit dBm	Over limit	Remark
1	80.87	-74.46	24.57	6.86	30.82	-73.85	-13.00	-60.85	Peak
2	498.14	-79.42	26.48	8.63	29.85	-74.16	-13.00	-61.16	Peak
3	1396.51	-70.47	37.75	12.45	28.91	-49.18	-13.00	-36.18	Peak
4	2203.18	-70.27	41.69	12.60	28.36	-44.34	-13.00	-31.34	Peak
5	5054.44	-71.65	44.35	8.88	35.39	-53.81	-13.00	-40.81	Peak
6	8016.07	-75.00	47.62	10.93	33.31	-49.76	-13.00	-36.76	Peak

Test mode	Band 4	Polarity	Horizontal
Bandwidth	20MHz	Test channel	Middle



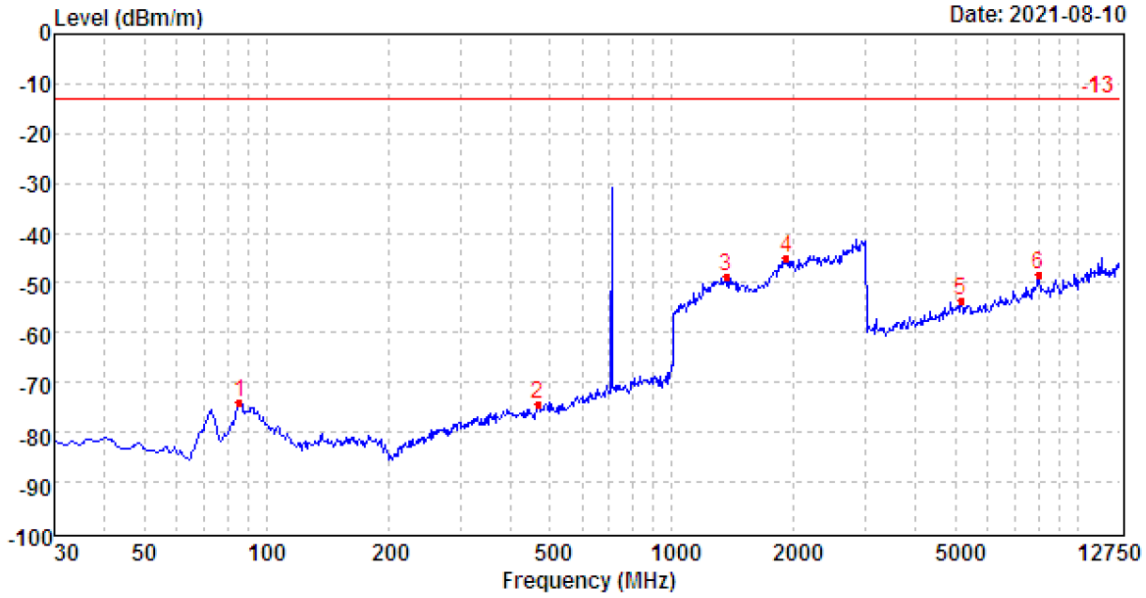
Mark	Frequency MHz	Reading dBm	Antenna dB	Cable dB	Preamp dB	Level dBm	Limit dBm	Over limit	Remark
1	91.78	-71.09	19.84	6.93	30.74	-75.06	-13.00	-62.06	Peak
2	693.28	-78.70	28.34	9.25	29.67	-70.78	-13.00	-57.78	Peak
3	1360.17	-69.51	37.08	12.64	28.95	-48.74	-13.00	-35.74	Peak
4	2174.33	-69.46	40.74	12.53	28.31	-44.50	-13.00	-31.50	Peak
5	5158.11	-71.01	44.03	8.96	35.44	-53.46	-13.00	-40.46	Peak
6	11419.38	-74.31	52.97	12.70	36.42	-45.06	-13.00	-32.06	Peak

Test mode	Band 4	Polarity	Vertical
Bandwidth	20MHz	Test channel	Middle



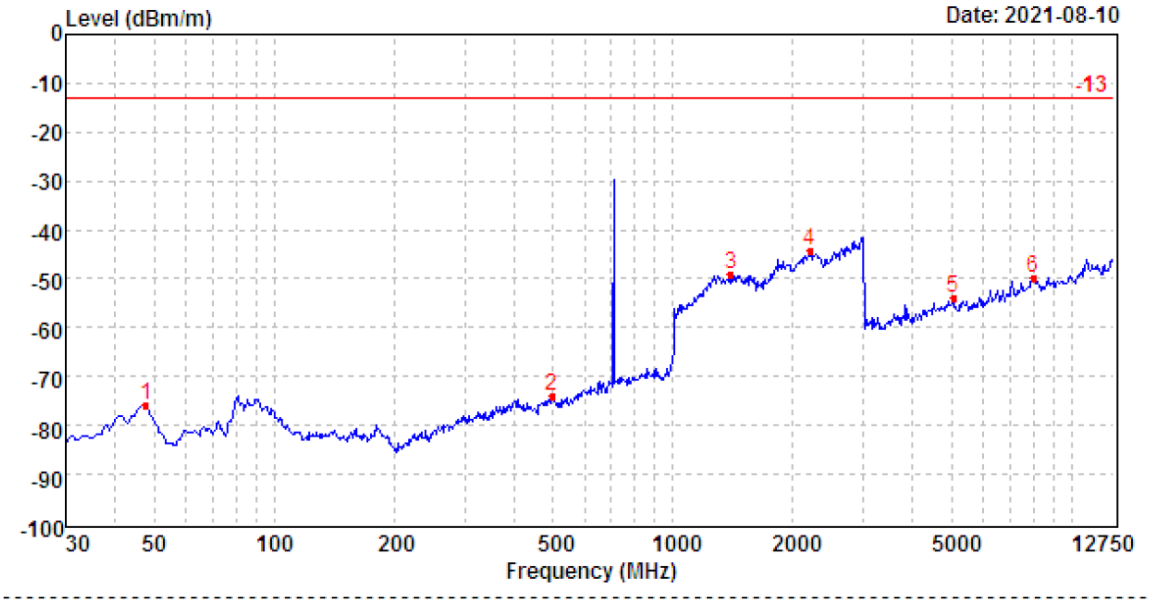
Mark	Frequency MHz	Reading dBm	Antenna dB	Cable dB	Preamp dB	Level dBm	Limit dBm	Over limit	Remark
1	89.87	-78.99	28.24	6.92	30.75	-74.58	-13.00	-61.58	Peak
2	406.23	-78.86	25.80	8.33	30.10	-74.83	-13.00	-61.83	Peak
3	1396.51	-70.47	37.75	12.45	28.91	-49.18	-13.00	-36.18	Peak
4	2203.18	-70.27	41.69	12.60	28.36	-44.34	-13.00	-31.34	Peak
5	5054.44	-71.65	44.35	8.88	35.39	-53.81	-13.00	-40.81	Peak
6	8016.07	-75.00	47.62	10.93	33.31	-49.76	-13.00	-36.76	Peak

Test mode	Band 12	Polarity	Horizontal
Bandwidth	10MHz	Test channel	Middle



Mark	Frequency MHz	Reading dBm	Antenna dB	Cable dB	Preamp dB	Level dBm	Limit dBm	Over limit	Remark
1	85.85	-69.57	19.43	6.89	30.79	-74.04	-13.00	-61.04	Peak
2	467.59	-79.08	26.12	8.54	30.10	-74.52	-13.00	-61.52	Peak
3	1360.17	-69.51	37.08	12.64	28.95	-48.74	-13.00	-35.74	Peak
4	1918.37	-68.96	38.16	12.03	26.12	-44.89	-13.00	-31.89	Peak
5	5158.11	-71.01	44.03	8.96	35.44	-53.46	-13.00	-40.46	Peak
6	8004.46	-74.14	48.11	10.91	33.31	-48.43	-13.00	-35.43	Peak

Test mode	Band 12	Polarity	Vertical
Bandwidth	10MHz	Test channel	Middle



Mark	Frequency MHz	Reading dBm	Antenna dB	Cable dB	Preamp dB	Level dBm	Limit dBm	Over limit	Remark
1	47.72	-72.21	20.77	6.62	30.87	-75.69	-13.00	-62.69	Peak
2	498.14	-79.42	26.48	8.63	29.85	-74.16	-13.00	-61.16	Peak
3	1396.51	-70.47	37.75	12.45	28.91	-49.18	-13.00	-36.18	Peak
4	2203.18	-70.27	41.69	12.60	28.36	-44.34	-13.00	-31.34	Peak
5	5054.44	-71.65	44.35	8.88	35.39	-53.81	-13.00	-40.81	Peak
6	8016.07	-75.00	47.62	10.93	33.31	-49.76	-13.00	-36.76	Peak

--------End of Report--------