

TEST REPORT

Product : Wireless Digital Video Monitoring System
Trade mark : Infant Optics
Model/Type reference : DXR-8 PRO, DXR8PPZ-A
Serial Number : N/A
Report Number : EED32N811904
FCC ID : 2AAAM-DXR8PPZ-ABU
Date of Issue : Jan. 05, 2022
Test Standards : 47 CFR Part 15 Subpart C
Test result : PASS

Prepared for:

STANDARD MERIT INDUSTRIAL LIMITED
2/A Harrison Court Stage 6,
10 Man Wan Road, Kowloon, Hong Kong

Prepared by:

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Jan. 05, 2022

David Wang



Check No.: 7544091121

2 Version

Version No.	Date	Description
00	Jan. 05, 2022	Original

3 Test Summary

Test Item	Test Requirement	Test method	Result
Antenna Requirement	47 CFR Part 15 Subpart C Section 15.203/15.247 (c)	ANSI C63.10-2013	Note
AC Power Line Conducted Emission	47 CFR Part 15 Subpart C Section 15.207	ANSI C63.10-2013	Note
Conducted Peak Output Power	47 CFR Part 15 Subpart C Section 15.247 (b)(1)	ANSI C63.10-2013	Note
20dB Occupied Bandwidth	47 CFR Part 15 Subpart C Section 15.247 (a)(1)	ANSI C63.10-2013	Note
Carrier Frequencies Separation	47 CFR Part 15 Subpart C Section 15.247 (a)(1)	ANSI C63.10-2013	Note
Hopping Channel Number	47 CFR Part 15 Subpart C Section 15.247 (b)	ANSI C63.10-2013	Note
Dwell Time	47 CFR Part 15 Subpart C Section 15.247 (a)(1)	ANSI C63.10-2013	Note
Pseudorandom Frequency Hopping Sequence	47 CFR Part 15 Subpart C Section 15.247(b)(4)&TCB Exclusion List (7 July 2002)	ANSI C63.10-2013	Note
RF Conducted Spurious Emissions	47 CFR Part 15 Subpart C Section 15.247(d)	ANSI C63.10-2013	Note
Restricted bands around fundamental frequency (Radiated)	47 CFR Part 15 Subpart C Section 15.205/15.209	ANSI C63.10-2013	Note
Radiated Spurious emissions	47 CFR Part 15 Subpart C Section 15.205/15.209	ANSI C63.10-2013	PASS
Duty Cycle	ANSI C63.10-2013	ANSI C63.10-2013	Note

Note: Refer to the report of EED32N80046401,

This test report (Ref. No.: EED32N811904) is only valid with the original test report

(Ref. No.: EED32N80046401).

Review this report and original report, the EUT just update PCB there are no changes in module and product function, so this report just update PCB and photos.

Therefore in this report the Radiated Spurious Emission were retested and shown the data in this report, other tests data please refer to original report No. EED32N80046401.

Remark:

Company Name and Address shown on Report, the sample(s) and sample Information were provided by the applicant who should be responsible for the authenticity which CTI hasn't verified.

Model No.: DXR-8 PRO, DXR8PPZ-A

Only the model DXR-8 PRO was tested, DXR-8 PRO is the system model of the product that of which consist of one camera unit and one monitor unit with the model DXRBPPZ-A. The model DXR-8 PRO is represent the coverage of one Camera unit and one Monitor with the Model DXR8PPZ- A. For DXR8PPZ-A is the model represent the individual Camera/Monitor unit only.

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4 Test Requirement

4.1 Test setup

4.1.1 For Radiated Emissions test setup

Radiated Emissions setup:

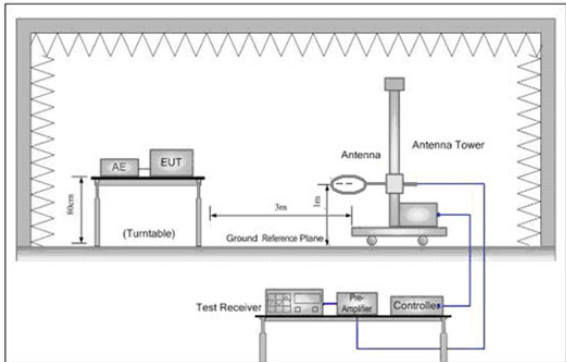


Figure 1. Below 30MHz

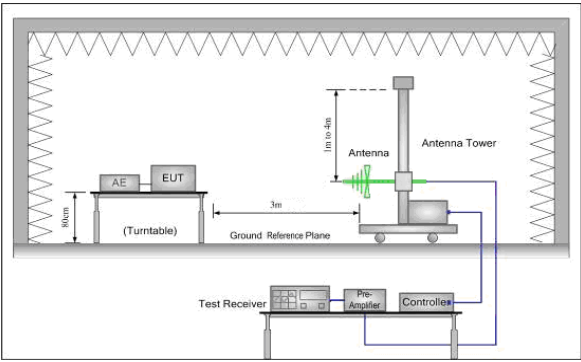


Figure 2. 30MHz to 1GHz

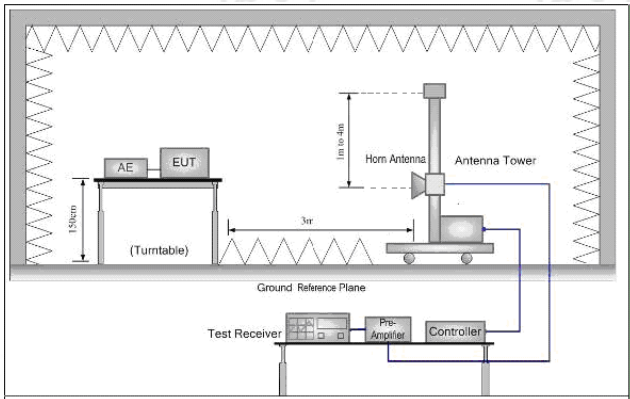


Figure 3. Above 1GHz

4.2 Test Environment

Operating Environment:	
Temperature:	22~25.0 °C
Humidity:	50~55 % RH
Atmospheric Pressure:	1010mbar

4.3 Test Condition

Test Mode	Tx	RF Channel		
		Low(L)	Middle(M)	High(H)
GFSK	2410MHz ~2477 MHz	Channel 1	Channel 10	Channel 20
		2410MHz	2441.5MHz	2477MHz
TX mode: The EUT transmitted the continuous modulation test signal at the specific channel(s).				

5 General Information

5.1 Client Information

Applicant:	STANDARD MERIT INDUSTRIAL LIMITED
Address of Applicant:	2/A Harrison Court Stage 6, 10 Man Wan Road, Kowloon, Hong Kong
Manufacturer:	Foshan Shunde Alford Electronics Co., Ltd
Address of Manufacturer:	Xinjian Industrial Park, Daliang, Shunde, Foshan City, Guangdong Province, China

5.2 General Description of EUT

Product Name:	Wireless Digital Video Monitoring System	
Model No.(EUT):	DXR-8 PRO, DXR8PPZ-A	
Test Model No:	DXR-8 PRO	
Trade mark:	Infant Optics	
EUT Supports Radios application:	2410MHz - 2477MHz	
Power Supply:	AC adapter 1	Model: BI12T-059100-BdU Input:100-240V~50/60Hz 0.5A Output: DC 5.9V --- 1000mA
	AC adapter 2	Model: BLJ05K059100P-U Input:100-240V~50/60Hz 0.2A Output: 5.9V --- 1000mA
Sample Received Date:	Nov.10, 2021	
Sample tested Date:	Nov.10, 2021 to Nov.24, 2021	

5.3 Product Specification subjective to this standard

Operation Frequency:	2410MHz - 2477MHz						
Modulation Technique:	Frequency Hopping Spread Spectrum(FHSS)						
Modulation Type:	GFSK						
Number of Channel:	20						
Hopping Channel Type:	Adaptive Frequency Hopping systems						
Test Power Grade:	Default						
Test Software of EUT:	Default						
Antenna Type:	Dipole Antenna						
Antenna Gain:	0 dBi						
Test Voltage:	DC 5.9V						
Operation Frequency each of channel							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
1	2410MHz	6	2427.5MHz	11	2445MHz	16	2462.5MHz
2	2413.5MHz	7	2431MHz	12	2448.5MHz	17	2466MHz
3	2417MHz	8	2434.5MHz	13	2452MHz	18	2469.5MHz
4	2420.5MHz	9	2438MHz	14	2455.5MHz	19	2473MHz
5	2424MHz	10	2441.5MHz	15	2459MHz	20	2477MHz

5.4 Description of Support Units

The EUT has been tested independently.

5.5 Test Location

All tests were performed at:

Centre Testing International Group Co., Ltd

Building C, Hongwei Industrial Park Block 70, Bao'an District, Shenzhen, China

Telephone: +86 (0) 755 33683668 Fax: +86 (0) 755 33683385

No tests were sub-contracted.

FCC Designation No.: CN1164

5.6 Deviation from Standards

None.

5.7 Abnormalities from Standard Conditions

None.

5.8 Other Information Requested by the Customer

None.

5.9 Measurement Uncertainty (95% confidence levels, k=2)

No.	Item	Measurement Uncertainty
1	Radio Frequency	7.9×10^{-8}
2	RF power, conducted	0.46dB (30MHz-1GHz)
		0.55dB (1GHz-18GHz)
3	Radiated Spurious emission test	4.3dB (30MHz-1GHz)
		4.5dB (1GHz-12.75GHz)
4	Conduction emission	3.5dB (9kHz to 150kHz)
		3.1dB (150kHz to 30MHz)
5	Temperature test	0.64°C
6	Humidity test	3.8%
7	DC power voltages	0.026%

6 Equipment List

3M Semi/full-anechoic Chamber					
Equipment	Manufacturer	Model No.	Serial Number	Cal. date (mm-dd-yyyy)	Cal. Due date (mm-dd-yyyy)
3M Chamber & Accessory Equipment	TDK	SAC-3	---	05-24-2019	05-23-2022
TRILOG Broadband Antenna	Schwarzbeck	VULB9163	9163-618	05-16-2021	05-15-2022
Loop Antenna	Schwarzbeck	FMZB 1519B	1519B-076	04-15-2021	04-14-2024
Receiver	R&S	ESCI7	100938-003	10-14-2021	10-13-2022
Temperature/ Humidity Indicator	Shanghai qixiang	HM10	1804298	06-24-2021	06-23-2022
Cable line	Fulai(7M)	SF106	5219/6A	---	---
Cable line	Fulai(6M)	SF106	5220/6A	---	---
Cable line	Fulai(3M)	SF106	5216/6A	---	---
Cable line	Fulai(3M)	SF106	5217/6A	---	---
Cable line	Fulai(3M)	SF106	5217/6A	---	---

3M full-anechoic Chamber					
Equipment	Manufacturer	Model No.	Serial Number	Cal. date (mm-dd-yyyy)	Cal. Due date (mm-dd-yyyy)
RSE Automatic test software	JS Tonscend	JS36-RSE	10166	---	---
Receiver	Keysight	N9038A	MY57290136	03-04-2021	03-03-2022
Spectrum Analyzer	Keysight	N9020B	MY57111112	03-04-2021	03-03-2022
Spectrum Analyzer	Keysight	N9030B	MY57140871	03-04-2021	03-03-2022
TRILOG Broadband Antenna	Schwarzbeck	VULB 9163	9163-1148	04-28-2021	04-27-2024
Horn Antenna	Schwarzbeck	BBHA 9170	9170-832	04-15-2021	04-14-2024
Horn Antenna	ETS-LINDGREN	3117	57407	07-04-2021	07-03-2024
Preamplifier	EMCI	EMC184055SE	980597	05-20-2021	05-19-2022
Preamplifier	EMCI	EMC001330	980563	04-15-2021	04-14-2022
Preamplifier	JS Tonscend	980380	EMC051845 SE	12-31-2020	12-30-2021
Communication test set	R&S	CMW500	102898	12-31-2020	12-30-2021
Temperature/ Humidity Indicator	biaozhi	GM1360	EE1186631	04-16-2021	04-15-2022
Fully Anechoic Chamber	TDK	FAC-3	---	01-09-2021	01-08-2024
Cable line	Times	SFT205-NMSM-2.50M	394812-0001	---	---
Cable line	Times	SFT205-NMSM-2.50M	394812-0002	---	---
Cable line	Times	SFT205-NMSM-2.50M	394812-0003	---	---
Cable line	Times	SFT205-NMSM-2.50M	393495-0001	---	---
Cable line	Times	EMC104-NMNM-1000	SN160710	---	---
Cable line	Times	SFT205-NMSM-3.00M	394813-0001	---	---
Cable line	Times	SFT205-NMNM-1.50M	381964-0001	---	---
Cable line	Times	SFT205-NMSM-7.00M	394815-0001	---	---
Cable line	Times	HF160-KMKM-3.00M	393493-0001	---	---

7 Radio Technical Requirements Specification

Reference documents for testing:

No.	Identity	Document Title
1	FCC Part15C	Subpart C-Intentional Radiators
2	ANSI C63.10-2013	American National Standard for Testing Unlicensed Wireless Devices

Test Results List:

Test requirement	Test method	Test item	Verdict	Note
Part15C Section 15.247 (a)(1)	ANSI 63.10	20dB Occupied Bandwidth	PASS	Appendix A)
Part15C Section 15.247 (a)(1)	ANSI 63.10	Carrier Frequencies Separation	PASS	Appendix B)
Part15C Section 15.247 (a)(1)	ANSI 63.10	Dwell Time	PASS	Appendix C)
Part15C Section 15.247 (b)	ANSI 63.10	Hopping Channel Number	PASS	Appendix D)
Part15C Section 15.247 (b)(1)	ANSI 63.10	Conducted Peak Output Power	PASS	Appendix E)
Part15C Section 15.247(d)	ANSI 63.10	Band-edge for RF Conducted Emissions	PASS	Appendix F)
Part15C Section 15.247(d)	ANSI 63.10	RF Conducted Spurious Emissions	PASS	Appendix G)
Part15C Section 15.247 (a)(1)	ANSI 63.10	Pseudorandom Frequency Hopping Sequence	PASS	Appendix H)
Part15C Section 15.203/15.247 (c)	ANSI 63.10	Antenna Requirement	PASS	Appendix I)
Part15C Section 15.207	ANSI 63.10	AC Power Line Conducted Emission	N/A	Appendix J)
Part15C Section 15.205/15.209	ANSI 63.10	Restricted bands around fundamental frequency (Radiated) Emission)	PASS	Appendix K)
Part15C Section 15.205/15.209	ANSI 63.10	Radiated Spurious Emissions	PASS	Appendix L)

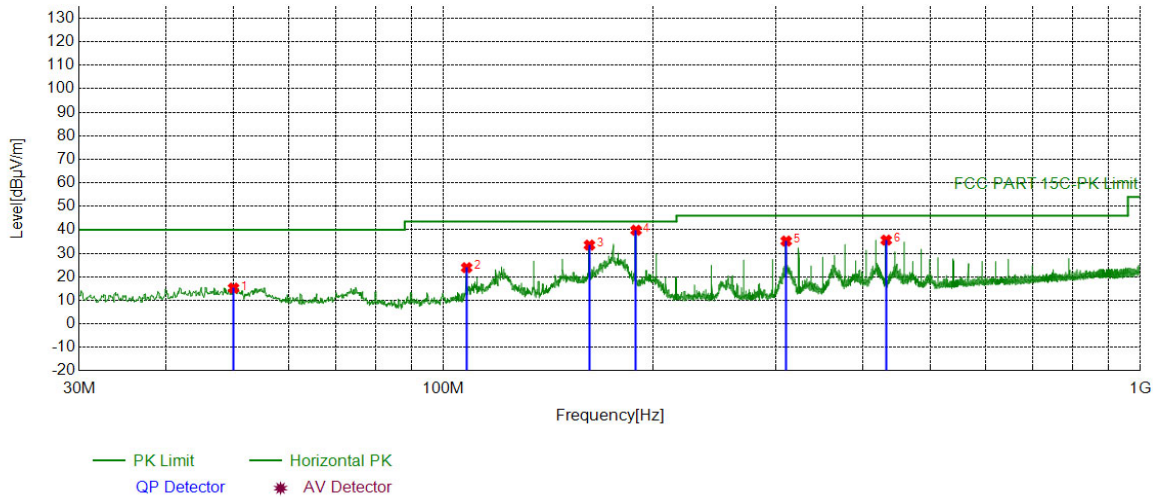
7.1 Radiated Spurious Emissions

Receiver Setup:	Frequency	Detector	RBW	VBW	Remark
	0.009MHz-0.090MHz	Peak	10kHz	30kHz	Peak
	0.009MHz-0.090MHz	Average	10kHz	30kHz	Average
	0.090MHz-0.110MHz	Quasi-peak	10kHz	30kHz	Quasi-peak
	0.110MHz-0.490MHz	Peak	10kHz	30kHz	Peak
	0.110MHz-0.490MHz	Average	10kHz	30kHz	Average
	0.490MHz -30MHz	Quasi-peak	10kHz	30kHz	Quasi-peak
	30MHz-1GHz	Quasi-peak	120kHz	300kHz	Quasi-peak
	Above 1GHz	Peak	1MHz	3MHz	Peak
		Peak	1MHz	10Hz	Average
Test Procedure:					
Below 1GHz test procedure as below:					
a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation. b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading. e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.					
Above 1GHz test procedure as below:					
g. Different between above is the test site, change from Semi- Anechoic Chamber to fully Anechoic Chamber and change form table 0.8 meter to 1.5 meter(Above 18GHz the distance is 1 meter and table is 1.5 meter). h. Test the EUT in the lowest channel ,the middle channel ,the Highest channel i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is worse case. j. Repeat above procedures until all frequencies measured was complete.					
Limit:	Frequency	Field strength (microvolt/meter)	Limit (dBµV/m)	Remark	Measurement distance (m)
	0.009MHz-0.490MHz	2400/F(kHz)	-	-	300
	0.490MHz-1.705MHz	24000/F(kHz)	-	-	30
	1.705MHz-30MHz	30	-	-	30
	30MHz-88MHz	100	40.0	Quasi-peak	3
	88MHz-216MHz	150	43.5	Quasi-peak	3
	216MHz-960MHz	200	46.0	Quasi-peak	3
	960MHz-1GHz	500	54.0	Quasi-peak	3
	Above 1GHz	500	54.0	Average	3
	Note: 15.35(b), Unless otherwise specified, the limit on peak radio frequency emissions is 20dB above the maximum permitted average emission limit applicable to the equipment under test. This peak limit applies to the total peak emission level radiated by the device.				

Radiated Spurious Emissions test Data: Radiated Emission below 1GHz

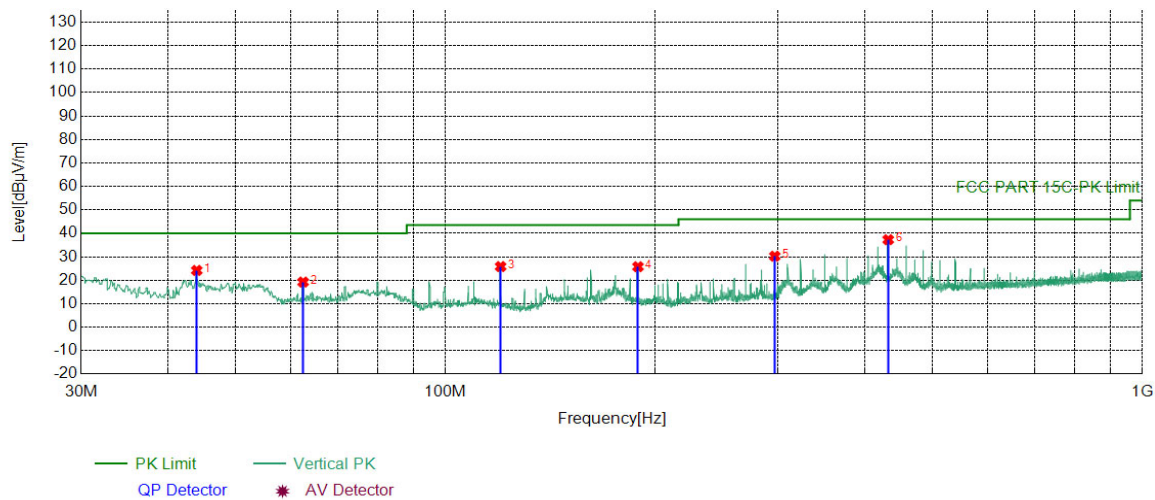
During the test, the Radiates Emission from 30MHz to 1GHz was performed in all modes, only the worst case mode a was recorded in the report.

Test Graph



NO	Freq. [MHz]	Factor [dB]	Reading [dBμV]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Result	Polarity	Remark
1	49.9840	-17.18	32.37	15.19	40.00	24.81	PASS	Horizontal	Peak
2	107.9958	-18.39	42.28	23.89	43.50	19.61	PASS	Horizontal	Peak
3	162.0302	-21.01	54.50	33.49	43.50	10.01	PASS	Horizontal	Peak
4	188.9989	-18.87	58.68	39.81	43.50	3.69	PASS	Horizontal	Peak
5	310.4550	-15.13	50.35	35.22	46.00	10.78	PASS	Horizontal	Peak
6	432.0082	-12.22	47.83	35.61	46.00	10.39	PASS	Horizontal	Peak

Test Graph



NO	Freq. [MHz]	Factor [dB]	Reading [dBμV]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Result	Polarity	Remark
1	43.9694	-17.34	41.53	24.19	40.00	15.81	PASS	Vertical	Peak
2	62.4983	-19.07	38.31	19.24	40.00	20.76	PASS	Vertical	Peak
3	120.0250	-20.08	45.91	25.83	43.50	17.67	PASS	Vertical	Peak
4	188.9989	-18.87	44.64	25.77	43.50	17.73	PASS	Vertical	Peak
5	296.9707	-15.52	45.78	30.26	46.00	15.74	PASS	Vertical	Peak
6	432.0082	-12.22	49.51	37.29	46.00	8.71	PASS	Vertical	Peak

Radiated Spurious Emission above 1GHz:

Mode:			GFSK Transmitting			Channel:		2410MHz	
NO	Freq. [MHz]	Factor [dB]	Reading [dBμV]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Result	Polarity	Remark
1	1326.4326	1.15	42.64	43.79	74.00	30.21	PASS	H	PK
2	2108.7109	4.79	41.79	46.58	74.00	27.42	PASS	H	PK
3	4818.1212	-16.22	60.14	43.92	74.00	30.08	PASS	H	PK
4	7673.3116	-11.09	52.72	41.63	74.00	32.37	PASS	H	PK
5	9215.4144	-7.89	51.54	43.65	74.00	30.35	PASS	H	PK
6	13762.7175	-1.68	50.21	48.53	74.00	25.47	PASS	H	PK
7	1337.2337	1.18	42.82	44.00	74.00	30.00	PASS	V	PK
8	1896.6897	4.01	43.11	47.12	74.00	26.88	PASS	V	PK
9	4818.1212	-16.22	56.31	40.09	74.00	33.91	PASS	V	PK
10	7029.2686	-11.75	53.80	42.05	74.00	31.95	PASS	V	PK
11	11110.5407	-6.22	50.83	44.61	74.00	29.39	PASS	V	PK
12	13713.7142	-1.75	51.15	49.40	74.00	24.60	PASS	V	PK

Mode:			GFSK Transmitting			Channel:		2441.5MHz	
NO	Freq. [MHz]	Factor [dB]	Reading [dBμV]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Result	Polarity	Remark
1	1292.0292	1.04	43.90	44.94	74.00	29.06	PASS	H	PK
2	1744.2744	3.09	41.52	44.61	74.00	29.39	PASS	H	PK
3	4881.1254	-16.21	59.00	42.79	74.00	31.21	PASS	H	PK
4	7322.2882	-11.65	53.03	41.38	74.00	32.62	PASS	H	PK
5	10296.4864	-6.48	51.18	44.70	74.00	29.30	PASS	H	PK
6	13717.7145	-1.75	50.66	48.91	74.00	25.09	PASS	H	PK
7	1338.0338	1.19	42.52	43.71	74.00	30.29	PASS	V	PK
8	1807.2807	3.33	42.40	45.73	74.00	28.27	PASS	V	PK
9	4881.1254	-16.21	56.57	40.36	74.00	33.64	PASS	V	PK
10	6852.2568	-12.11	52.50	40.39	74.00	33.61	PASS	V	PK
11	9233.4156	-7.90	51.86	43.96	74.00	30.04	PASS	V	PK
12	13737.7158	-1.72	51.48	49.76	74.00	24.24	PASS	V	PK

Mode:			GFSK Transmitting			Channel:		2477MHz	
NO	Freq. [MHz]	Factor [dB]	Reading [dBμV]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Result	Polarity	Remark
1	1322.4322	1.13	43.00	44.13	74.00	29.87	PASS	H	PK
2	1662.6663	2.70	42.93	45.63	74.00	28.37	PASS	H	PK
3	4954.1303	-15.99	59.07	43.08	74.00	30.92	PASS	H	PK
4	7792.3195	-11.35	53.44	42.09	74.00	31.91	PASS	H	PK
5	9256.4171	-7.92	51.89	43.97	74.00	30.03	PASS	H	PK
6	13741.7161	-1.71	50.85	49.14	74.00	24.86	PASS	H	PK
7	1349.6350	1.22	42.37	43.59	74.00	30.41	PASS	V	PK
8	1856.0856	3.70	41.45	45.15	74.00	28.85	PASS	V	PK
9	4952.1301	-16.00	57.84	41.84	74.00	32.16	PASS	V	PK
10	7238.2826	-11.78	53.79	42.01	74.00	31.99	PASS	V	PK
11	9217.4145	-7.89	51.72	43.83	74.00	30.17	PASS	V	PK
12	13283.6856	-3.40	51.03	47.63	74.00	26.37	PASS	V	PK

Remark:

- 1) The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:
 Final Test Level = Receiver Reading + Factor
 Factor = Antenna Factor + Cable Factor – Preamplifier Factor
- 2) Scan from 9kHz to 25GHz, the disturbance above 18GHz and below 30MHz was very low. As shown in this section, for frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. So, only the peak measurements were shown in the report.