

FCC RADIO TEST REPORT

FCC ID: XUJCRP123XV3

Product : Professional Diagnostic Tool

Trade Mark : LAUNCH

Model Name : Creader Professional 129I V3

Family Model : See Page 9

Report No. : S25021701610004

Issue Date: Mar. 13, 2025

Prepared for

LAUNCH TECH CO., LTD.

No.4012, Launch Industrial Park, North Wuhe Rd, Bantian Street,
Longgang District, Shenzhen, China

Prepared by

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TEST RESULT CERTIFICATION

Applicant's name.....: LAUNCH TECH CO., LTD.
Address.....: No.4012, Launch Industrial Park, North Wuhe Rd, Bantian Street, Longgang District, Shenzhen, China
Manufacturer's Name.....: LAUNCH TECH CO., LTD.
Address.....: No.4012, Launch Industrial Park, North Wuhe Rd, Bantian Street, Longgang District, Shenzhen, China
Product description
Product name.....: Professional Diagnostic Tool
Trade Mark.....: LAUNCH
Model and/or type reference : Creader Professional 129I V3
Family Model.....: See Page 9
Test Sample number.....: S250217016011
Date of Test.....: Feb. 17, 2025 ~ Mar. 13, 2025
Standards: FCC Part15.407
Test procedure..... ANSI C63.10-2013 and KDB 789033 D02 General UNII Test Procedures New Rules v02r01

This device described above has been tested by NTEK, and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements/ the Industry Canada requirements. And it is applicable only to the tested sample identified in the report.

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Revision History

Report No.	Version	Description	Issued Date
S25021701610004	Rev.01	Initial issue of report	Mar. 13, 2025

1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

FCC Part15 (15.407) , Subpart E			
Standard Section	Test Item	Judgment	Remark
15.207	AC Power Line Conducted Emissions	PASS	
15.209(a), 15.407 (b)(1) 15.407 (b)(4)	Spurious Radiated Emissions	PASS	
15.407 (a)(1) 15.407 (a)(3)	26 dB and 99% Emission Bandwidth	PASS	
15.407(e)	Minimum 6 dB bandwidth	PASS	
15.407 (a)(1) 15.407 (a)(3)	Maximum Conducted Output Power	PASS	
15.407(b)(1) 15.407(b)(4)	Band Edge	PASS	
15.407 (a)(1) 15.407 (a)(3)	Power Spectral Density	PASS	
15.407(b)	Spurious Emissions at Antenna Terminals	PASS	
15.203	Antenna Requirement	PASS	
15.407(c)	Automatically discontinue transmission	PASS	Note 2

NOTE:

- (1) "N/A" denotes test is not applicable in this Test Report
- (2) The product is a client device, and the data transmission is limited by the AP. When the information to be sent is missing or the operation fails, the device will automatically stop sending and directly connect to the AP correctly again.

1.1 FACILITIES AND ACCREDITATIONS

FACILITIES

All measurement facilities used to collect the measurement data are located at
No. 24 Xinfu East Road, Xiangshan Community, Xinqiao Street, Baoan District, Shenzhen,
Guangdong, People's Republic of China

The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.10 and CISPR Publication 22.

LABORATORY ACCREDITATIONS AND LISTINGS

Site Description

CNAS-Lab. : The Certificate Registration Number is L5516.

IC-Registration : The Certificate Registration Number is 9270A.
CAB identifier:CN0074

FCC- Accredited : Test Firm Registration Number: 463705.
Designation Number: CN1184

A2LA-Lab. : The Certificate Registration Number is 4298.01
This laboratory is accredited in accordance with the recognized
International Standard ISO/IEC 17025:2005 General requirements for the
competence of testing and calibration laboratories.
This accreditation demonstrates technical competence for a defined
scope and the operation of a laboratory quality management system
(refer to joint ISO-ILAC-IAF Communiqué dated 8 January 2009).

Name of Firm : Shenzhen NTEK Testing Technology Co., Ltd.

Site Location : No. 24 Xinfu East Road, Xiangshan Community, Xinqiao Street, Baoan
District, Shenzhen, Guangdong, People's Republic of China

1.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement $y \pm U$, where expanded uncertainty U is based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95 %.

No.	Item	Uncertainty
1	Conducted Emission Test	$\pm 2.80\text{dB}$
2	RF power, conducted, PSD	$\pm 0.16\text{dB}$
3	Spurious emissions, conducted	$\pm 0.21\text{dB}$
4	All emissions, radiated(30MHz~1GHz)	$\pm 2.64\text{dB}$
5	All emissions, radiated(1GHz~6GHz)	$\pm 2.40\text{dB}$
6	All emissions, radiated(> 6GHz)	$\pm 2.52\text{dB}$
7	Temperature	$\pm 0.5^\circ\text{C}$
8	Humidity	$\pm 2\%$
9	All emissions, radiated(9KHz~30MHz)	$\pm 6\text{dB}$
10	Occupied bandwidth	$\pm 4.7\%$

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Equipment	Professional Diagnostic Tool	
Trade Mark	LAUNCH	
FCC ID	XUJCRP123XV3	
Model Name	Creader Professional 129I V3	
Family Model	See Page 9	
Model Difference	All models are the same circuit and RF module, except for the shape and color of the rubber sleeve and whether the product has button is different.	
Product Description	IEEE 802.11 WLAN Mode Supported	☒ 802.11a/n/ac (20MHz channel bandwidth) ☒ 802.11n/ac (40MHz channel bandwidth) ☒ 802.11ac (80MHz channel bandwidth)
	Modulation	OFDM with BPSK/QPSK/16QAM/64QAM/256QAM for 802.11a/n/ac;
	Operating Frequency Range	☒ 5180-5240MHz for 802.11a/n(HT20)/ac(VHT20); 5190-5230MHz for 802.11n(HT40)/ac(VHT40); 5210MHz for 802.11ac(VHT80) ☒ 5745-5825 MHz for 802.11a/n(HT20)/ac(VHT20); 5755-5795 MHz for 802.11n(HT40)/ac(VHT40); 5775MHz for 802.11ac(VHT80)
	Number of Channels	☒ 4 channels for 802.11a/n20/ac20 in the 5180-5240MHz band ; 2 channels for 802.11 n40/ac40 in the 5190-5230MHz band ; 1 channels for 802.11 ac80 in the 5210MHz band ; ☒ 5 channels for 802.11a/n20/ac20 in the 5745-5825MHz band ; 2 channels for 802.11 n40/ac40 in the 5755-5795MHz band ; 1 channels for 802.11 ac80 in the 5775MHz band ;
	Antenna Type	FPC Antenna
	Antenna Gain	3.58dBi
	Based on the application, features, or specification exhibited in User's Manual, More details of EUT technical specification, please refer to the User's Manual.	
Adapter	N/A	
Battery	Battery1: DC 3.7V, 6000mAh, 22.2Wh Battery2: DC 3.6V, 6000mAh, 21.6Wh	
Power supply	DC 3.7V from battery1 or DC 3.6V from battery2 or DC 5V from adapter or DC 12V from the vehicle battery	
Connecting I/O Port(s)	Please refer to the User's Manual	

HW Version	V4
SW Version	CCBF5B_Y_C

Note 1: Based on the application, features, or specification exhibited in User's Manual, the EUT is considered as an ITE/Computing Device. More details of EUT technical specification, please refer to the User's Manual.

2: The engineering test program was provided and the EUT was programmed to be in continuously transmitting mode.

3: The product comes with different colored rubber sleeves.

4: This product has two batteries. Both Battery 1 and Battery 2 were evaluated. Only the worst data of Battery 1 is reflected in the report.

Family models
Creader Professional 123E V3, Creader Professional 129E V3, Creader Professional 123I V3, Creader Professional 123X V3, Creader Professional 129X V3, Creader Professional 129E PLUS V3, Creader Professional 129X PLUS V3, Millennium Master 3.0, Creader Professional 129 EVO, Creader Professional 129 EVO+, Creader Professional 123S(233), Creader Professional 129S(239), Creader Professional 129MT, Creader Professional 129S MT, Millennium MT

Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.
2. The product comes with different colored rubber sleeves.
3. Frequency and Channel list for 802.11a/n/ac(20MHz) band I (5180-5240MHz):

802.11a/n/ac(20MHz) Carrier Frequency Channel							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
36	5180	44	5220	-	-	-	-
40	5200	48	5240	-	-	-	-

Frequency and Channel list for 802.11n/ac(40MHz) band I (5190-5230MHz):

802.11n/ac(40MHz) Carrier Frequency Channel							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
38	5190	-	-	-	-	-	-
46	5230	-	-	-	-	-	-

Frequency and Channel list for 802.11ac(80MHz) band I (5210MHz):

802.11ac(80MHz) Carrier Frequency Channel							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
42	5210	-	-	-	-	-	-

Frequency and Channel list for 802.11a/n/ac(20 MHz) band IV (5745-5825MHz):

802.11a/n/ac(20 MHz) Carrier Frequency Channel							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
149	5745	153	5765	157	5785	161	5805
165	5825	-	-	-	-	-	-

Frequency and Channel list for 802.11n/ac(40MHz) band IV (5755-5795MHz):

802.11n/ac(40MHz) Carrier Frequency Channel					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
151	5755	159	5795	-	-

Frequency and Channel list for 802.11ac(80MHz) band IV (5775MHz):

802.11ac(80MHz) Carrier Frequency Channel					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
155	5775			-	-

2.2 DESCRIPTION OF TEST MODES

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

Pretest Mode	Description
Mode 1	Normal Link Mode
Mode 2	802.11a / n 20 / ac 20 CH36/ CH40/ CH 48 802.11a / n 20 / ac 20 CH149/ CH157/ CH 165
Mode 3	802.11n40 / ac40 CH38/ CH 46 802.11n 40 / ac 40 CH 151 / CH 159
Mode 4	802.11ac80 CH 42 802.11ac 80 CH 155

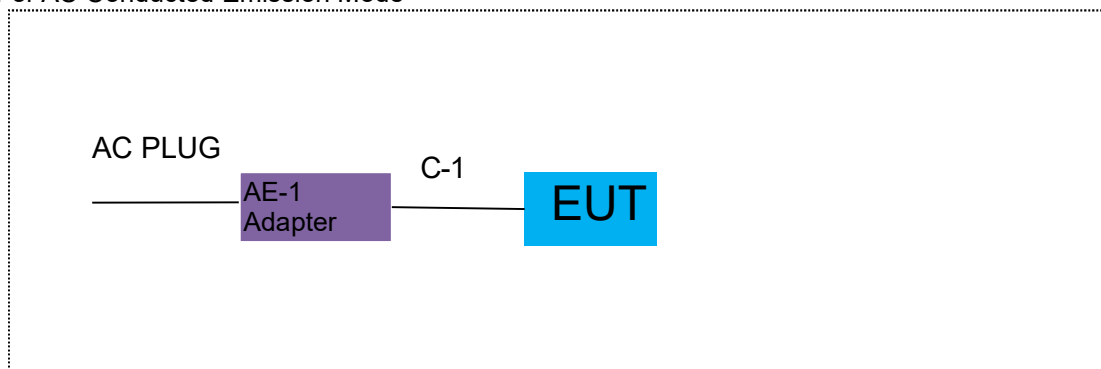
For Radiated Emission	
Final Test Mode	Description
Mode 1	Normal Link Mode
Mode 2	802.11a / n 20 / ac 20 CH36/ CH40/ CH 48 802.11a / n 20 / ac 20 CH149/ CH157/ CH 165
Mode 3	802.11n40 / ac40 CH38/ CH 46 802.11n 40 / ac 40 CH 151 / CH 159
Mode 4	802.11ac80 CH 42 802.11ac 80 CH 155

Note:

- (1) The measurements are performed at the highest, middle, lowest available channels.
- (2) The measurements are performed at all Bit Rate of Transmitter, the worst data was reported

2.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

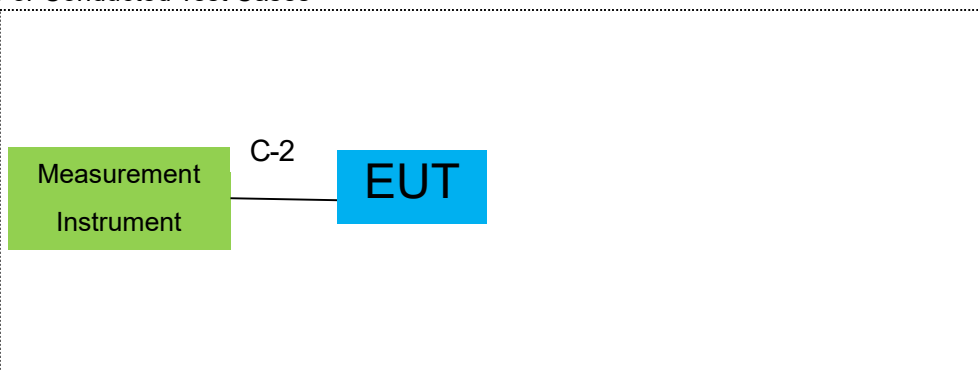
For AC Conducted Emission Mode



For Radiated Test Cases



For Conducted Test Cases



Note:1.The temporary antenna connector is soldered on the PCB board in order to perform conducted tests and this temporary antenna connector is listed in the equipment list.

2.EUT built-in battery-powered, the battery is fully-charged.

2.4 DESCRIPTION OF SUPPORT UNITS(CONDUCTED MODE)

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Model/Type No.	Series No.	Note
AE-1	Adapter	N/A	N/A	Peripherals

Item	Cable Type	Shielded Type	Ferrite Core	Length
C-1	USB Cable	YES	NO	0.8m
C-2	RF Cable	YES	NO	0.1m

Note:

- (1) The support equipment was authorized by Declaration of Confirmation.
- (2) For detachable type I/O cable should be specified the length in cm in 『Length』 column.

2.5 EQUIPMENTS LIST FOR ALL TEST ITEMS

Radiation& Conducted Test equipment

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until	Calibration period
1	Spectrum Analyzer	Agilent	E4440A	MY41000130	2024.04.26	2025.04.25	1 year
2	Spectrum Analyzer	Agilent	N9020A	MY49100060	2024.04.25	2025.04.24	1 year
3	Spectrum Analyzer	R&S	FSV40	101417	2024.04.25	2025.04.24	1 year
4	Test Receiver	R&S	ESPI7	101318	2024.04.26	2025.04.25	1 year
5	Bilog Antenna	TESEQ	CBL6111D	31216	2024.05.12	2025.05.11	1 year
6	50Ω Coaxial Switch	Anritsu	MP59B	6200983705	2024.04.26	2027.04.25	3 year
7	Horn Antenna	EM	EM-AH-10180	2011071402	2024.05.12	2027.05.11	3 year
8	Broadband Horn Antenna	SCHWARZBECK	BBHA 9170	803	2024.05.12	2027.05.11	3 year
9	Amplifier	EMC	EMC051835SE	980246	2024.04.25	2025.04.24	1 year
10	Active Loop Antenna	SCHWARZBECK	FMZB 1519B	055	2024.05.17	2027.05.16	3 year
11	Power Meter	DARE	RPR3006W	15100041SN084	2024.04.25	2025.04.24	1 year
12	Test Cable (9KHz-30MHz)	N/A	R-01	N/A	2023.05.06	2026.05.05	3 year
13	Test Cable (30MHz-1GHz)	N/A	R-02	N/A	2023.05.06	2026.05.05	3 year
14	High Test Cable(1G-40G Hz)	N/A	R-03	N/A	2022.06.17	2025.06.16	3 year
15	Filter	TRILTHIC	2400MHz	29	2024.04.26	2027.04.25	3 year
16	temporary antenna connector (Note)	NTS	R001	N/A	N/A	N/A	N/A

Note:

We will use the temporary antenna connector (soldered on the PCB board) When conducted test
And this temporary antenna connector is listed within the instrument list

AC Conduction Test equipment

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until	Calibration period
1	Test Receiver	R&S	ESCI	101160	2024.04.26	2025.04.25	1 year
2	LISN	R&S	ENV216	101313	2024.04.25	2025.04.24	1 year
3	LISN	SCHWARZBECK	NNLK 8129	8129245	2024.04.25	2025.04.24	1 year
4	50Ω Coaxial Switch	ANRITSU CORP	MP59B	6200983704	2024.04.26	2027.04.25	3 year
5	Test Cable (9KHz-30MHz)	N/A	C01	N/A	2023.05.06	2026.05.05	3 year
6	Test Cable (9KHz-30MHz)	N/A	C02	N/A	2023.05.06	2026.05.05	3 year
7	Test Cable (9KHz-30MHz)	N/A	C03	N/A	2023.05.06	2026.05.05	3 year

Note: Each piece of equipment is scheduled for calibration once a year except the Test Cable& Aux Equipment which is scheduled for calibration every 3 years.

Measurement Software

Item	Manufacturer	Software Name	Software Version	Description
1	MWRFTtest	MTS 8310 2.4GHz/5GHz	2.0	RF Conducted Test
2	Farad	EZ-EMC_RE	AIT-03A	RadiatedTest
3	Farad	EZ-EMC_CE	AIT-03A	AC Conducted Test

3. TEST REQUIREMENTS

3.1 CONDUCTED EMISSION MEASUREMENT

3.1.1 APPLICABLE STANDARD

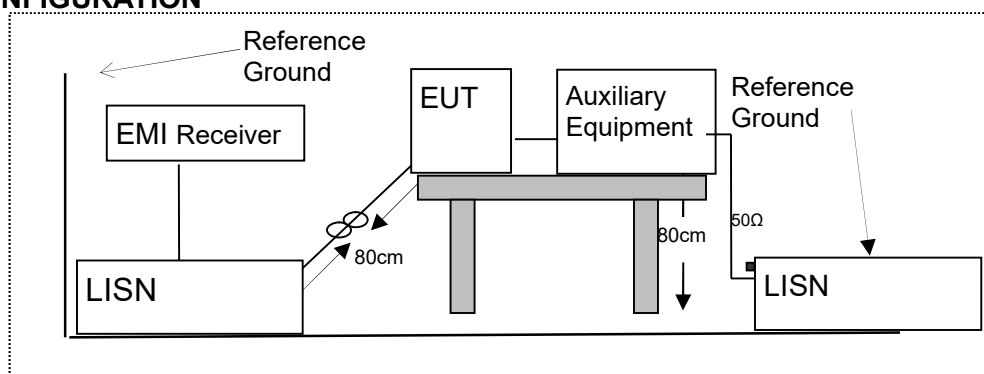
According to FCC Part 15.207(a)

3.1.2 CONFORMANCE LIMIT

Frequency(MHz)	Conducted Emission Limit	
	Quasi-peak	Average
0.15-0.5	66-56*	56-46*
0.5-5.0	56	46
5.0-30.0	60	50

Note: 1. *Decreases with the logarithm of the frequency
 2. The lower limit shall apply at the transition frequencies
 3. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

3.1.3 TEST CONFIGURATION



3.1.4 TEST PROCEDURE

According to the requirements in Section 13.1.4.1 of ANSI C63.10-2013 Conducted emissions the EUT measured in the frequency range between 0.15 MHz and 30 MHz using CISPR Quasi-Peak and average detector mode.

1. The EUT was placed 0.4 meter from the conducting wall of the shielding room.
2. The EUT was placed on a table which is 0.8m above ground plane.
3. Connect EUT to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
4. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40cm long.
5. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
6. LISN at least 80 cm from nearest part of EUT chassis.
7. The frequency range from 150KHz to 30MHz was searched.
8. Set the test-receiver system to Peak Detect Function and specified bandwidth(IF bandwidth=9KHz) with Maximum Hold Mode
9. For the actual test configuration, please refer to the related Item –EUT Test Photos.

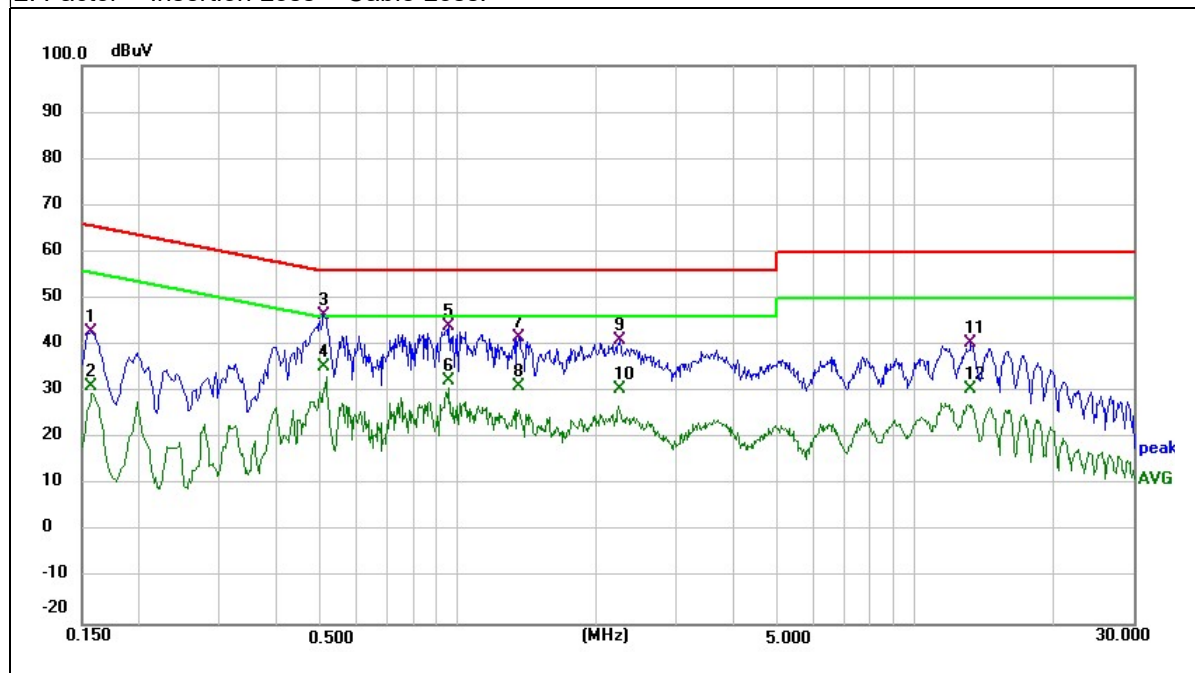
3.1.5 TEST RESULTS

EUT :	Professional Diagnostic Tool	Model Name :	Creader Professional 129I V3
Temperature :	24℃	Relative Humidity :	49%
Pressure :	1010hPa	Phase :	L
Test Voltage :	DC 5V from Adapter AC 120V/60Hz	Test Mode :	Mode 1(5.2G-battery1)

Frequency (MHz)	Reading Level (dBμV)	Correct Factor (dB)	Measure-ment (dBμV)	Limits (dBμV)	Margin (dB)	Remark
0.1580	32.90	10.02	42.92	65.57	-22.65	QP
0.1580	21.00	10.02	31.02	55.57	-24.55	AVG
0.5100	35.74	10.70	46.44	56.00	-9.56	QP
0.5100	24.63	10.70	35.33	46.00	-10.67	AVG
0.9580	32.31	11.65	43.96	56.00	-12.04	QP
0.9580	20.80	11.65	32.45	46.00	-13.55	AVG
1.3580	29.31	12.48	41.79	56.00	-14.21	QP
1.3580	18.77	12.48	31.25	46.00	-14.75	AVG
2.2540	31.08	9.83	40.91	56.00	-15.09	QP
2.2540	20.62	9.83	30.45	46.00	-15.55	AVG
13.2500	42.08	-1.75	40.33	60.00	-19.67	QP
13.2500	32.44	-1.75	30.69	50.00	-19.31	AVG

Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.

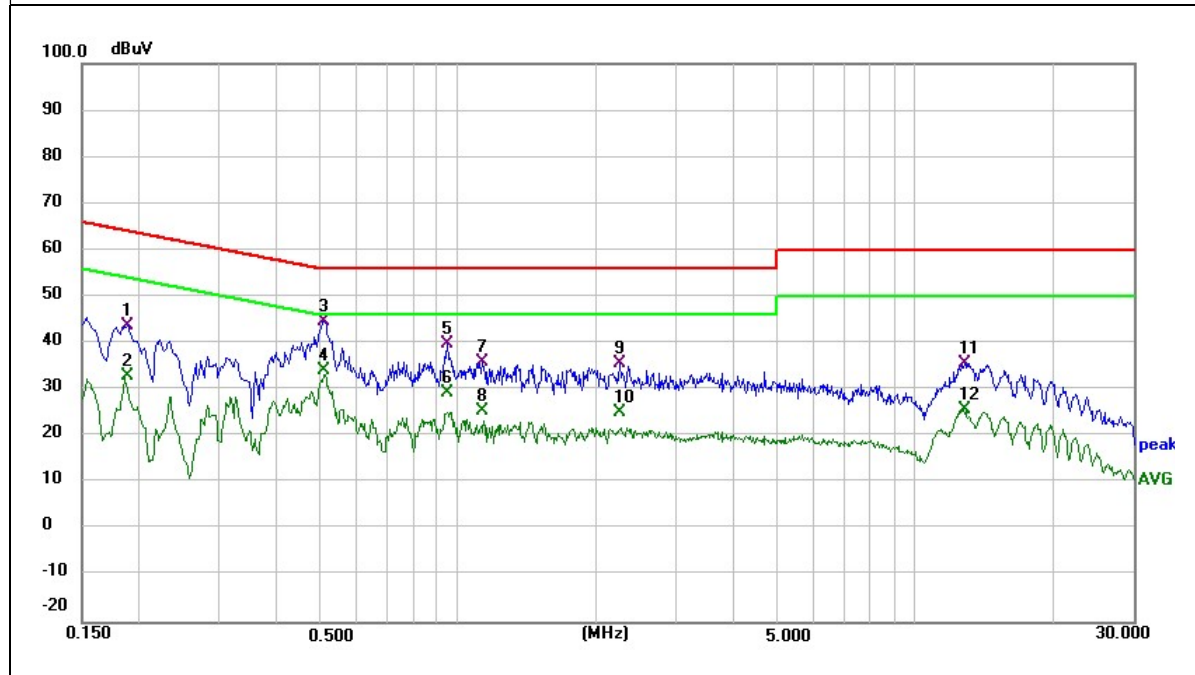


EUT :	Professional Diagnostic Tool	Model Name :	Creader Professional 129I V3
Temperature :	24℃	Relative Humidity :	49%
Pressure :	1010hPa	Phase :	N
Test Voltage :	DC 5V from Adapter AC 120V/60Hz	Test Mode :	Mode 1(5.2G-battery1)

Frequency (MHz)	Reading Level (dBμV)	Correct Factor (dB)	Measure-ment (dBμV)	Limits (dBμV)	Margin (dB)	Remark
0.1882	34.34	9.50	43.84	64.12	-20.28	QP
0.1882	23.52	9.50	33.02	54.12	-21.10	AVG
0.5100	34.76	9.99	44.75	56.00	-11.25	QP
0.5100	24.16	9.99	34.15	46.00	-11.85	AVG
0.9460	28.88	10.91	39.79	56.00	-16.21	QP
0.9460	18.34	10.91	29.25	46.00	-16.75	AVG
1.1260	24.53	11.28	35.81	56.00	-20.19	QP
1.1260	14.07	11.28	25.35	46.00	-20.65	AVG
2.2580	26.61	9.08	35.69	56.00	-20.31	QP
2.2580	16.06	9.08	25.14	46.00	-20.86	AVG
12.8060	25.06	10.62	35.68	60.00	-24.32	QP
12.8060	15.07	10.62	25.69	50.00	-24.31	AVG

Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.

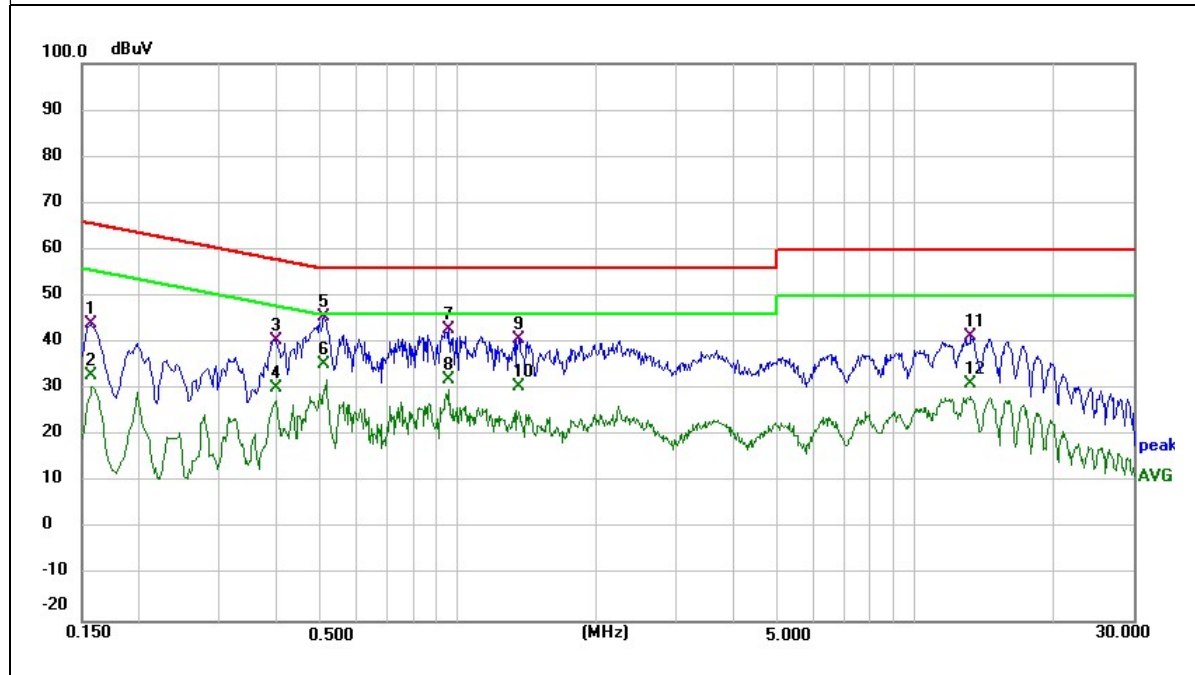


EUT :	Professional Diagnostic Tool	Model Name :	Creader Professional 129I V3
Temperature :	24℃	Relative Humidity :	49%
Pressure :	1010hPa	Phase :	L
Test Voltage :	DC 5V from Adapter AC 120V/60Hz	Test Mode :	Mode 1(5.2G-battery2)

Frequency (MHz)	Reading Level (dBμV)	Correct Factor (dB)	Measure-ment (dBμV)	Limits (dBμV)	Margin (dB)	Remark
0.1580	33.90	10.02	43.92	65.57	-21.65	QP
0.1580	23.00	10.02	33.02	55.57	-22.55	AVG
0.3980	30.00	10.49	40.49	57.90	-17.41	QP
0.3980	19.63	10.49	30.12	47.90	-17.78	AVG
0.5100	34.74	10.70	45.44	56.00	-10.56	QP
0.5100	24.50	10.70	35.20	46.00	-10.80	AVG
0.9580	31.31	11.65	42.96	56.00	-13.04	QP
0.9580	20.49	11.65	32.14	46.00	-13.86	AVG
1.3580	28.31	12.48	40.79	56.00	-15.21	QP
1.3580	18.21	12.48	30.69	46.00	-15.31	AVG
13.2500	43.08	-1.75	41.33	60.00	-18.67	QP
13.2500	33.02	-1.75	31.27	50.00	-18.73	AVG

Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.

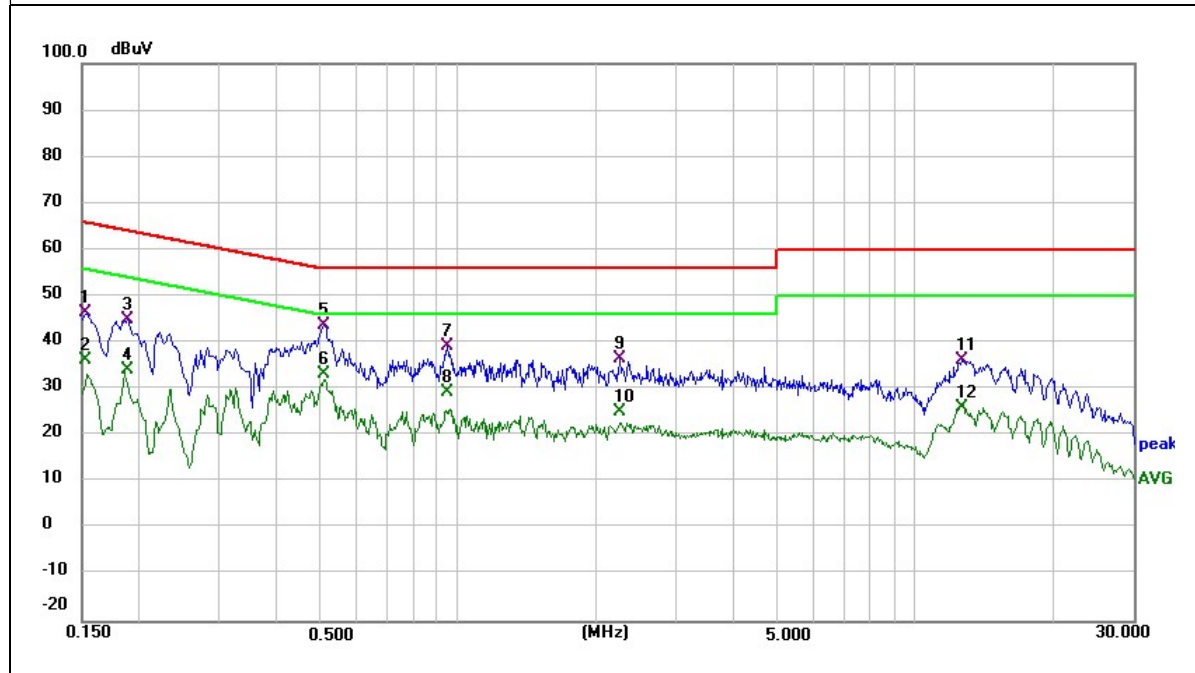


EUT :	Professional Diagnostic Tool	Model Name :	Creader Professional 129I V3
Temperature :	24℃	Relative Humidity :	49%
Pressure :	1010hPa	Phase :	N
Test Voltage :	DC 5V from Adapter AC 120V/60Hz	Test Mode :	Mode 1(5.2G-battery2)

Frequency (MHz)	Reading Level (dBμV)	Correct Factor (dB)	Measure-ment (dBμV)	Limits (dBμV)	Margin (dB)	Remark
0.1539	37.15	9.44	46.59	65.79	-19.20	QP
0.1539	26.89	9.44	36.33	55.79	-19.46	AVG
0.1882	35.34	9.50	44.84	64.12	-19.28	QP
0.1882	24.65	9.50	34.15	54.12	-19.97	AVG
0.5100	33.76	9.99	43.75	56.00	-12.25	QP
0.5100	23.26	9.99	33.25	46.00	-12.75	AVG
0.9460	28.38	10.91	39.29	56.00	-16.71	QP
0.9460	18.34	10.91	29.25	46.00	-16.75	AVG
2.2580	27.61	9.08	36.69	56.00	-19.31	QP
2.2580	16.17	9.08	25.25	46.00	-20.75	AVG
12.6620	38.31	-2.06	36.25	60.00	-23.75	QP
12.6620	28.11	-2.06	26.05	50.00	-23.95	AVG

Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.

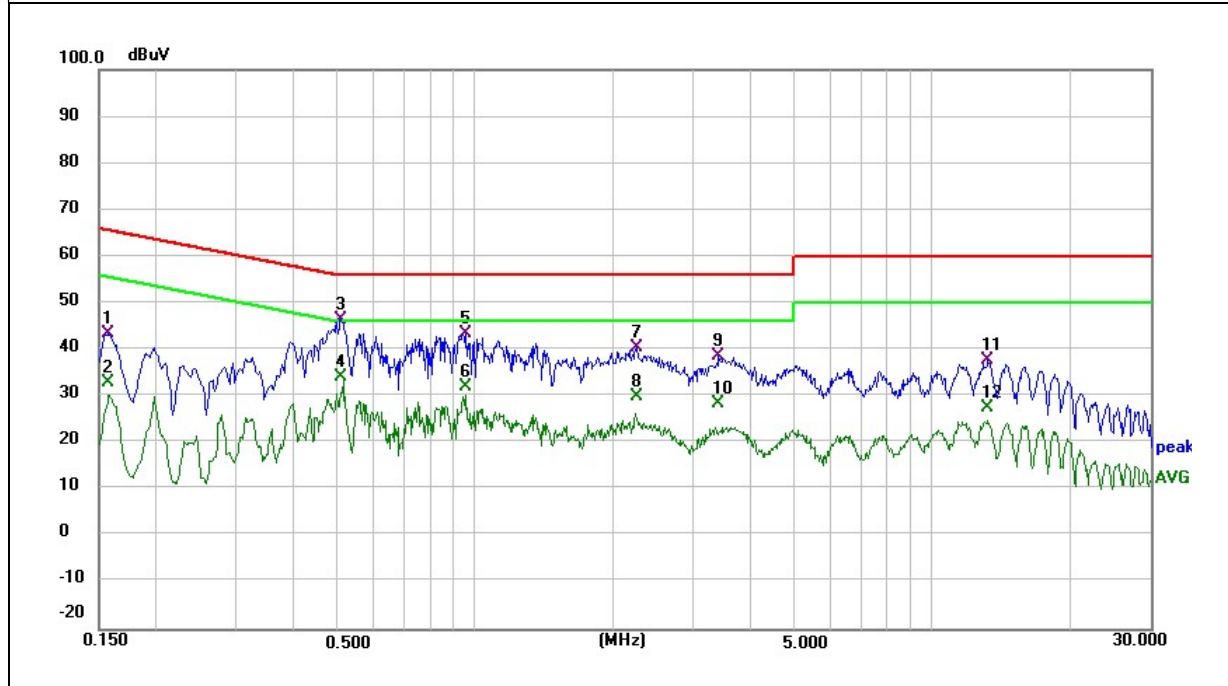


EUT :	Professional Diagnostic Tool	Model Name :	Creader Professional 129I V3
Temperature :	24℃	Relative Humidity :	49%
Pressure :	1010hPa	Phase :	L
Test Voltage :	DC 5V from Adapter AC 120V/60Hz	Test Mode :	Mode 1(5.8G-battery1)

Frequency (MHz)	Reading Level (dBμV)	Correct Factor (dB)	Measure-ment (dBμV)	Limits (dBμV)	Margin (dB)	Remark
0.1580	33.40	10.02	43.42	65.57	-22.15	QP
0.1580	23.00	10.02	33.02	55.57	-22.55	AVG
0.5100	35.74	10.70	46.44	56.00	-9.56	QP
0.5100	23.55	10.70	34.25	46.00	-11.75	AVG
0.9580	31.81	11.65	43.46	56.00	-12.54	QP
0.9580	20.50	11.65	32.15	46.00	-13.85	AVG
2.2540	30.58	9.83	40.41	56.00	-15.59	QP
2.2540	20.19	9.83	30.02	46.00	-15.98	AVG
3.4100	28.66	9.93	38.59	56.00	-17.41	QP
3.4100	18.52	9.93	28.45	46.00	-17.55	AVG
13.2500	39.58	-1.75	37.83	60.00	-22.17	QP
13.2500	29.41	-1.75	27.66	50.00	-22.34	AVG

Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.

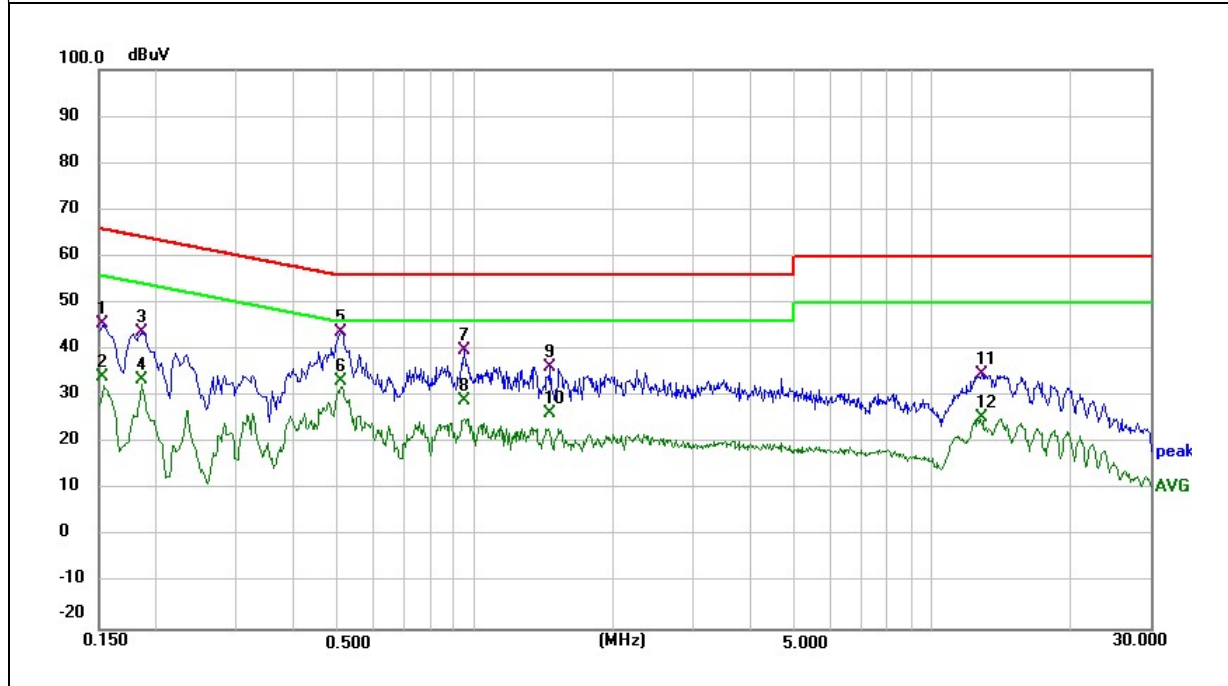


EUT :	Professional Diagnostic Tool	Model Name :	Creader Professional 129I V3
Temperature :	24℃	Relative Humidity :	49%
Pressure :	1010hPa	Phase :	N
Test Voltage :	DC 5V from Adapter AC 120V/60Hz	Test Mode :	Mode 1(5.8G-battery1)

Frequency (MHz)	Reading Level (dBμV)	Correct Factor (dB)	Measure-ment (dBμV)	Limits (dBμV)	Margin (dB)	Remark
0.1539	36.15	9.44	45.59	65.79	-20.20	QP
0.1539	24.81	9.44	34.25	55.79	-21.54	AVG
0.1860	34.16	9.50	43.66	64.21	-20.55	QP
0.1860	24.19	9.50	33.69	54.21	-20.52	AVG
0.5100	33.76	9.99	43.75	56.00	-12.25	QP
0.5100	23.13	9.99	33.12	46.00	-12.88	AVG
0.9460	28.88	10.91	39.79	56.00	-16.21	QP
0.9460	18.24	10.91	29.15	46.00	-16.85	AVG
1.4620	24.38	11.95	36.33	56.00	-19.67	QP
1.4620	14.29	11.95	26.24	46.00	-19.76	AVG
12.8060	24.06	10.62	34.68	60.00	-25.32	QP
12.8060	14.71	10.62	25.33	50.00	-24.67	AVG

Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.

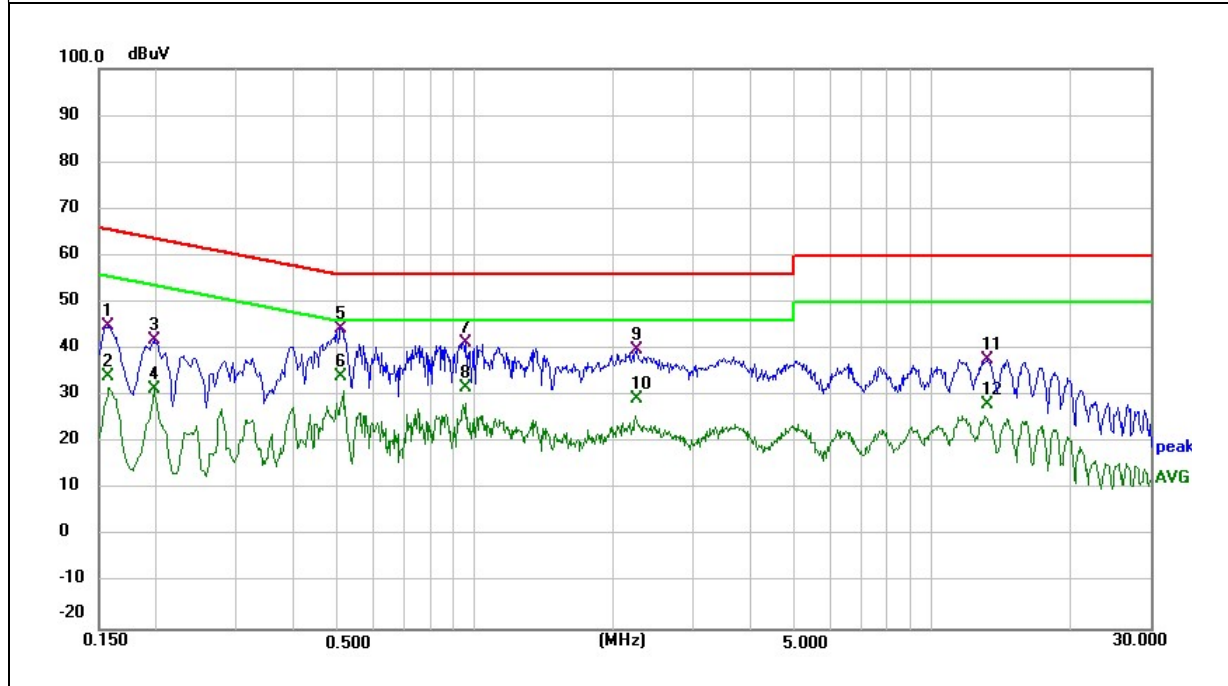


EUT :	Professional Diagnostic Tool	Model Name :	Creader Professional 129I V3
Temperature :	24℃	Relative Humidity :	49%
Pressure :	1010hPa	Phase :	L
Test Voltage :	DC 5V from Adapter AC 120V/60Hz	Test Mode :	Mode 1(5.8G-battery2)

Frequency (MHz)	Reading Level (dBμV)	Correct Factor (dB)	Measure-ment (dBμV)	Limits (dBμV)	Margin (dB)	Remark
0.1580	34.90	10.02	44.92	65.57	-20.65	QP
0.1580	24.10	10.02	34.12	55.57	-21.45	AVG
0.1980	31.74	10.09	41.83	63.69	-21.86	QP
0.1980	21.27	10.09	31.36	53.69	-22.33	AVG
0.5100	33.74	10.70	44.44	56.00	-11.56	QP
0.5100	23.55	10.70	34.25	46.00	-11.75	AVG
0.9580	29.81	11.65	41.46	56.00	-14.54	QP
0.9580	20.01	11.65	31.66	46.00	-14.34	AVG
2.2540	30.08	9.83	39.91	56.00	-16.09	QP
2.2540	19.42	9.83	29.25	46.00	-16.75	AVG
13.2500	39.58	-1.75	37.83	60.00	-22.17	QP
13.2500	29.77	-1.75	28.02	50.00	-21.98	AVG

Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.

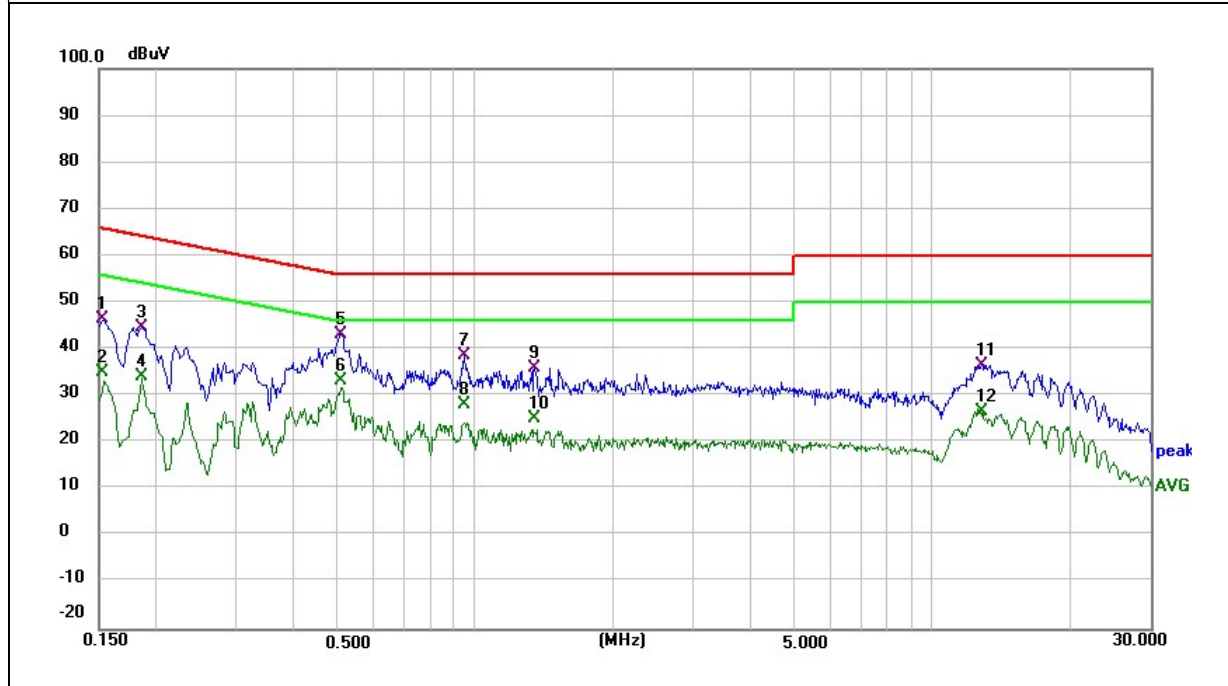


EUT :	Professional Diagnostic Tool	Model Name :	Creader Professional 129I V3
Temperature :	24℃	Relative Humidity :	49%
Pressure :	1010hPa	Phase :	N
Test Voltage :	DC 5V from Adapter AC 120V/60Hz	Test Mode :	Mode 1(5.8G-battery2)

Frequency (MHz)	Reading Level (dBμV)	Correct Factor (dB)	Measure-ment (dBμV)	Limits (dBμV)	Margin (dB)	Remark
0.1539	37.15	9.44	46.59	65.79	-19.20	QP
0.1539	25.67	9.44	35.11	55.79	-20.68	AVG
0.1860	35.16	9.50	44.66	64.21	-19.55	QP
0.1860	24.76	9.50	34.26	54.21	-19.95	AVG
0.5100	33.26	9.99	43.25	56.00	-12.75	QP
0.5100	23.40	9.99	33.39	46.00	-12.61	AVG
0.9460	27.88	10.91	38.79	56.00	-17.21	QP
0.9460	17.34	10.91	28.25	46.00	-17.75	AVG
1.3460	24.15	11.73	35.88	56.00	-20.12	QP
1.3460	13.51	11.73	25.24	46.00	-20.76	AVG
12.8060	26.06	10.62	36.68	60.00	-23.32	QP
12.8060	16.07	10.62	26.69	50.00	-23.31	AVG

Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.



3.2 RADIATED EMISSION MEASUREMENT

3.2.1 APPLICABLE STANDARD

According to FCC Part 15.407(b) and 15.209

3.2.2 CONFORMANCE LIMIT

According to FCC Part 15.407(b)(1)(2)(3)(9)(10): radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

According to FCC Part 15.205, Restricted bands

MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	(2)
13.36-13.41			

(1) For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.

(2) For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.

(3) For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.

In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

Restricted Frequency(MHz)	Field Strength (μV/m)	Field Strength (dBμV/m)	Measurement Distance
0.009~0.490	2400/F(KHz)	20 log (uV/m)	300
0.490~1.705	24000/F(KHz)	20 log (uV/m)	30
1.705~30.0	30	29.5	30
30-88	100	40	3
88-216	150	43.5	3
216-960	200	46	3
Above 960	500	54	3

Limits of Radiated Emission Measurement(Above 1000MHz)

Frequency(MHz)	Class B (dBuV/m) (at 3M)	
	PEAK	AVERAGE
Above 1000	74	54

Remark : 1. Emission level in dBuV/m=20 log (uV/m)

2. Measurement was performed at an antenna to the closed point of EUT distance of meters.

3. For Frequency 9kHz~30MHz:

Distance extrapolation factor =40log(Specific distance/ test distance)(dB);

Limit line=Specific limits(dBuV) + distance extrapolation factor.

For Frequency above 30MHz:

Distance extrapolation factor =20log(Specific distance/ test distance)(dB);

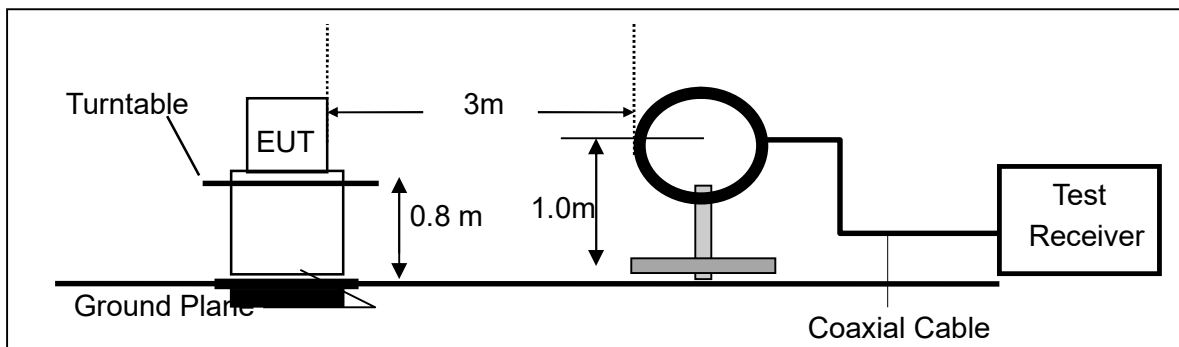
Limit line=Specific limits(dBuV) + distance extrapolation factor.

3.2.3 MEASURING INSTRUMENTS

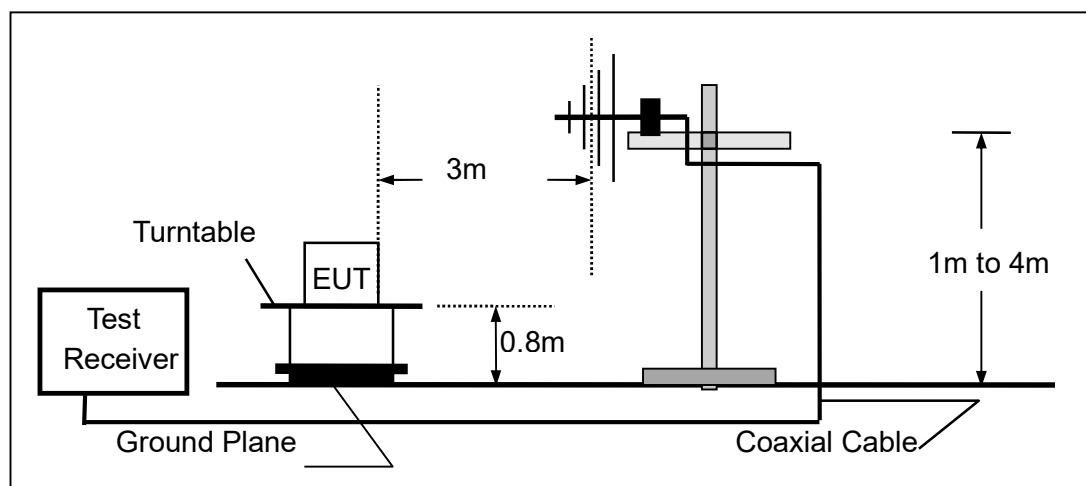
The Measuring equipment is listed in the section 6.3 of this test report.

3.2.4 TEST CONFIGURATION

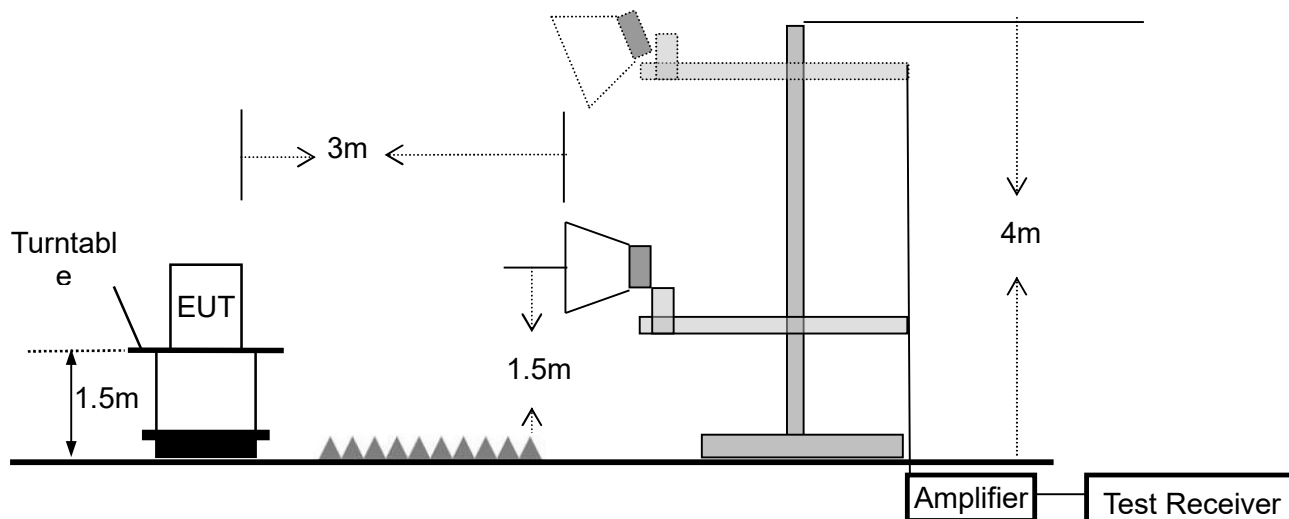
(a) For radiated emissions below 30MHz



(b) For radiated emissions from 30MHz to 1000MHz



(c) For radiated emissions above 1000MHz



3.2.5 TEST PROCEDURE

The test site semi-anechoic chamber has met the requirement of NSA tolerance 4 dB according to the standards: ANSI C63.10-2013. The test distance is 3m. The setup is according to the requirements in Section 13.1.4.1 of ANSI C63.10-2013 and CAN/CSA-CEI/IEC CISPR 22.

This test is required for any spurious emission that falls in a Restricted Band, as defined in Section 15.205. It must be performed with the highest gain of each type of antenna proposed for use with the EUT.

Use the following spectrum analyzer settings:

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RB / VB (emission in restricted band)	1 MHz / 1 MHz for Peak, 1 MHz / 1MHz for Average

Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP

- The measuring distance of at 3 m shall be used for measurements at frequency up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.
- The EUT was placed on the top of a rotating table 0.8 m for below 1GHz and 1.5m for above 1GHz the ground at a 3 meter. The table was rotated 360 degrees to determine the position of the highest radiation.
- The height of the equipment or of the substitution antenna shall be 0.8 m for below 1GHz and 1.5m for above 1GHz; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
- For the actual test configuration, please refer to the related Item –EUT Test Photos.

Note:

Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported

During the radiated emission test, the Spectrum Analyzer was set with the following configurations:

Frequency Band (MHz)	Function	Resolution bandwidth	Video Bandwidth
30 to 1000	QP	120 kHz	300 kHz
Above 1000	Peak	1 MHz	1 MHz
	Average	1 MHz	1 MHz

Note: for the frequency ranges below 30 MHz, a narrower RBW is used for these ranges but the measured value should add a RBW correction factor (RBWCF) where $RBWCF [dB] = 10 \cdot \lg(100 [kHz] / \text{narrower RBW [kHz]})$. , the narrower RBW is 1 kHz and RBWCF is 20 dB for the frequency 9 kHz to 150 kHz, and the narrower RBW is 10 kHz and RBWCF is 10 dB for the frequency 150 kHz to 30 MHz.

3.2.6 TEST RESULTS (9KHz – 30 MHz)

EUT:	Professional Diagnostic Tool	Model Name. :	Creader Professional 129I V3
Temperature:	20 °C	Relative Humidity:	48%
Pressure:	1010 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX	Polarization :	--

Freq.	Reading	Limit	Margin	State
(MHz)	(dBuV/m)	(dBuV/m)	(dB)	P/F
--	--	--	--	N/A
--	--	--	--	N/A

NOTE:

The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

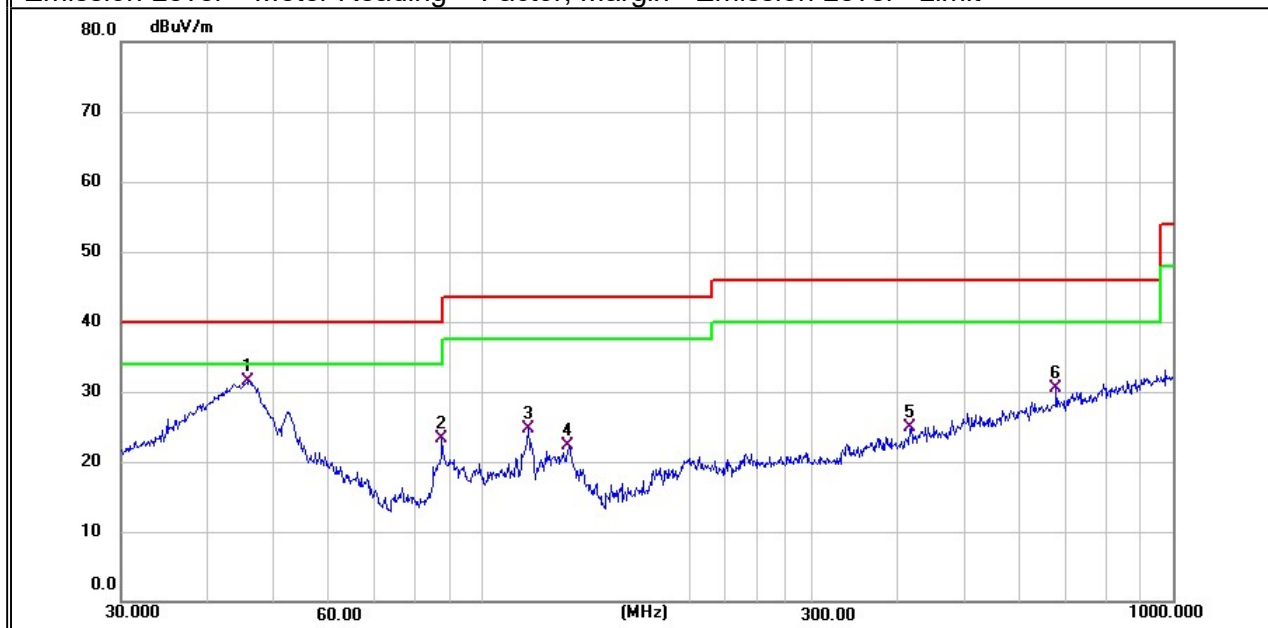
3.2.7 TEST RESULTS (30MHz – 1GHz)

EUT :	Professional Diagnostic Tool	Model Name. :	Creader Professional 1291 V3
Temperature :	25 °C	Relative Humidity :	51%
Pressure :	1010 hPa	Test Voltage :	DC 3.7V from battery1
Test Mode :	TX(5.2G)- 802.11a (Mid CH)		

Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Remark
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
V	46.0162	12.12	19.44	31.56	40.00	-8.44	QP
V	87.4175	8.39	14.86	23.25	40.00	-16.75	QP
V	116.5400	8.27	16.44	24.71	43.50	-18.79	QP
V	133.6184	7.84	14.38	22.22	43.50	-21.28	QP
V	417.6409	1.93	22.91	24.84	46.00	-21.16	QP
V	677.5797	3.25	27.19	30.44	46.00	-15.56	QP

Remark:

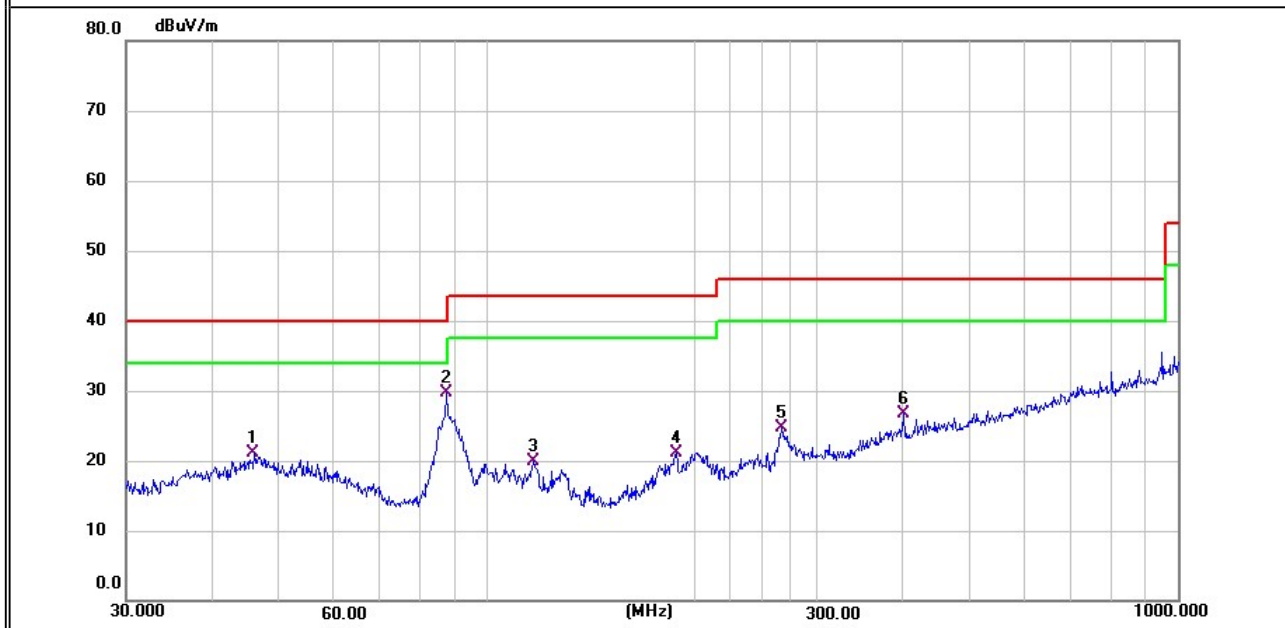
Emission Level = Meter Reading + Factor, Margin= Emission Level - Limit



Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Remark
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
H	46.0162	1.70	19.44	21.14	40.00	-18.86	QP
H	87.1115	14.92	14.80	29.72	40.00	-10.28	QP
H	116.5400	3.46	16.44	19.90	43.50	-23.60	QP
H	187.7530	4.32	16.83	21.15	43.50	-22.35	QP
H	266.6090	5.55	19.09	24.64	46.00	-21.36	QP
H	400.4318	3.99	22.64	26.63	46.00	-19.37	QP

Remark:

Emission Level = Meter Reading + Factor, Margin= Emission Level - Limit



Note(1) "802.11a" mode is the worst mode.

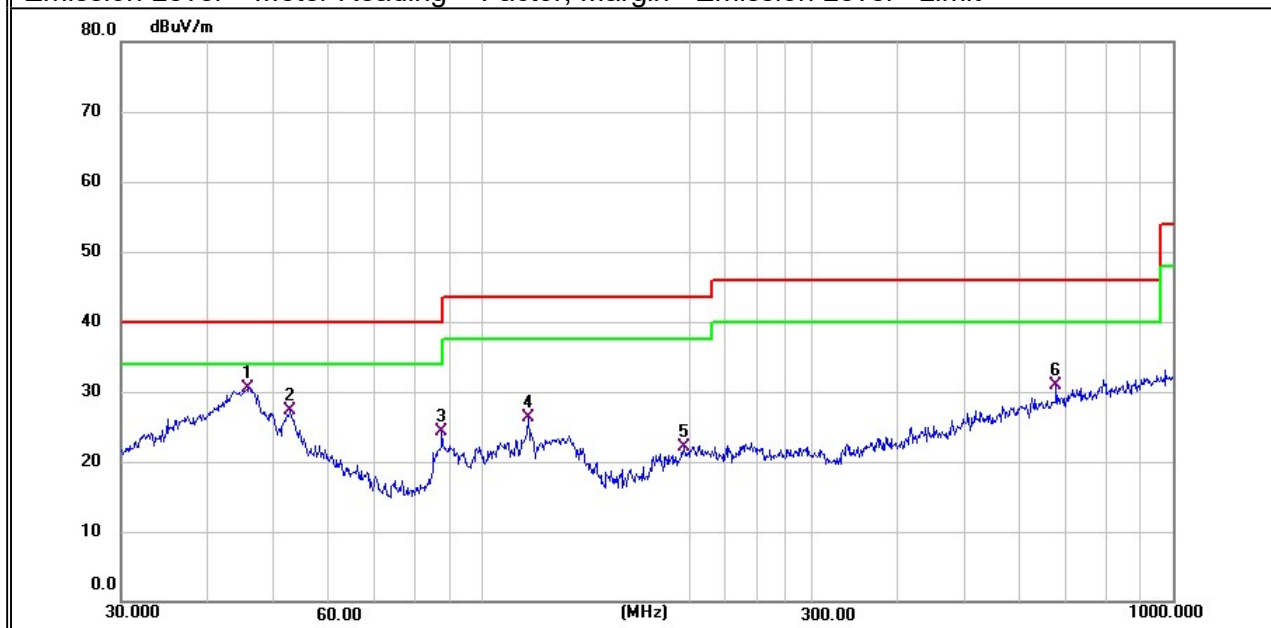
(2) Other emissions are attenuated more than 20dB below the permissible limits, so it does not recorded in the report.

EUT :	Professional Diagnostic Tool	Model Name. :	Creader Professional 129I V3
Temperature :	25 °C	Relative Humidity :	51%
Pressure :	1010 hPa	Test Voltage :	DC 3.6V from battery2
Test Mode :	TX(5.2G)- 802.11a (Mid CH)		

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
V	46.0162	11.12	19.44	30.56	40.00	-9.44	QP
V	52.7600	7.94	19.36	27.30	40.00	-12.70	QP
V	87.4175	9.39	14.86	24.25	40.00	-15.75	QP
V	116.5400	9.77	16.44	26.21	43.50	-17.29	QP
V	195.8220	4.59	17.48	22.07	43.50	-21.43	QP
V	677.5797	3.75	27.19	30.94	46.00	-15.06	QP

Remark:

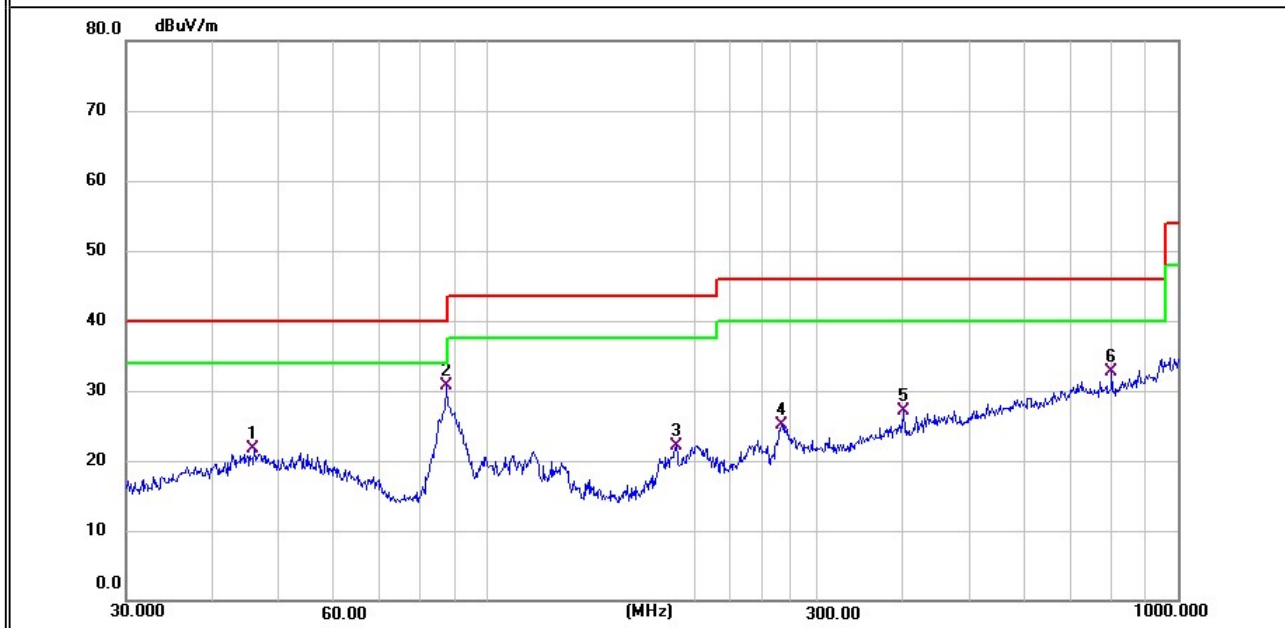
Emission Level = Meter Reading + Factor, Margin= Emission Level - Limit



Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Remark
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
H	46.0162	2.20	19.44	21.64	40.00	-18.36	QP
H	87.1115	15.92	14.80	30.72	40.00	-9.28	QP
H	187.7530	5.32	16.83	22.15	43.50	-21.35	QP
H	266.6090	6.05	19.09	25.14	46.00	-20.86	QP
H	400.4318	4.49	22.64	27.13	46.00	-18.87	QP
H	801.7862	3.56	29.06	32.62	46.00	-13.38	QP

Remark:

Emission Level = Meter Reading + Factor, Margin= Emission Level - Limit



Note(1) "802.11a" mode is the worst mode.

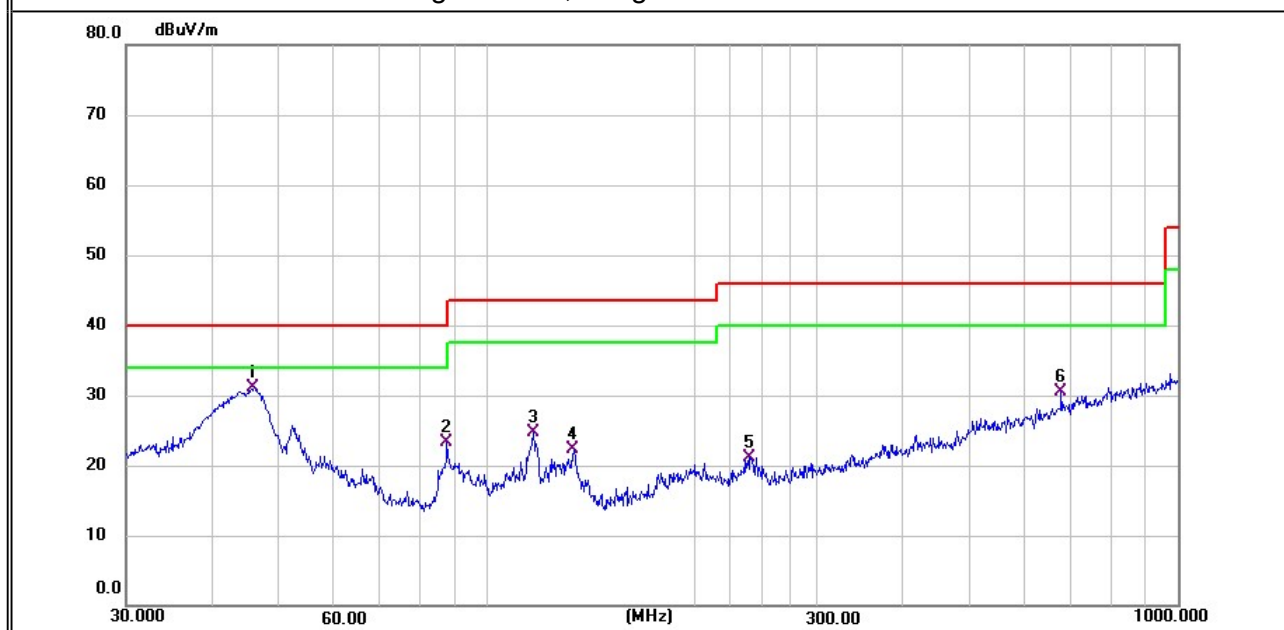
(2) Other emissions are attenuated more than 20dB below the permissible limits, so it does not recorded in the report.

EUT :	Professional Diagnostic Tool	Model Name. :	Creader Professional 129I V3
Temperature :	25°C	Relative Humidity :	51%
Pressure :	1010 hPa	Test Voltage :	DC 3.7V from battery1
Test Mode :	TX(5.8G)- 802.11a (Low CH)		

Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Remark
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
V	46.0162	11.62	19.44	31.06	40.00	-8.94	QP
V	87.4175	8.39	14.86	23.25	40.00	-16.75	QP
V	116.5400	8.27	16.44	24.71	43.50	-18.79	QP
V	133.6184	7.84	14.38	22.22	43.50	-21.28	QP
V	239.9873	3.03	18.11	21.14	46.00	-24.86	QP
V	677.5797	3.25	27.19	30.44	46.00	-15.56	QP

Remark:

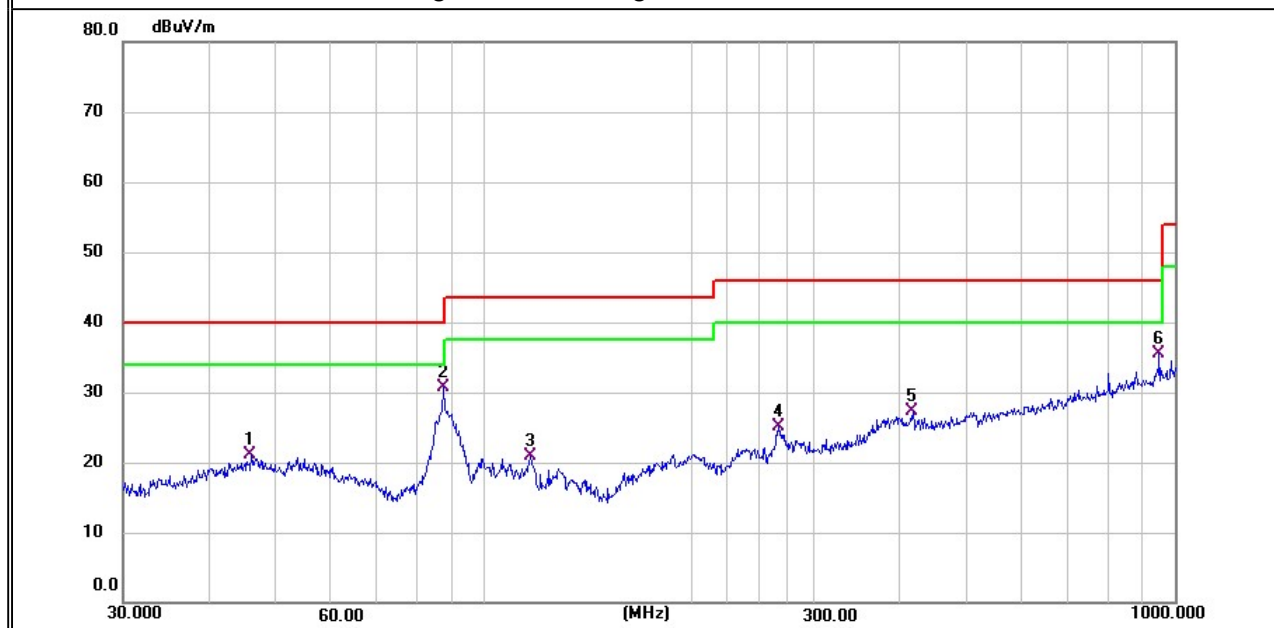
Emission Level = Meter Reading + Factor, Margin= Emission Level - Limit



Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Remark
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
H	46.0162	1.70	19.44	21.14	40.00	-18.86	QP
H	87.1115	15.92	14.80	30.72	40.00	-9.28	QP
H	116.5400	4.46	16.44	20.90	43.50	-22.60	QP
H	266.6090	6.05	19.09	25.14	46.00	-20.86	QP
H	417.6409	4.41	22.91	27.32	46.00	-18.68	QP
H	948.7610	4.83	30.63	35.46	46.00	-10.54	QP

Remark:

Emission Level = Meter Reading + Factor, Margin= Emission Level - Limit



Note(1) "802.11a" mode is the worst mode.

(2) Other emissions are attenuated more than 20dB below the permissible limits, so it does not recorded in the report.

EUT :	Professional Diagnostic Tool	Model Name. :	Creader Professional 129I V3
Temperature :	25°C	Relative Humidity :	51%
Pressure :	1010 hPa	Test Voltage :	DC 3.6V from battery2
Test Mode :	TX(5.8G)- 802.11a (Mid CH)		

Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Remark
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
V	46.0162	10.62	19.44	30.06	40.00	-9.94	QP
V	87.4175	9.39	14.86	24.25	40.00	-15.75	QP
V	116.5400	9.77	16.44	26.21	43.50	-17.29	QP
V	133.6184	10.84	14.38	25.22	43.50	-18.28	QP
V	206.3975	5.51	17.70	23.21	43.50	-20.29	QP
V	677.5797	3.75	27.19	30.94	46.00	-15.06	QP

Remark:

Emission Level = Meter Reading + Factor, Margin= Emission Level - Limit



Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Remark
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
H	53.6931	2.79	19.37	22.16	40.00	-17.84	QP
H	87.1115	16.92	14.80	31.72	40.00	-8.28	QP
H	117.7724	6.37	16.11	22.48	43.50	-21.02	QP
H	187.7530	4.32	16.83	21.15	43.50	-22.35	QP
H	266.6090	5.05	19.09	24.14	46.00	-21.86	QP
H	417.6409	4.91	22.91	27.82	46.00	-18.18	QP

Remark:

Emission Level = Meter Reading + Factor, Margin= Emission Level - Limit



Note(1) "802.11a" mode is the worst mode.

(2) Other emissions are attenuated more than 20dB below the permissible limits, so it does not recorded in the report.

3.2.8 TEST RESULTS (1GHz-18GHz)

EUT :	Professional Diagnostic Tool	Model Name. :	Creader Professional 1291 V3
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX(5.2G) - 802.11a		

Polar	Frequency	Meter Reading	Cable loss	Antenna Factor	Preamp Factor	Emission Level	Limits	Margin	Detector Type
(H/V)	(MHz)	(dBuV)	(dB)	dB/m	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
Low Channel (5180 MHz)-Above 1G									
Vertical	3694.10	59.51	5.94	35.40	44.00	56.85	74.00	-17.15	Pk
Vertical	3694.10	40.01	5.94	35.40	44.00	37.35	54.00	-16.65	AV
Vertical	10360.15	60.29	8.46	39.75	44.50	64.00	68.20	-4.20	Pk
Vertical	15540.22	60.73	10.12	38.80	44.10	65.55	74.00	-8.45	Pk
Vertical	15540.22	40.35	10.12	38.80	42.70	46.57	54.00	-7.43	AV
Horizontal	3713.00	60.21	5.94	35.18	44.00	57.33	74.00	-16.67	Pk
Horizontal	3713.00	39.47	5.94	35.18	44.00	36.59	54.00	-17.41	AV
Horizontal	10360.47	60.40	8.46	38.71	44.50	63.07	68.20	-5.13	Pk
Horizontal	15540.38	59.53	10.12	38.38	44.10	63.93	74.00	-10.07	Pk
Horizontal	15540.38	40.43	10.12	38.38	44.10	44.83	54.00	-9.17	AV
Low Channel (5200 MHz)-Above 1G									
Vertical	3624.13	60.15	6.48	36.35	44.05	58.93	74.00	-15.07	Pk
Vertical	3624.13	40.69	6.48	36.35	44.05	39.47	54.00	-14.53	AV
Vertical	10400.09	59.07	8.47	37.88	44.51	60.91	68.20	-7.29	Pk
Vertical	15600.15	60.92	10.12	38.80	44.10	65.74	74.00	-8.26	Pk
Vertical	15600.15	39.63	10.12	38.80	42.70	45.85	54.00	-8.15	AV
Horizontal	4202.14	59.48	6.48	36.37	44.05	58.28	74.00	-15.72	Pk
Horizontal	4202.14	39.68	6.48	36.37	44.05	38.48	54.00	-15.52	AV
Horizontal	10400.14	60.63	8.47	38.64	44.50	63.24	68.20	-4.96	Pk
Horizontal	15600.51	60.93	10.12	38.38	44.10	65.33	74.00	-8.67	Pk
Horizontal	15600.51	39.78	10.12	38.38	44.10	44.18	54.00	-9.82	AV
Low Channel (5240 MHz)-Above 1G									
Vertical	4597.70	60.29	7.10	37.24	43.50	61.13	74.00	-12.87	Pk
Vertical	4597.70	39.01	7.10	37.24	43.50	39.85	54.00	-14.15	AV
Vertical	10480.23	60.95	8.46	37.68	44.50	62.59	68.20	-5.61	Pk
Vertical	15720.15	60.21	10.12	38.80	44.10	65.03	74.00	-8.97	Pk
Vertical	15720.15	39.44	10.12	38.80	42.70	45.66	54.00	-8.34	AV
Horizontal	4589.26	60.60	7.10	37.24	43.50	61.44	74.00	-12.56	Pk
Horizontal	4589.26	39.01	7.10	37.24	43.50	39.85	54.00	-14.15	AV
Horizontal	10480.59	60.50	8.46	38.57	44.50	63.03	68.20	-5.17	Pk
Horizontal	15720.18	59.71	10.12	38.38	44.10	64.11	74.00	-9.89	Pk
Horizontal	15720.18	40.79	10.12	38.38	44.10	45.19	54.00	-8.81	AV

Note: "802.11a" mode is the worst mode.

The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported. Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

EUT :	Professional Diagnostic Tool	Model Name. :	Creader Professional 1291 V3
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX (5.8G) -- 802.11a		

Polar	Frequency	Meter Reading	Cable loss	Antenna Factor	Preamp Factor	Emission Level	Limits	Margin	Detector Type
(H/V)	(MHz)	(dBuV)	(dB)	dB/m	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
Low Channel (5745 MHz)- Above 1G									
Vertical	5122.51	60.04	5.94	35.40	44.00	57.38	74.00	-16.62	Pk
Vertical	5122.51	40.96	5.94	35.40	44.00	38.30	54.00	-15.70	AV
Vertical	11490.60	59.76	8.46	39.75	44.50	63.47	74.00	-10.53	Pk
Vertical	11490.60	39.47	8.46	39.75	44.50	43.18	54.00	-10.82	AV
Vertical	17235.65	40.75	10.12	38.80	44.10	45.57	68.20	-22.63	Pk
Horizontal	5166.60	60.20	5.94	35.18	44.00	57.32	68.20	-10.88	Pk
Horizontal	11490.47	49.56	8.46	38.71	44.50	52.23	74.00	-21.77	Pk
Horizontal	11490.47	39.10	8.46	38.71	44.50	41.77	54.00	-12.23	AV
Horizontal	17235.47	56.90	10.12	38.38	44.10	61.30	68.20	-6.90	Pk
Low Channel (5785 MHz)- Above 1G									
Vertical	5433.40	59.53	6.48	36.35	44.05	58.31	74.00	-15.69	Pk
Vertical	5433.40	40.24	6.48	36.35	44.05	39.02	54.00	-14.98	AV
Vertical	11570.41	59.88	8.47	37.88	44.51	61.72	74.00	-12.28	Pk
Vertical	11570.41	40.15	8.47	37.88	44.51	41.99	54.00	-12.01	AV
Vertical	17355.84	40.33	10.12	38.80	44.10	45.15	68.20	-23.05	Pk
Horizontal	4866.60	60.93	6.48	36.37	44.05	59.73	74.00	-14.27	Pk
Horizontal	4866.60	39.77	6.48	36.37	44.05	38.57	54.00	-15.43	AV
Horizontal	11570.28	59.69	8.47	38.64	44.50	62.30	74.00	-11.70	Pk
Horizontal	11570.28	40.55	8.47	38.64	44.50	43.16	54.00	-10.84	AV
Horizontal	17355.49	50.51	10.12	38.38	44.10	54.91	68.20	-13.29	Pk
Low Channel (5825 MHz)- Above 1G									
Vertical	5244.48	59.96	7.10	37.24	43.50	60.80	68.20	-7.40	Pk
Vertical	11652.42	60.18	8.46	37.68	44.50	61.82	74.00	-12.18	Pk
Vertical	11652.42	40.04	8.46	37.68	44.50	41.68	54.00	-12.32	AV
Vertical	17473.74	49.95	10.12	38.80	44.10	54.77	68.20	-13.43	Pk
Horizontal	5285.29	59.44	7.10	37.24	43.50	60.28	68.20	-7.92	Pk
Horizontal	11652.67	59.17	8.46	38.57	44.50	61.70	74.00	-12.30	Pk
Horizontal	11652.67	40.11	8.46	38.57	44.50	42.64	54.00	-11.36	AV
Horizontal	17474.68	50.85	10.12	38.38	44.10	55.25	68.20	-12.95	Pk

Note:"802.11a" mode is the worst mode.

The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported. Emission level (dBuV/m) = 20 log Emission level (uV/m).

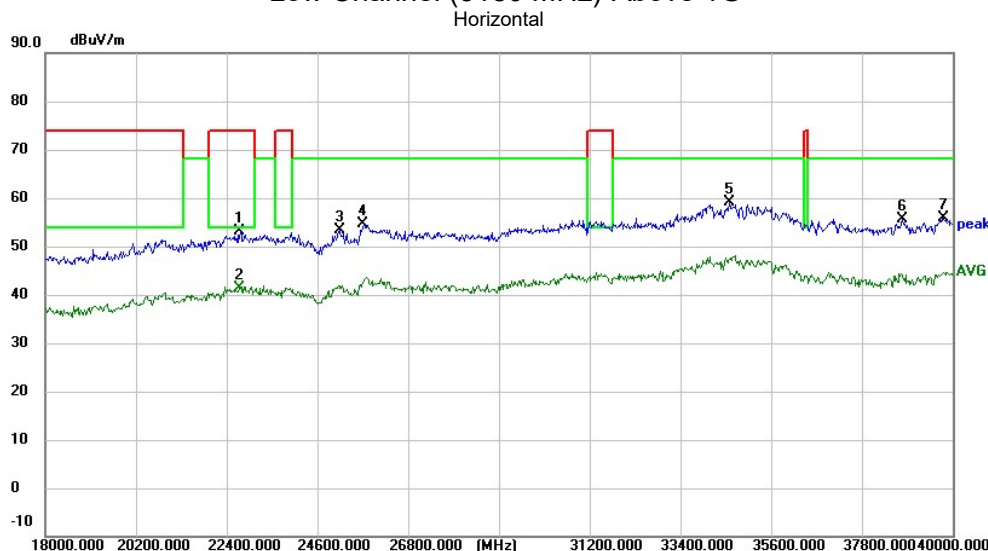
Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

3.2.9 TEST RESULTS (18GHz-40GHz)

EUT :	Professional Diagnostic Tool	Model Name. :	Creader Professional 1291 V3
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX (5.2G)-802.11a TX (5.8G)-802.11a		

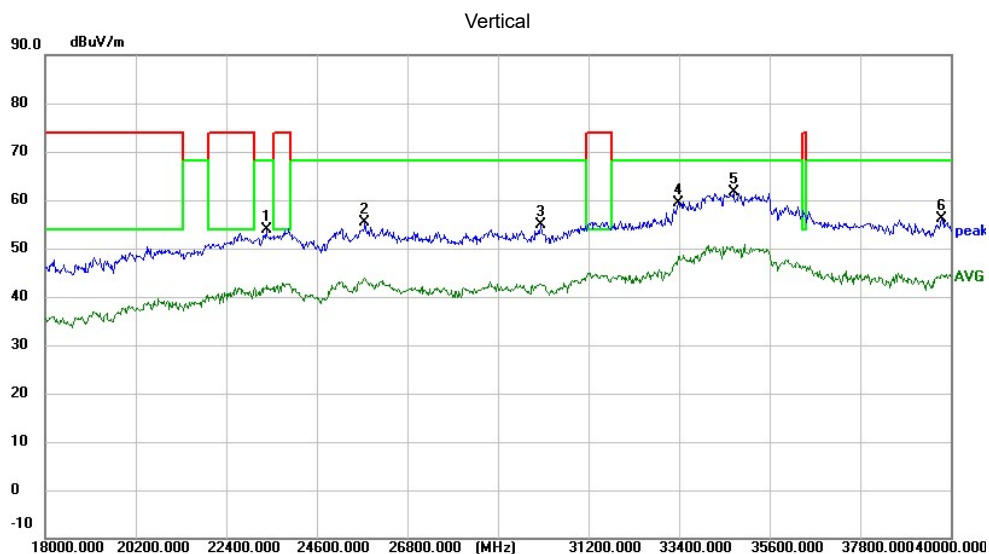
All the modulation modes have been tested, and the worst result was report as below:

Low Channel (5180 MHz)-Above 1G



Measurement Result:

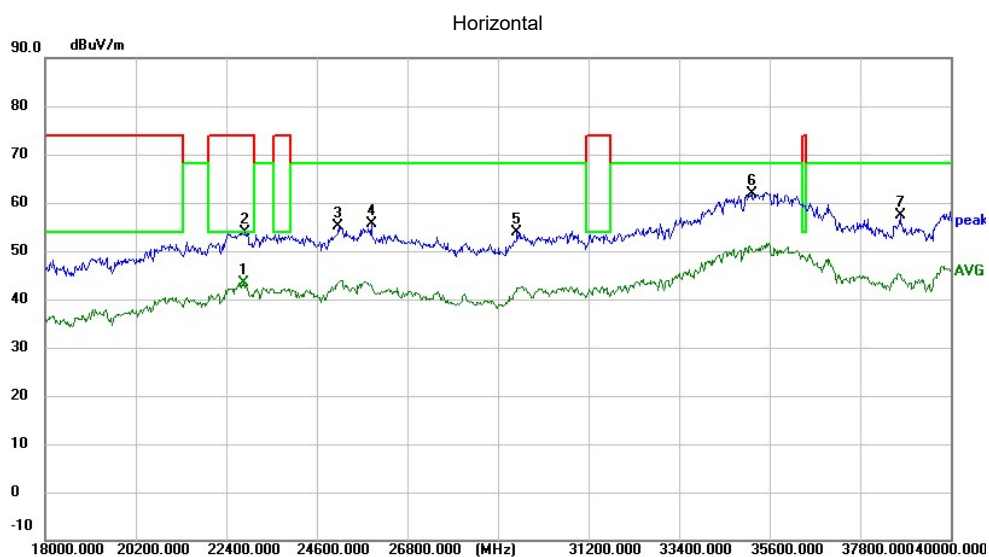
Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
22746.133	60.65	-7.46	53.19	74.00	-20.81	peak
22746.133	48.91	-7.46	41.45	54.00	-12.55	AVG
25147.800	57.48	-4.01	53.47	68.20	-14.73	peak
25753.533	60.24	-5.58	54.66	68.20	-13.54	peak
34604.867	56.50	2.73	59.23	68.20	-8.97	peak
38776.800	53.95	1.80	55.75	68.20	-12.45	peak
39813.000	52.77	3.14	55.91	68.20	-12.29	peak
22746.133	60.65	-7.46	53.19	74.00	-20.81	peak
22746.133	48.91	-7.46	41.45	54.00	-12.55	AVG



Measurement Result:

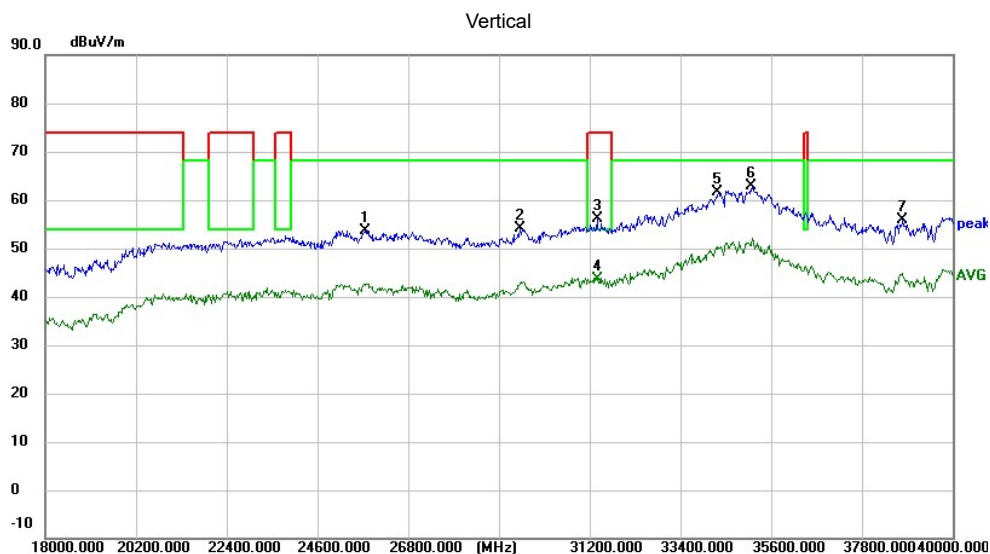
Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
23387.800	60.76	-6.96	53.80	68.20	-14.40	peak
25797.533	60.92	-5.62	55.30	68.20	-12.90	peak
30051.600	62.25	-7.41	54.84	68.20	-13.36	peak
33416.867	60.43	-0.98	59.45	68.20	-8.75	peak
34739.800	58.56	3.02	61.58	68.20	-6.62	peak
39799.800	52.95	3.12	56.07	68.20	-12.13	peak

High Channel (5240 MHz)-Above 1G



Measurement Result:

Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
22855.400	50.73	-7.38	43.35	54.00	-10.65	AVG
22870.067	61.21	-7.38	53.83	74.00	-20.17	peak
25152.933	59.15	-4.02	55.13	68.20	-13.07	peak
25939.067	61.39	-5.80	55.59	68.20	-12.61	peak
29487.667	61.59	-7.82	53.77	68.20	-14.43	peak
35177.600	58.69	3.15	61.84	68.20	-6.36	peak
38803.200	55.60	1.84	57.44	68.20	-10.76	peak

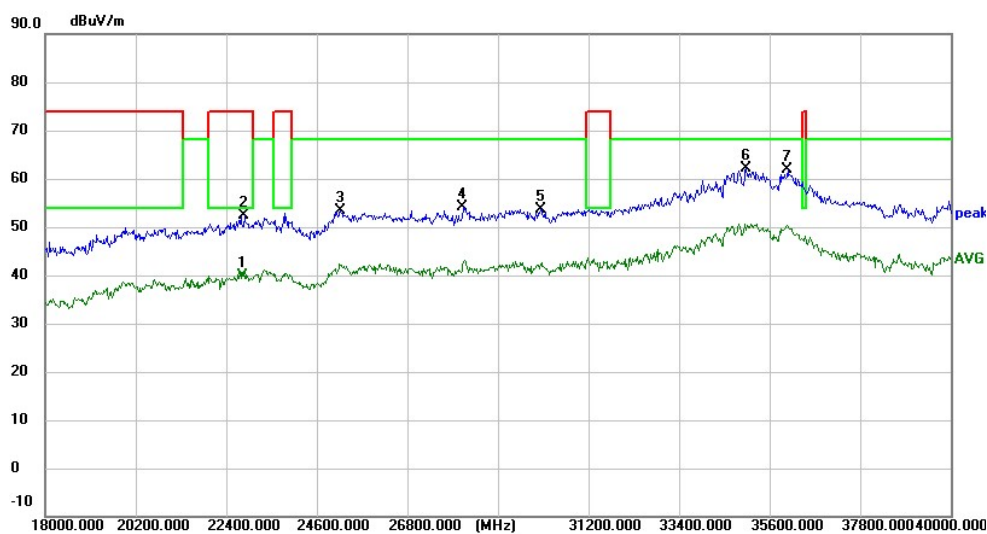


Measurement Result:

Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
22855.400	50.73	-7.38	43.35	54.00	-10.65	AVG
22870.067	61.21	-7.38	53.83	74.00	-20.17	peak
25152.933	59.15	-4.02	55.13	68.20	-13.07	peak
25939.067	61.39	-5.80	55.59	68.20	-12.61	peak
29487.667	61.59	-7.82	53.77	68.20	-14.43	peak
35177.600	58.69	3.15	61.84	68.20	-6.36	peak
38803.200	55.60	1.84	57.44	68.20	-10.76	peak

Low Channel (5745 MHz)-Above 1G

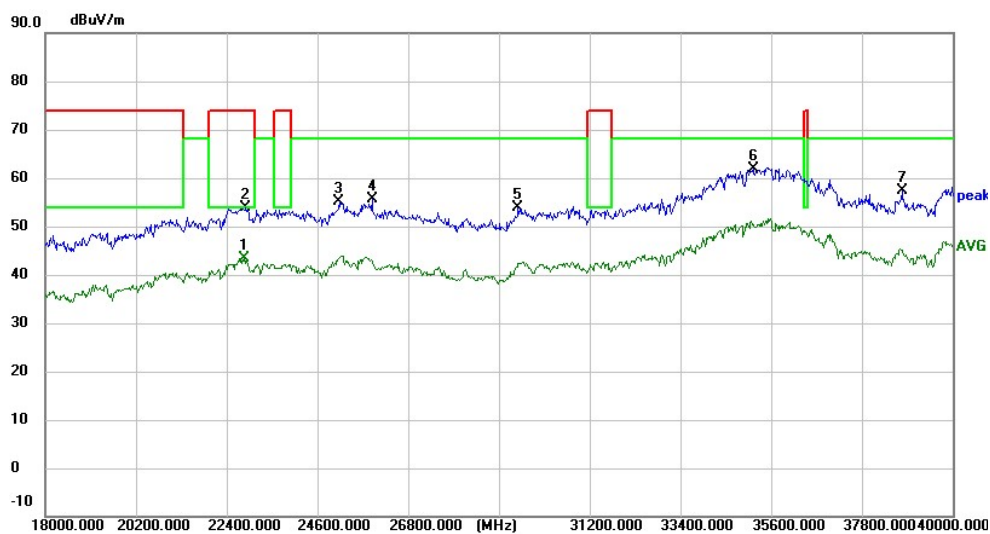
Horizontal



Measurement Result:

Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
22842.933	47.36	-7.39	39.97	54.00	-14.03	AVG
22856.133	59.86	-7.38	52.48	74.00	-21.52	peak
25191.067	57.37	-4.10	53.27	68.20	-14.93	peak
28186.733	62.85	-8.80	54.05	68.20	-14.15	peak
30065.533	61.14	-7.40	53.74	68.20	-14.46	peak
35036.800	58.44	3.66	62.10	68.20	-6.10	peak
36060.533	60.53	1.32	61.85	68.20	-6.35	peak

Vertical

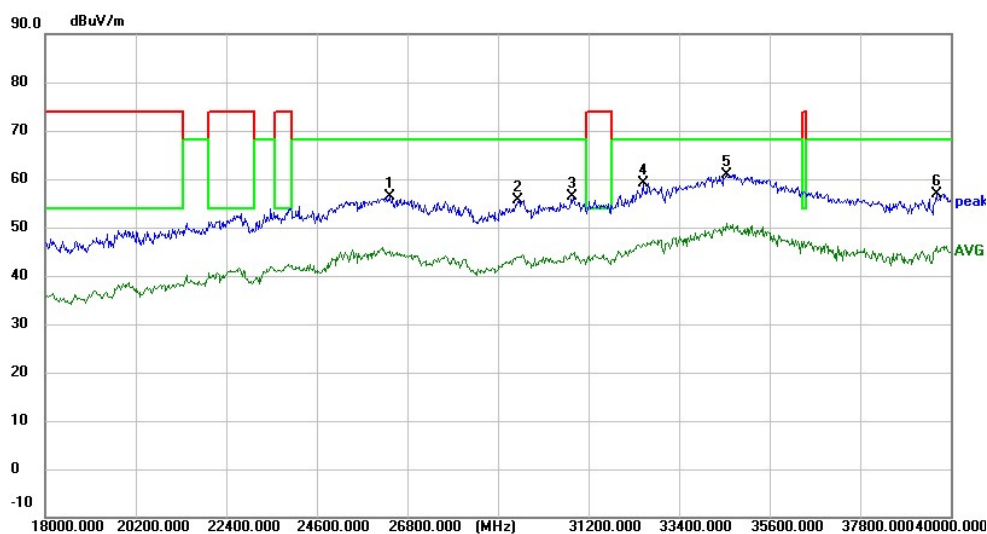


Measurement Result:

Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
25192.533	58.39	-4.10	54.29	68.20	-13.91	peak
28579.067	63.02	-8.74	54.28	68.20	-13.92	peak
33999.133	58.46	0.70	59.16	68.20	-9.04	peak
35028.000	56.63	3.70	60.33	68.20	-7.87	peak
38809.067	54.37	1.86	56.23	68.20	-11.97	peak
39812.267	53.91	3.13	57.04	68.20	-11.16	peak

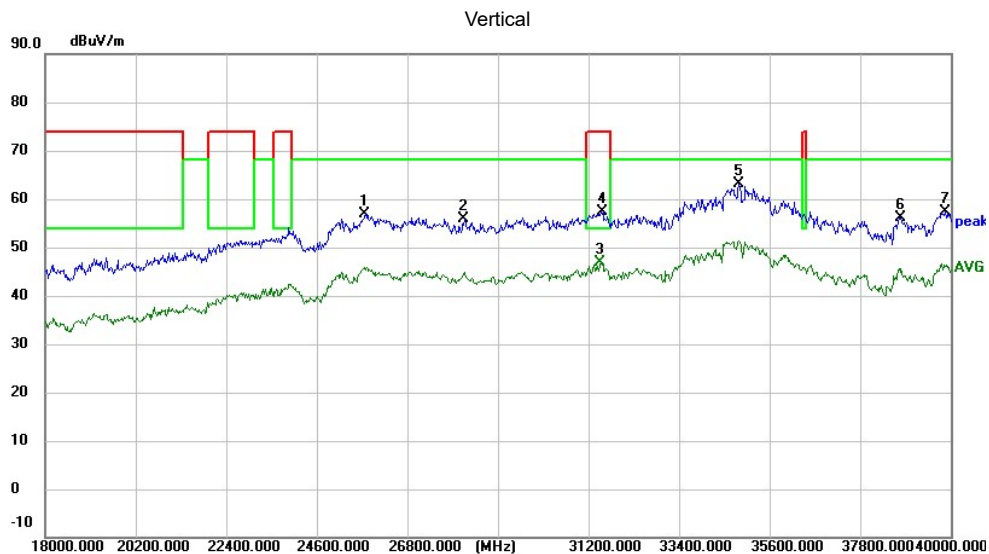
High Channel (5825 MHz)-Above 1G

Horizontal



Measurement Result:

Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
26384.200	63.21	-6.92	56.29	68.20	-11.91	peak
29528.733	63.49	-7.78	55.71	68.20	-12.49	peak
30837.733	63.19	-6.81	56.38	68.20	-11.82	peak
32524.400	62.68	-3.47	59.21	68.20	-8.99	peak
34581.400	58.24	2.68	60.92	68.20	-7.28	peak
39683.200	53.92	2.94	56.86	68.20	-11.34	peak



Measurement Result:

Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
25812.933	62.41	-5.64	56.77	68.20	-11.43	peak
28213.133	64.76	-8.79	55.97	68.20	-12.23	peak
31530.733	52.49	-5.67	46.82	54.00	-7.18	AVG
31561.533	62.93	-5.62	57.31	74.00	-16.69	peak
34873.267	59.68	3.41	63.09	68.20	-5.11	peak
38789.267	54.39	1.82	56.21	68.20	-11.99	peak
39903.200	54.08	3.26	57.34	68.20	-10.86	peak

3.2.10 Spurious Emission in Restricted Band 4.5GHz~5.150 GHz& 5.350GHz~5460GHz

EUT :	Professional Diagnostic Tool	Model Name. :	Creader Professional 129I V3
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX (5.2G)-802.11a		

All the modulation modes have been tested, The report just record the worst data mode.

Frequency	Meter Reading	Cable Loss	Antenna Factor	Preamp Factor	Emission Level	Limits	Margin	Detector	Comment
(MHz)	(dBμV)	(dB)	dB/m	(dB)	(dBμV/m)	(dBμV/m)	(dB)	Type	
Low Channel (5180 MHz)									
4500	63.19	3.615	32.6	43.25	56.16	74	-17.84	Pk	Horizontal
4500	37.07	3.615	32.6	43.25	30.03	54	-23.97	AV	Horizontal
4500	62.32	3.615	32.6	43.25	55.29	74	-18.71	Pk	Vertical
4500	32.17	3.615	32.6	43.25	25.13	54	-28.87	AV	Vertical
5150	63.79	3.911	34.6	43.27	59.03	74	-14.97	Pk	Horizontal
5150	32.45	3.911	34.6	43.27	27.69	54	-26.31	AV	Horizontal
5150	63.34	3.911	34.6	43.27	58.58	74	-15.42	Pk	Vertical
5150	42.42	3.911	34.6	43.27	37.66	54	-16.34	AV	Vertical
High Channel (5240 MHz)									
5350	62.29	3.939	33.7	43.23	56.69	74	-17.31	Pk	Vertical
5350	34.89	3.939	33.7	43.23	29.30	54	-24.70	AV	Vertical
5350	64.01	3.939	33.7	43.23	58.41	74	-15.59	Pk	Horizontal
5350	37.57	3.939	33.7	43.23	31.98	54	-22.02	AV	Horizontal

Note: (1) Emission Level= Antenna Factor + Cable Loss + Read Level - Preamp Factor

(2) "802.11a" mode is the worst mode. When PK value is lower than the Average value limit, average don't record.

3.3 POWER SPECTRAL DENSITY TEST

3.3.1 Applied procedures / limit

According to FCC §15.407(a)(3)

For the band 5.15-5.25 GHz,

(i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

(ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple colocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

(iv) For client devices in the 5.15-5.25 GHz band, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the band 5.725-5.85 GHz

(3) For the band 5.725-5.85 GHz, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

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3.3.2 TEST PROCEDURE

For devices operating in the bands 5.15-5.25 GHz, 5.25-5.35 GHz, and 5.47-5.725 GHz, the above procedures make use of 1 MHz RBW to satisfy directly the 1 MHz reference bandwidth specified in § 15.407(a)(5). For devices operating in the band 5.725-5.85 GHz, the rules specify a measurement bandwidth of 500 kHz. Many spectrum analyzers do not have 500 kHz RBW, thus a narrower RBW may need to be used. The rules permit the use of a RBWs less than 1 MHz, or 500 kHz, “provided that the measured power is integrated over the full reference bandwidth” to show the total power over the specified measurement bandwidth (i.e., 1 MHz, or 500 kHz). If measurements are performed using a reduced resolution bandwidth (< 1 MHz, or < 500 kHz) and integrated over 1 MHz, or 500 KHz bandwidth, the following adjustments to the procedures apply:

- a) Set $RBW \geq 1/T$, where T is defined in section II.B.I.a).
- b) Set $VBW \geq 3$ RBW.
- c) If measurement bandwidth of Maximum PSD is specified in 500 kHz, add $10\log(500\text{kHz}/RBW)$ to the measured result, whereas $RBW (< 500 \text{ KHz})$ is the reduced resolution bandwidth of the spectrum analyzer set during measurement.
- d) If measurement bandwidth of Maximum PSD is specified in 1 MHz, add $10\log(1\text{MHz}/RBW)$ to the measured result, whereas $RBW (< 1 \text{ MHz})$ is the reduced resolution bandwidth of spectrum analyzer set during measurement.
- e) Care must be taken to ensure that the measurements are performed during a period of continuous transmission or are corrected upward for duty cycle.

Note: As a practical matter, it is recommended to use reduced RBW of 100 KHz for the sections 5.c) and 5.d) above, since $RBW=100 \text{ KHz}$ is available on nearly all spectrum analyzers.

3.3.3 DEVIATION FROM STANDARD

No deviation.

3.3.4 TEST SETUP



3.3.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.1 Unless otherwise a special operating condition is specified in the follows during the testing.

3.3.6 TEST RESULTS

EUT :	Professional Diagnostic Tool	Model Name. :	Creader Professional 129I V3
Temperature :	25 °C	Relative Humidity :	56%
Pressure :	1015 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX Frequency Band I (5150-5250MHz), Band IV (5725-5850MHz)		

Test data reference attachment.

3.4 26DB & 99% EMISSION BANDWIDTH

3.4.1 Applied procedures / limit

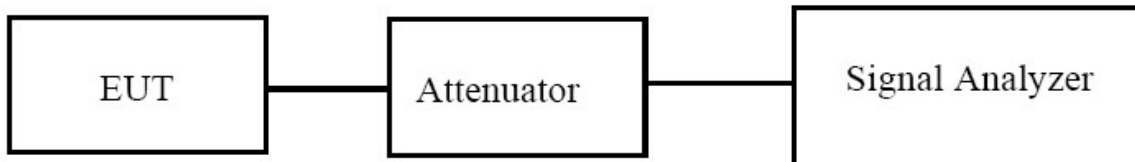
The maximum power spectral density is measured as a conducted emission by direct connection of a calibrated test instrument to the equipment under test. If the device cannot be connected directly, alternative techniques acceptable to the Commission may be used. Measurements in the 5.725-5.85 GHz band are made over a reference bandwidth of 500 kHz or the 26 dB emission bandwidth of the device, whichever is less. Measurements in the 5.15-5.25 GHz, 5.25-5.35 GHz, and the 5.47-5.725 GHz bands are made over a bandwidth of 1 MHz or the 26 dB emission bandwidth of the device, whichever is less. A narrower resolution bandwidth can be used, provided that the measured power is integrated over the full reference bandwidth.

3.4.2 TEST PROCEDURE

- Set RBW = approximately 1% of the emission bandwidth.
- Set the VBW > RBW.
- Detector = Peak.
- Trace mode = max hold.
- Measure the maximum width of the emission that is 26 dB down from the maximum of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

The following procedure shall be used for measuring (99 %) power bandwidth:

- Set center frequency to the nominal EUT channel center frequency.
- Set span = 1.5 times to 5.0 times the OBW.
- Set RBW = 1 % to 5 % of the OBW
- Set VBW $\geq 3 \cdot$ RBW
- Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Otherwise, peak detection and max hold mode (until the trace stabilizes) shall be used.
- Use the 99 % power bandwidth function of the instrument (if available).
- If the instrument does not have a 99 % power bandwidth function, the trace data points are recovered and directly summed in power units. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5 % of the total is reached; that frequency is recorded as the lower frequency. The process is repeated until 99.5 % of the total is reached; that frequency is recorded as the upper frequency. The 99% occupied bandwidth is the difference between these two frequencies.



3.4.3 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

3.4.4 TEST RESULTS

EUT :	Professional Diagnostic Tool	Model Name. :	Creader Professional 129I V3
Temperature :	25 °C	Relative Humidity :	56%
Pressure :	1012 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX Frequency Band I (5150-5250MHz), Band IV (5725-5850MHz)		

Test data reference attachment.

3.5 MINIMUM 6 DB BANDWIDTH

3.5.1 Applied procedures / limit

According to FCC §15.407(e)

(e) Within the 5.725-5.85 GHz band, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz.

3.5.2 TEST PROCEDURE

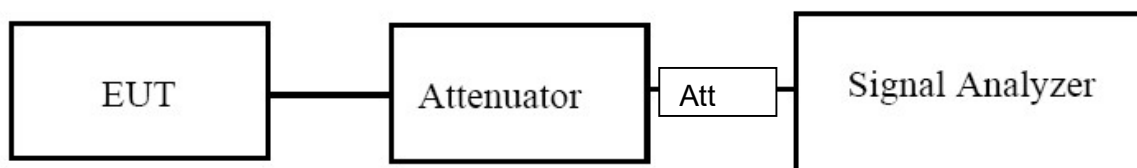
Section 15.407(e) specifies the minimum 6 dB emission bandwidth of at least 500 KHz for the band 5.715-5.85 GHz. The following procedure shall be used for measuring this bandwidth:

- a) Set RBW = 100 kHz.
- b) Set the video bandwidth (VBW) $\geq 3 \times$ RBW.
- c) Detector = Peak.
- d) Trace mode = max hold.
- e) Sweep = auto couple.
- f) Allow the trace to stabilize.
- g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

3.5.3 DEVIATION FROM STANDARD

No deviation.

3.5.4 TEST SETUP



3.5.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

3.5.6 TEST RESULTS

EUT :	Professional Diagnostic Tool	Model Name. :	Creader Professional 1291 V3
Temperature :	25 °C	Relative Humidity :	60%
Pressure :	1012 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX (5G) Mode Frequency Band IV (5725-5850MHz)		

Test data reference attachment.

3.6 MAXIMUM CONDUCTED OUTPUT POWER

3.6.1 PPLIED PROCEDURES / LIMIT

According to FCC §15.407

The maximum conducted output power should not exceed:

Frequency Band(MHz)	Limit
5150~5250	250mW
5725~5850	1W

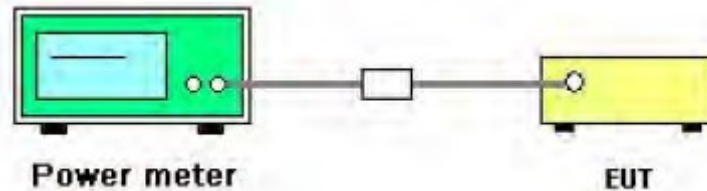
3.6.2 TEST PROCEDURE

- Method PM-G is measurement using a gated RF average power meter.
- Measurements may be performed using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Because the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.

3.6.3 DEVIATION FROM STANDARD

No deviation.

3.6.4 TEST SETUP



3.6.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

3.6.6 TEST RESULTS

EUT :	Professional Diagnostic Tool	Model Name. :	Creader Professional 129I V3
Temperature :	25 °C	Relative Humidity :	60%
Pressure :	1012 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX (5G) Mode Frequency Band I (5150-5250MHz), Band IV (5725-5850MHz)		

Test data reference attachment.

3.7 OUT OF BAND EMISSIONS

3.7.1 Applicable Standard

According to FCC §15.407(b)

Undesirable emission limits. Except as shown in paragraph (b)(10) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

- (1) For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.
- (2) For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.
- (3) For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.
- (4) For transmitters operating in the 5.725-5.85 GHz band:
 - (i) All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.
 - (ii) Devices certified before March 2, 2017 with antenna gain greater than 10 dBi may demonstrate compliance with the emission limits in §15.247(d), but manufacturing, marketing and importing of devices certified under this alternative must cease by March 2, 2018. Devices certified before March 2, 2018 with antenna gain of 10 dBi or less may demonstrate compliance with the emission limits in §15.247(d), but manufacturing, marketing and importing of devices certified under this alternative must cease before March 2, 2020.

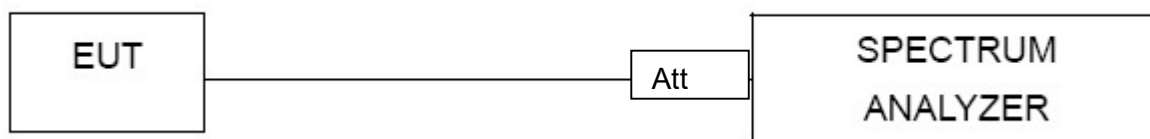
3.7.2 Test Procedure

The testing per ANSI C63.10 Section 12.7.4.2

3.7.3 DEVIATION FROM STANDARD

No deviation.

3.7.4 TEST SETUP



3.7.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

3.7.6 TEST RESULTS

EUT :	Professional Diagnostic Tool	Model Name. :	Creader Professional 1291 V3
Temperature :	25 °C	Relative Humidity :	56%
Pressure :	1012 hPa	Test Voltage :	DC 3.7V

The product has passed radiated emission testing per ANSI C63.10 Section 12.7.4.2 using a 50Ω termination cabinet, achieving a compliance margin >20dB, with conducted spurious emission data documented in the attached report.

3.8 FREQUENCY STABILITY MEASUREMENT

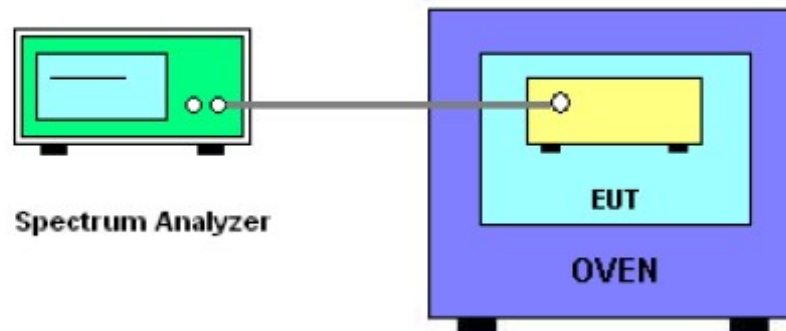
3.8.1 LIMIT

Manufactures of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

3.8.2 TEST PROCEDURES

1. The transmitter output (antenna port) was connected to the spectrum analyzer.
2. EUT have transmitted absence of modulation signal and fixed channelize.
3. Set the spectrum analyzer span to view the entire absence of modulation emissions bandwidth.
4. Set RBW = 10 kHz, VBW = 10 kHz with peak detector and maxhold settings.
5. f_c is declaring of channel frequency. Then the frequency error formula is $(f_c - f)/f_c \times 10^6$ ppm .
6. The test extreme voltage is to change the primary supply voltage from 85 to 115 percent of the nominal value
7. Extreme temperature is $-20^{\circ}\text{C} \sim 70^{\circ}\text{C}$.

3.8.3 TEST SETUP LAYOUT



3.9.4 EUT OPERATION DURING TEST

The EUT was programmed to be in continuously un-modulation transmitting mode.

3.9.5 TEST RESULTS

EUT :	Professional Diagnostic Tool	Model Name. :	Creader Professional 129I V3
Temperature :	25 °C	Relative Humidity :	56%
Pressure :	1012 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX Frequency Band I (5150-5250MHz)		

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5180MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	3.70	5180.0085	5180	0.0085	1.6437
		V max (V)	4.26	5180.0074	5180	0.0074	1.4276
		V min (V)	3.15	5180.0028	5180	0.0028	0.5383
Limits				Within 5150-5250MHz			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5180MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	3.6	T (°C)	-20	5180.0011	5180	0.0011	0.2120
		T (°C)	-10	5180.0008	5180	0.0008	0.1537
		T (°C)	0	5180.0029	5180	0.0029	0.5572
		T (°C)	10	5180.0073	5180	0.0073	1.3996
		T (°C)	20	5180.0015	5180	0.0015	0.2953
		T (°C)	30	5180.0026	5180	0.0026	0.5104
		T (°C)	40	5180.0090	5180	0.0090	1.7356
		T (°C)	50	5180.0020	5180	0.0020	0.3939
		T (°C)	60	5180.0075	5180	0.0075	1.4565
		T (°C)	70	5180.0084	5180	0.0084	1.6266
Limits				Within 5150-5250MHz			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5200MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	3.70	5200.0006	5200	0.0006	0.1112
		V max (V)	4.26	5200.0063	5200	0.0063	1.2115
		V min (V)	3.15	5200.0089	5200	0.0089	1.7045
Limits				Within 5150-5250MHz			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5200MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	3.6	T (°C)	-20	5200.0079	5200	0.0079	1.5228
		T (°C)	-10	5200.0004	5200	0.0004	0.0830
		T (°C)	0	5200.0030	5200	0.0030	0.5796
		T (°C)	10	5200.0088	5200	0.0088	1.6982
		T (°C)	20	5200.0088	5200	0.0088	1.7004
		T (°C)	30	5200.0047	5200	0.0047	0.9025
		T (°C)	40	5200.0063	5200	0.0063	1.2186
		T (°C)	50	5200.0014	5200	0.0014	0.2637
		T (°C)	60	5200.0049	5200	0.0049	0.9369
		T (°C)	70	5200.0010	5200	0.0010	0.1859
Limits				Within 5150-5250MHz			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5240MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	3.70	5240.0044	5240	0.0044	0.8351
		V max (V)	4.26	5240.0096	5240	0.0096	1.8242
		V min (V)	3.15	5240.0099	5240	0.0099	1.8808
Limits				Within 5150-5250MHz			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5240MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	3.6	T (°C)	-20	5240.0011	5240	0.0011	0.2029
		T (°C)	-10	5240.0046	5240	0.0046	0.8722
		T (°C)	0	5240.0045	5240	0.0045	0.8507
		T (°C)	10	5240.0042	5240	0.0042	0.7927
		T (°C)	20	5240.0047	5240	0.0047	0.9055
		T (°C)	30	5240.0033	5240	0.0033	0.6275
		T (°C)	40	5240.0046	5240	0.0046	0.8812
		T (°C)	50	5240.0005	5240	0.0005	0.0940
		T (°C)	60	5240.0090	5240	0.0090	1.7246
		T (°C)	70	5240.0025	5240	0.0025	0.4795
Limits				Within 5150-5250MHz			
Result				Complies			

EUT :	Professional Diagnostic Tool	Model Name. :	Creader Professional 129I V3
Temperature :	25 °C	Relative Humidity :	56%
Pressure :	1012 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX Frequency(5745-5825MHz)		

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5745MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	3.70	5745.0043	5745	0.00433	0.7535
		V max (V)	4.26	5745.0066	5745	0.00657	1.1429
		V min (V)	3.15	5745.0065	5745	0.00647	1.1260
Limits				Within 5745-5850MHz			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5745MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	3.6	T (°C)	-20	5745.0040	5745	0.00403	0.7022
		T (°C)	-10	5745.0095	5745	0.00948	1.6505
		T (°C)	0	5745.0082	5745	0.00824	1.4334
		T (°C)	10	5745.0019	5745	0.00186	0.3243
		T (°C)	20	5745.0037	5745	0.00372	0.6479
		T (°C)	30	5745.0002	5745	0.00018	0.0318
		T (°C)	40	5745.0088	5745	0.00880	1.5311
		T (°C)	50	5745.0048	5745	0.00485	0.8440
		T (°C)	60	5745.0041	5745	0.00406	0.7069
		T (°C)	70	5745.0031	5745	0.00308	0.5369
Limits				Within 5745-5850MHz			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5785MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	3.70	5785.0009	5785	0.00094	0.1617
		V max (V)	4.26	5785.0047	5785	0.00465	0.8044
		V min (V)	3.15	5785.0067	5785	0.00673	1.1628
Limits				Within 5745-5850MHz			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5785MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	3.6	T (°C)	-20	5785.0034	5785	0.00335	0.5795
		T (°C)	-10	5785.0096	5785	0.00960	1.6600
		T (°C)	0	5785.0048	5785	0.00483	0.8356
		T (°C)	10	5785.0095	5785	0.00950	1.6415
		T (°C)	20	5785.0070	5785	0.00696	1.2028
		T (°C)	30	5785.0072	5785	0.00724	1.2508
		T (°C)	40	5785.0058	5785	0.00581	1.0045
		T (°C)	50	5785.0011	5785	0.00111	0.1912
		T (°C)	60	5785.0089	5785	0.00894	1.5461
		T (°C)	70	5785.0004	5785	0.00040	0.0699
Limits				Within 5745-5850MHz			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5825MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	3.70	5825.0029	5825	0.00293	0.5027
		V max (V)	4.26	5825.0053	5825	0.00535	0.9179
		V min (V)	3.15	5825.0075	5825	0.00752	1.2905
Limits				Within 5745-5850MHz			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5825MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	3.6	T (°C)	-20	5825.0049	5825	0.00495	0.8490
		T (°C)	-10	5825.0006	5825	0.00065	0.1111
		T (°C)	0	5825.0086	5825	0.00864	1.4837
		T (°C)	10	5825.0045	5825	0.00451	0.7743
		T (°C)	20	5825.0064	5825	0.00639	1.0968
		T (°C)	30	5825.0087	5825	0.00872	1.4972
		T (°C)	40	5825.0003	5825	0.00032	0.0553
		T (°C)	50	5825.0031	5825	0.00312	0.5362
		T (°C)	60	5825.0001	5825	0.00010	0.0166
		T (°C)	70	5825.0000	5825	0.00003	0.0043
Limits				Within 5745-5850MHz			
Result				Complies			

4. ANTENNA REQUIREMENT

4.1 STANDARD REQUIREMENT

15.203 requirement: For intentional device, according to 15.203: an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

4.2 EUT ANTENNA

The EUT antenna is permanent attached FPC antenna (3.58dBi). It comply with the standard requirement.

5. TEST RESULTS

5.1 5.2G WIFI-BATTERY1

5.1.1 Duty Cycle

Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	a	5180	Ant1	91.2	0.4	0.49
NVNT	a	5200	Ant1	95.92	0.18	0.48
NVNT	a	5240	Ant1	95.92	0.18	0.49
NVNT	n20	5180	Ant1	94.29	0.26	0.52
NVNT	n20	5200	Ant1	95.16	0.22	0.52
NVNT	n20	5240	Ant1	95.45	0.2	0.52
NVNT	n40	5190	Ant1	88.5	0.53	1.06
NVNT	n40	5230	Ant1	90.85	0.42	1.06
NVNT	ac20	5180	Ant1	94.75	0.23	0.52
NVNT	ac20	5200	Ant1	95.26	0.21	0.52
NVNT	ac20	5240	Ant1	94.96	0.22	0.52
NVNT	ac40	5190	Ant1	90.23	0.45	1.05
NVNT	ac40	5230	Ant1	90.68	0.42	1.04
NVNT	ac80	5210	Ant1	83.1	0.8	2.17

