FCC PART 15C TEST REPORT FOR CERTIFICATION
On Behalf of

Planet Computers Limited

COSMO

COSMO COMMUNICATOR VE

FCC ID: 2AO7Q-COSMOVE

Prepared for : Planet Computers Limited
Suite #9, 56 Sloane Square, London, SW1W 8AX, United Kingdom

Prepared By : Audix Technology (Shenzhen) Co., Ltd.
No. 6, Kefeng Road, Science & Technology Park,
Nanshan District , Shenzhen, Guangdong, China

Tel: (0755) 26639496

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TEST REPORT CERTIFICATION

Applicant	:	Planet Computers Limited
Manufacturer	:	Planet Computers Limited
Product	:	COSMO
FCC ID	:	2AO7Q-COSMOVE
		(A) Model No. : COSMO COMMUNICATOR VE
		(B) Test Voltage : AC 120V/60Hz

Tested for comply with:
FCC CFR 47 Part 15 Subpart C

Test procedure used:
ANSI C63.10: 2013
KDB 558074 D01v05r02

The device described above is tested by AUDIX TECHNOLOGY (SHENZHEN) CO., LTD. to confirm comply with all the FCC Part 15 Subpart C requirements. The test results are contained in this test report and AUDIX TECHNOLOGY (SHENZHEN) CO., LTD. is assumed full responsibility for the accuracy and completeness of these tests. Also, this report shows that the Equipment Under Test (EUT) is to be technically compliant with the FCC and IC requirements. This report contains data that are not covered by the NVLAP accreditation.

This Report is made under FCC Part 2.1074. No modifications were required during testing to bring this product into compliance.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of AUDIX TECHNOLOGY (SHENZHEN) CO., LTD.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government.

Date of Test : Jul.20~Sep.07, 2019 Report of date: Nov.13, 2019

Prepared by : Monica Liu Reviewed by :

Monica Liu / Assistant Sunny Lu / Deputy Manager

AUDIX® 信華科技（深圳）有限公司
Audix Technology (Shenzhen) Co., Ltd.
EMC 部門報告專用章
Stamp only for EMC Dept. Report
Signature: David Jin

Approved & Authorized Signer :

David Jin / Manager

1. SUMMARY OF STANDARDS AND RESULTS

1.1.Description of Standards and Results

The EUT has been tested according to the applicable standards as referenced below.

EMISSION		
Description of Test Item	**Standard**	**Results**
Power Line Conducted Emission	FCC Part 15: 15.207	PASS
Radiated Emission	FCC Part 15: 15.209 FCC Part 15: 15.205	PASS
Band Edge Compliance	FCC Part 15: 15.247(d)	PASS
Conducted spurious emissions	FCC Part 15: 15.247(d)	PASS
6dB Bandwidth Test	FCC Part 15: 15.247(a)(2)	PASS
Peak Output Power	FCC Part 15: 15.247(b)(3)	PASS
Power Spectral Density	FCC Part 15: 15.247(e)	PASS
Antenna requirement	FCC Part 15: 15.203	PASS

2. GENERAL INFORMATION

2.1. Description of Equipment Under Test

Applicant	Planet Computers Limited Suite #9, 56 Sloane Square, London, SW1W 8AX, United Kingdom
Manufacturer	Planet Computers Limited Suite #9, 56 Sloane Square, London, SW1W 8AX, United Kingdom
Factory	Shenzhen Eastaeon Technology Limited Company 4F, B block, Kingdee Software Park, 2 Keji South 12 Road, Nanshan District, Shenzhen
Product	COSMO
Model No.	COSMO COMMUNICATOR VE
FCC ID	2AO7Q-COSMOVE
Power Adapter	Manufacturer: SHENZHEN TIANYIN ELECTRONICS CO., LTD. Model: TPA-10120125UU-MTK Input: 100-240V~, 50/60Hz, 0.6A Output: 5V, 2A / 7V, 1.67A / 9V, 1.67A / 12V, 1.25A
Rechargeable Li-ion Battery	Manufacturer: Shenzhen 3sun Electronics Co., Ltd.; M/N: Gemini Standard Battery; Rating Voltage: 3.85V; Capacity: 4220mAh; Charge Voltage: 4.4V.
USB Cable	Shielded, Detachable, 0.8m
Sample Type	Prototype production
Date of Receipt	Jul.12, 2019
Date of Test	Jul.20~Sep.07, 2019

2.2.Feature of Equipment Under Test

Product Feature & Specification		
Product	COSMO	
Model No.	COSMO COMMUNICATOR VE	
Radio	IEEE802.11 a/b/g/n/ac; Bluetooth V3.0+EDR; Bluetooth V4.0; NFC	
Power Source	☒ Commercial Power	AC 100 ~ 240V, 0.6A
	☒ External Power Source	DC 5/7/9/12V, 2/1.67/1.67/1.25A
	☒ Lithium battery	DC 3.85V, 4220mAh
	☐ UM battery	DC V
NFC		
Frequency Range	13.56MHz	
Type of Modulation	ASK	
Bluetooth		
Bluetooth Version	V4.0 dual mode	
Frequency Range	2402-2480MHz	
Type of Modulation	GFSK, π/4DQPSK, 8DPSK	
Data Rate	1Mbps, 2Mbps, 3Mbps	
Quantity of Channels	79/40	
Channel Separation	1MHz/2MHz	
2.4GHz Wi-Fi		
Support Modes	802.11b/g/n20/n40	
Frequency Range	2412-2462MHz	
Type of Modulation	802.11b(DSSS): CCK, QPSK, BPSK; 802.11g/n(OFDM): 64QAM,16QAM, QPSK, BPSK	
Data Rate	802.11b: 11/5.5/2/1 Mbps; 802.11g: 54/48/36/24/18/12/9/6 Mbps; 802.11n: up to 150Mbps	
Channel Separation	5MHz	
5GHz Wi-Fi		
Support Modes	802.11a/n20/n40/ac20/ac40/ac80	
Frequency Range	5180-5240MHz, 5260-5320MHz, 5500-5700MHz, 5745-5825MHz	
Type of Modulation	802.11a/ac/n (OFDM): QPSK, BPSK, 16QAM, 64QAM,256QAM	
Data Rate	802.11a: 54/48/36/24/18/12/9/6 Mbps; 802.11n up to 150 Mbps; 802.11ac: up to 400Mbps	
Channel Separation	5MHz	
Type of Product	Slave device without Radar detection	
Transmit Power Control	No Support	

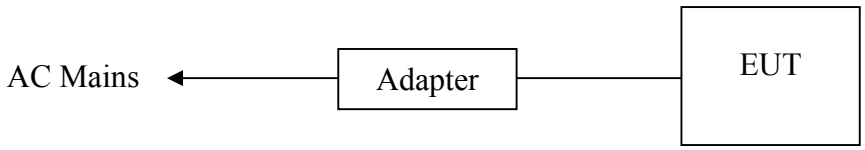
Antenna System

Bluetooth	
Type of Antenna	MONOPOLE Antenna
Antenna number	1
Antenna Peak Gain	-0.1dBi
Wi-Fi	
Type of Antenna	MONOPOLE Antenna
Antenna number	1
Antenna Peak Gain	DTS Band (2400-2483.5MHz) Peak Gain: -0.1dBi U-NII-1 Band(5150-5250MHz) Peak Gain: 0.6dBi U-NII-2A Band(5250-5350MHz) Peak Gain: 0.6dBi U-NII-2C Band(5470-5725MHz) Peak Gain: 0.4dBi U-NII-3 Band (5725-5850MHz) Peak Gain: 0.3dBi

2.3.Tested Supporting System Details

[None]

2.4.Block diagram of connection between the EUT and simulators



(EUT: COSMO)

2.5.Test Information

A special test software(The developer mode that comes with the device) was used to control EUT work in Continuous TX mode(The duty cycle of the test signal is 100%), and select test channel, wireless mode and data rate.

Tested mode, channel, and data rate information			
Mode	data rate (Mbps)(see Note)	Channel	Frequency (MHz)
IEEE 802.11b	1	Low :CH1	2412
	1	Middle: CH6	2437
	1	High: CH11	2462
IEEE 802.11g	6	Low :CH1	2412
	6	Middle: CH6	2437
	6	High: CH11	2462
IEEE 802.11n HT20	MCS0	Low :CH1	2412
	MCS0	Middle: CH6	2437
	MCS0	High: CH11	2462
IEEE 802.11n HT40	MCS0	Low :CH3	2422
	MCS0	Middle: CH6	2437
	MCS0	High: CH9	2452
Note: According exploratory test, EUT will have maximum output power in those data rate, so those data rate were used for all test.			

2.6. Test Facility

Site Description

Name of Firm	:	Audix Technology (Shenzhen) Co., Ltd. No. 6, Kefeng Road, Science & Technology Park, Nanshan District , Shenzhen, Guangdong, China
EMC Lab.	:	Certificated by Industry Canada Registration Number: IC 5183A-1 Valid Date: May.07, 2020
	:	Certificated by DAkkS, Germany Registration No: D-PL-12151-01-00 Valid Date: Dec.07, 2021
	:	Accredited by NVLAP, USA NVLAP Code: 200372-0 Valid Date: Mar.31, 2020
	:	Certificated by FCC USA. Designation No.: CN5022 Valid Date: Mar.31, 2020

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

Test Item	Uncertainty
Uncertainty for Conduction emission test in No. 1 Conduction	2.6dB(150KHz to 30MHz)
Uncertainty for Radiation Emission test in 3m chamber	3.6dB(30~200MHz, Polarization: H)
	4.0dB(30~200MHz, Polarization: V)
	3.6dB(200M~1GHz, Polarization: H)
	3.8dB(200M~1GHz, Polarization: V)
Uncertainty for Radiation Emission test in 3m chamber(1GHz-25GHz)	4.6dB(1~6GHz, Distance: 3m)
	4.6dB(6~25GHz, Distance: 3m)
Uncertainty for Radiated Spurious Emission test in RF chamber	3.7dB(30MHz~1000MHz)
	3.3dB(1~26.5GHz)
Uncertainty for Conduction Spurious emission test	2.0dB
Uncertainty for Output power test	0.8dB
Uncertainty for Bandwidth test	83kHz
Uncertainty for DC power test	0.1%
Uncertainty for test site temperature and humidity	0.6℃
	3%

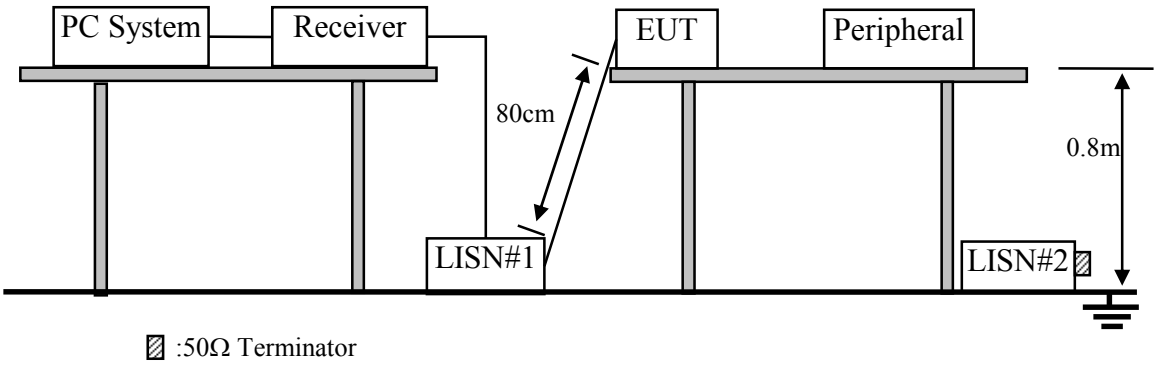
Note: EMI uncertainty is evaluated by CISPR16-4-2.
The value of measurement uncertainty of EMI is less than U_{CISPR}.
The value is not calculated in the test results.

3. POWER LINE CONDUCTED EMISSION TEST

3.1.Test Equipments

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	1# Shielding Room	AUDIX	N/A	N/A	May.17,18	3 Year
2.	EMI Test Receiver	Rohde & Schwarz	ESCI	100842	Apr.14,19	1 Year
3.	L.I.S.N.#1	Rohde & Schwarz	ENV216	102160	Dec.01,18	1 Year
4.	L.I.S.N.#2	Kyoritsu	K NW-403D	8-1750-2	Apr.18,19	1 Year
5.	Terminator	Hubersuhner	50Ω	No.1	Apr.14,19	1 Year
6.	Terminator	Hubersuhner	50Ω	No.2	Apr.14,19	1 Year
7.	RF Cable	Fujikura	RG55/U	No.1	Apr.13,19	1 Year
8.	Test Software	AUDIX	e3	6.100913a	N/A	N/A
Note: N/A means Not applicable.						

3.2.Block Diagram of Test Setup



3.3.Power Line Conducted Emission Test Limits

Frequency	Maximum RF Line Voltage	
	Quasi-Peak Level dB(μV)	Average Level dB(μV)
150kHz ~ 500kHz	66 ~ 56*	56 ~ 46*
500kHz ~ 5MHz	56	46
5MHz ~ 30MHz	60	50

Notes: 1. * Decreasing linearly with logarithm of frequency.
2. The lower limit shall apply at the transition frequencies.

3.4. Configuration of EUT on Test

The following equipment are installed on Power Line Conducted Emission Test to meet the commission requirement and operating regulations in a manner which tends to maximize its emission characteristics in a normal application.

3.4.1. COSMO (EUT)

Model No. : COSMO COMMUNICATOR VE
Serial No. : N/A

3.4.2. Support Equipment: As Tested Supporting System Details, in Section 2.2.

3.5. Operating Condition of EUT

3.5.1. Setup the EUT and simulator as shown as Section 3.2.

3.5.2. Turn on the power of all equipments.

3.5.3. PC run test software to control EUT work in Tx (WiFi 2.4GHz) mode.

3.6. Test Procedure

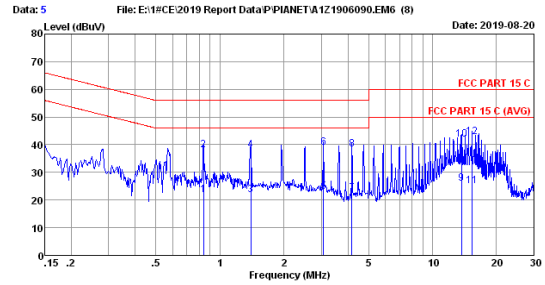
The EUT was placed on a non-metallic table, 80cm above the ground plane. The EUT Power Via PC connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohm coupling impedance for the EUT (Please refer the block diagram of the test setup and photographs). The AC line are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to ANSI C63.10: 2013 on Conducted Emission Test.

The bandwidth of test receiver (R & S ESCI) is set at 9kHz.

The frequency range from 150kHz to 30MHz is checked.

3.7. Power Line Conducted Emission Test Results

PASS. (All emissions not reported below are too low against the prescribed limits.)

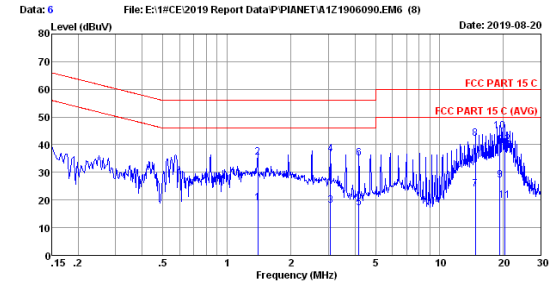


Site no :1# Conduction
Dis./Lisn :2018 ENV216-N
Limit :FCC PART 15 C
Env./Ins. :Temp:23.8*C Humi:55%
Power Rating :AC 120V/60Hz
Test Mode :WiFi 2.4G

Data No :5
LISN phase:
Engineer :Evan

No	Freq (MHz)	LISN Factor (dB)	Cable loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.839	9.40	0.03	12.47	21.90	46.00	24.10	Average
2	0.839	9.40	0.03	28.53	37.96	56.00	18.04	QP
3	1.396	9.40	0.03	12.48	21.91	46.00	24.09	Average
4	1.396	9.40	0.03	28.72	38.15	56.00	17.85	QP
5	3.074	9.45	0.05	13.52	23.02	46.00	22.98	Average
6	3.074	9.45	0.05	29.43	38.93	56.00	17.07	QP
7	4.180	9.50	0.06	12.92	22.48	46.00	23.52	Average
8	4.180	9.50	0.06	28.83	38.39	56.00	17.61	QP
9	13.695	9.57	0.12	16.23	25.92	50.00	24.08	Average
10	13.695	9.57	0.12	32.14	41.83	60.00	18.17	QP
11	15.307	9.61	0.13	15.28	25.02	50.00	24.98	Average
12	15.307	9.61	0.13	33.20	42.94	60.00	17.06	QP

Remarks: 1.Emission Level=LISN Factor+Cable Loss+Reading.
2.If the average limit is met when using a quasi-peak detector.
the EUT shall be deemed to meet both limits and measurement
with average detector is unnecessary.



Site no :1# Conduction
Dis./Lisn :2018 ENV216-L
Limit :FCC PART 15 C
Env./Ins. :Temp:23.8*C Humi:55%
Power Rating :AC 120V/60Hz
Test Mode :WiFi 2.4G

Data No :6
LISN phase:
Engineer :Evan

No	Freq (MHz)	LISN Factor (dB)	Cable loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	1.396	9.44	0.03	9.47	18.94	46.00	27.06	Average
2	1.396	9.44	0.03	26.06	35.53	56.00	20.47	QP
3	3.074	9.50	0.05	8.56	18.11	46.00	27.89	Average
4	3.074	9.50	0.05	26.96	36.51	56.00	19.49	QP
5	4.180	9.50	0.06	7.42	16.98	46.00	29.02	Average
6	4.180	9.50	0.06	25.52	35.08	56.00	20.92	QP
7	14.750	9.60	0.12	14.27	23.99	50.00	26.01	Average
8	14.750	9.60	0.12	32.39	42.11	60.00	17.89	QP
9	19.224	9.60	0.15	17.32	27.07	50.00	22.93	Average
10	19.224	9.60	0.15	35.16	44.91	60.00	15.09	QP
11	20.354	9.60	0.15	9.90	19.65	50.00	30.35	Average
12	20.354	9.60	0.15	30.40	40.15	60.00	19.85	QP

Remarks: 1.Emission Level=LISN Factor+Cable Loss+Reading.
2.If the average limit is met when using a quasi-peak detector.
the EUT shall be deemed to meet both limits and measurement
with average detector is unnecessary.

4. RADIATED EMISSION TEST

4.1.Test Equipment

4.1.1. For frequency range 30MHz~1000MHz (In 3m Anechoic Chamber)

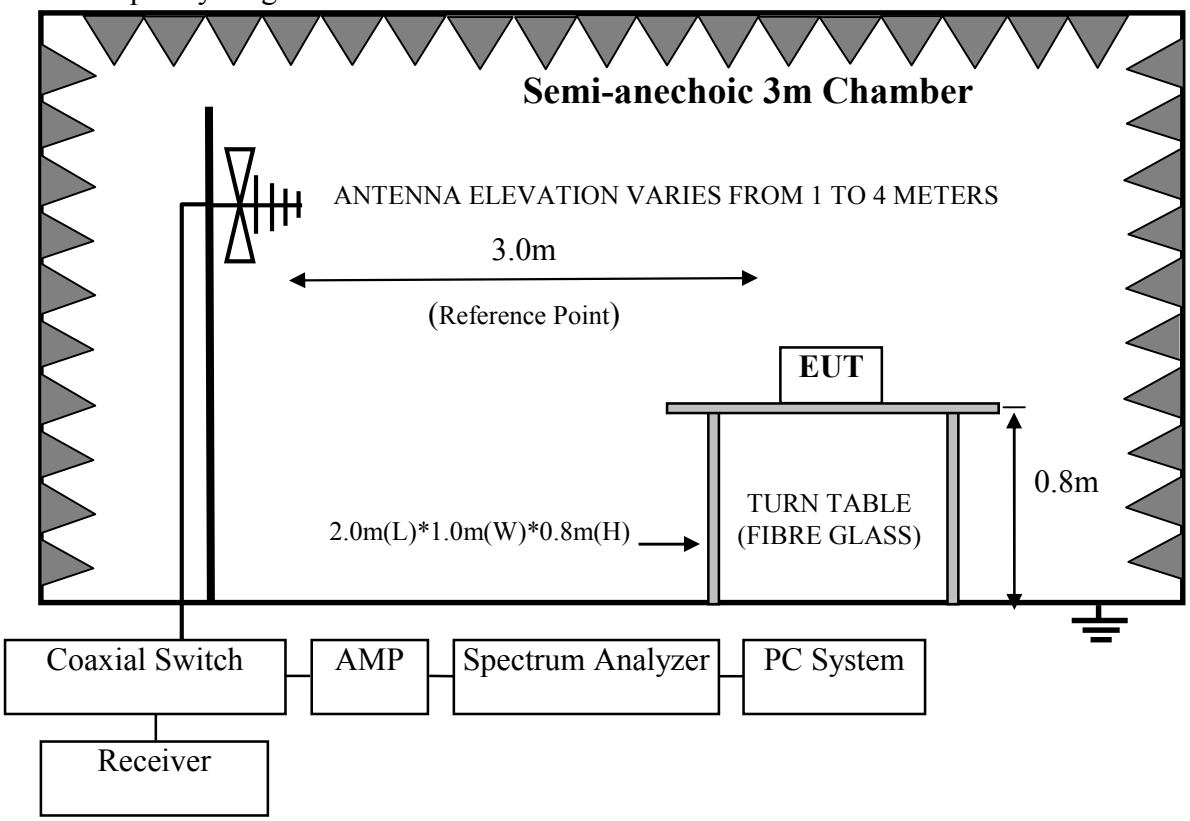
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	3#Chamber(NSA)	AUDIX	N/A	N/A	May.10,19	1 Year
2.	3#Chamber(SE)	AUDIX	N/A	N/A	May.17,18	3 Year
3.	Signal Analyzer	Rohde & Schwarz	FSV30	104050	Apr.14,19	1 Year
4.	EMI Test Receiver	Rohde & Schwarz	ESR7	101547	Apr.14,19	1 Year
5.	Amplifier	HP	8447D	2648A04738	Apr.14,19	1 Year
6.	Bi log Antenna	TESEQ	CBL6112D	35375	Nov.21,18	1 Year
7.	Loop Antenna	Chase	HLA6120	1062	Apr.18,19	1 Year
8.	NSA Cable	HUBER+SUHNER	CFD400NL-LW	No.3	Dec.01,18	1 Year
9.	Coaxial Switch	Anritsu	MP59B	6201397222	Apr.14,19	1 Year
10.	Test Software	AUDIX	e3	6.2009-5-21a(n)	N/A	N/A
Note: N/A means Not applicable.						

4.1.2. For frequency range 1GHz~25GHz (In 3m Anechoic Chamber)

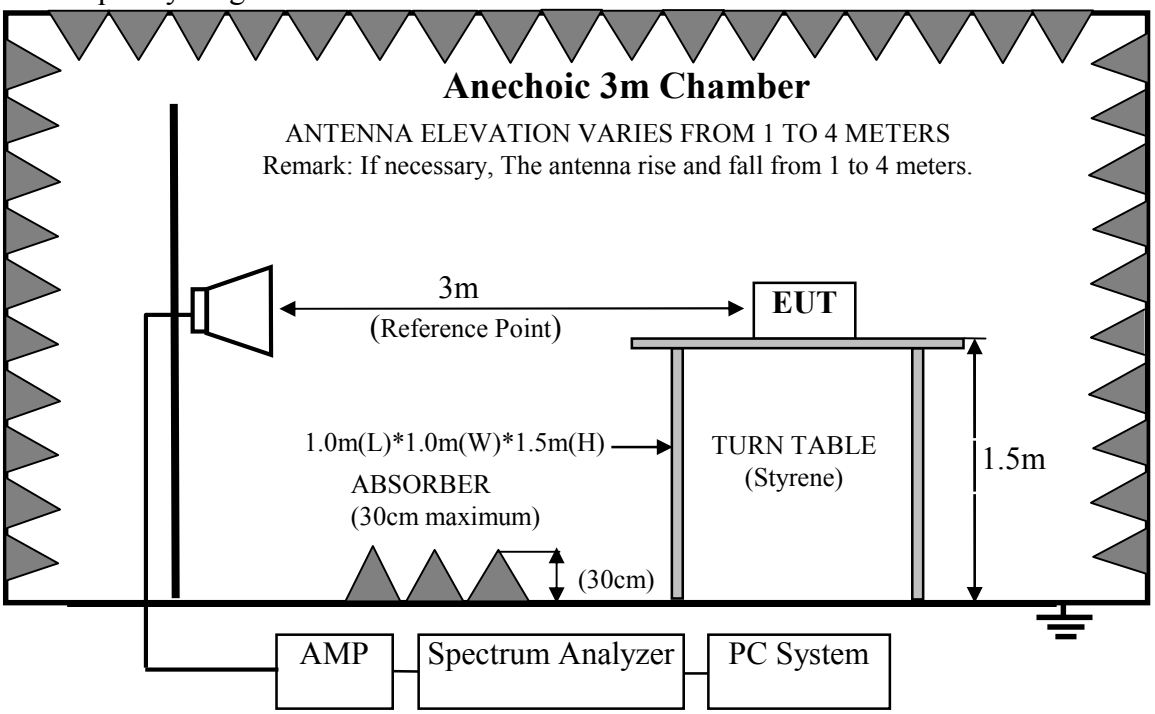
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	3#Chamber(Svswr)	AUDIX	N/A	N/A	Apr.18,19	1 Year
2.	3#Chamber(SE)	AUDIX	N/A	N/A	May.17,18	3 Year
3.	PXA Signal Analyzer	Agilent	N9030A	MY51380221	Jun.30,19	1 Year
4.	Horn Antenna	ETS	3115	9510-4580	Dec.13,18	1 Year
5.	Horn Antenna	ETS	3116	00060089	Dec.13,18	1 Year
6.	Amplifier	HP	8449B	3008A00863	Apr.23,19	1 Year
7.	Amplifier	EMCI	EMC184040SE	980507	Jun.30,19	1 Year
8.	RF Cable	EMCI	EMC102-KM-KM-3500	170702	May.13,19	1 Year
9.	RF Cable	N/A	N/A	No.7	Oct.14,18	1 Year
10.	Test Software	AUDIX	e3	6.2009-5-21a(n)	N/A	N/A
Note: N/A means Not applicable.						

4.2.Block Diagram of Test Setup

For frequency range 30MHz-1000MHz



For frequency range 1GHz-25GHz



4.3.Radiated Emission Limit

4.3.1. 15.247&209 limits

FREQUENCY MHz	DISTANCE Meters	FIELD STRENGTHS LIMIT	
		μV/m	dB(μV)/m
30 ~ 88	3	100	40.0
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46.0
960 ~ 1000	3	500	54.0
Above 1000	3	74.0 dB(μV)/m (Peak) 54.0 dB(μV)/m (Average)	

Remark： (1) Emission level dBμV = 20 log Emission level μV/m
(2) The smaller limit shall apply at the cross point between two frequency bands.
(3) Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.

4.3.2. 15.205 Restricted bands of operation

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
[1]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	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	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])

All the emissions appearing within 15.205 restricted frequency bands shall not exceed the limits shown in 15.209, all the other emissions shall be at least 20dB below the fundamental emissions, or comply with 15.209 limits.

4.4.EUT Configuration on Test

The following equipment are installed on Power Line Conducted Emission Test to meet the commission requirement and operating regulations in a manner which tends to maximize its emission characteristics in a normal application.

4.4.1. COSMO (EUT)

Model No. : COSMO COMMUNICATOR VE
Serial No. : N/A

4.4.2. Support Equipment: As Tested Supporting System Details, in Section 2.2.

4.5.Operating Condition of EUT

4.5.1. Setup the EUT and simulator as shown as Section 4.2.

4.5.2. Turn on the power of all equipments.

4.5.3. Let EUT work in Tx(WiFi 2.4GHz) mode

4.6.Test Procedure

Frequency below 30MHz:
The EUT setup on the turn table which has 0.8 m height to the ground. The turn table rotated 360 degrees and antenna fixed to 1 m to find the maximum emission level. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10-2013 regulation.

EUT and its simulators are placed on a turn table, which is 0.8 meter high above ground for frequency 30MHz~1000MHz, 1.5 meter high above ground for frequency above 1GHz and put the absorbing with 2.4m(L)*2.4m(W)*0.3m(H) on the ground . The turn table can rotate 360 degrees to determine the position of the maximum emission level. Power on the EUT and let it working in test mode, then test it.EUT is set 3 meters away from the receiving antenna, which is mounted on a antenna tower. The antenna can be moved up and down between 1 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated bilog antenna) is used as receiving antenna for frequency 30MHz~1000MHz, and the Horm antenna is used as receiving antenna for frequency above 1GHz. Both horizontal and vertical polarization of the antenna is set on Test. In order to find the maximum emission levels, all of the interface cables must be manipulated according to ANSI C63.10-2013 on radiated emission Test.

This test was performed with EUT in X, Y, Z position, and the worse case was found when EUT in X position as test photo indicated.

The bandwidth of the EMI test receiver (R&S ESR7) is set at 120kHz for frequency range from 30MHz to 1000 MHz.

The bandwidth of the Spectrum's VBW is set at 3MHz and RBW is set at 1MHz for peak emissions measurement above 1GHz and 1MHz RBW, 10Hz VBW for average emissions measure above 1GHz

The frequency range from 30MHz to 10th harmonic (25GHz) are checked. and no any emissions were found from 18GHz to 25GHz, So the radiated emissions from 18GHz to 25GHz were not record.

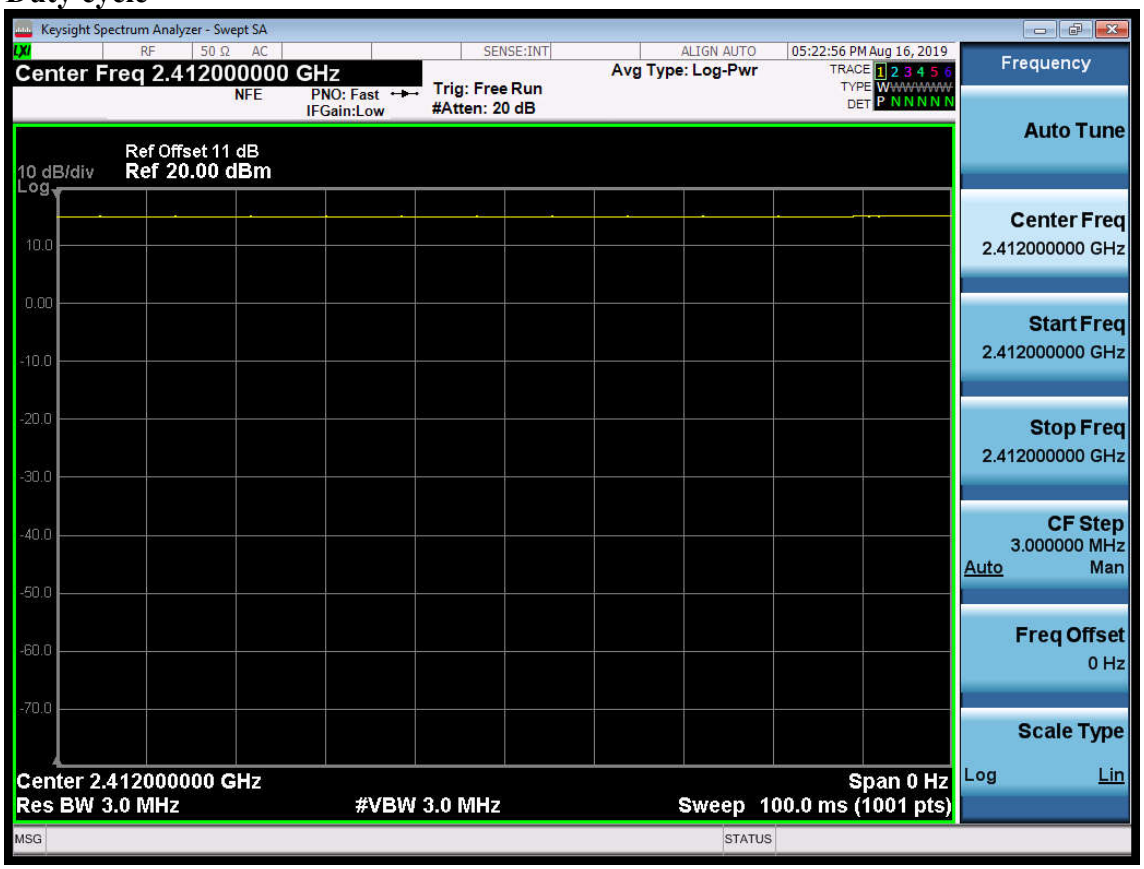
4.7.Radiated Emission Test Results

PASS.

All the emissions from 30MHz to 25 GHz were comply with 15.209 limits.

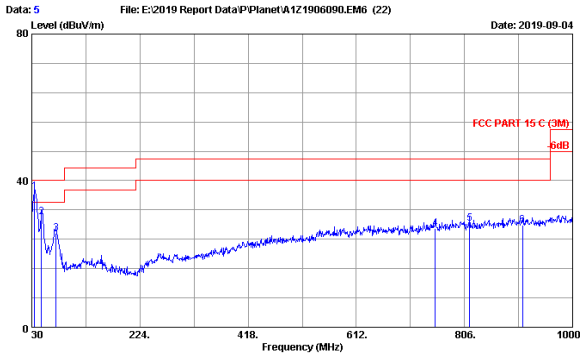
Note 1: For emissions above 1GHz, if peak level comply with average limit, then the average level is deemed to comply with average limit.
Note 2: The emissions (9kHz~30MHz) not reported for there is no emission be found.

Duty cycle



Note: The duty cycle of the test signal is 100%.

Frequency: 30MHz~1GHz

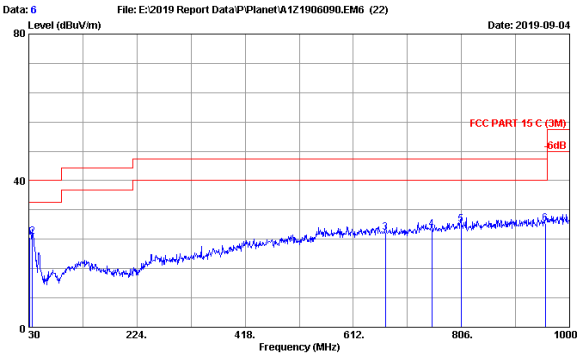


Site no. : 3m Chamber
Dis. / Ant. : 3m 2018 CBL6112D-35375
Limit : FCC PART 15 C (3M)
Env. / Ins. : 23.4°C/54%
Power Rating :AC 120V/60Hz
Test Mode :WiFi 2.4G

Data no. : 5
Ant. pol. : VERTICAL
Engineer : Hogen

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	34.850	22.00	0.56	14.52	37.08	40.00	2.92	QP
2	47.460	16.30	0.65	13.16	30.11	40.00	9.89	QP
3	73.650	13.10	0.83	11.71	25.64	40.00	14.36	QP
4	753.620	25.90	3.00	-1.99	26.91	46.00	19.09	QP
5	815.700	26.16	3.15	-1.10	28.21	46.00	17.79	QP
6	909.790	26.80	3.35	-2.25	27.90	46.00	18.10	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



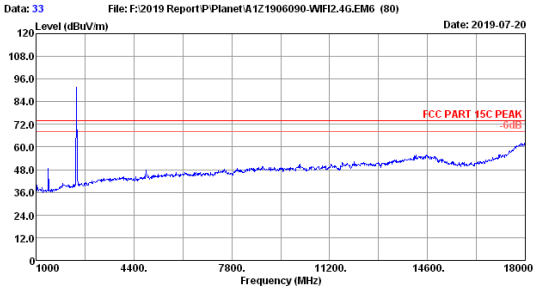
Site no. : 3m Chamber
Dis. / Ant. : 3m 2018 CBL6112D-35375
Limit : FCC PART 15 C (3M)
Env. / Ins. : 23.4°C/54%
Power Rating :AC 120V/60Hz
Test Mode :WiFi 2.4G

Data no. : 6
Ant. pol. : HORIZONTAL
Engineer : Hogen

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	31.940	23.50	0.54	0.56	24.60	40.00	15.40	QP
2	36.790	20.70	0.58	3.35	24.63	40.00	15.37	QP
3	669.230	25.30	2.78	-2.29	25.79	46.00	20.21	QP
4	752.650	25.90	3.00	-2.23	26.67	46.00	19.33	QP
5	805.030	26.40	3.13	-1.56	27.97	46.00	18.03	QP
6	956.350	27.24	3.49	-2.50	28.23	46.00	17.77	QP

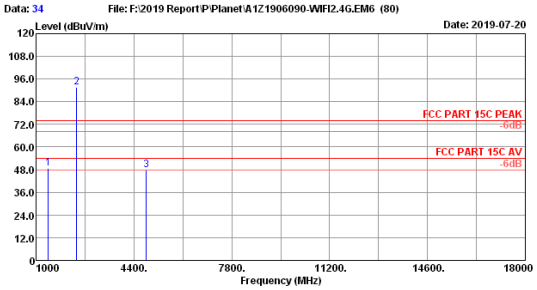
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

Frequency: 1GHz~18GHz



Site no. : 3m Chamber
Dis. / Ant. : 3m 2018 3115-4580
Limit : FCC PART 15C PEAK
Env. / Ins. : 23.4°C/52.9%
Power rating : AC120V/60Hz
Test Mode : 802.11b 2412MHz Tx Mode

Data no. : 33
Ant. pol. : HORIZONTAL
Pre :
Engineer : Garry

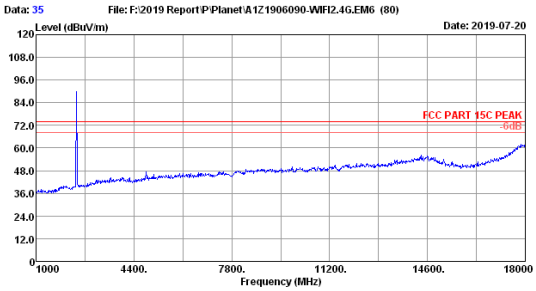


Site no. : 3m Chamber
Dis. / Ant. : 3m 2018 3115-4580
Limit : FCC PART 15C PEAK
Env. / Ins. : 23.4°C/52.9%
Power rating : AC120V/60Hz
Test Mode : 802.11b 2412MHz Tx Mode

Data no. : 34
Ant. pol. : HORIZONTAL
Pre :
Engineer : Garry

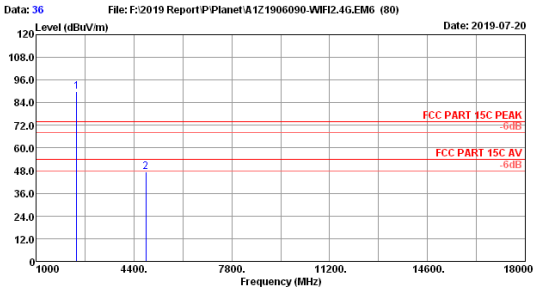
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	AMP factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	1425.00	25.06	0.67	36.01	59.18	48.90	74.00	25.10	Peak
2	2412.00	27.77	0.87	35.04	98.25	91.85	74.00	-17.85	Peak
3	4825.00	32.13	1.25	34.37	48.74	47.75	74.00	26.25	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp Factor
2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber
Dis. / Ant. : 3m 2018 3115-4580
Limit : FCC PART 15C PEAK
Env. / Ins. : 23.4°C/52.9%
Power rating : AC120V/60Hz
Test Mode : 802.11b 2412MHz Tx Mode

Data no. : 35
Ant. pol. : VERTICAL
Pre :
Engineer : Garry

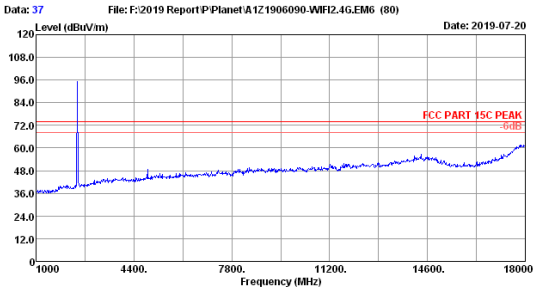


Site no. : 3m Chamber
Dis. / Ant. : 3m 2018 3115-4580
Limit : FCC PART 15C PEAK
Env. / Ins. : 23.4°C/52.9%
Power rating : AC120V/60Hz
Test Mode : 802.11b 2412MHz Tx Mode

Data no. : 36
Ant. pol. : VERTICAL
Pre :
Engineer : Garry

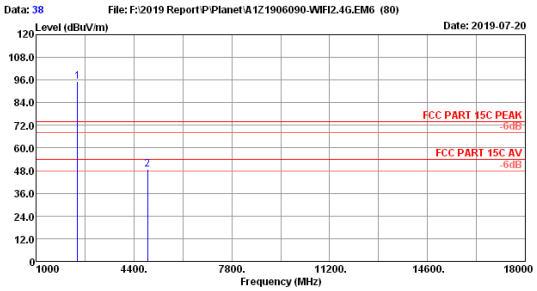
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	AMP factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2412.00	27.77	0.87	35.04	96.20	89.80	74.00	-15.80	Peak
2	4824.00	32.13	1.25	34.37	48.21	47.22	74.00	26.78	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp Factor
2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber
Dis. / Ant. : 3m 2018 3115-4580
Limit : FCC PART 15C PEAK
Env. / Ins. : 23.4*C/52.9%
Power rating : AC120V/60Hz
Test Mode : 802.11b 2437MHz Tx Mode

Data no. : 37
Ant. pol. : VERTICAL
Pre :
Engineer : Garry

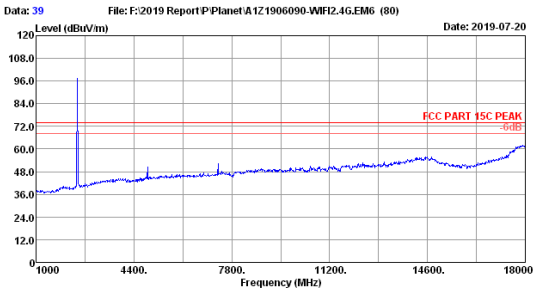


Site no. : 3m Chamber
Dis. / Ant. : 3m 2018 3115-4580
Limit : FCC PART 15C PEAK
Env. / Ins. : 23.4*C/52.9%
Power rating : AC120V/60Hz
Test Mode : 802.11b 2437MHz Tx Mode

Data no. : 38
Ant. pol. : VERTICAL
Pre :
Engineer : Garry

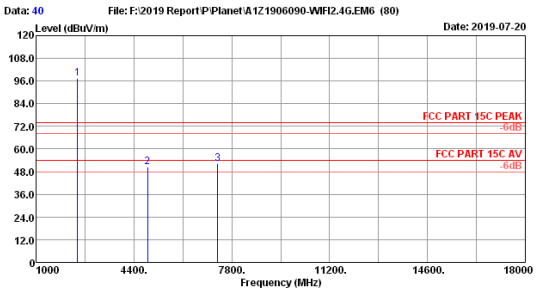
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	AMP factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2437.00	27.87	0.88	35.02	101.45	95.18	74.00	-21.18	Peak
2	4874.00	32.25	1.25	34.38	49.60	48.72	74.00	25.28	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp Factor
2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber
Dis. / Ant. : 3m 2018 3115-4580
Limit : FCC PART 15C PEAK
Env. / Ins. : 23.4*C/52.9%
Power rating : AC120V/60Hz
Test Mode : 802.11b 2437MHz Tx Mode

Data no. : 39
Ant. pol. : HORIZONTAL
Pre :
Engineer : Garry



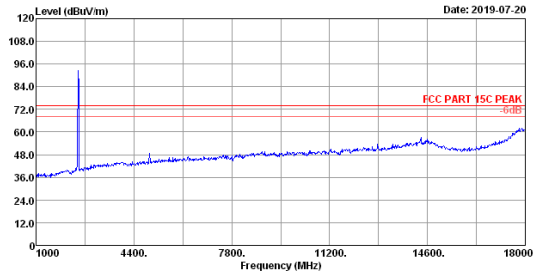
Site no. : 3m Chamber
Dis. / Ant. : 3m 2018 3115-4580
Limit : FCC PART 15C PEAK
Env. / Ins. : 23.4*C/52.9%
Power rating : AC120V/60Hz
Test Mode : 802.11b 2437MHz Tx Mode

Data no. : 40
Ant. pol. : HORIZONTAL
Pre :
Engineer : Garry

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	AMP factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2437.00	27.87	0.88	35.02	103.76	97.49	74.00	-23.49	Peak
2	4874.00	32.25	1.25	34.38	51.52	50.64	74.00	23.36	Peak
3	7311.00	35.35	1.49	34.56	50.10	52.38	74.00	21.62	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp Factor
2. The emission levels that are 20dB below the official limit are not reported.

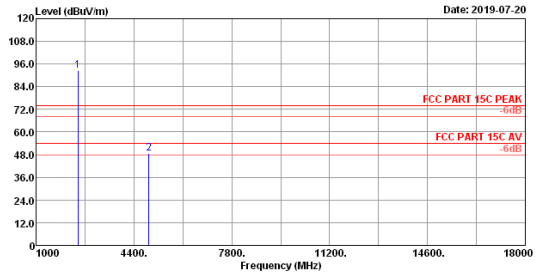
Data: 41 File: F:\2019 Report\P\Planet\A1Z1906090-WIFI2.4G.EM6 (80)



Site no. : 3m Chamber
Dis. / Ant. : 3m 2018 3115-4580
Limit : FCC PART 15C PEAK
Env. / Ins. : 23.4*C/52.9%
Power rating : AC120V/60Hz
Test Mode : 802.11b 2462MHz Tx Mode

Data no. : 41
Ant. pol. : HORIZONTAL
Pre :
Engineer : Garry

Data: 42 File: F:\2019 Report\P\Planet\A1Z1906090-WIFI2.4G.EM6 (80)



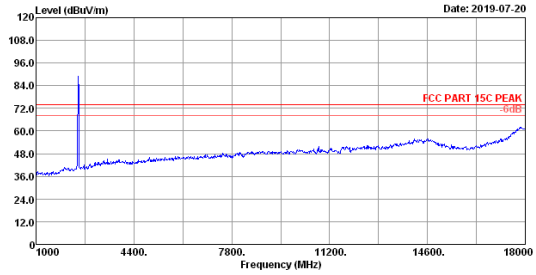
Site no. : 3m Chamber
Dis. / Ant. : 3m 2018 3115-4580
Limit : FCC PART 15C PEAK
Env. / Ins. : 23.4*C/52.9%
Power rating : AC120V/60Hz
Test Mode : 802.11b 2462MHz Tx Mode

Data no. : 42
Ant. pol. : HORIZONTAL
Pre :
Engineer : Garry

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	AMP factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2462.00	27.93	0.88	35.02	98.91	92.70	74.00	-18.70	Peak
2	4924.00	32.36	1.26	34.39	49.57	48.80	74.00	25.20	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp Factor
2. The emission levels that are 20dB below the official limit are not reported.

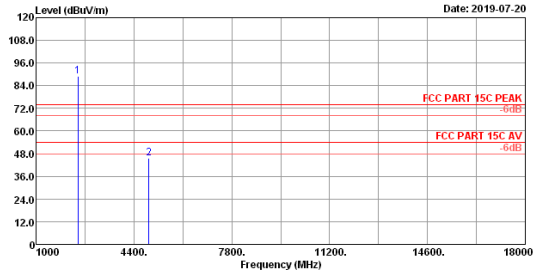
Data: 43 File: F:\2019 Report\P\Planet\A1Z1906090-WIFI2.4G.EM6 (80)



Site no. : 3m Chamber
Dis. / Ant. : 3m 2018 3115-4580
Limit : FCC PART 15C PEAK
Env. / Ins. : 23.4*C/52.9%
Power rating : AC120V/60Hz
Test Mode : 802.11b 2462MHz Tx Mode

Data no. : 43
Ant. pol. : VERTICAL
Pre :
Engineer : Garry

Data: 44 File: F:\2019 Report\P\Planet\A1Z1906090-WIFI2.4G.EM6 (80)



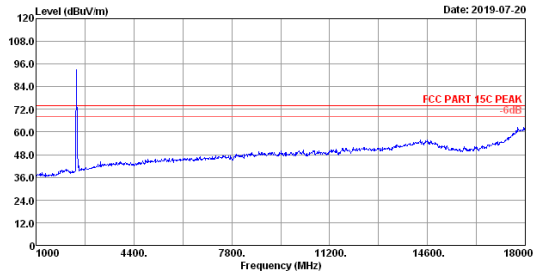
Site no. : 3m Chamber
Dis. / Ant. : 3m 2018 3115-4580
Limit : FCC PART 15C PEAK
Env. / Ins. : 23.4*C/52.9%
Power rating : AC120V/60Hz
Test Mode : 802.11b 2462MHz Tx Mode

Data no. : 44
Ant. pol. : VERTICAL
Pre :
Engineer : Garry

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	AMP factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2462.00	27.93	0.88	35.02	95.10	88.89	74.00	-14.89	Peak
2	4924.00	32.36	1.26	34.39	46.22	45.45	74.00	28.55	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp Factor
2. The emission levels that are 20dB below the official limit are not reported.

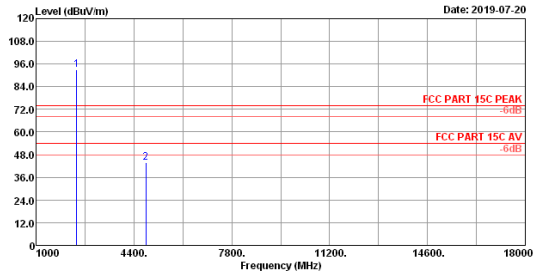
Data: 45 File: F:\2019 Report\P\Planet\A1Z1906090-WIFI2.4G.EM6 (80)



Site no. : 3m Chamber
Dis. / Ant. : 3m 2018 3115-4580
Limit : FCC PART 15C PEAK
Env. / Ins. : 23.4°C/52.9%
Power rating : AC120V/60Hz
Test Mode : 802.11g 2412MHz Tx Mode

Data no. : 45
Ant. pol. : HORIZONTAL
Pre :
Engineer : Garry

Data: 46 File: F:\2019 Report\P\Planet\A1Z1906090-WIFI2.4G.EM6 (80)



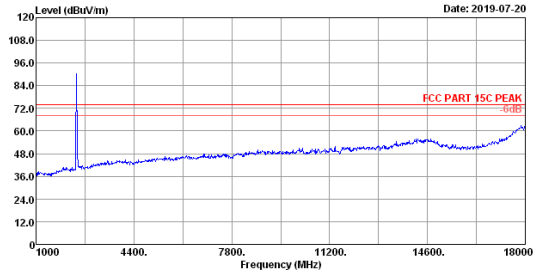
Site no. : 3m Chamber
Dis. / Ant. : 3m 2018 3115-4580
Limit : FCC PART 15C PEAK
Env. / Ins. : 23.4°C/52.9%
Power rating : AC120V/60Hz
Test Mode : 802.11g 2412MHz Tx Mode

Data no. : 46
Ant. pol. : HORIZONTAL
Pre :
Engineer : Garry

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	AMP factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2412.00	27.77	0.87	35.04	99.23	92.83	74.00	-18.83	Peak
2	4824.00	32.13	1.25	34.37	44.82	43.83	74.00	30.17	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp Factor
2. The emission levels that are 20dB below the official limit are not reported.

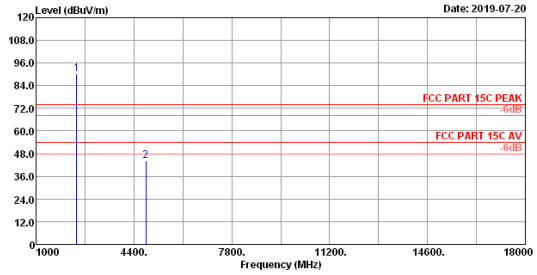
Data: 47 File: F:\2019 Report\P\Planet\A1Z1906090-WIFI2.4G.EM6 (80)



Site no. : 3m Chamber
Dis. / Ant. : 3m 2018 3115-4580
Limit : FCC PART 15C PEAK
Env. / Ins. : 23.4°C/52.9%
Power rating : AC120V/60Hz
Test Mode : 802.11g 2412MHz Tx Mode

Data no. : 47
Ant. pol. : VERTICAL
Pre :
Engineer : Garry

Data: 48 File: F:\2019 Report\P\Planet\A1Z1906090-WIFI2.4G.EM6 (80)



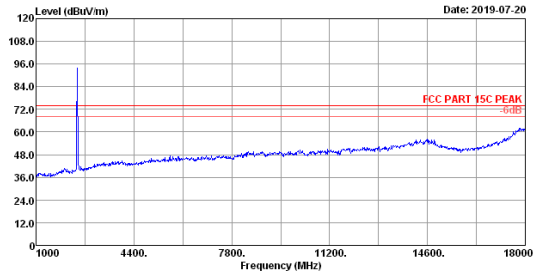
Site no. : 3m Chamber
Dis. / Ant. : 3m 2018 3115-4580
Limit : FCC PART 15C PEAK
Env. / Ins. : 23.4°C/52.9%
Power rating : AC120V/60Hz
Test Mode : 802.11g 2412MHz Tx Mode

Data no. : 48
Ant. pol. : VERTICAL
Pre :
Engineer : Garry

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	AMP factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2412.00	27.77	0.87	35.04	96.76	90.36	74.00	-16.36	Peak
2	4824.00	32.13	1.25	34.37	45.35	44.36	74.00	29.64	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp Factor
2. The emission levels that are 20dB below the official limit are not reported.

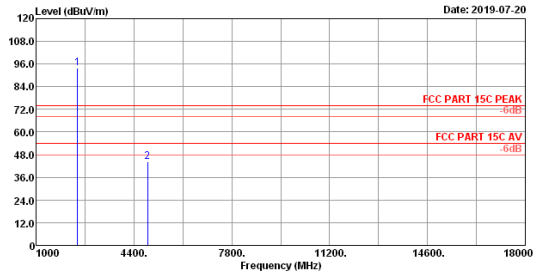
Data: 49 File: F:\2019 Report\P\Planet\A1Z1906090-WIFI2.4G.EM6 (80)



Site no. : 3m Chamber
Dis. / Ant. : 3m 2018 3115-4580
Limit : FCC PART 15C PEAK
Env. / Ins. : 23.4°C/52.9%
Power rating : AC120V/60Hz
Test Mode : 802.11g 2437MHz Tx Mode

Data no. : 49
Ant. pol. : VERTICAL
Pre :
Engineer : Garry

Data: 50 File: F:\2019 Report\P\Planet\A1Z1906090-WIFI2.4G.EM6 (80)



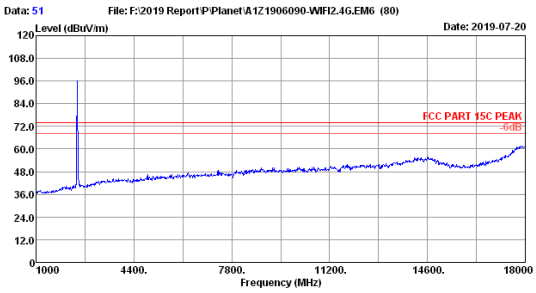
Site no. : 3m Chamber
Dis. / Ant. : 3m 2018 3115-4580
Limit : FCC PART 15C PEAK
Env. / Ins. : 23.4°C/52.9%
Power rating : AC120V/60Hz
Test Mode : 802.11g 2437MHz Tx Mode

Data no. : 50
Ant. pol. : VERTICAL
Pre :
Engineer : Garry

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	AMP factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2437.00	27.87	0.88	35.02	100.09	93.82	74.00	-19.82	Peak
2	4874.00	32.25	1.25	34.38	45.23	44.35	74.00	29.65	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp Factor
2. The emission levels that are 20dB below the official limit are not reported.

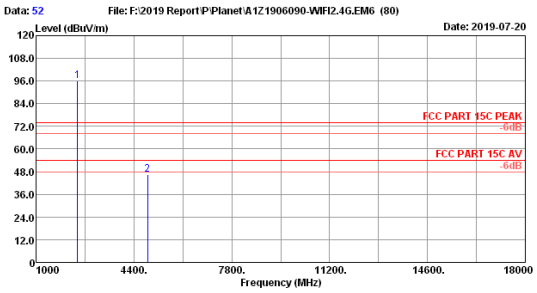
Data: 51 File: F:\2019 Report\P\Planet\A1Z1906090-WIFI2.4G.EM6 (80)



Site no. : 3m Chamber
Dis. / Ant. : 3m 2018 3115-4580
Limit : FCC PART 15C PEAK
Env. / Ins. : 23.4°C/52.9%
Power rating : AC120V/60Hz
Test Mode : 802.11g 2437MHz Tx Mode

Data no. : 51
Ant. pol. : HORIZONTAL
Pre :
Engineer : Garry

Data: 52 File: F:\2019 Report\P\Planet\A1Z1906090-WIFI2.4G.EM6 (80)



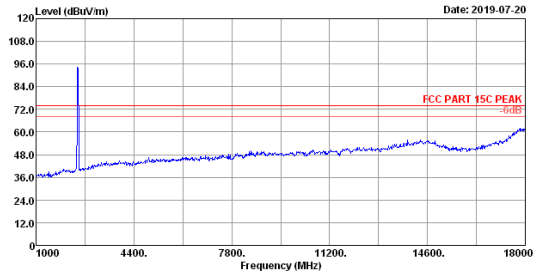
Site no. : 3m Chamber
Dis. / Ant. : 3m 2018 3115-4580
Limit : FCC PART 15C PEAK
Env. / Ins. : 23.4°C/52.9%
Power rating : AC120V/60Hz
Test Mode : 802.11g 2437MHz Tx Mode

Data no. : 52
Ant. pol. : HORIZONTAL
Pre :
Engineer : Garry

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	AMP factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2437.00	27.87	0.88	35.02	102.43	96.16	74.00	-22.16	Peak
2	4874.00	32.25	1.25	34.38	47.54	46.66	74.00	27.34	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp Factor
2. The emission levels that are 20dB below the official limit are not reported.

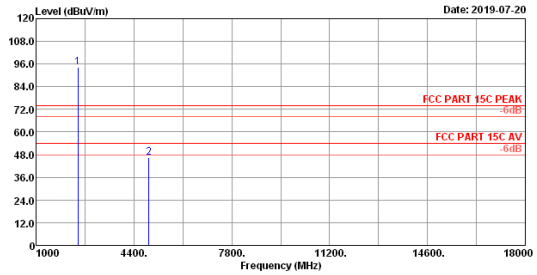
Data: 53 File: F:\2019 Report\P\Planet\A1Z1906090-WIFI2.4G.EM6 (80)



Site no. : 3m Chamber
Dis. / Ant. : 3m 2018 3115-4580
Limit : FCC PART 15C PEAK
Env. / Ins. : 23.4°C/52.9%
Power rating : AC120V/60Hz
Test Mode : 802.11g 2462MHz Tx Mode

Data no. : 53
Ant. pol. : HORIZONTAL
Pre :
Engineer : Garry

Data: 54 File: F:\2019 Report\P\Planet\A1Z1906090-WIFI2.4G.EM6 (80)



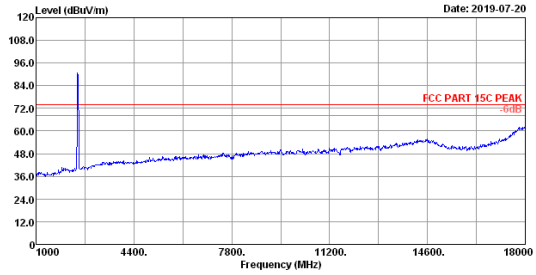
Site no. : 3m Chamber
Dis. / Ant. : 3m 2018 3115-4580
Limit : FCC PART 15C PEAK
Env. / Ins. : 23.4°C/52.9%
Power rating : AC120V/60Hz
Test Mode : 802.11g 2462MHz Tx Mode

Data no. : 54
Ant. pol. : HORIZONTAL
Pre :
Engineer : Garry

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	AMP factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2462.00	27.93	0.88	35.02	100.54	94.33	74.00	-20.33	Peak
2	4924.00	32.36	1.26	34.39	47.40	46.63	74.00	27.37	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp Factor
2. The emission levels that are 20dB below the official limit are not reported.

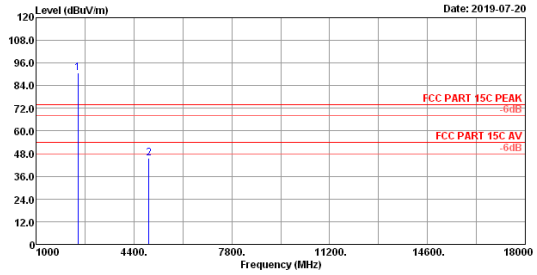
Data: 55 File: F:\2019 Report\P\Planet\A1Z1906090-WIFI2.4G.EM6 (80)



Site no. : 3m Chamber
Dis. / Ant. : 3m 2018 3115-4580
Limit : FCC PART 15C PEAK
Env. / Ins. : 23.4°C/52.9%
Power rating : AC120V/60Hz
Test Mode : 802.11g 2462MHz Tx Mode

Data no. : 55
Ant. pol. : VERTICAL
Pre :
Engineer : Garry

Data: 56 File: F:\2019 Report\P\Planet\A1Z1906090-WIFI2.4G.EM6 (80)

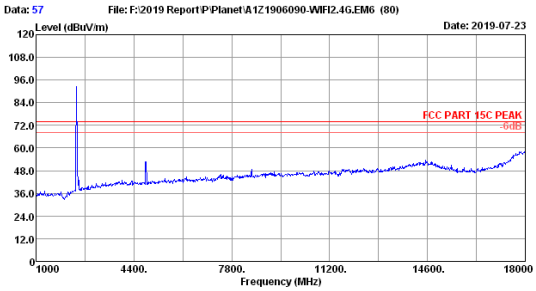


Site no. : 3m Chamber
Dis. / Ant. : 3m 2018 3115-4580
Limit : FCC PART 15C PEAK
Env. / Ins. : 23.4°C/52.9%
Power rating : AC120V/60Hz
Test Mode : 802.11g 2462MHz Tx Mode

Data no. : 56
Ant. pol. : VERTICAL
Pre :
Engineer : Garry

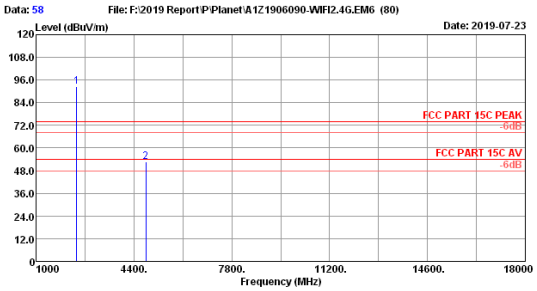
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	AMP factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2462.00	27.93	0.88	35.02	97.18	90.97	74.00	-16.97	Peak
2	4924.00	32.36	1.26	34.39	46.58	45.81	74.00	28.19	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp Factor
2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber
Dis. / Ant. : 3m 2018 3115-4580
Limit : FCC PART 15C PEAK
Env. / Ins. : 23.4°C/52.9%
Power rating : AC120V/60Hz
Test Mode : 802.11nHT20 2412MHz Tx Mode

Data no. : 57
Ant. pol. : VERTICAL
Pre :
Engineer : Garry

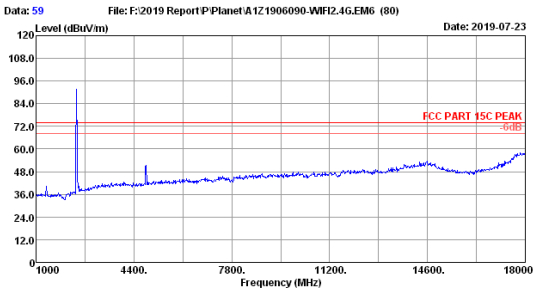


Site no. : 3m Chamber
Dis. / Ant. : 3m 2018 3115-4580
Limit : FCC PART 15C PEAK
Env. / Ins. : 23.4°C/52.9%
Power rating : AC120V/60Hz
Test Mode : 802.11nHT20 2412MHz Tx Mode

Data no. : 58
Ant. pol. : VERTICAL
Pre :
Engineer : Garry

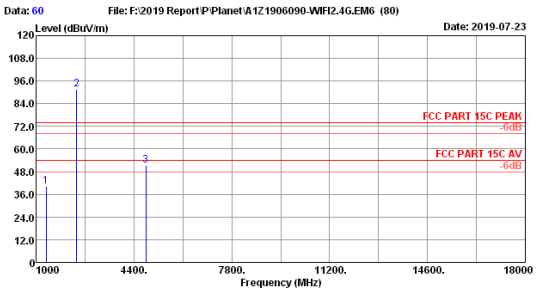
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	AMP factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2412.00	27.77	0.87	35.04	98.75	92.35	74.00	-18.35	Peak
2	4824.00	32.13	1.25	34.37	53.89	52.90	74.00	21.10	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp Factor
2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber
Dis. / Ant. : 3m 2018 3115-4580
Limit : FCC PART 15C PEAK
Env. / Ins. : 23.4°C/52.9%
Power rating : AC120V/60Hz
Test Mode : 802.11nHT20 2412MHz Tx Mode

Data no. : 59
Ant. pol. : HORIZONTAL
Pre :
Engineer : Garry



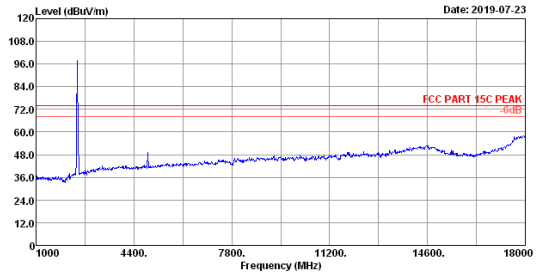
Site no. : 3m Chamber
Dis. / Ant. : 3m 2018 3115-4580
Limit : FCC PART 15C PEAK
Env. / Ins. : 23.4°C/52.9%
Power rating : AC120V/60Hz
Test Mode : 802.11nHT20 2412MHz Tx Mode

Data no. : 60
Ant. pol. : HORIZONTAL
Pre :
Engineer : Garry

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	AMP factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	1357.00	25.02	0.65	36.10	50.73	40.30	74.00	33.70	Peak
2	2412.00	27.77	0.87	35.04	98.06	91.66	74.00	-17.66	Peak
3	4824.00	32.13	1.25	34.37	52.27	51.28	74.00	22.72	Peak

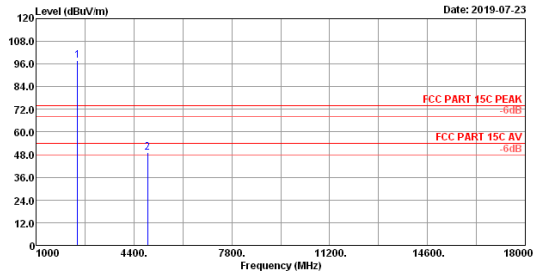
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp Factor
2. The emission levels that are 20dB below the official limit are not reported.

Data: 61 File: F:\2019 Report\P\Planet\A1Z1906090-WIFI2.4G.EM6 (80)



Site no. : 3m Chamber Data no. : 61
Dis. / Ant. : 3m 2018 3115-4580 Ant. pol. : HORIZONTAL
Limit : FCC PART 15C PEAK Pre :
Env. / Ins. : 23.4°C/52.9% Engineer : Garry
Power rating : AC120V/60Hz
Test Mode : 802.11nHT20 2437MHz Tx Mode

Data: 62 File: F:\2019 Report\P\Planet\A1Z1906090-WIFI2.4G.EM6 (80)

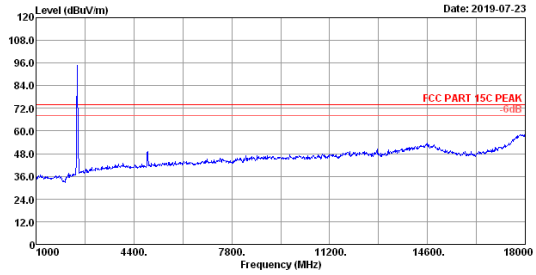


Site no. : 3m Chamber Data no. : 62
Dis. / Ant. : 3m 2018 3115-4580 Ant. pol. : HORIZONTAL
Limit : FCC PART 15C PEAK Pre :
Env. / Ins. : 23.4°C/52.9% Engineer : Garry
Power rating : AC120V/60Hz
Test Mode : 802.11nHT20 2437MHz Tx Mode

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	AMP factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2437.00	27.87	0.88	35.02	104.33	98.06	74.00	-24.06	Peak
2	4874.00	32.25	1.25	34.38	49.90	49.02	74.00	24.98	Peak

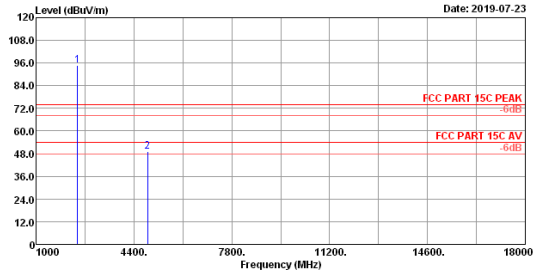
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp Factor
2. The emission levels that are 20dB below the official limit are not reported.

Data: 63 File: F:\2019 Report\P\Planet\A1Z1906090-WIFI2.4G.EM6 (80)



Site no. : 3m Chamber Data no. : 63
Dis. / Ant. : 3m 2018 3115-4580 Ant. pol. : VERTICAL
Limit : FCC PART 15C PEAK Pre :
Env. / Ins. : 23.4°C/52.9% Engineer : Garry
Power rating : AC120V/60Hz
Test Mode : 802.11nHT20 2437MHz Tx Mode

Data: 64 File: F:\2019 Report\P\Planet\A1Z1906090-WIFI2.4G.EM6 (80)

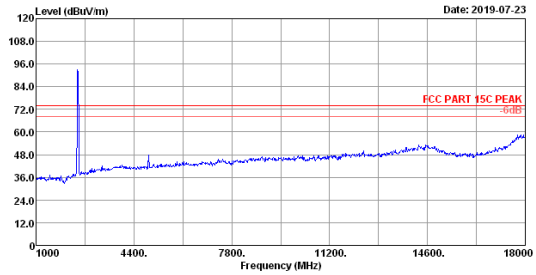


Site no. : 3m Chamber Data no. : 64
Dis. / Ant. : 3m 2018 3115-4580 Ant. pol. : VERTICAL
Limit : FCC PART 15C PEAK Pre :
Env. / Ins. : 23.4°C/52.9% Engineer : Garry
Power rating : AC120V/60Hz
Test Mode : 802.11nHT20 2437MHz Tx Mode

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	AMP factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2437.00	27.87	0.88	35.02	101.13	94.86	74.00	-20.86	Peak
2	4874.00	32.25	1.25	34.38	50.04	49.16	74.00	24.84	Peak

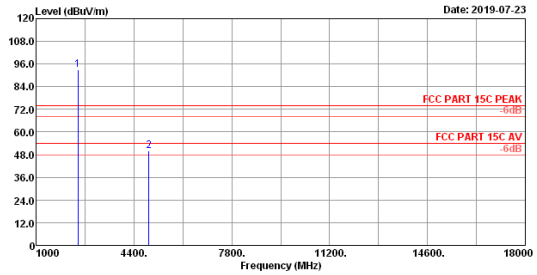
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp Factor
2. The emission levels that are 20dB below the official limit are not reported.

Data: 65 File: F:\2019 Report\P\Planet\A1Z1906090-WIFI2.4G.EM6 (80)



Site no. : 3m Chamber Data no. : 65
Dis. / Ant. : 3m 2018 3115-4580 Ant. pol. : VERTICAL
Limit : FCC PART 15C PEAK Pre :
Env. / Ins. : 23.4°C/52.9% Engineer : Garry
Power rating : AC120V/60Hz
Test Mode : 802.11nHT20 2462MHz Tx Mode

Data: 66 File: F:\2019 Report\P\Planet\A1Z1906090-WIFI2.4G.EM6 (80)

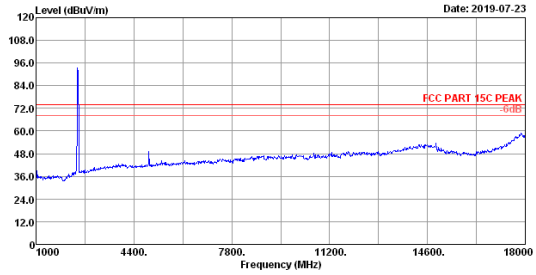


Site no. : 3m Chamber Data no. : 66
Dis. / Ant. : 3m 2018 3115-4580 Ant. pol. : VERTICAL
Limit : FCC PART 15C PEAK Pre :
Env. / Ins. : 23.4°C/52.9% Engineer : Garry
Power rating : AC120V/60Hz
Test Mode : 802.11nHT20 2462MHz Tx Mode

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	AMP factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2462.00	27.93	0.88	35.02	99.00	92.79	74.00	-18.79	Peak
2	4924.00	32.36	1.26	34.39	50.74	49.97	74.00	24.03	Peak

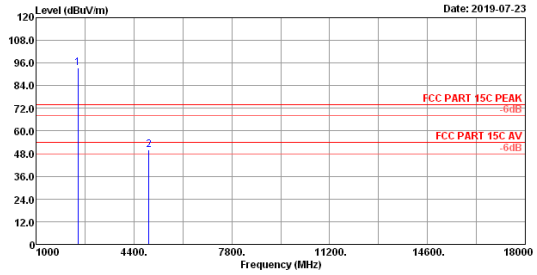
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp Factor
2. The emission levels that are 20dB below the official limit are not reported.

Data: 67 File: F:\2019 Report\P\Planet\A1Z1906090-WIFI2.4G.EM6 (80)



Site no. : 3m Chamber Data no. : 67
Dis. / Ant. : 3m 2018 3115-4580 Ant. pol. : HORIZONTAL
Limit : FCC PART 15C PEAK Pre :
Env. / Ins. : 23.4°C/52.9% Engineer : Garry
Power rating : AC120V/60Hz
Test Mode : 802.11nHT20 2462MHz Tx Mode

Data: 68 File: F:\2019 Report\P\Planet\A1Z1906090-WIFI2.4G.EM6 (80)

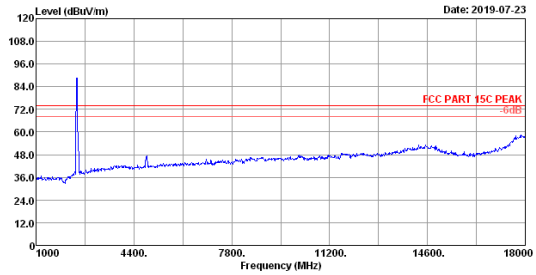


Site no. : 3m Chamber Data no. : 68
Dis. / Ant. : 3m 2018 3115-4580 Ant. pol. : HORIZONTAL
Limit : FCC PART 15C PEAK Pre :
Env. / Ins. : 23.4°C/52.9% Engineer : Garry
Power rating : AC120V/60Hz
Test Mode : 802.11nHT20 2462MHz Tx Mode

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	AMP factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2462.00	27.93	0.88	35.02	99.71	93.50	74.00	-19.50	Peak
2	4924.00	32.36	1.26	34.39	50.78	50.01	74.00	23.99	Peak

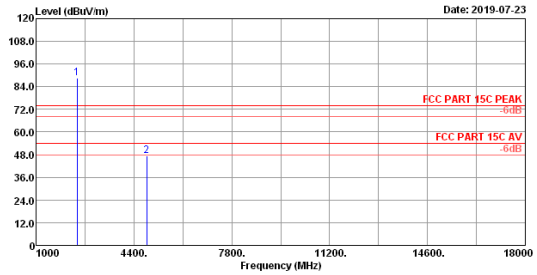
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp Factor
2. The emission levels that are 20dB below the official limit are not reported.

Data: 69 File: F:\2019 Report\P\Planet\A1Z1906090-WIFI2.4G.EM6 (80)



Site no. : 3m Chamber Data no. : 69
Dis. / Ant. : 3m 2018 3115-4580 Ant. pol. : HORIZONTAL
Limit : FCC PART 15C PEAK Pre :
Env. / Ins. : 23.4*C/52.9% Engineer : Garry
Power rating : AC120V/60Hz
Test Mode : 802.11nHT40 2422MHz Tx Mode

Data: 70 File: F:\2019 Report\P\Planet\A1Z1906090-WIFI2.4G.EM6 (80)

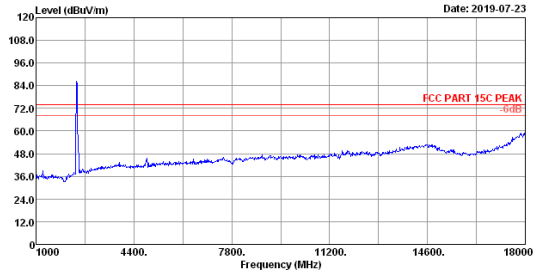


Site no. : 3m Chamber Data no. : 70
Dis. / Ant. : 3m 2018 3115-4580 Ant. pol. : HORIZONTAL
Limit : FCC PART 15C PEAK Pre :
Env. / Ins. : 23.4*C/52.9% Engineer : Garry
Power rating : AC120V/60Hz
Test Mode : 802.11nHT40 2422MHz Tx Mode

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	AMP factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2422.00	27.82	0.88	35.03	95.08	88.75	74.00	-14.75	Peak
2	4844.00	32.17	1.25	34.37	48.19	47.24	74.00	26.76	Peak

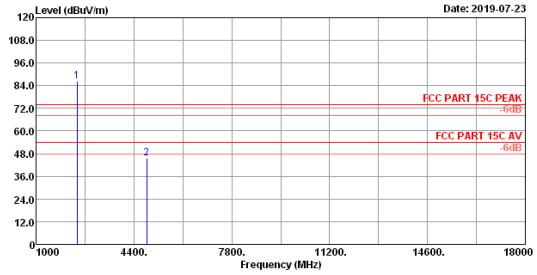
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp Factor
2. The emission levels that are 20dB below the official limit are not reported.

Data: 71 File: F:\2019 Report\P\Planet\A1Z1906090-WIFI2.4G.EM6 (80)



Site no. : 3m Chamber Data no. : 71
Dis. / Ant. : 3m 2018 3115-4580 Ant. pol. : VERTICAL
Limit : FCC PART 15C PEAK Pre :
Env. / Ins. : 23.4*C/52.9% Engineer : Garry
Power rating : AC120V/60Hz
Test Mode : 802.11nHT40 2422MHz Tx Mode

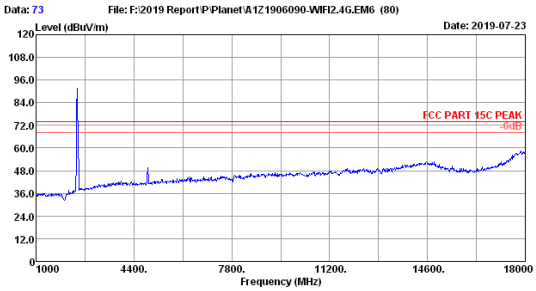
Data: 72 File: F:\2019 Report\P\Planet\A1Z1906090-WIFI2.4G.EM6 (80)



Site no. : 3m Chamber Data no. : 72
Dis. / Ant. : 3m 2018 3115-4580 Ant. pol. : VERTICAL
Limit : FCC PART 15C PEAK Pre :
Env. / Ins. : 23.4*C/52.9% Engineer : Garry
Power rating : AC120V/60Hz
Test Mode : 802.11nHT40 2422MHz Tx Mode

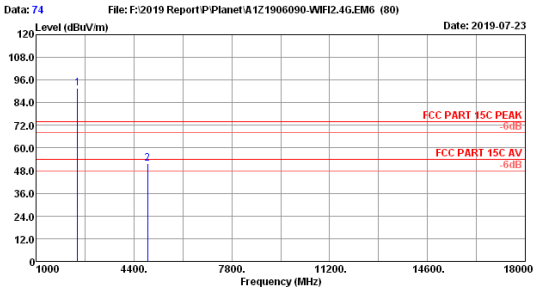
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	AMP factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2422.00	27.82	0.88	35.03	92.56	86.23	74.00	-12.23	Peak
2	4844.00	32.17	1.25	34.37	46.36	45.41	74.00	28.59	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp Factor
2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber
Dis. / Ant. : 3m 2018 3115-4580
Limit : FCC PART 15C PEAK
Env. / Ins. : 23.4*C/52.9%
Power rating : AC120V/60Hz
Test Mode : 802.11nHT40 2437MHz Tx Mode

Data no. : 73
Ant. pol. : VERTICAL
Pre :
Engineer : Garry

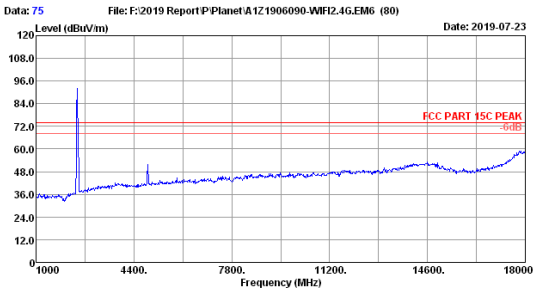


Site no. : 3m Chamber
Dis. / Ant. : 3m 2018 3115-4580
Limit : FCC PART 15C PEAK
Env. / Ins. : 23.4*C/52.9%
Power rating : AC120V/60Hz
Test Mode : 802.11nHT40 2437MHz Tx Mode

Data no. : 74
Ant. pol. : VERTICAL
Pre :
Engineer : Garry

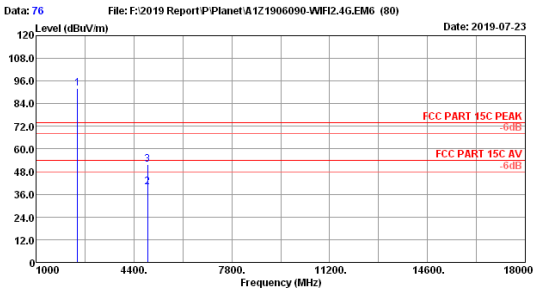
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	AMP factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2437.00	27.87	0.88	35.02	97.77	91.50	74.00	-17.50	Peak
2	4874.00	32.25	1.25	34.38	52.52	51.64	74.00	22.36	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp Factor
2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber
Dis. / Ant. : 3m 2018 3115-4580
Limit : FCC PART 15C PEAK
Env. / Ins. : 23.4*C/52.9%
Power rating : AC120V/60Hz
Test Mode : 802.11nHT40 2437MHz Tx Mode

Data no. : 75
Ant. pol. : HORIZONTAL
Pre :
Engineer : Garry

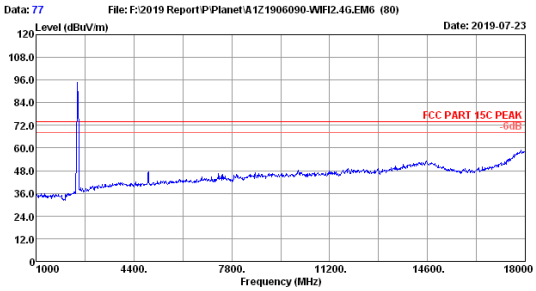


Site no. : 3m Chamber
Dis. / Ant. : 3m 2018 3115-4580
Limit : FCC PART 15C PEAK
Env. / Ins. : 23.4*C/52.9%
Power rating : AC120V/60Hz
Test Mode : 802.11nHT40 2437MHz Tx Mode

Data no. : 76
Ant. pol. : HORIZONTAL
Pre :
Engineer : Garry

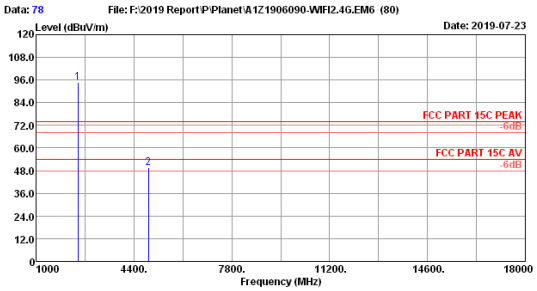
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	AMP factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2437.00	27.87	0.88	35.02	98.25	91.98	74.00	-17.98	Peak
2	4874.00	32.25	1.25	34.38	40.93	40.05	54.00	13.95	Average
3	4874.00	32.25	1.25	34.38	52.52	51.64	74.00	22.36	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp Factor
2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber
Dis. / Ant. : 3m 2018 3115-4580
Limit : FCC PART 15C PEAK
Env. / Ins. : 23.4*C/52.9%
Power rating : AC120V/60Hz
Test Mode : 802.11nHT40 2452MHz Tx Mode

Data no. : 77
Ant. pol. : HORIZONTAL
Pre :
Engineer : Garry

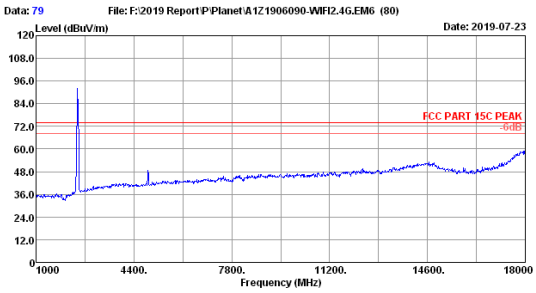


Site no. : 3m Chamber
Dis. / Ant. : 3m 2018 3115-4580
Limit : FCC PART 15C PEAK
Env. / Ins. : 23.4*C/52.9%
Power rating : AC120V/60Hz
Test Mode : 802.11nHT40 2452MHz Tx Mode

Data no. : 78
Ant. pol. : HORIZONTAL
Pre :
Engineer : Garry

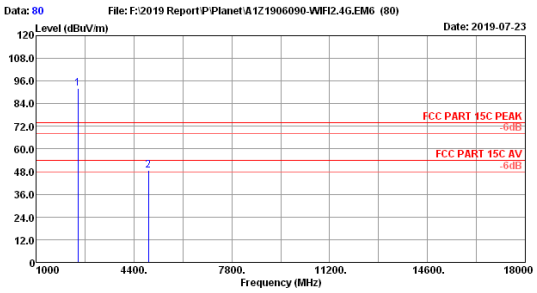
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	AMP factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2452.00	27.87	0.88	35.02	100.86	94.59	74.00	-20.59	Peak
2	4904.00	32.32	1.26	34.38	50.43	49.63	74.00	24.37	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp Factor
2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber
Dis. / Ant. : 3m 2018 3115-4580
Limit : FCC PART 15C PEAK
Env. / Ins. : 23.4*C/52.9%
Power rating : AC120V/60Hz
Test Mode : 802.11nHT40 2452MHz Tx Mode

Data no. : 79
Ant. pol. : VERTICAL
Pre :
Engineer : Garry



Site no. : 3m Chamber
Dis. / Ant. : 3m 2018 3115-4580
Limit : FCC PART 15C PEAK
Env. / Ins. : 23.4*C/52.9%
Power rating : AC120V/60Hz
Test Mode : 802.11nHT40 2452MHz Tx Mode

Data no. : 80
Ant. pol. : VERTICAL
Pre :
Engineer : Garry

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	AMP factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2452.00	27.87	0.88	35.02	98.35	92.08	74.00	-18.08	Peak
2	4904.00	32.32	1.26	34.38	49.68	48.88	74.00	25.12	Peak

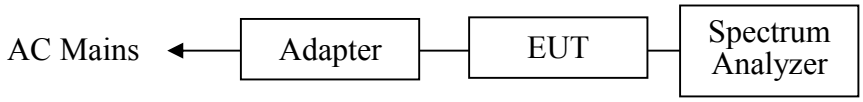
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp Factor
2. The emission levels that are 20dB below the official limit are not reported.

5. CONDUCTED SPURIOUS EMISSIONS

5.1.Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	PXA Signal Analyzer	Agilent	N9030A	MY51380221	Jun.30,19	1 Year
2.	Attenuator	Agilent	8491B	MY39262165	Oct.14,18	1 Year
3.	RF Cable	EMCI	EMC102-KM-KM 3500	170702	May.13,19	1 Year

5.2.Block Diagram of Test Setup



5.3.Limit

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

5.4.Test Procedure

Use the test method descried in ANSI C63.10:
The transmitter output was connected to a spectrum analyzer, The resolution bandwidth is set to 100 kHz, The video bandwidth is set to 300 kHz and measure all the emissions with peak detector.

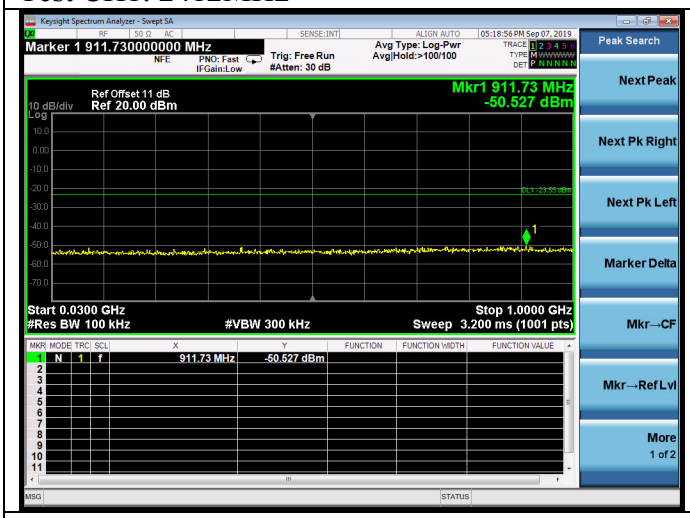
Note: The cable loss and attenuator loss were offset into spectrum analyzer as an amplitude offset.

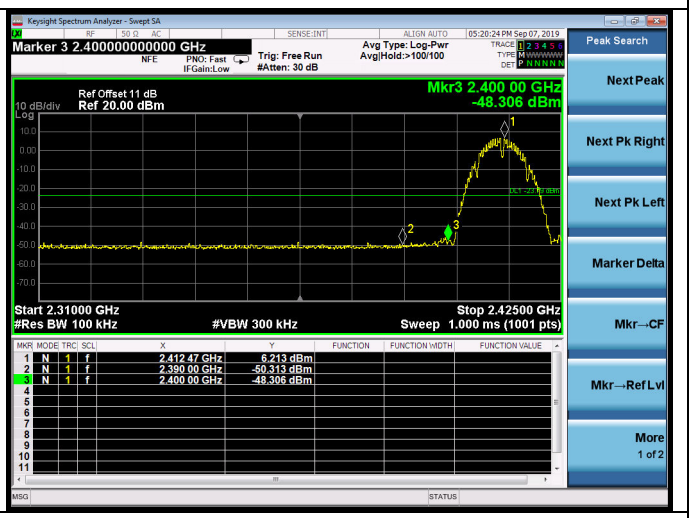
5.5.Test result

PASS (The testing data was attached in the next pages.)

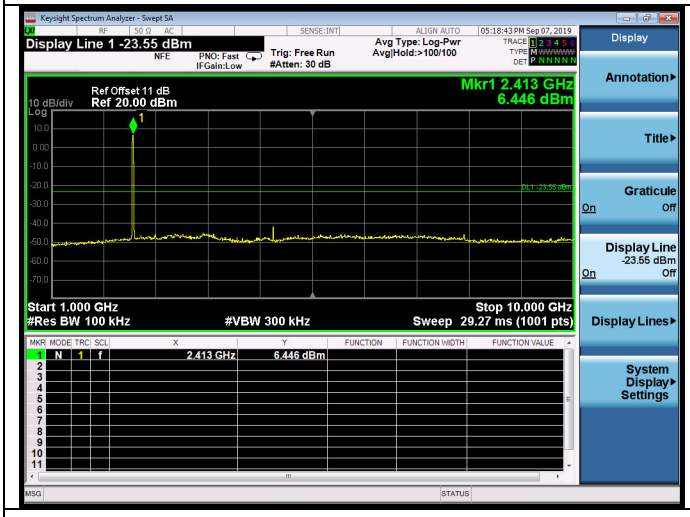
EUT: COSMO		
M/N: COSMO COMMUNICATOR VE		
Test date: 2019-09-07	Pressure: 102.1±1.0 kpa	Humidity: 51.1±3.0%
Tested by: Garry	Test site: RF site	Temperature:22.8±0.6 ℃

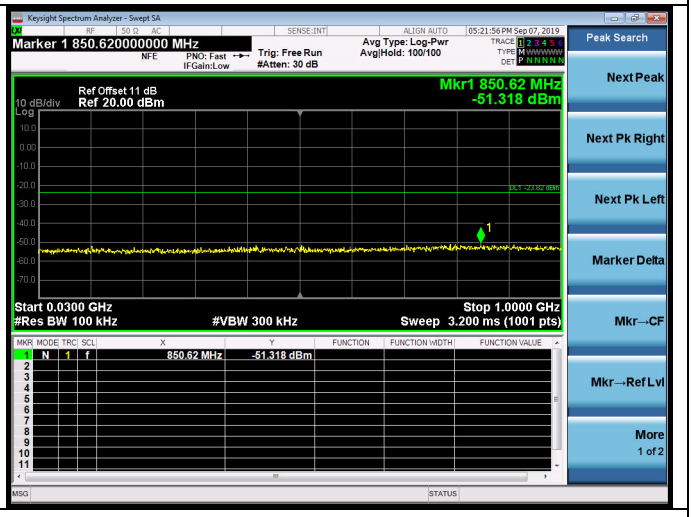
Test Mode: IEEE 802.11b
Test CH1: 2412MHz

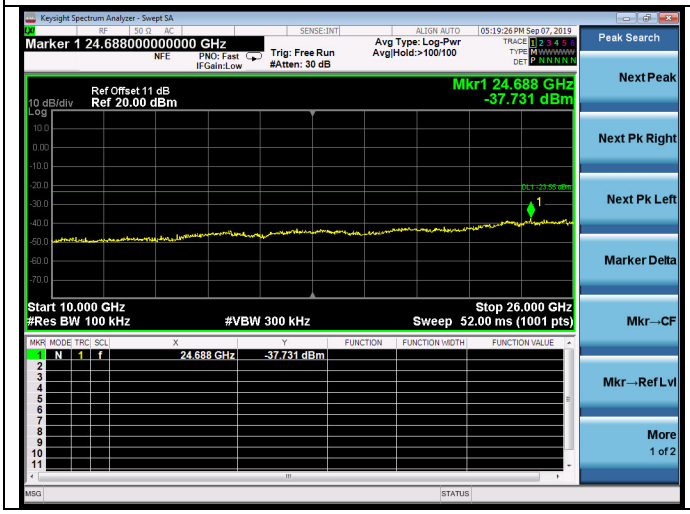


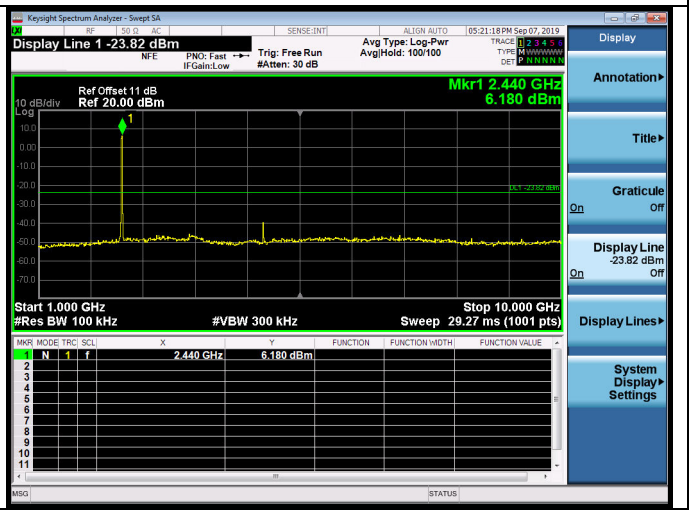


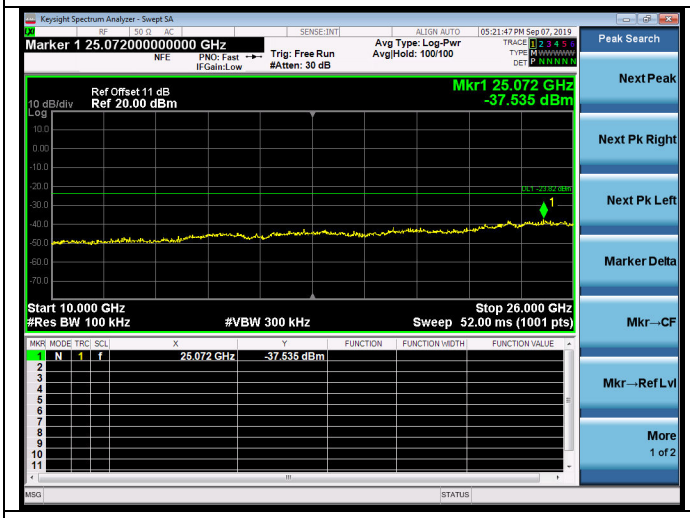
Test CH6: 2437MHz



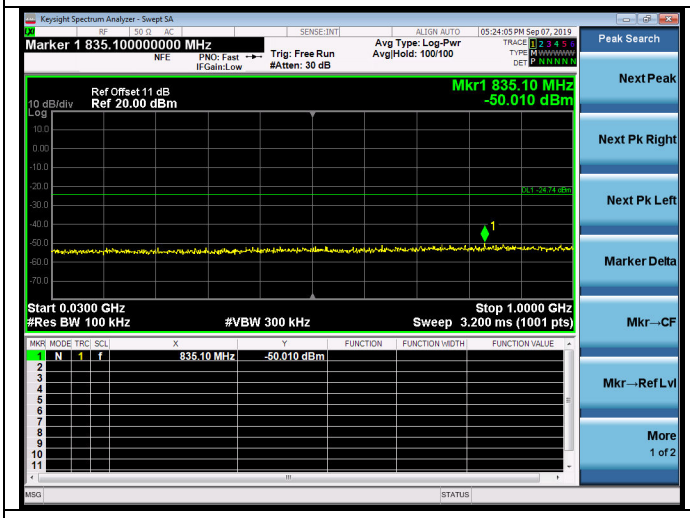




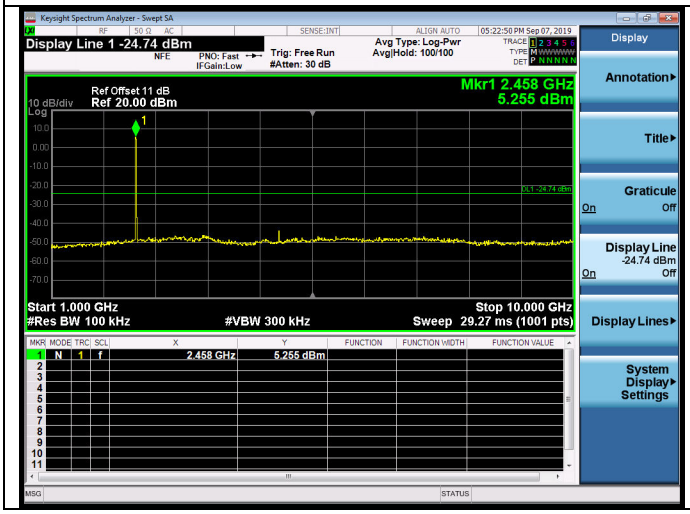


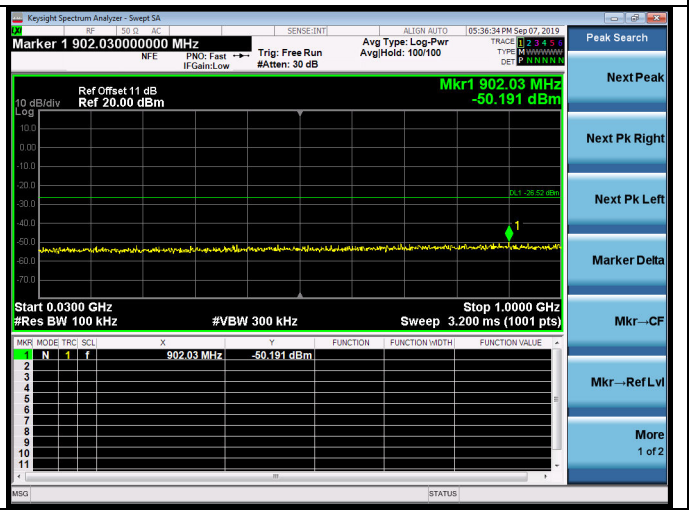
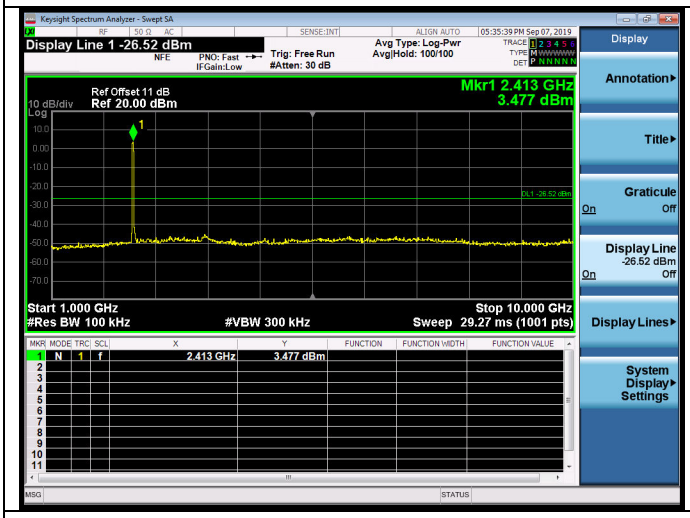
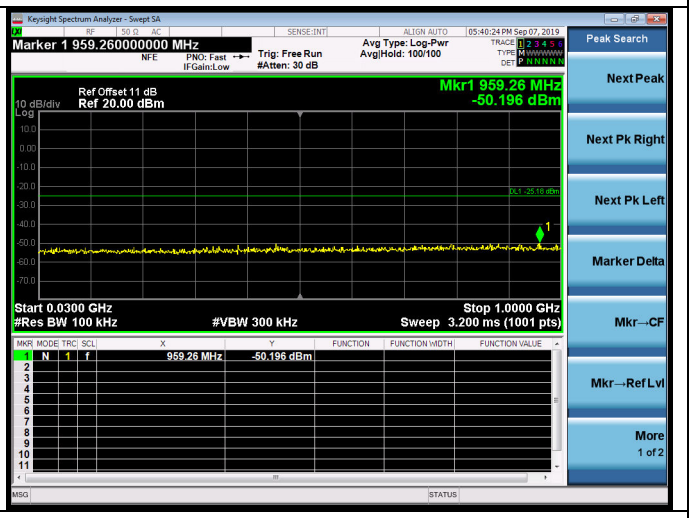
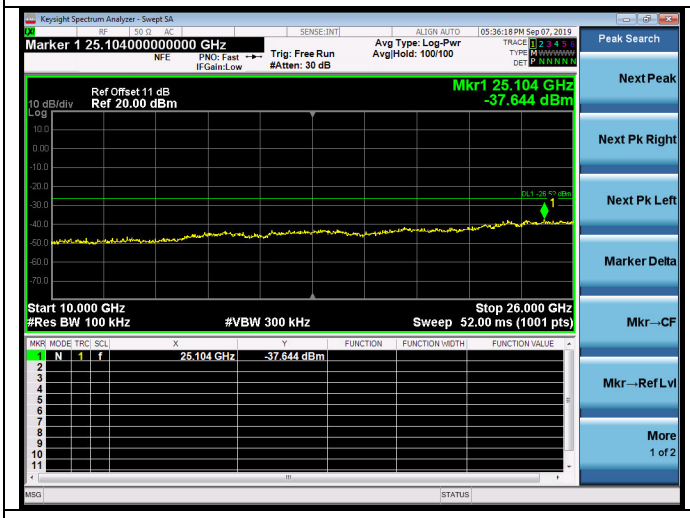
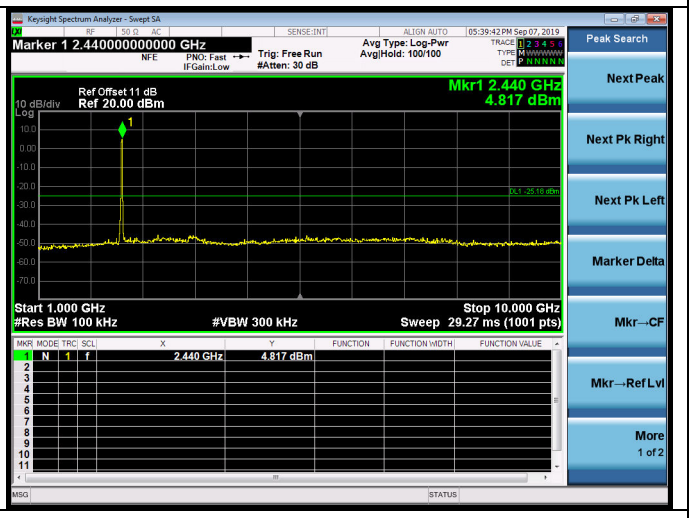
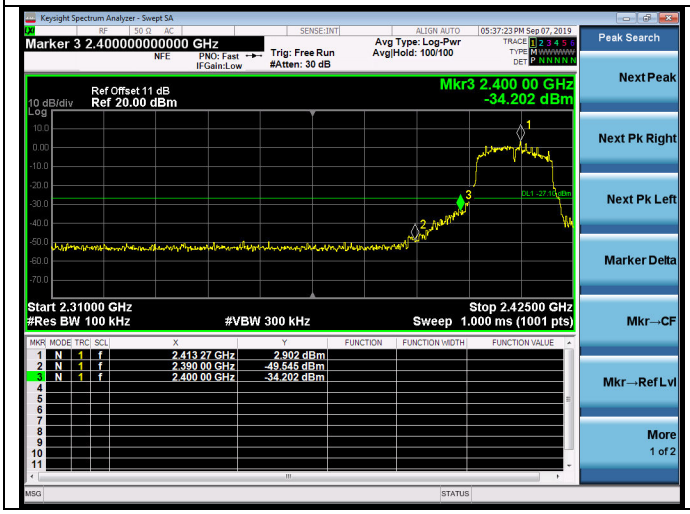
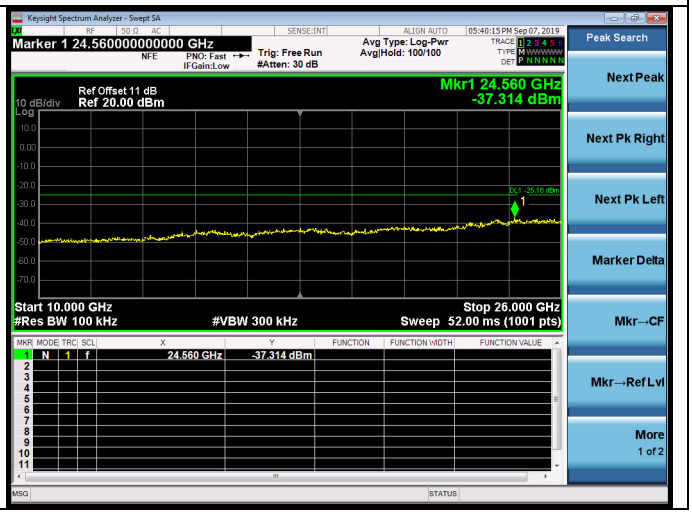


Test CH11: 2462MHz



Test Mode: IEEE 802.11g
Test CH1: 2412MHz





Test CH6: 2437MHz