

FCC RADIO TEST REPORT

FCC ID: 2ASYX-TABIC1

Product : ISAAC InControl tablet

Trade Mark : N/A

Model Name : TABIC1

Family Model : N/A

Report No. : S19043003503004

Prepared for

ISAAC Instruments Inc.

240 Frechette Chambly (Qc) Canada J3L 2Z5

Prepared by

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TEST RESULT CERTIFICATION**Applicant's name** : ISAAC Instruments Inc.

Address : 240 Frechette Chambly (Qc) Canada J3L 2Z5

Manufacturer's Name : ISAAC Instruments Inc.

Address : 240 Frechette Chambly (Qc) Canada J3L 2Z5

Product description

Product name : ISAAC InControl tablet

Model and/or type reference : TABIC1

Family Model..... : N/A

Standards : FCC Part15.407Test 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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Date of Test

Date (s) of performance of tests 05 May. 2019 ~ 17 May. 2019

Date of Issue 20 May. 2019

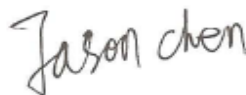
Test Result..... **Pass**

Testing Engineer :



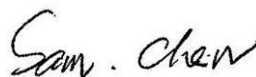
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Technical Manager :



(Jason Chen)

Authorized Signatory :



(Sam Chen)

Table of Contents

	Page
1 . SUMMARY OF TEST RESULTS	6
1.1 FACILITIES AND ACCREDITATIONS	7
1.2 MEASUREMENT UNCERTAINTY	7
2 . GENERAL INFORMATION	8
2.1 GENERAL DESCRIPTION OF EUT	8
2.2 DESCRIPTION OF TEST MODES	10
2.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED	11
2.4 DESCRIPTION OF SUPPORT UNITS(CONDUCTED MODE)	12
2.5 EQUIPMENTS LIST FOR ALL TEST ITEMS	13
3 . EMC EMISSION TEST	15
3.1 CONDUCTED EMISSION MEASUREMENT	15
3.1.1 APPLICABLE STANDARD	15
3.1.2 CONFORMANCE LIMIT	15
3.1.3 TEST CONFIGURATION	15
3.1.4 TEST PROCEDURE	15
3.2 RADIATED EMISSION MEASUREMENT	18
3.2.1 APPLICABLE STANDARD	18
3.2.2 CONFORMANCE LIMIT	18
3.2.3 MEASURING INSTRUMENTS	18
3.2.4 TEST CONFIGURATION	19
3.2.5 TEST PROCEDURE	20
3.2.6 TEST RESULTS (9KHZ – 30 MHZ)	21
3.2.7 TEST RESULTS (30MHZ – 1GHZ)	22
3.2.8 TEST RESULTS (1GHZ-18GHZ)	26
3.2.9 TEST RESULTS (18GHZ-40GHZ)	28
4 . POWER SPECTRAL DENSITY TEST	32
4.1 APPLIED PROCEDURES / LIMIT	32
4.2 TEST PROCEDURE	33
4.3 DEVIATION FROM STANDARD	33
4.4 TEST SETUP	33
4.5 EUT OPERATION CONDITIONS	33
4.6 TEST RESULTS	34
5 . 26DB & 99% EMISSION BANDWIDTH	40
5.1 APPLIED PROCEDURES / LIMIT	40
5.2 TEST PROCEDURE	40
5.3 EUT OPERATION CONDITIONS	41
5.4 TEST RESULTS	42

Table of Contents

	Page
6 . MINIMUM 6 DB BANDWIDTH	48
6.1 APPLIED PROCEDURES / LIMIT	48
6.2 TEST PROCEDURE	48
6.3 DEVIATION FROM STANDARD	48
6.4 TEST SETUP	48
6.5 EUT OPERATION CONDITIONS	48
6.6 TEST RESULTS	49
7 . MAXIMUM CONDUCTED OUTPUT POWER	52
7.1 PPLIED PROCEDURES / LIMIT	52
7.2 TEST PROCEDURE	52
7.3 DEVIATION FROM STANDARD	54
7.4 TEST SETUP	54
7.5 EUT OPERATION CONDITIONS	54
7.6 TEST RESULTS	55
8 . OUT OF BAND EMISSIONS	57
8.1 APPLICABLE STANDARD	57
8.2 TEST PROCEDURE	57
8.3 DEVIATION FROM STANDARD	57
8.4 TEST SETUP	57
8.5 EUT OPERATION CONDITIONS	57
8.6 TEST RESULTS	58
9.SPURIOUS RF CONDUCTED EMISSIONS	62
9.1CONFORMANCE LIMIT	62
9.2MEASURING INSTRUMENTS	62
9.3TEST SETUP	62
9.4TEST PROCEDURE	62
9.5TEST RESULTS	62
10. FREQUENCY STABILITY MEASUREMENT	71
10.1 LIMIT	71
10.2 TEST PROCEDURES	71
10.3 TEST SETUP LAYOUT	71
10.4 EUT OPERATION DURING TEST	71
10.5 TEST RESULTS	72
11. ANTENNA REQUIREMENT	78
11.1 STANDARD REQUIREMENT	78
11.2 EUT ANTENNA	78

Revision History

[illegible]

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) 15.407 (b)(6)	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	

NOTE:

(1) "N/A" denotes test is not applicable in this Test Report

1.1 FACILITIES AND ACCREDITATIONS

FACILITIES

All measurement facilities used to collect the measurement data are located at 1/F, Building E, Fenda Science Park, Sanwei Community, Xixiang Street, Bao'an District, Shenzhen 518126 P.R. 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 Laboratory has been assessed and proved to be in compliance with CNAS-CL01:2006 (identical to ISO/IEC 17025:2005)
The Certificate Registration Number is L5516.

IC-Registration The Certificate Registration Number is 9270A-1.

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 : 1/F, Building E, Fenda Science Park, Sanwei Community, Xixiang Street, Bao'an District, Shenzhen 518126 P.R. 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	$\pm 0.16\text{dB}$
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	$\pm 2\%$

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Equipment	ISAAC InControl tablet	
Trade Mark	N/A	
Model Name	TABIC1	
Family Model	N/A	
Model Difference	N/A	
FCC ID	2ASYX-TABIC1	
Product Description	IEEE 802.11 WLAN Mode Supported	☒ 802.11a/n (20MHz channel bandwidth) ☒ 802.11n (40MHz channel bandwidth)
	Data Rate	802.11a: 6,9,12,18,24,36,48,54Mbps; 802.11n(HT20/HT40):MCS0-MCS15;
	Modulation	OFDM with BPSK/QPSK/16QAM/64QAM/256QAM for 802.11a/n;
	Operating Frequency Range	☒ 5180-5240MHz for 802.11a/n(HT20); 5190-5230MHz for 802.11n(HT40); ☒ 5745-5825 MHz for 802.11a/n(HT20); 5755-5795 MHz for 802.11a/n(HT40);
	Number of Channels	☒ 4 channels for 802.11a/n20 in the 5180-5240MHz band ; 2 channels for 802.11 n40 in the 5190-5230MHz band ; ☒ 5 channels for 802.11a/n20 in the 5745-5825MHz band ; 2 channels for 802.11 n40 in the 5755-5795MHz band ;
	Antenna Type	FPCB Antenna
	Antenna Gain	2dBi
	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.	
Ratings	DC 3.7V/8500mAh from Battery or DC 5V from Adapter.	
Adapter	Model: AW018WR-0500300UH Input: 100-240V~50/60Hz 0.5A Output: 5V---3A	
Connecting I/O Port(s)	Please refer to the User's Manual	
HW Version	EM_T86_MB_PCB_V13R3	
SW Version	Android 8.1.0	

Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.
2. Frequency and Channel list for 802.11a/n(20MHz) band I (5180-5240MHz):

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

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

802.11n(40MHz) Carrier Frequency Channel							
Channel	Frequen cy (MHz)	Channel	Frequen cy (MHz)	Channel	Frequen cy (MHz)	Channel	Frequen cy (MHz)
38	5190	-	-	-	-	-	-
46	5230	-	-	-	-	-	-

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

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

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

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

2.2 DESCRIPTION OF TEST MODES

To investigate the maximum EMI emission characteristics generated from EUT, the test system was pre-scanning tested based on the consideration of following EUT operation mode or test configuration mode which possibly 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 CH36/ CH40/ CH 48 802.11a / n 20 CH149/ CH157/ CH 165
Mode 3	802.11n 40 CH38/ CH 46 802.11n 40 CH 151 / CH 159

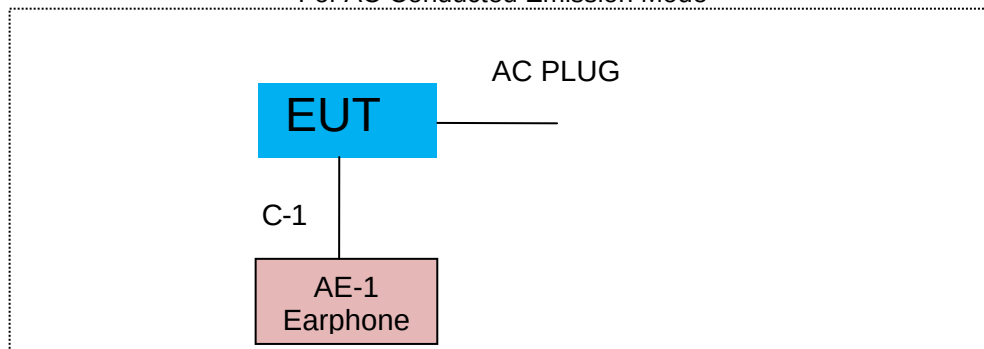
For Radiated Emission	
Final Test Mode	Description
Mode 1	Normal Link Mode
Mode 2	802.11a / n 20 CH36/ CH40/ CH 48 802.11a / n 20 CH149/ CH157/ CH 165
Mode 3	802.11n 40 CH38/ CH 46 802.11n 40 CH 151 / CH 159

Note:

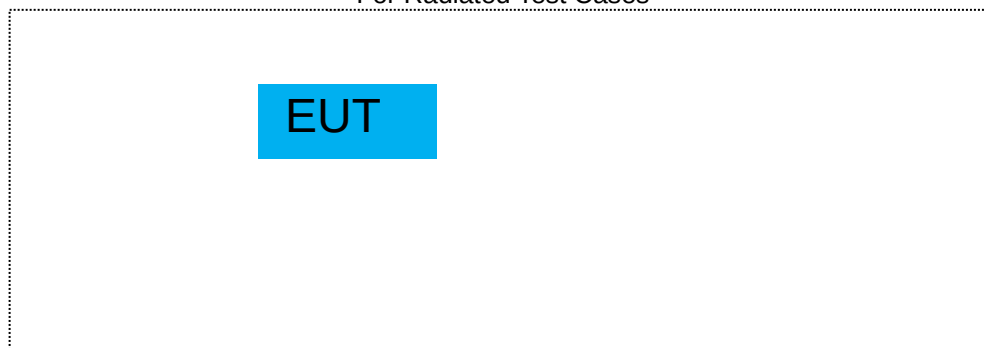
- (1) The measurements are performed at the highest, middle, lowest available channels.
- (2) The measurements are performed at all Bit Rate of Transmitter, the worst data was reported

2.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

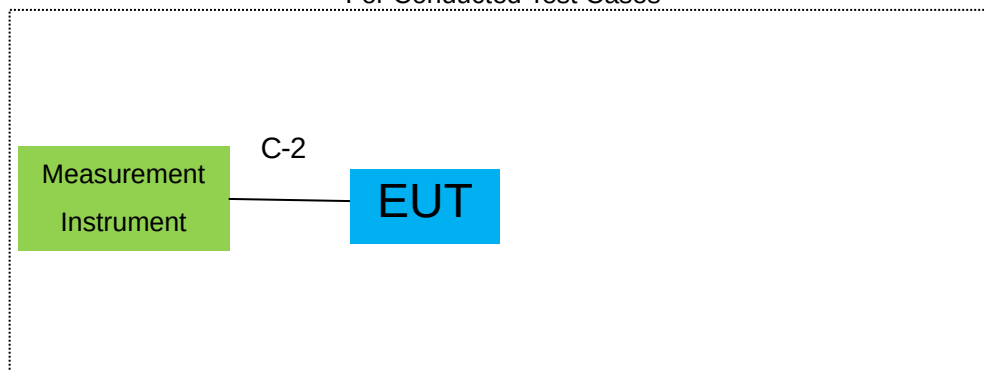
For AC Conducted Emission Mode



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	Brand	Model/Type No.	Series No.	Note
AE-1	Earphone	N/A	N/A	N/A	Peripherals

Item	Cable Type	Shielded Type	Ferrite Core	Length
C-1	Earphone Cable	NO	NO	1.2m
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	E4407B	MY45108040	2018.05.19	2019.05.18	1 year
2	Spectrum Analyzer	Agilent	N9020A	MY49100060	2018.10.08	2019.10.07	1 year
3	Spectrum Analyzer	R&S	FSV40	101417	2018.10.08	2019.10.07	1 year
4	Test Receiver	R&S	ESPI7	101318	2018.05.19	2019.05.18	1 year
5	Bilog Antenna	TESEQ	CBL6111D	31216	2019.04.15	2020.04.14	1 year
6	50Ω Coaxial Switch	Anritsu	MP59B	6200983705	2018.05.19	2020.05.18	3 year
7	Horn Antenna	EM	EM-AH-10180	2011071402	2019.04.15	2020.04.14	1 year
8	Amplifier	EMC	EMC051835SE	980246	2018.08.05	2019.08.04	1 year
9	Active Loop Antenna	SCHWARZBECK	FMZB 1519B	055	2018.12.11	2019.12.10	1 year
10	Power Meter	DARE	RPR3006W	15100041SN084	2018.08.05	2019.08.04	1 year
11	Test Cable (9KHz-30MHz)	N/A	R-01	N/A	2017.04.21	2020.04.20	3 year
12	Test Cable (30MHz-1GHz)	N/A	R-02	N/A	2017.04.21	2020.04.20	3 year
13	High Test Cable(1G-40G Hz)	N/A	R-03	N/A	2017.04.21	2020.04.20	3 year
14	High Test Cable(1G-40G Hz)	N/A	R-04	N/A	2017.04.21	2020.04.20	3 year
15	Filter	TRILTHIC	2400MHz	29	2017.04.19	2020.04.18	3 year
16	temporary antenna connector (Note)	NTS	R001	N/A	N/A	N/A	N/A
17	Low Noise Amplifier	B&Z	BZ-P540-550850-452727	16476-11729	2019.04.15	2020.04.14	1 year
18	Broadband Horn Antenna	SCHWARZBECK	BBHA 9170	803	2018.12.11	2019.12.10	1 year

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	2018.05.19	2019.05.18	1 year
2	LISN	R&S	ENV216	101313	2019.04.15	2020.04.14	1 year
3	LISN	SCHWARZBECK	NNLK 8129	8129245	2018.05.19	2019.05.18	1 year
4	50Ω Coaxial Switch	ANRITSU CORP	MP59B	6200983704	2018.05.19	2020.05.18	3 year
5	Test Cable (9KHz-30MHz)	N/A	C01	N/A	2017.04.21	2020.04.20	3 year
6	Test Cable (9KHz-30MHz)	N/A	C02	N/A	2017.04.21	2020.04.20	3 year
7	Test Cable (9KHz-30MHz)	N/A	C03	N/A	2017.04.21	2020.04.20	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.

3. EMC EMISSION TEST

3.1 CONDUCTED EMISSION MEASUREMENT

3.1.1 APPLICABLE STANDARD

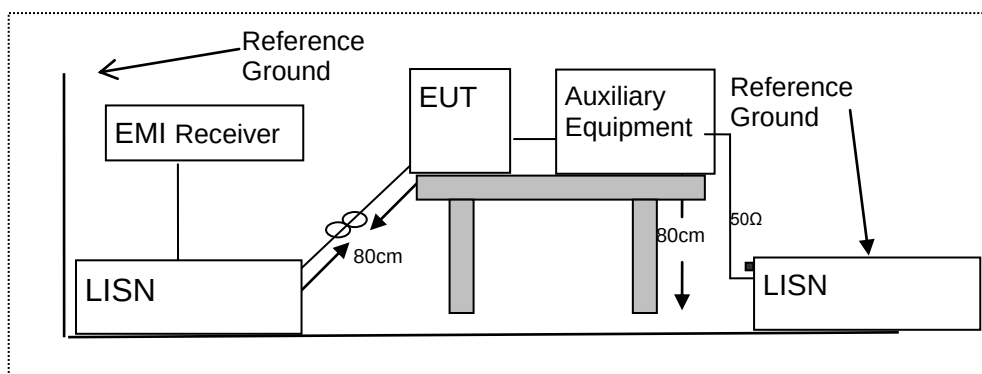
According to FCC Part 15.207(a) and KDB 174176 D01 Line Conducted FAQ v01r01

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.

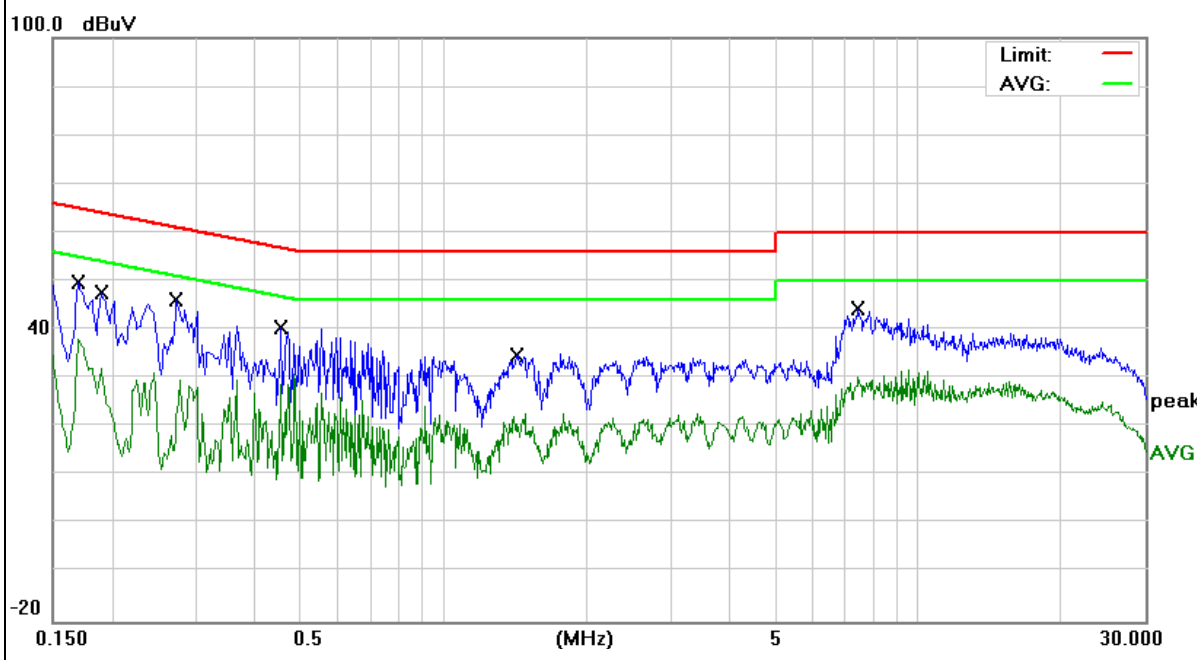
1. The EUT was placed 0.4 meter from the conducting wall of the shielding room.
2. The EUT was placed on a table which is 0.8m above ground plane.
3. Connect EUT to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The 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.

EUT :	ISAAC InControl tablet	Model Name :	TABIC1
Temperature :	26 °C	Relative Humidity :	54%
Pressure :	1010hPa	Phase :	L
Test Voltage :	DC 5V from Adapter AC 120V/60Hz	Test Mode :	Mode 1

Frequency	Reading Level	Correct Factor	Measure-ment	Limits	Margin	Remark
(MHz)	(dBμV)	(dB)	(dBμV)	(dBμV)	(dB)	
0.1700	40.04	9.76	49.80	64.96	-15.16	QP
0.1700	28.29	9.76	38.05	54.96	-16.91	AVG
0.1900	37.96	9.76	47.72	64.03	-16.31	QP
0.1900	20.49	9.76	30.25	54.03	-23.78	AVG
0.2740	36.27	9.75	46.02	60.99	-14.97	QP
0.2740	23.61	9.75	33.36	50.99	-17.63	AVG
0.4540	30.63	9.74	40.37	56.80	-16.43	QP
0.4540	21.00	9.74	30.74	46.80	-16.06	AVG
1.4220	24.94	9.75	34.69	56.00	-21.31	QP
1.4220	16.91	9.75	26.66	46.00	-19.34	AVG
7.4500	34.32	9.92	44.24	60.00	-15.76	QP
7.4500	20.65	9.92	30.57	50.00	-19.43	AVG

Remark:

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



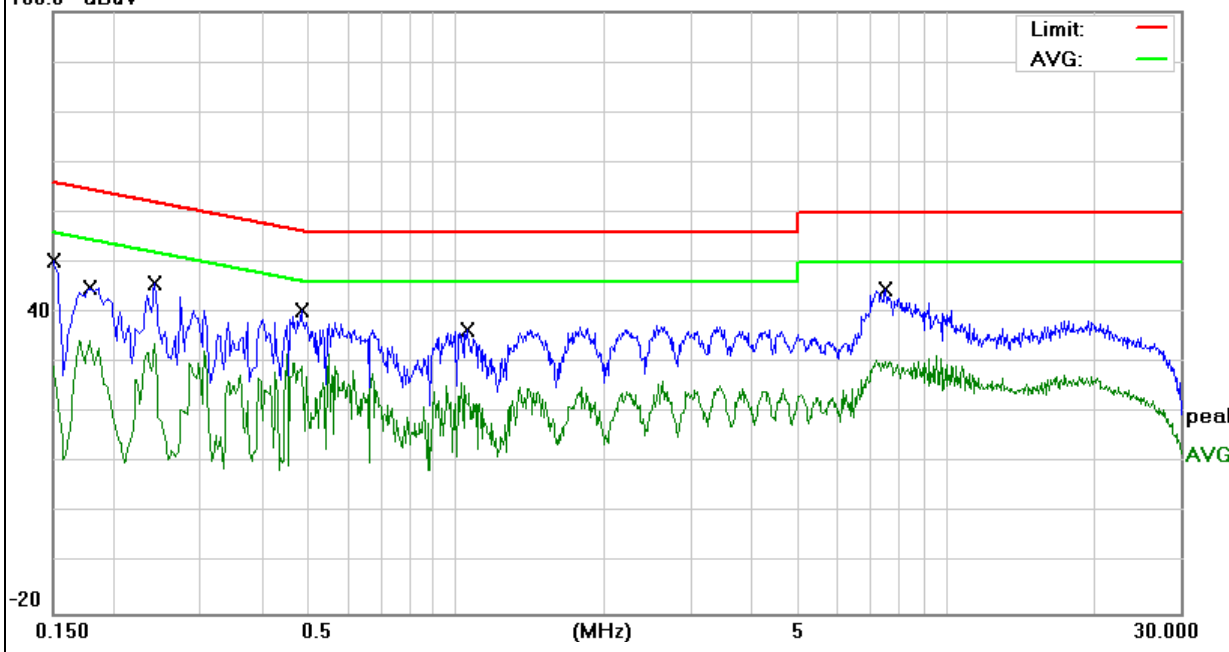
EUT :	ISAAC InControl tablet	Model Name :	TABIC1
Temperature :	26 °C	Relative Humidity :	54%
Pressure :	1010hPa	Phase :	N
Test Voltage :	DC 5V from Adapter AC 120V/60Hz	Test Mode :	Mode 1

Frequency	Reading Level	Correct Factor	Measure-ment	Limits	Margin	Remark
(MHz)	(dBμV)	(dB)	(dBμV)	(dBμV)	(dB)	
0.1500	40.73	9.74	50.47	65.99	-15.52	QP
0.1500	24.74	9.74	34.48	55.99	-21.51	AVG
0.1780	35.22	9.73	44.95	64.57	-19.62	QP
0.1780	22.60	9.73	32.33	54.57	-22.24	AVG
0.2420	36.01	9.74	45.75	62.02	-16.27	QP
0.2420	24.00	9.74	33.74	52.02	-18.28	AVG
0.4820	30.65	9.75	40.40	56.30	-15.90	QP
0.4820	18.27	9.75	28.02	46.30	-18.28	AVG
1.0540	26.81	9.75	36.56	56.00	-19.44	QP
1.0540	17.37	9.75	27.12	46.00	-18.88	AVG
7.4900	34.61	9.98	44.59	60.00	-15.41	QP
7.4900	20.50	9.98	30.48	50.00	-19.52	AVG

Remark:

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

100.0 dBμV



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)(7): 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
10.495-0.505	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			

20dBc in any 100 kHz bandwidth outside the operating frequency band. 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);

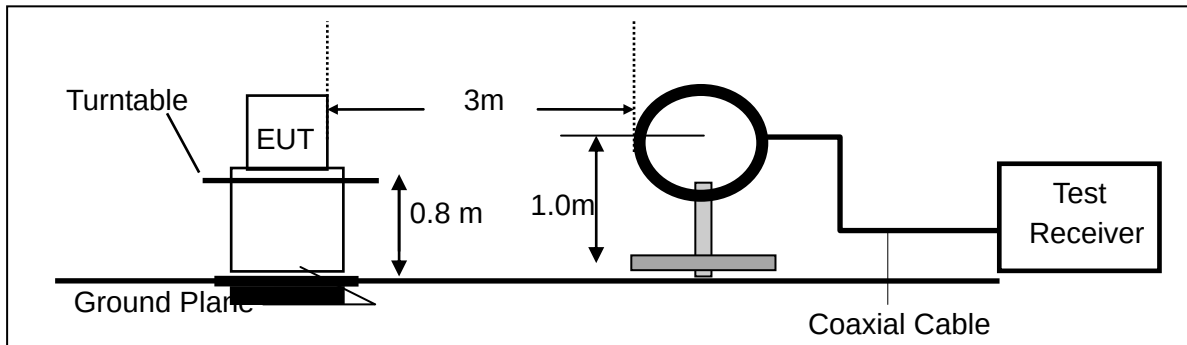
Limit line=Specific limits(dBuV) + distance extrapolation factor.

3.2.3 MEASURING INSTRUMENTS

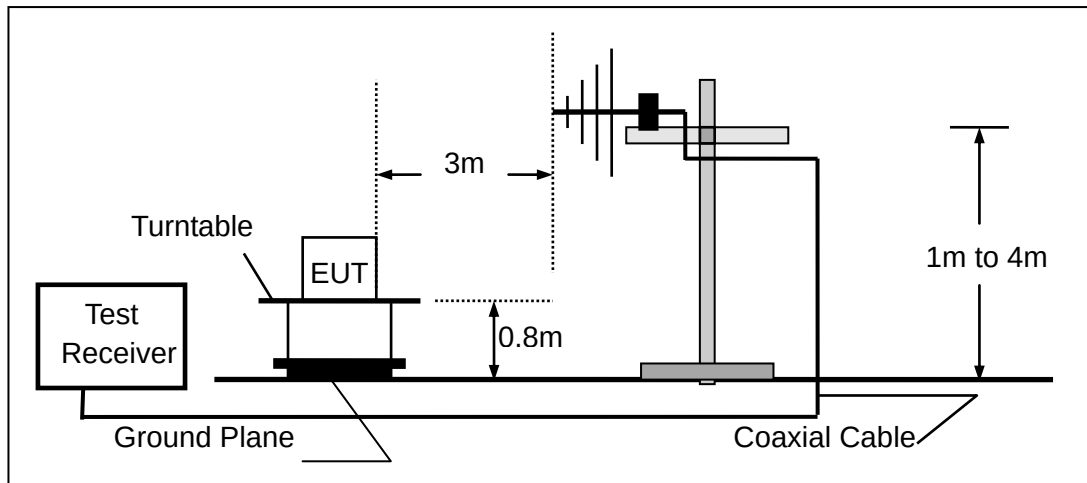
The Measuring equipment is listed in the section 6.3 of this test report.

3.2.4 TEST CONFIGURATION

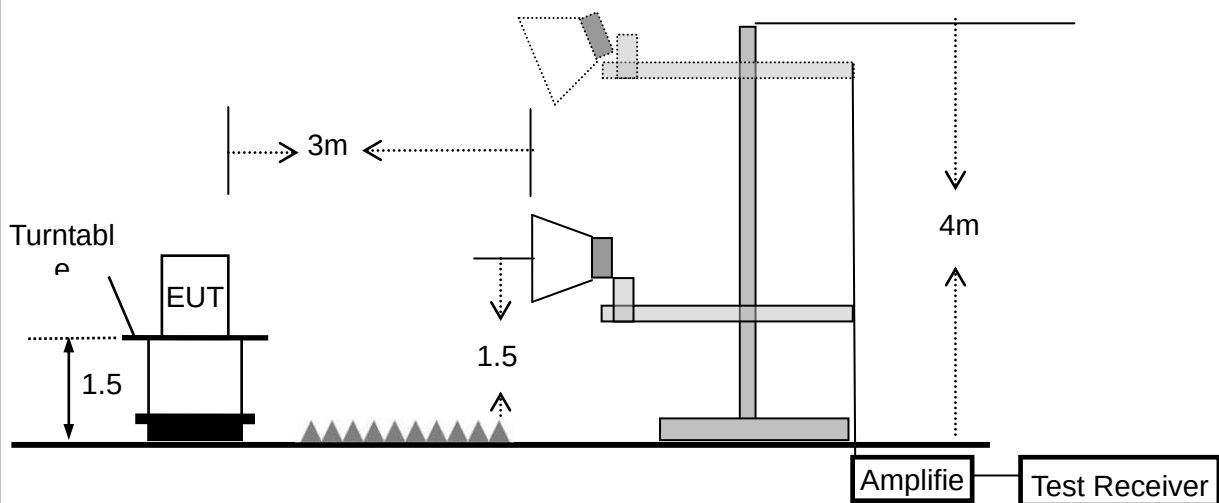
(a) For radiated emissions below 30MHz



(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 / 10Hz 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	10 Hz

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:	ISAAC InControl tablet	Model Name. :	TABIC1
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.

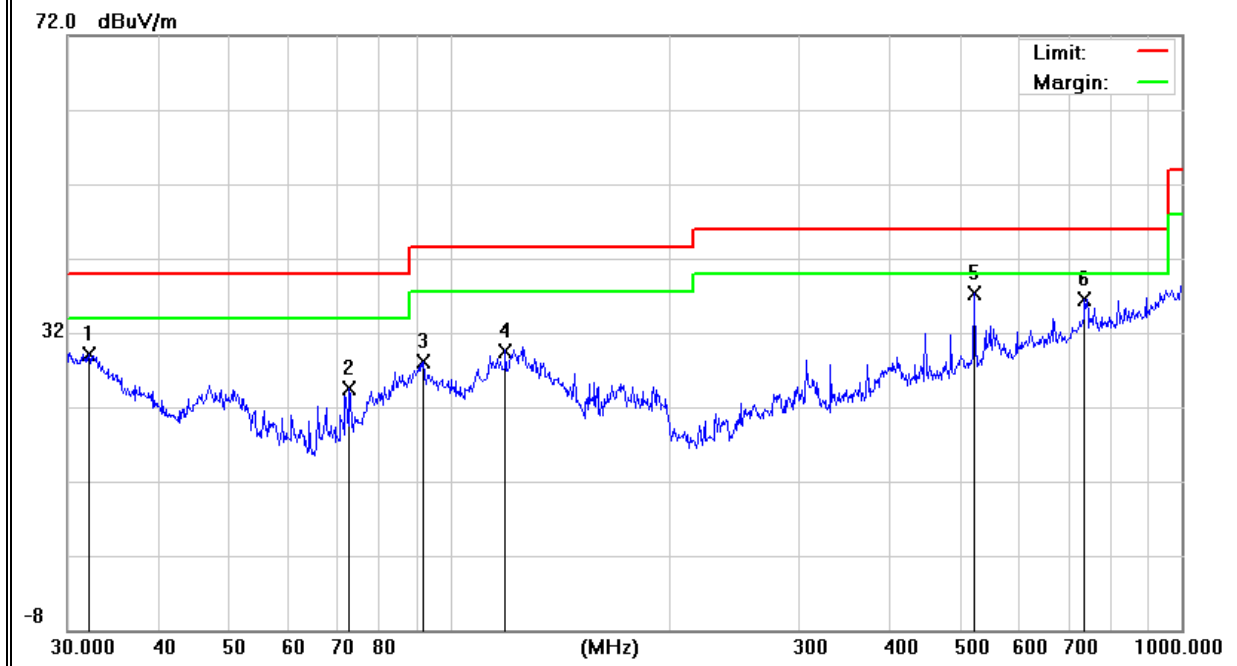
3.2.7 TEST RESULTS (30MHZ – 1GHZ)

EUT :	ISAAC InControl tablet	Model Name. :	TABIC1
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX(5.2G)- 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	32.0667	10.93	18.16	29.09	40.00	-10.91	QP
V	72.8466	17.23	7.20	24.43	40.00	-15.57	QP
V	91.8162	17.30	10.75	28.05	43.50	-15.45	QP
V	119.0180	16.41	13.19	29.60	43.50	-13.90	QP
V	520.8882	14.99	22.32	37.31	46.00	-8.69	QP
V	737.0714	8.95	27.52	36.47	46.00	-9.53	QP

Remark:

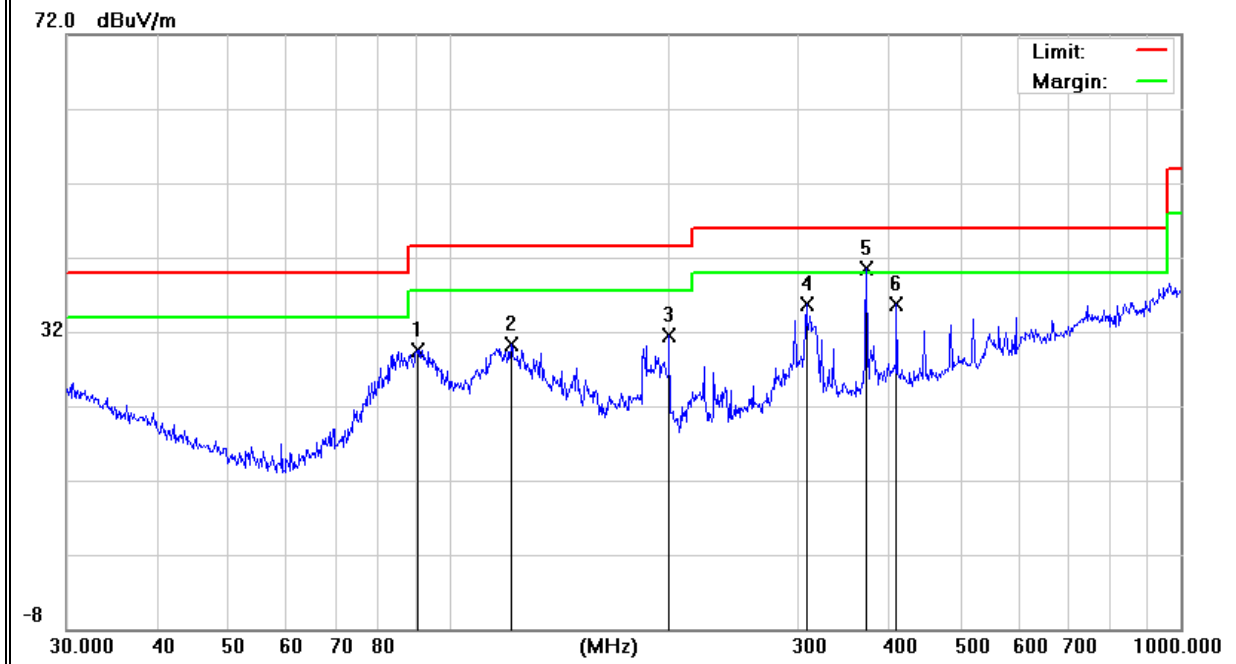
Absolute Level= ReadingLevel+ Factor, Margin= Absolute Level - Limit



Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Remark
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
H	90.5374	19.08	10.47	29.55	43.50	-13.95	QP
H	121.5486	17.01	13.22	30.23	43.50	-13.27	QP
H	199.9856	21.68	9.76	31.44	43.50	-12.06	QP
H	307.8313	19.43	16.29	35.72	46.00	-10.28	QP
H	372.0045	22.32	18.21	40.53	46.00	-5.47	QP
H	408.9460	15.83	19.95	35.78	46.00	-10.22	QP

Remark:

Absolute Level= ReadingLevel+ Factor, Margin= Absolute Level - Limit

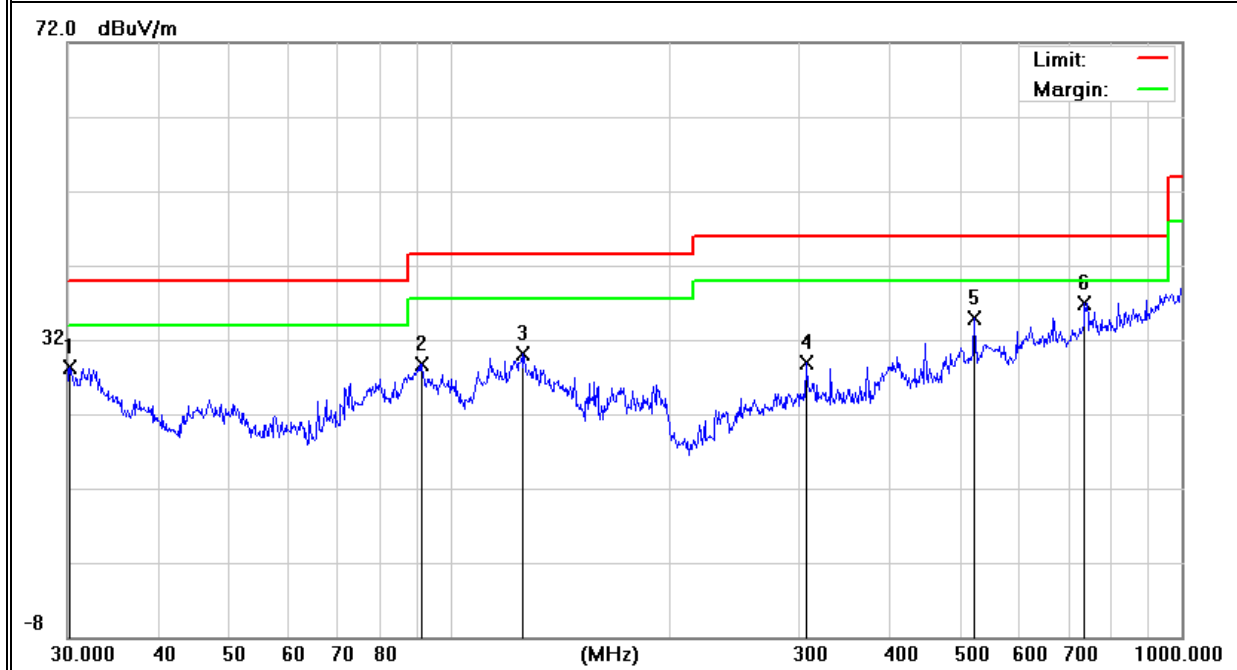


EUT :	ISAAC InControl tablet	Model Name. :	TABIC1
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX(5.8G) - 802.11a (High CH)		

Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Remark
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
V	30.2108	9.41	18.81	28.22	40.00	-11.78	QP
V	91.4949	18.01	10.69	28.70	43.50	-14.80	QP
V	125.4457	16.81	13.33	30.14	43.50	-13.36	QP
V	306.7536	12.58	16.25	28.83	46.00	-17.17	QP
V	520.8881	12.49	22.32	34.81	46.00	-11.19	QP
V	737.0714	9.45	27.52	36.97	46.00	-9.03	QP

Remark:

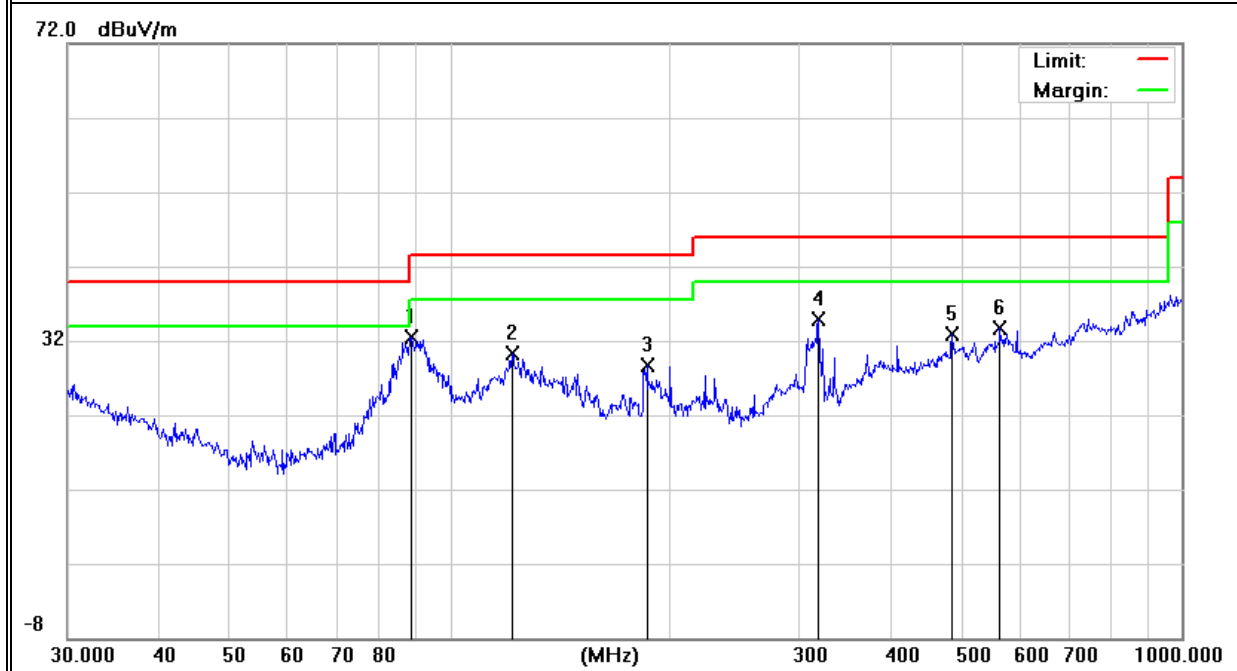
Absolute Level= ReadingLevel+ Factor, Margin= Absolute Level - Limit



Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Remark
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
H	88.3421	22.46	10.02	32.48	43.50	-11.02	QP
H	121.5485	17.01	13.22	30.23	43.50	-13.27	QP
H	185.7880	17.94	10.68	28.62	43.50	-14.88	QP
H	318.8170	18.44	16.49	34.93	46.00	-11.07	QP
H	485.6093	11.30	21.53	32.83	46.00	-13.17	QP
H	564.6389	9.75	24.00	33.75	46.00	-12.25	QP

Remark:

Absolute Level= ReadingLevel+ Factor, Margin= Absolute Level - Limit



3.2.8 TEST RESULTS (1GHz-18GHz)

EUT :	ISAAC InControl tablet	Model Name. :	TABIC1
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX(5.2G) - 802.11a _5180~5240MHz		

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	2566.13	60.91	5.94	35.40	44.00	58.25	74.00	-15.75	Pk
Vertical	2566.13	42.07	5.94	35.40	44.00	39.41	54.00	-14.59	AV
Vertical	10360.72	58.60	8.46	39.75	44.50	62.31	74.00	-11.69	Pk
Vertical	10360.72	40.88	8.46	39.75	44.50	44.59	54.00	-9.41	AV
Vertical	15540.77	58.73	10.12	38.80	44.10	63.55	74.00	-10.45	Pk
Vertical	15540.77	37.57	10.12	38.80	42.70	43.79	54.00	-10.21	AV
Horizontal	3125.44	64.27	5.94	35.18	44.00	61.39	74.00	-12.61	Pk
Horizontal	3125.44	44.06	5.94	35.18	44.00	41.18	54.00	-12.82	AV
Horizontal	10360.78	57.57	8.46	38.71	44.50	60.24	74.00	-13.76	Pk
Horizontal	10360.78	39.84	8.46	38.71	44.50	42.51	54.00	-11.49	AV
Horizontal	10540.86	56.40	10.12	38.38	44.10	60.80	74.00	-13.20	Pk
Horizontal	10540.86	37.21	10.12	38.38	44.10	41.61	54.00	-12.39	AV
Middle Channel (5200 MHz)-Above 1G									
Vertical	4578.12	58.11	6.48	36.35	44.05	56.89	74.00	-17.11	Pk
Vertical	4578.12	40.50	6.48	36.35	44.05	39.28	54.00	-14.72	AV
Vertical	10400.68	58.12	8.47	37.88	44.51	59.96	74.00	-14.04	Pk
Vertical	10400.68	42.00	8.47	37.88	44.51	43.84	54.00	-10.16	AV
Vertical	15600.67	55.46	10.12	38.80	44.10	60.28	74.00	-13.72	Pk
Vertical	15600.67	37.82	10.12	38.80	42.70	44.04	54.00	-9.96	AV
Horizontal	4933.54	58.18	6.48	36.37	44.05	56.98	74.00	-17.02	Pk
Horizontal	4933.54	41.20	6.48	36.37	44.05	40.00	54.00	-14.00	AV
Horizontal	10400.69	57.57	8.47	38.64	44.50	60.18	74.00	-13.82	Pk
Horizontal	10400.69	39.84	8.47	38.64	44.50	42.45	54.00	-11.55	AV
Horizontal	15600.85	58.14	10.12	38.38	44.10	62.54	74.00	-11.46	Pk
Horizontal	15600.85	37.20	10.12	38.38	44.10	41.60	54.00	-12.40	AV
High Channel (5240 MHz)-Above 1G									
Vertical	5122.02	62.00	7.10	37.24	43.50	62.84	74.00	-11.16	Pk
Vertical	5122.02	44.24	7.10	37.24	43.50	45.08	54.00	-8.92	AV
Vertical	10480.95	60.97	8.46	37.68	44.50	62.61	74.00	-11.39	Pk
Vertical	10480.95	37.75	8.46	37.68	44.50	39.39	54.00	-14.61	AV
Vertical	15720.72	58.18	10.12	38.80	44.10	63.00	74.00	-11.00	Pk
Vertical	15720.72	37.24	10.12	38.80	42.70	43.46	54.00	-10.54	AV
Horizontal	5236.33	60.91	7.10	37.24	43.50	61.75	74.00	-12.25	Pk
Horizontal	5236.33	39.81	7.10	37.24	43.50	40.65	54.00	-13.35	AV
Horizontal	10481.65	57.57	8.46	38.57	44.50	60.10	74.00	-13.90	Pk
Horizontal	10481.65	41.23	8.46	38.57	44.50	43.76	54.00	-10.24	AV
Horizontal	15720.72	58.16	10.12	38.38	44.10	62.56	74.00	-11.44	Pk
Horizontal	15720.72	39.90	10.12	38.38	44.10	44.30	54.00	-9.70	AV

Note:"802.11a (5G)" 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 :	ISAAC InControl tablet	Model Name. :	TABIC1
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX (5.8G) -- 802.11a _5745~5825MHz		

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	4125.34	62.07	5.94	35.40	44.00	59.41	74.00	-14.59	Pk
Vertical	4125.34	43.04	5.94	35.40	44.00	40.38	54.00	-13.62	AV
Vertical	11490.50	58.89	8.46	39.75	44.50	62.60	74.00	-11.40	Pk
Vertical	11490.50	39.16	8.46	39.75	44.50	42.87	54.00	-11.13	AV
Vertical	17235.57	59.89	10.12	38.80	44.10	64.71	74.00	-9.29	Pk
Vertical	17235.57	36.43	10.12	38.80	42.70	42.65	54.00	-11.35	AV
Horizontal	4574.02	58.08	5.94	35.18	44.00	55.20	74.00	-18.80	Pk
Horizontal	4574.02	39.36	5.94	35.18	44.00	36.48	54.00	-17.52	AV
Horizontal	11490.36	54.33	8.46	38.71	44.50	57.00	74.00	-17.00	Pk
Horizontal	11490.36	37.68	8.46	38.71	44.50	40.35	54.00	-13.65	AV
Horizontal	17235.30	60.03	10.12	38.38	44.10	64.43	74.00	-9.57	Pk
Horizontal	17235.30	36.56	10.12	38.38	44.10	40.96	54.00	-13.04	AV
middle Channel (5785 MHz)-Above 1G									
Vertical	5122.37	61.02	6.48	36.35	44.05	59.80	74.00	-14.20	Pk
Vertical	5122.37	40.61	6.48	36.35	44.05	39.39	54.00	-14.61	AV
Vertical	11570.81	58.25	8.47	37.88	44.51	60.09	74.00	-13.91	Pk
Vertical	11570.81	39.97	8.47	37.88	44.51	41.81	54.00	-12.19	AV
Vertical	17355.52	58.24	10.12	38.8	44.10	63.06	74.00	-10.94	Pk
Vertical	17355.52	36.43	10.12	38.8	42.70	42.65	54.00	-11.35	AV
Horizontal	5044.71	59.90	6.48	36.37	44.05	58.70	74.00	-15.30	Pk
Horizontal	5044.71	40.92	6.48	36.37	44.05	39.72	54.00	-14.28	AV
Horizontal	11570.46	58.79	8.47	38.64	44.50	61.40	74.00	-12.60	Pk
Horizontal	11570.46	39.70	8.47	38.64	44.50	42.31	54.00	-11.69	AV
Horizontal	17355.65	59.43	10.12	38.38	44.10	63.83	74.00	-10.17	Pk
Horizontal	17355.65	37.61	10.12	38.38	44.10	42.01	54.00	-11.99	AV
High Channel (5825 MHz)-Above 1G									
Vertical	4954.21	59.89	7.10	37.24	43.50	60.73	74.00	-13.27	Pk
Vertical	4954.21	40.10	7.10	37.24	43.50	40.94	54.00	-13.06	AV
Vertical	11650.65	59.16	8.46	37.68	44.50	60.80	74.00	-13.20	Pk
Vertical	11650.65	39.71	8.46	37.68	44.50	41.35	54.00	-12.65	AV
Vertical	17475.74	57.64	10.12	38.8	44.10	62.46	74.00	-11.54	Pk
Vertical	17475.74	36.56	10.12	38.8	42.70	42.78	54.00	-11.22	AV
Horizontal	4766.33	61.03	7.10	37.24	43.50	61.87	74.00	-12.13	Pk
Horizontal	4766.33	39.71	7.10	37.24	43.50	40.55	54.00	-13.45	AV
Horizontal	11650.94	59.24	8.46	38.57	44.50	61.77	74.00	-12.23	Pk
Horizontal	11650.94	39.74	8.46	38.57	44.50	42.27	54.00	-11.73	AV
Horizontal	17475.75	58.22	10.12	38.38	44.10	62.62	74.00	-11.38	Pk
Horizontal	17475.75	37.58	10.12	38.38	44.10	41.98	54.00	-12.02	AV

Note:"802.11a (5G)" 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.

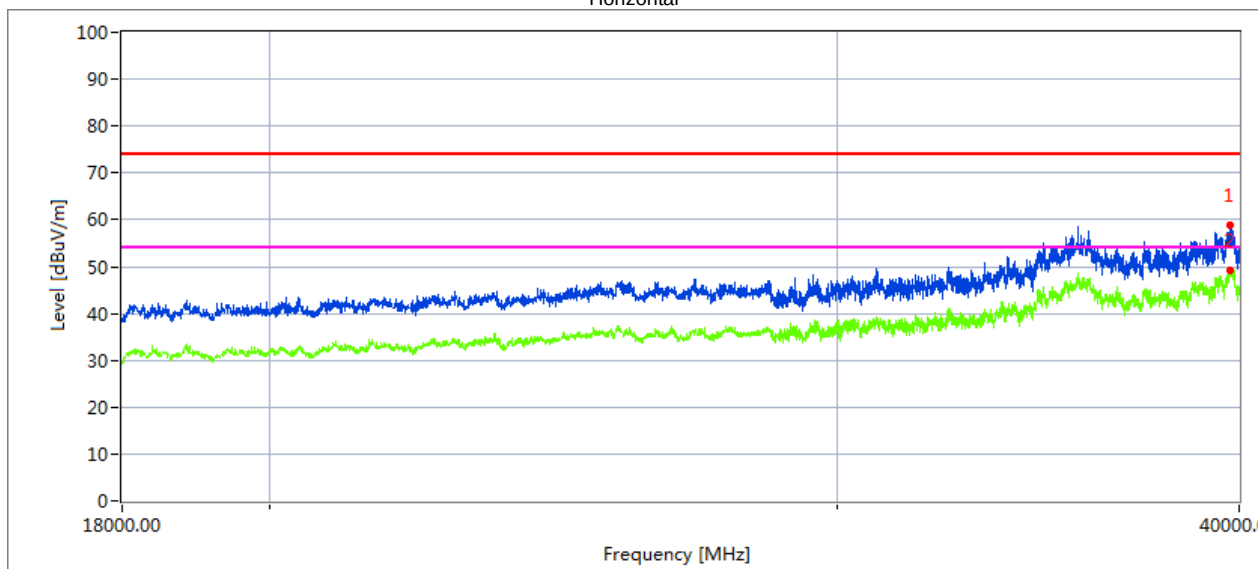
3.2.9 TEST RESULTS (18GHZ-40GHZ)

EUT :	ISAAC InControl tablet	Model Name. :	TABIC1
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX (5.2G)-802.11a 5180MHz~5240MHz, TX (5.8G)-802.11a 5745MHz~5825MHz		

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

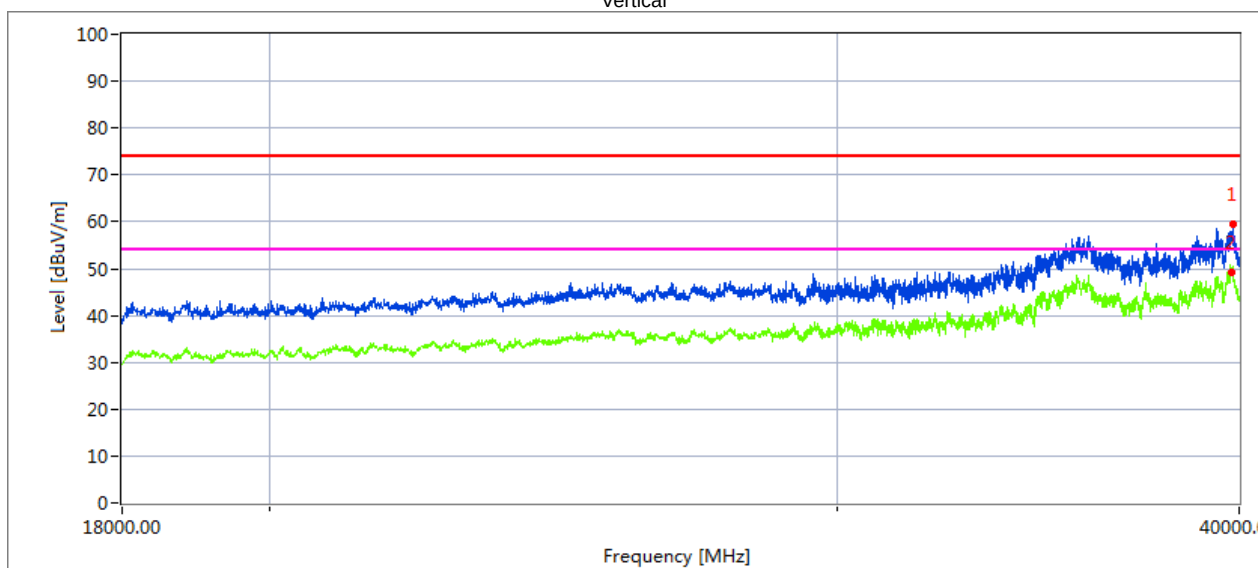
Low Channel (5180 MHz)-Above 1G

Horizontal

**Measurement Result:**

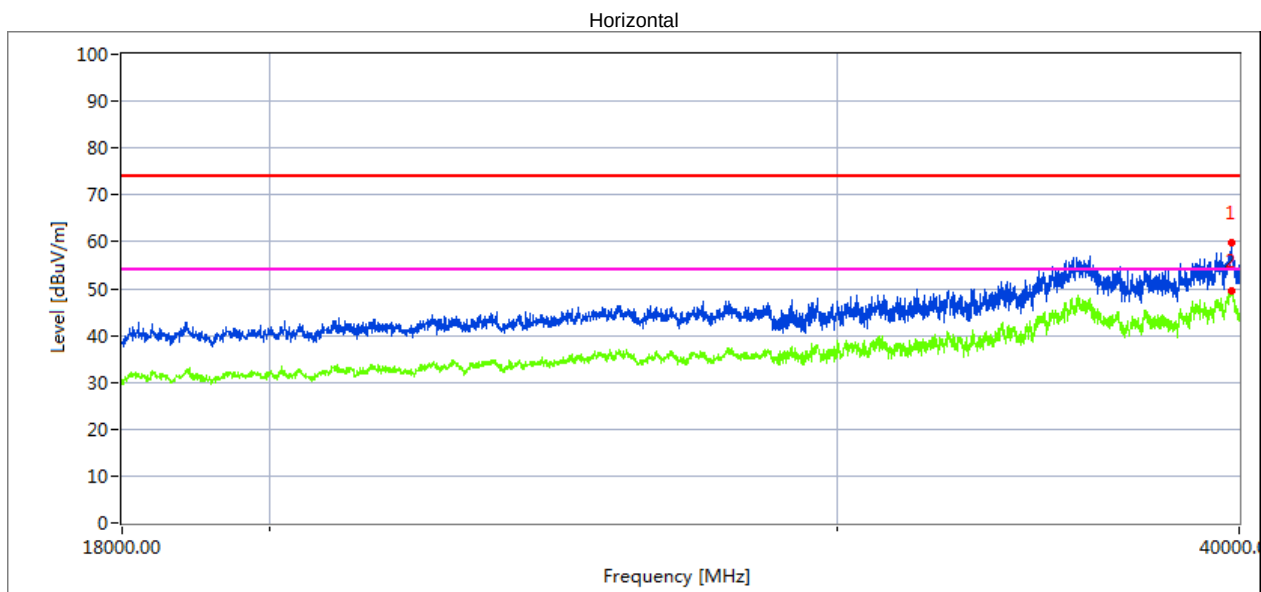
Frequency MHz	Pre-scan Level Max dBuV/m	Final Test Level Max dBuV/m	Limit Max dBuV/m	Margin dB	Remark
39743.146	59.0	55.6	74.0	18.4	Peak
39754.236	49.3	47.8	54.0	6.2	AVG

Vertical

**Measurement Result:**

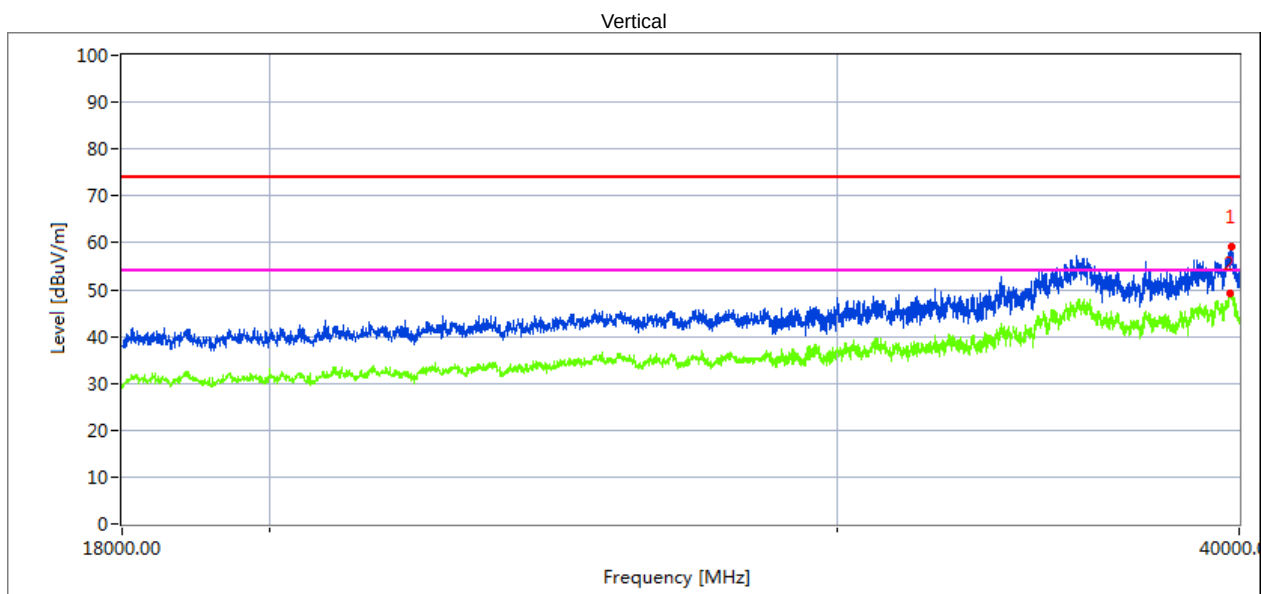
Frequency MHz	Pre-scan Level Max dBuV/m	Final Test Level Max dBuV/m	Limit Max dBuV/m	Margin dB	Remark
39807.876	59.6	56.3	74.0	17.7	Peak
39776.542	49.3	48.1	54.0	5.9	AVG

High Channel (5240 MHz)-Above 1G



Measurement Result:

Frequency MHz	Pre-scan Level Max dBuV/m	Final Test Level Max dBuV/m	Limit Max dBuV/m	Margin dB	Remark
39770.932	59.9	58.0	74.0	16.0	Peak
39792.986	49.7	50.5	54.0	3.5	AVG

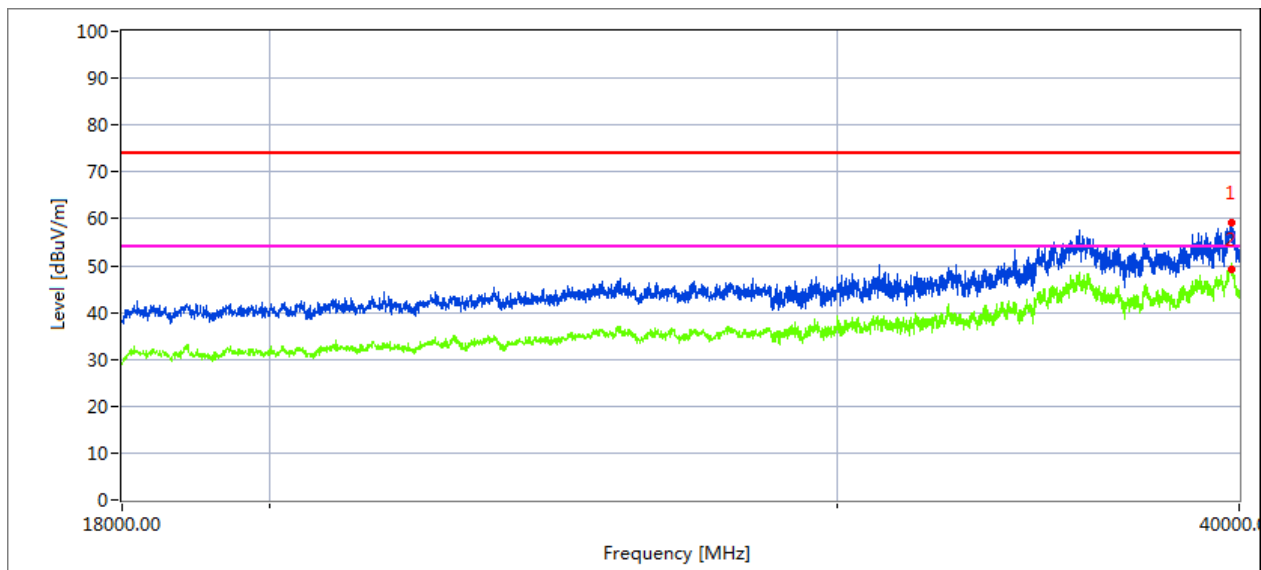


Measurement Result:

Frequency MHz	Pre-scan Level Max dBuV/m	Final Test Level Max dBuV/m	Limit Max dBuV/m	Margin dB	Remark
39803.928	59.2	58.0	74.0	16.0	Peak
39735.632	49.3	49.3	54.0	4.7	AVG

Low Channel (5745 MHz)-Above 1G

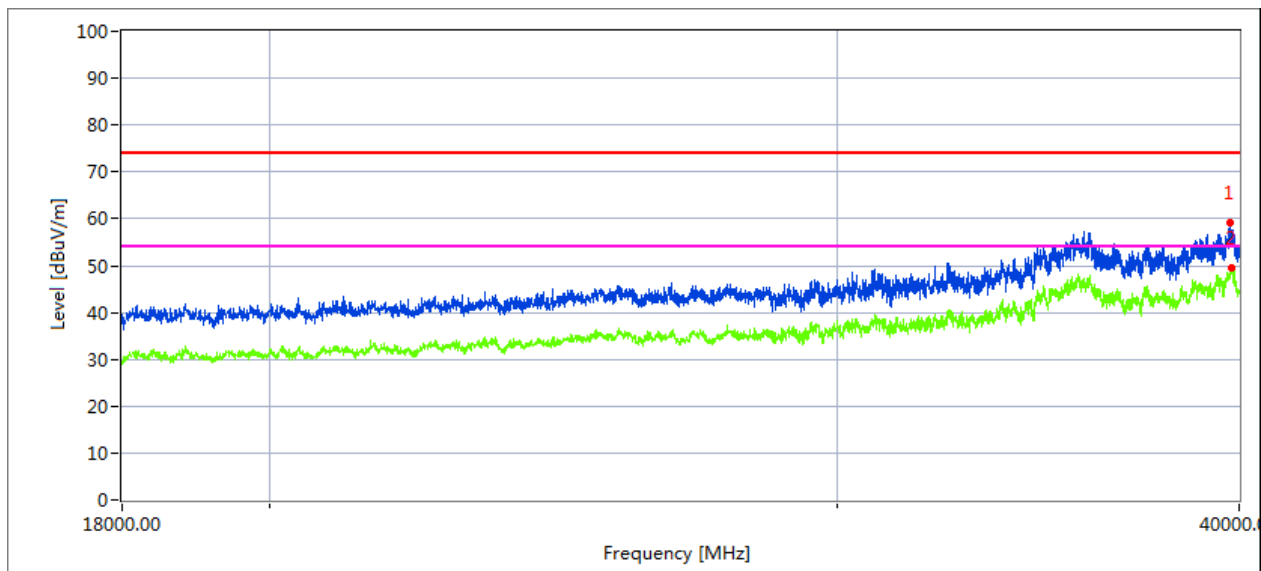
Horizontal



Measurement Result:

Frequency MHz	Pre-scan Level Max dBuV/m	Final Test Level Max dBuV/m	Limit Max dBuV/m	Margin dB	Remark
39777.660	59.1	58.7	74.0	15.3	Peak
39797.560	49.3	50.0	54.0	4.0	AVG

Vertical

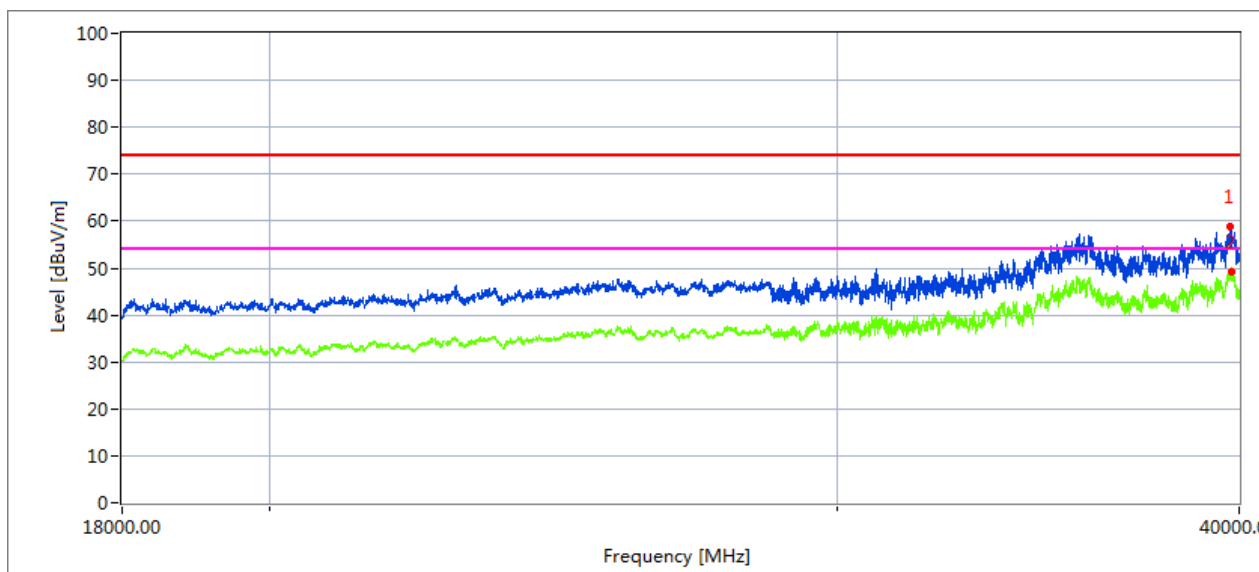


Measurement Result:

Frequency MHz	Pre-scan Level Max dBuV/m	Final Test Level Max dBuV/m	Limit Max dBuV/m	Margin dB	Remark
39730.604	59.2	53.5	74.0	20.5	Peak
39787.782	49.5	48.5	54.0	5.5	AVG

High Channel (5825 MHz)-Above 1G

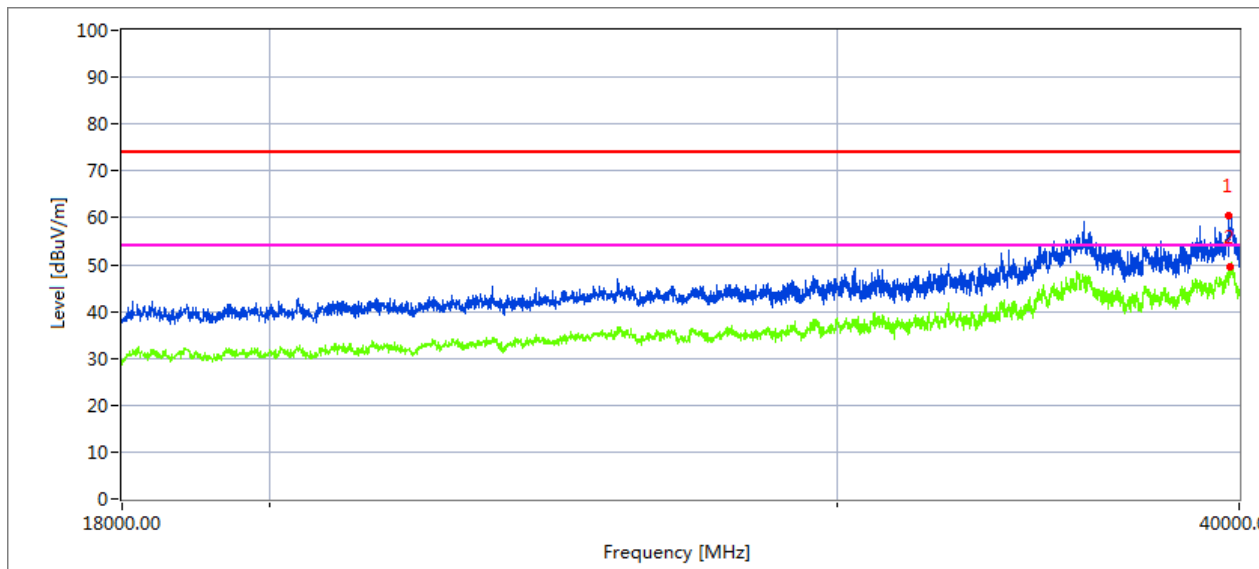
Horizontal



Measurement Result:

Frequency MHz	Pre-scan Level Max dBuV/m	Final Test Level Max dBuV/m	Limit Max dBuV/m	Margin dB	Remark
39762.320	58.9	57.8	74.0	16.2	Peak
39768.430	49.3	49.7	54.0	4.3	AVG

Vertical



Measurement Result:

Frequency MHz	Pre-scan Level Max dBuV/m	Final Test Level Max dBuV/m	Limit Max dBuV/m	Margin dB	Remark
39689.264	60.4	52.8	74.0	21.2	Peak
39734.142	49.5	50.3	54.0	3.7	AVG

4. POWER SPECTRAL DENSITY TEST

4.1 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 collocated 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.

4.2 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:

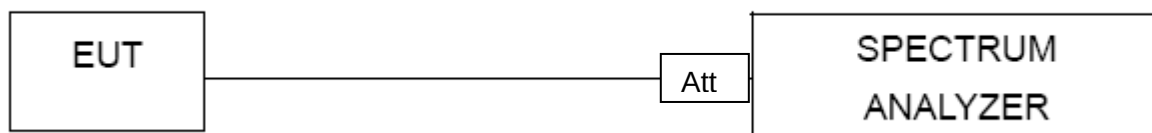
- a) Set $RBW \geq 1/T$, where T is defined in section II.B.I.a).
- b) Set $VBW \geq 3$ RBW.
- c) If measurement bandwidth of Maximum PSD is specified in 500 kHz, add $10\log(500\text{kHz}/RBW)$ to the measured result, whereas $RBW (< 500 \text{ KHz})$ is the reduced resolution bandwidth of the spectrum 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.

4.3 DEVIATION FROM STANDARD

No deviation.

4.4 TEST SETUP



4.5 EUT OPERATION CONDITIONS

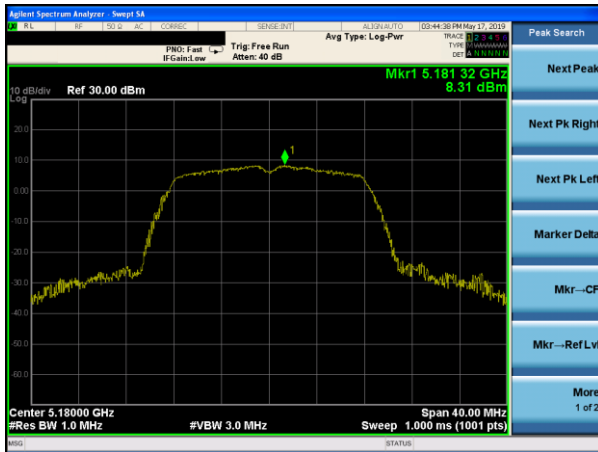
The EUT tested system was configured as the statements of 2.1 Unless otherwise a special operating condition is specified in the follows during the testing.

4.6 TEST RESULTS

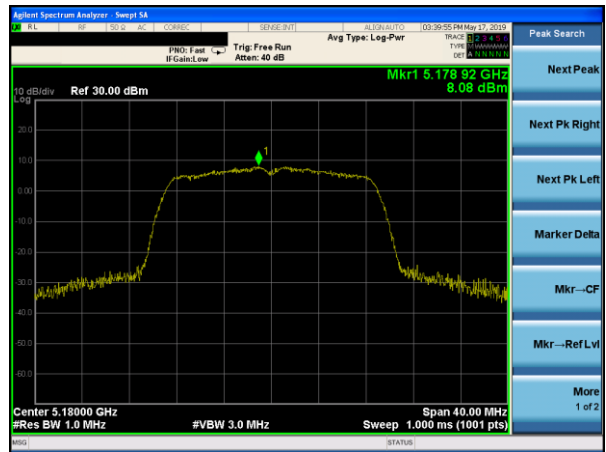
EUT :	ISAAC InControl tablet	Model Name. :	TABIC1
Temperature :	25 °C	Relative Humidity :	56%
Pressure :	1015 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX Frequency Band I (5150-5250MHz)		

Mode	Frequency	Measured Power Density (dBm/MHz)	Limit (dBm/MHz)	Result
802.11 a	5180 MHz	8.31	11	PASS
	5200 MHz	8.25	11	PASS
	5240 MHz	8.14	11	PASS
802.11 n20	5180 MHz	8.08	11	PASS
	5200 MHz	8.09	11	PASS
	5240 MHz	8.28	11	PASS
802.11 n40	5190 MHz	4.92	11	PASS
	5230 MHz	5.17	11	PASS

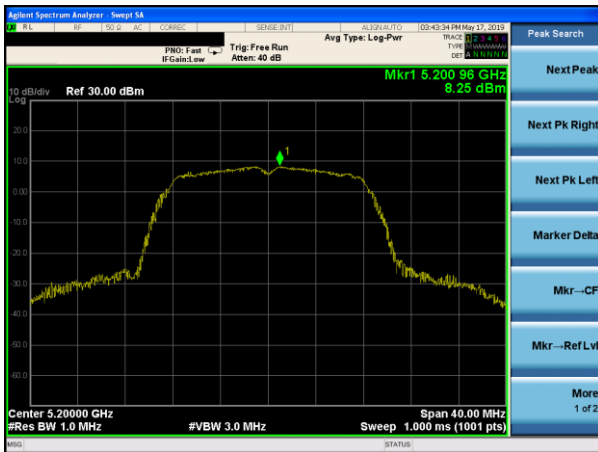
(802.11a) PSD plot on channel 36



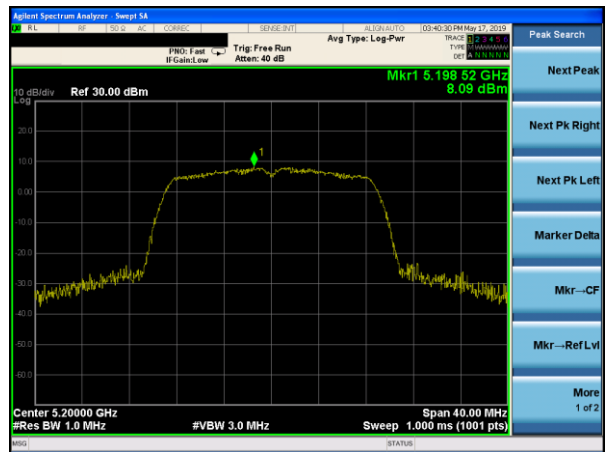
(802.11n20) PSD plot on channel 36



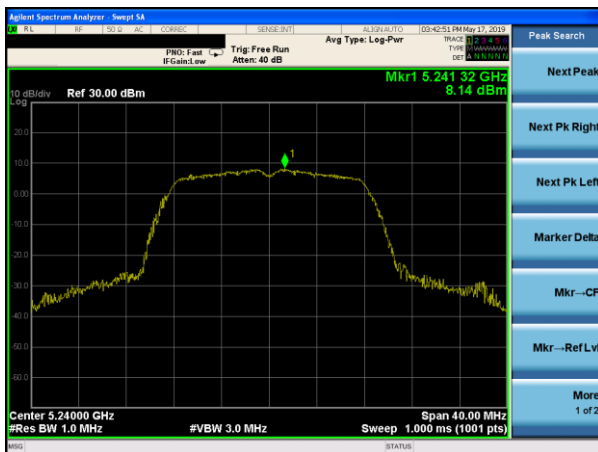
(802.11a) PSD plot on channel 40



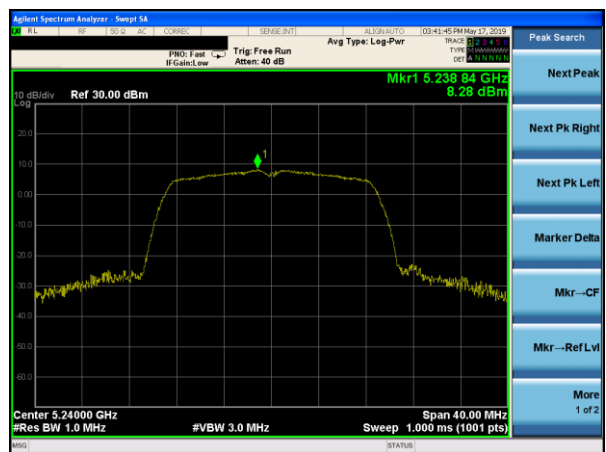
(802.11n20) PSD plot on channel 40



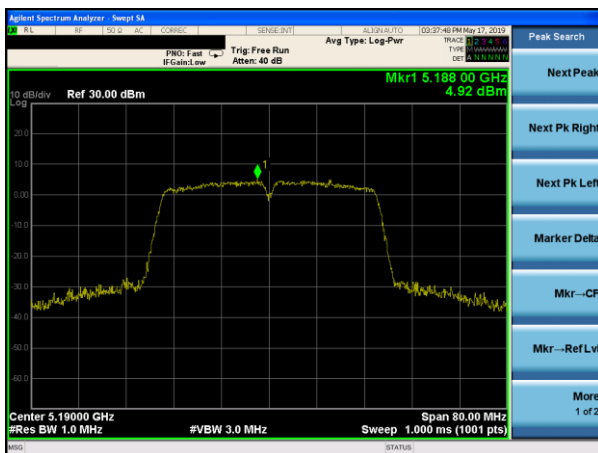
(802.11a) PSD plot on channel 48



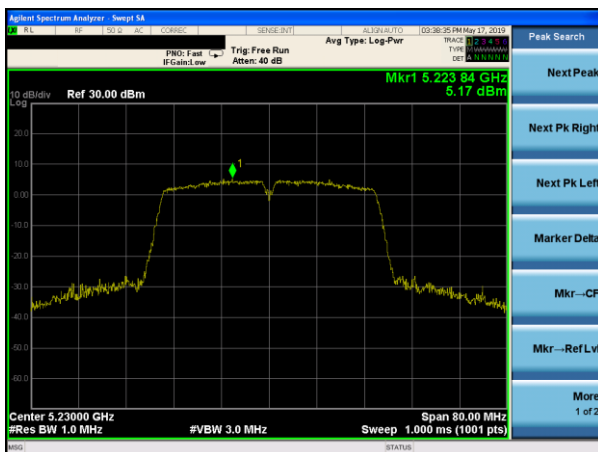
(802.11n20) PSD plot on channel 48



(802.11n40) PSD plot on channel 38



(802.11n40) PSD plot on channel 46



EUT :	ISAAC InControl tablet	Model Name. :	TABIC1
Temperature :	25 °C	Relative Humidity :	56%
Pressure :	1015 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX Frequency Band IV (5725-5850MHz)		

Mode	Frequency	Measured Power Density (dBm)	Calculate power density (dBm)(Note 1)	Limit (dBm)	Result
802.11 a	5745 MHz	3.19	3.10	30	PASS
	5785 MHz	3.62	3.53	30	PASS
	5825 MHz	3.35	3.26	30	PASS
802.11 n20	5745 MHz	2.93	2.84	30	PASS
	5785 MHz	3.84	3.75	30	PASS
	5825 MHz	3.80	3.71	30	PASS
802.11 n40	5755 MHz	-0.70	-0.79	30	PASS
	5795 MHz	-0.48	-0.57	30	PASS

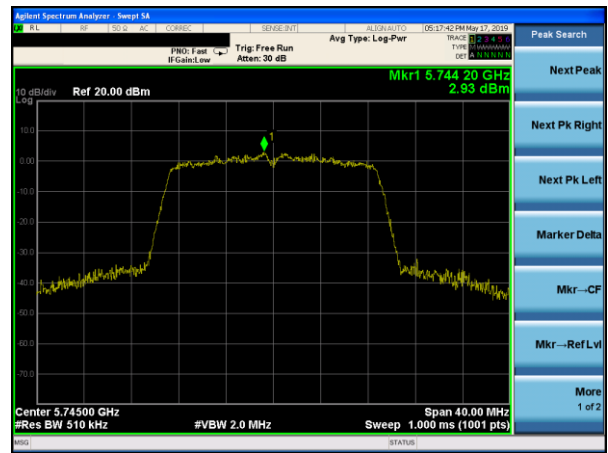
Note:

- (1) Calculate power density= Measured Power Density+10log(500kHz/RBW)= Measured Power Density+(-0.086)
RBW=0.51MHz

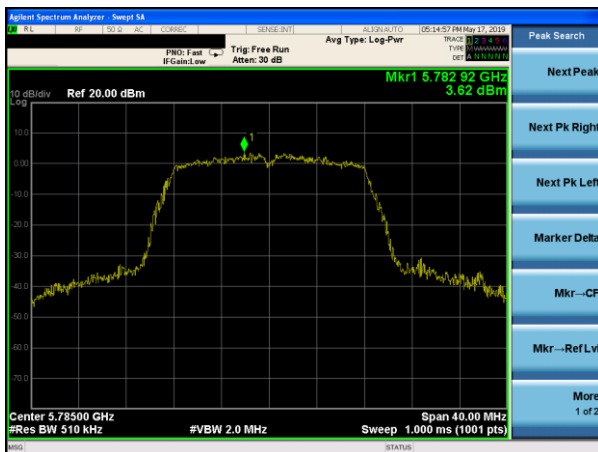
(802.11a) PSD plot on channel 149



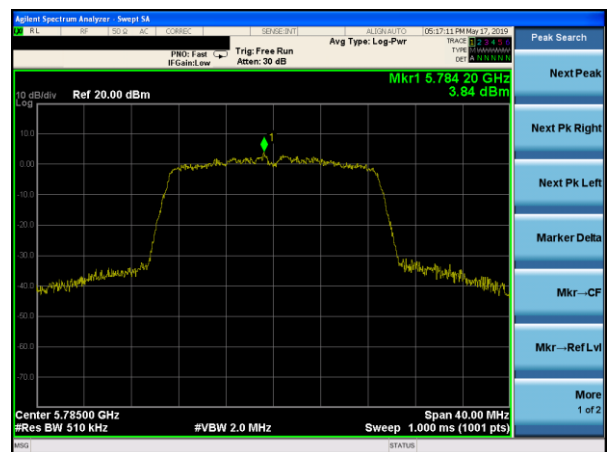
(802.11n20) PSD plot on channel 149



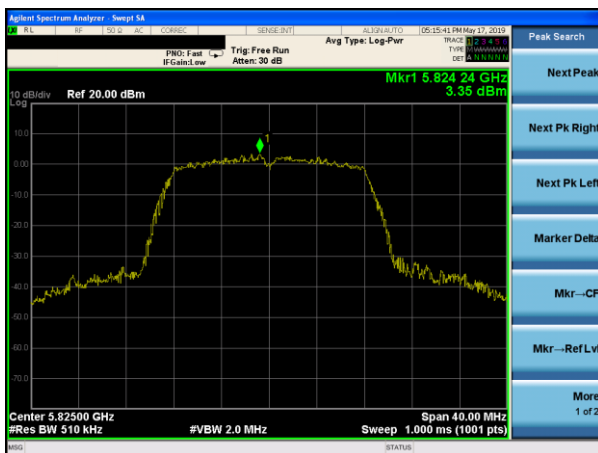
(802.11a) PSD plot on channel 157



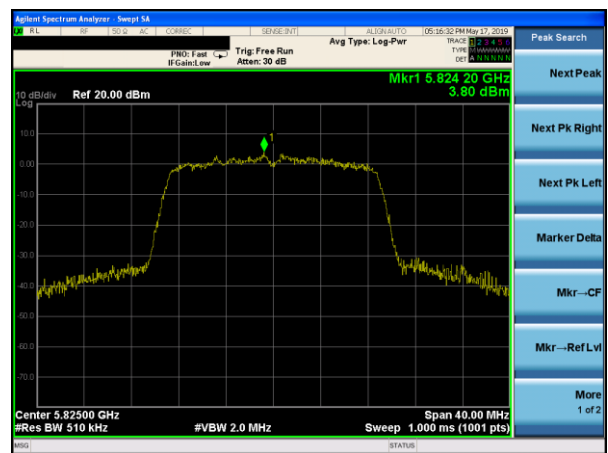
(802.11n20) PSD plot on channel 157



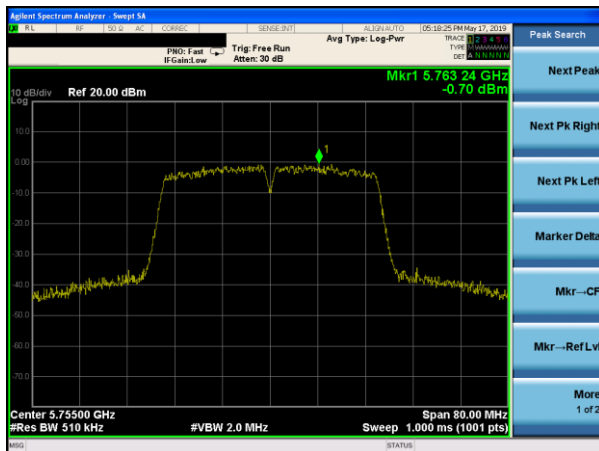
(802.11a) PSD plot on channel 165



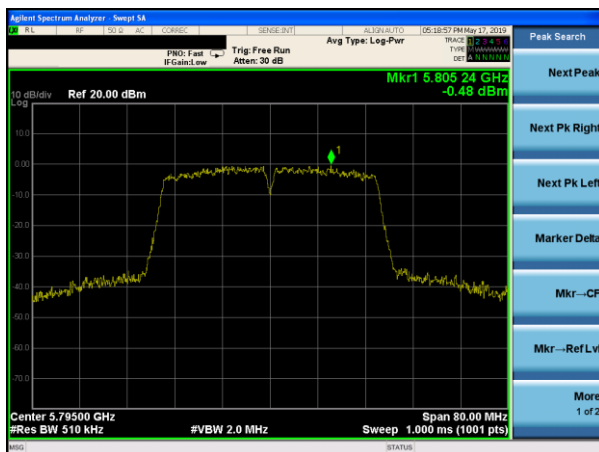
(802.11n20) PSD plot on channel 165



(802.11n40) PSD plot on channel 151



(802.11n40) PSD plot on channel 159



5. 26DB & 99% EMISSION BANDWIDTH

5.1 APPLIED PROCEDURES / LIMIT

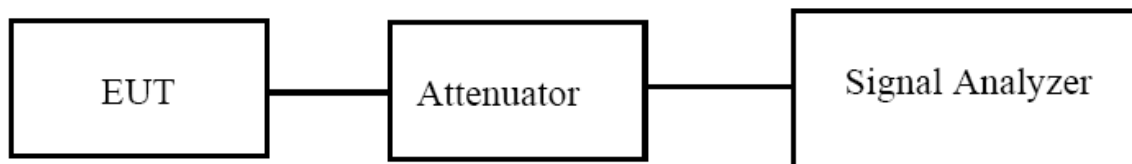
The maximum power spectral density is measured as a conducted emission by direct connection of a calibrated test instrument to the equipment under test. If the device cannot be connected directly, alternative techniques acceptable to the Commission may be used. Measurements in the 5.725-5.85 GHz band 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.

5.2 TEST PROCEDURE

- a) Set RBW = approximately 1% of the emission bandwidth.
- b) Set the VBW > RBW.
- c) Detector = Peak.
- d) Trace mode = max hold.
- e) 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:

1. Set center frequency to the nominal EUT channel center frequency.
2. Set span = 1.5 times to 5.0 times the OBW.
3. Set RBW = 1 % to 5 % of the OBW
4. Set VBW $\geq 3 \cdot$ RBW
5. 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.
6. Use the 99 % power bandwidth function of the instrument (if available).
7. 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.



5.3 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.

5.4 TEST RESULTS

EUT :	ISAAC InControl tablet	Model Name. :	TABIC1
Temperature :	25 °C	Relative Humidity :	56%
Pressure :	1012 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX Frequency Band I (5150-5250MHz)		

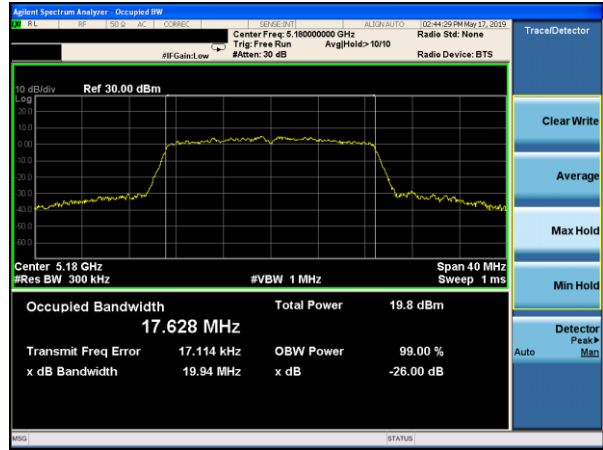
Mode	Channel	Frequency (MHz)	99% bandwidth(MHz)	26dB bandwidth (MHz)	Result
802.11a	CH36	5180	16.729	19.68	Pass
	CH40	5200	16.691	19.62	Pass
	CH48	5240	16.684	19.67	Pass
802.11 n20	CH36	5180	17.628	19.94	Pass
	CH40	5200	17.627	19.82	Pass
	CH48	5240	17.625	19.83	Pass
802.11 n40	CH 38	5190	36.031	40.12	Pass
	CH 46	5230	35.997	39.85	Pass

Test plot

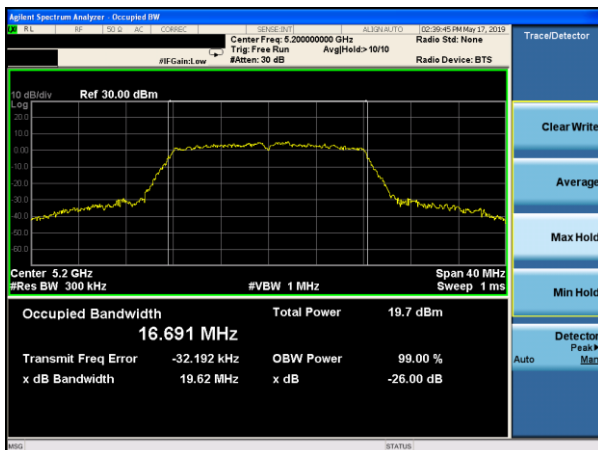
(802.11a) -26dB&99%Bandwidth plot on
channel 36



(802.11 n20) -26dB&99%Bandwidth plot on
channel 36



(802.11a) -26dB&99%Bandwidth plot on
channel 40



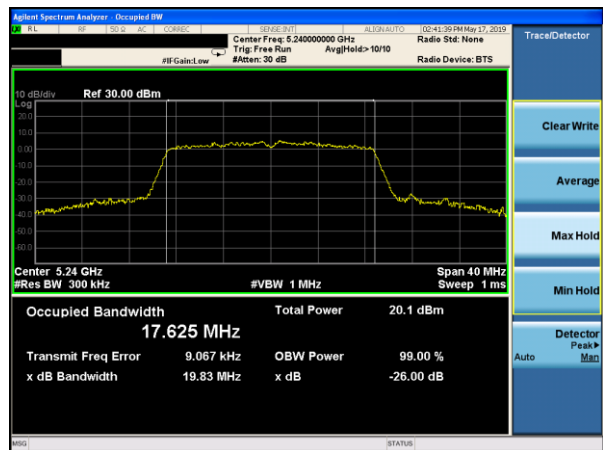
(802.11 n20) -26dB&99%Bandwidth plot on
channel 40



(802.11a) -26dB&99%Bandwidth plot on
channel 48

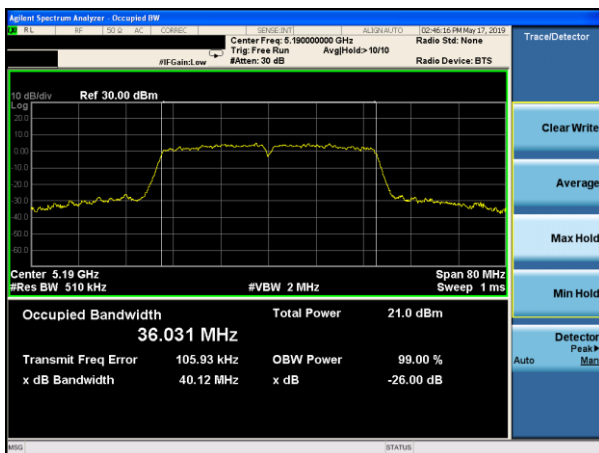


(802.11 n20) -26dB&99%Bandwidth plot on
channel 48

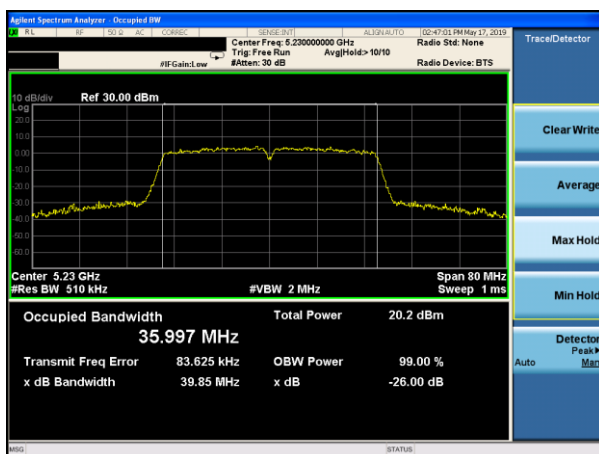


Test plot

(802.11 n40) -26dB&99%Bandwidth plot on
channel 38



(802.11 n40) -26dB&99%Bandwidth plot on
channel 46

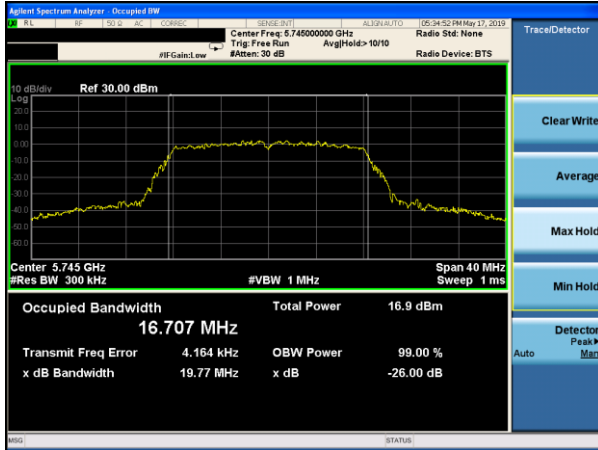


EUT :	ISAAC InControl tablet	Model Name. :	TABIC1
Temperature :	25 °C	Relative Humidity :	56%
Pressure :	1012 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX Frequency Band IV(5725-5850MHz)		

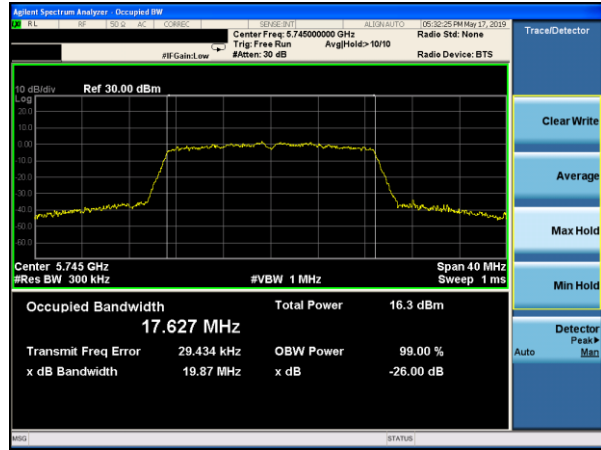
Mode	Channel	Frequency (MHz)	99% bandwidth(MHz)	26dB bandwidth (MHz)	Result
802.11a	CH149	5745	16.707	19.77	Pass
	CH157	5785	16.697	19.65	Pass
	CH165	5825	16.810	19.86	Pass
802.11 n20	CH149	5745	17.627	19.87	Pass
	CH157	5785	17.631	19.84	Pass
	CH165	5825	17.629	19.87	Pass
802.11 n40	CH151	5755	35.994	39.99	Pass
	CH159	5795	35.994	39.98	Pass

Test plot

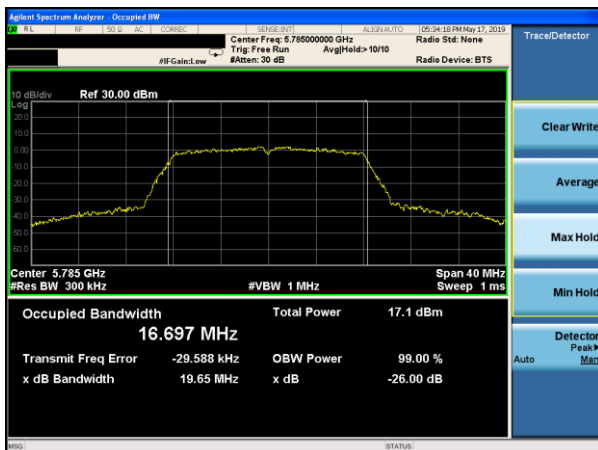
(802.11a) -26dB&99%Bandwidth plot on
channel 149



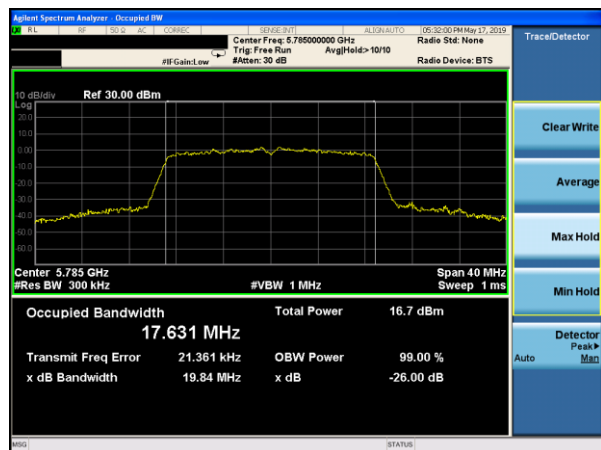
(802.11 n20) -26dB&99%Bandwidth plot on
channel 149



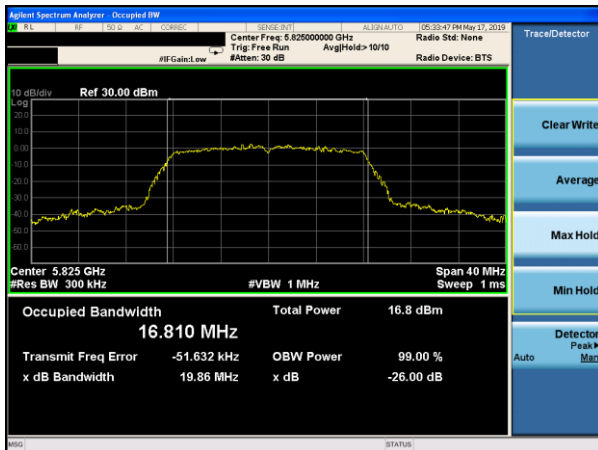
(802.11a) -26dB&99%Bandwidth plot on channel
157



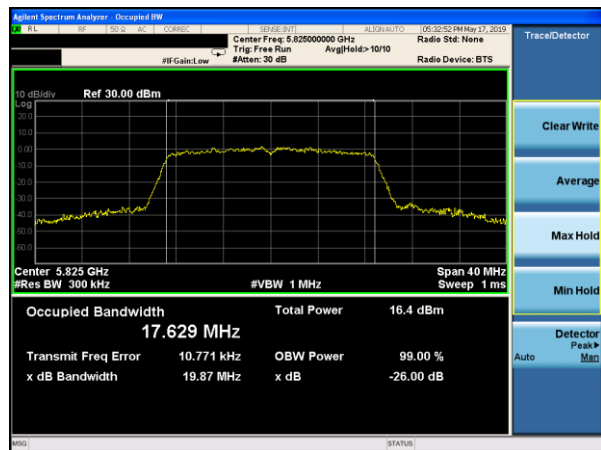
(802.11 n20) -26dB&99%Bandwidth plot on
channel 157



(802.11a) -26dB&99%Bandwidth plot on channel
165

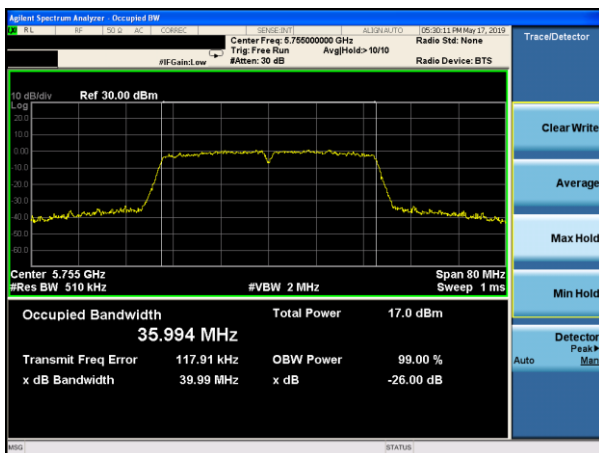


(802.11 n20) -26dB&99%Bandwidth plot on
channel 165

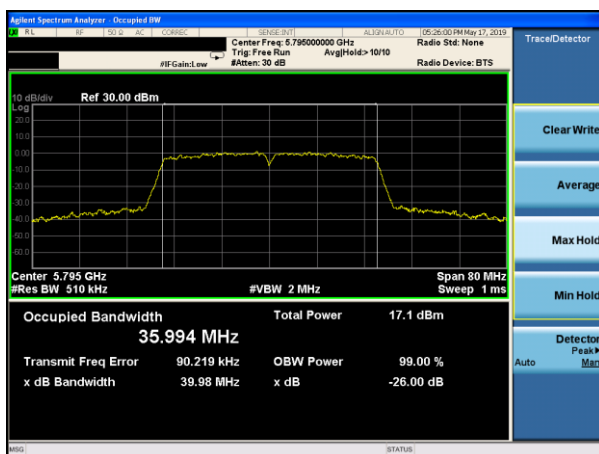


Test plot

(802.11 n40) -26dB&99%Bandwidth plot on
channel 151



(802.11 n40) -26dB&99%Bandwidth plot on
channel 159



6. MINIMUM 6 DB BANDWIDTH

6.1 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.

6.2 TEST PROCEDURE

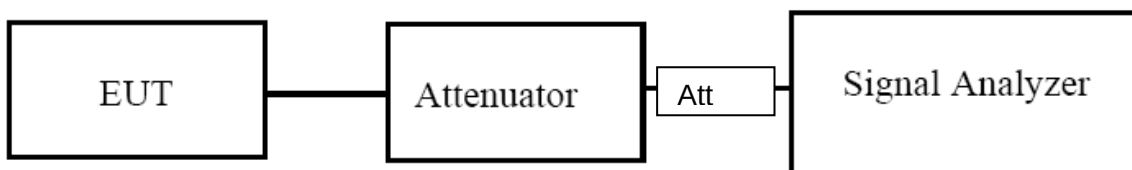
Section 15.407(e) specifies the minimum 6 dB emission bandwidth of at least 500 KHz for the band 5.715-5.85 GHz. The following procedure shall be used for measuring this bandwidth:

- 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.

6.3 DEVIATION FROM STANDARD

No deviation.

6.4 TEST SETUP



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.

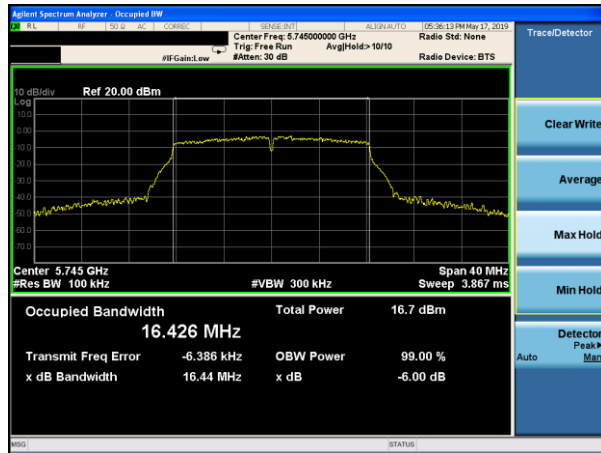
6.6 TEST RESULTS

EUT :	ISAAC InControl tablet	Model Name. :	TABIC1
Temperature :	25 °C	Relative Humidity :	60%
Pressure :	1012 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX (5G) Mode Frequency Band IV (5725-5850MHz)		

Mode	Channel	Frequency (MHz)	-6dB bandwidth (MHz)	Limit (KHz)	Result
802.11a	149	5745	16.44	≥ 500	Pass
	157	5785	16.42	≥ 500	Pass
	165	5825	16.43	≥ 500	Pass
802.11 n20	149	5745	17.64	≥ 500	Pass
	157	5785	17.63	≥ 500	Pass
	165	5825	17.65	≥ 500	Pass
802.11 n40	151	5755	36.25	≥ 500	Pass
	159	5795	36.38	≥ 500	Pass

Test plot

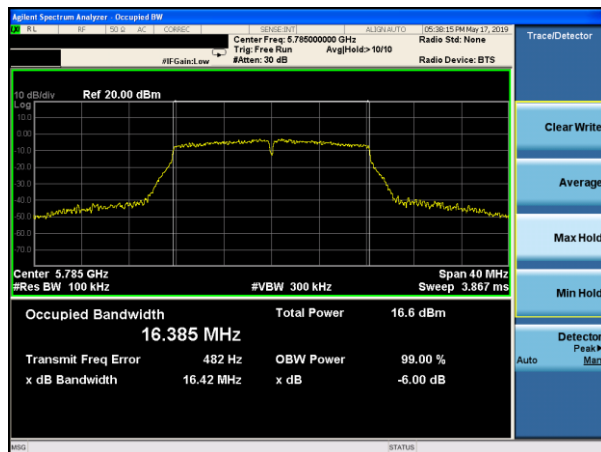
(802.11a) 6dB Bandwidth plot on channel 149



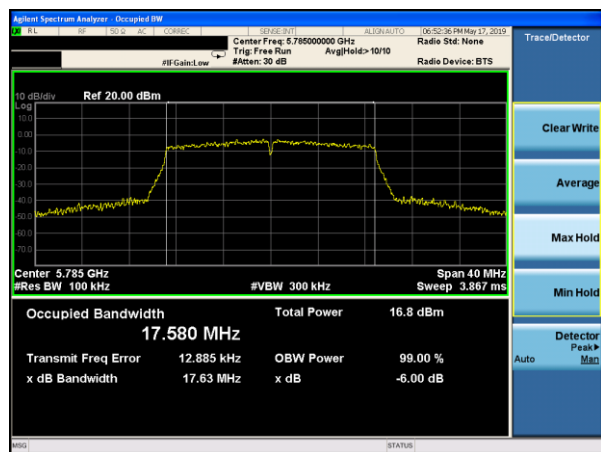
(802.11 n20) 6dB Bandwidth plot on channel 149



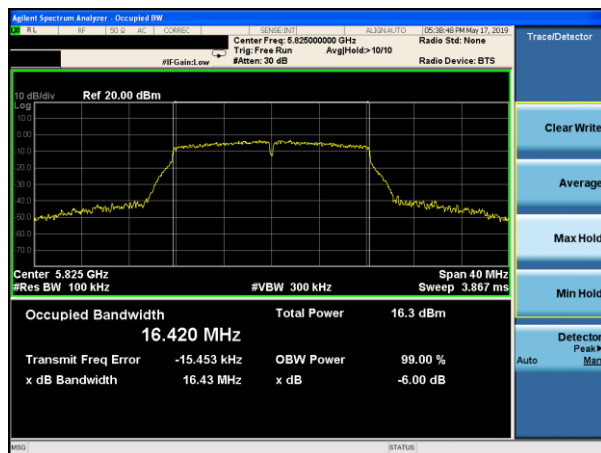
(802.11a) 6dB Bandwidth plot on channel 157



(802.11 n20) 6dB Bandwidth plot on channel 157



(802.11a) 6dB Bandwidth plot on channel 165



(802.11 n20) 6dB Bandwidth plot on channel 165

