RADIO TEST REPORT

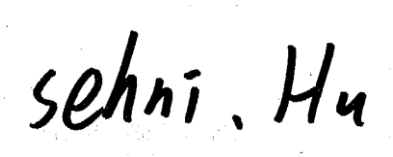
FCC 47 CFR PART 15 SUBPART C (CLASS II PERMISSIVE CHANGE) INDUSTRY CANADA RSS-247 (CLASS I PERMISSIVE CHANGE)

Test Standard	**FCC Part 15.407** **RSS-247 issue 3 and RSS-GEN issue 5**
Product name	**Connected Digital Recorder**
Brand Name	**MiTAC, Mio, MAGELLAN, Navman, SMARTER AI, Webfleet, Azuga**
Model No.	**N702, N702B, CAMPro US, SafetyCam Pro**
Test Result	**Pass**
Statements of Conformity	**Determination of compliance is based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.**

The test Result was tested by Compliance Certification Services Inc. The test data, data evaluation, test procedures, and equipment configurations shown in this report were given in ANSI C63.10: 2013 and compliance standards.

The test results of this report relate only to the tested sample (EUT) identified in this report.
The test Report of full or partial shall not copy. Without written approval of Compliance Certification Services Inc. (Wugu Laboratory)

Approved by:



Sehni Hu
Supervisor

Revision History

Rev.	Issue Date	Revisions	Effect Page	Revised By
00	July 31, 2024	Initial Issue	ALL	Peggy Tsai
01	August 14, 2024	See the following Note Rev. (01)	P. 1, 4, 7, 8, 11, 13, 23, 25, 28, 29, 32, 33, A-2	Peggy Tsai
02	August 26, 2024	See the following Note Rev. (02)	P.5	Peggy Tsai
03	August 27, 2024	See the following Note Rev. (03)	P.4, 5, 13	Peggy Tsai
04	August 28, 2024	See the following Note Rev. (04)	P.1, 6	Peggy Tsai

Note:
Rev. (01)
1. Modify Project No.
2. Modify date of test in section 1.1.
3. Modify measurement uncertainty in section 1.4.
4. Modify facilities and test location in section 1.5.
5. Modify instrument calibration in section 1.6.
6. Modify note in section 2.
7. Modify the worst mode of measurement in section 3.2.
8. Modify radiation bandedge and spurious emission in section 4.2.
9. Modify appendix-A test photo.

Rev. (02)
1. Add Class IV Permissive Change in section 1.1.

Rev. (03)
1. Modify PMN and Class II Permissive Change in section 1.1.
2. Modify Remark in section 3.2.

Rev. (04)
1. Add Class I Permissive Change in section 1.1.

Table of contents

1. GENERAL INFORMATION

1.1 EUT INFORMATION

FCC Applicant	Mitac Digital Technology Corporation 4F., No. 1, R&D Road 2, Hsinchu Science Park, Hsinchu 30076 Taiwan
FCC Manufacturer	MITAC COMPUTER (KUNSHAN) CO., LTD. No. 269, 2nd Avenue, District A, Comprehensive Free Trade Zone, Kunshan, Jiangsu, P.R. China
IC Applicant	MiTAC Digital Technology Corporation 4F., No. 1, R&D Road 2, Hsinchu Science Park, Hsinchu 30076 Taiwan
IC Manufacturer	MITAC COMPUTER (KUNSHAN) CO., LTD. No. 269, 2nd Rd, Export Processing Zone Changjiang South Road Kushan, Jiangsu China (Peoples Republic Of)
Equipment	Connected Digital Recorder
Model Name	N702, N702B, CAMPro US, SafetyCam Pro
Model Discrepancy	Difference of the those model number / trademarks (list on this report) are just for marketing purpose only.
Brand Name	MiTAC, Mio, MAGELLAN, Navman, SMARTER AI, Webfleet, Azuga
Received Date	May 31, 2024
Date of Test	July 3 ~ August 13, 2024
Power Supply	Power from power supply. (DC 12~24V)
PMN	Connected Digital Recorder
EUT Serial #	HDR2CE00
HW Version	R03
SW Version	R01

<table>
<tr>
<td>Class II Permissive Change</td>
<td>This is to request for a Re-Assessment (Modification) of the Model Name: N702, FCC ID: P4Q-N702.
1. The intention of this application is due to volume of speaker is not loud enough, therefore MiTAC modify speaker to large dimension to increase better experience.
MiTAC also add new model and trade mark list as below
<table>
<tr><td>Brand Name</td><td>MiTAC, Mio, MAGELLAN, Navman, SMARTER AI, Webfleet, Azuga</td></tr>
<tr><td>Added Models</td><td>N702, N702B, CAMPro US, SafetyCam Pro</td></tr>
</table>
All models are electrically identical (Include: circuitry, components, layout, antenna type and gain, enclosure), different model names are for marketing purpose only.
2. Adding the following accessories and cables.
(1) A60 Camera
(2) Panic button
(3) AE-CM30HB (TVI camera)
(4) AE-CH11A (TVI camera)
(5) ODB Transfer Cable
(6) Open wire power cable
(7) 12V TVI cable
(8) OBDII power cable for 12V TVI cable
(9) Hardwire power cable for 12V TVI cable
(10) Clean installation V.2 cable
(11) A60 Power cable
(12) Mini USB Relay
3. Update HW version to R03.</td>
</tr>
</table>

<table>
<tr>
<td>Class I Permissive Change</td>
<td>This is to request for a Re-Assessment (Modification) of the Model Name: N702, IC Certification No: 2420C-N702.
1. The intention of this application is due to volume of speaker is not loud enough, therefore MiTAC modify speaker to large dimension to increase better experience.
MiTAC also add new model and trade mark list as below
<table>
<tr><td>Brand Name</td><td>MiTAC, Mio, MAGELLAN, Navman, SMARTER AI, Webfleet, Azuga</td></tr>
<tr><td>Added Models</td><td>N702, N702B, CAMPro US, SafetyCam Pro</td></tr>
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(9) Hardwire power cable for 12V TVI cable
(10) Clean installation V.2 cable
(11) A60 Power cable
(12) Mini USB Relay
3. Update HW version to R03.</td>
</tr>
</table>

Remark:

1. For more details, please refer to the User's manual of the EUT.
2. Disclaimer: Antenna information is provided by the applicant, test results of this report are applicable to the sample EUT received.
3. Disclaimer: Variant information between/among model numbers / trademarks is provided by the applicant, test results of this report are applicable to the sample EUT received of main test model name.

1.2 EUT CHANNEL INFORMATION

Frequency Range	**UNII-1**
	IEEE 802.11a: 5180 ~ 5240 MHz
	IEEE 802.11n HT 20: 5180 ~ 5240 MHz
	IEEE 802.11n HT 40: 5190 ~ 5230 MHz
	IEEE 802.11ac VHT 80: 5210 MHz
	UNII-3
	IEEE 802.11a: 5745 ~ 5825 MHz
	IEEE 802.11n HT 20: 5745 ~ 5825 MHz
	IEEE 802.11n HT 40: 5755 ~ 5795 MHz
	IEEE 802.11ac VHT 80: 5775 MHz
Modulation Type	1. IEEE 802.11a mode: OFDM 2. IEEE 802.11n HT 20 mode: OFDM 3. IEEE 802.11n HT 40 mode: OFDM 4. IEEE 802.11ac VHT 80 mode: OFDM

Remark:
Refer as ANSI C63.10: 2013 clause 5.6.1 Table 4 and RSS-GEN Table 1 for test channels

Number of frequencies to be tested		
Frequency range in which device operates	**Number of frequencies**	**Location in frequency range of operation**
☐ 1 MHz or less	1	Middle
☐ 1 MHz to 10 MHz	2	1 near top and 1 near bottom
☒ More than 10 MHz	3	1 near top, 1 near middle, and 1 near bottom

1.3 ANTENNA INFORMATION

Antenna Specification	☐ PIFA ☐ PCB ☒ Dipole ☐ Coils
Antenna Gain	5150~5250MHz: Gain: 2.8 dBi 5725~5850MHz: Gain: 3.3 dBi
Antenna connector	I-PEX

Notes:
1.The antenna(s) of the EUT are permanently attached and there are no provisions for connection to an external antenna. So the EUT complies with the requirements of §15.203 and RSS-Gen 6.8.

1.4 MEASUREMENT UNCERTAINTY

PARAMETER	UNCERTAINTY
RF output power (Spectrum)	± 2.440 dB
Radiated Emission_9kHz-30MHz	± 3.761 dB
Radiated Emission_30MHz-200MHz	± 3.473 dB
Radiated Emission_200MHz-1GHz	± 3.946 dB
Radiated Emission_1GHz-6GHz	± 4.797 dB

Remark:
1.This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2
2. ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report.

1.5 FACILITIES AND TEST LOCATION

All measurement facilities used to collect the measurement data are located at

No.11, Wugong 6th Rd., Wugu Dist., New Taipei City, Taiwan.
CAB identifier: TW1309

Test site	Test Engineer	Remark
Radiation	Ray Li, Tony Chao	-
RF Conducted	Jerry Chang	-

Remark: The lab has been recognized as the FCC accredited lab. under the KDB 974614 D01 and is listed in the FCC pubic Access Link (PAL) database, FCC Registration No. :444940, the FCC Designation No.:TW1309.

1.6 INSTRUMENT CALIBRATION

Conducted_FCC/IC/NCC (All)					
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Date**	**Calibration Due**
Power Supply	GWINSTEK	SPS-3610	GPE880163	2023-11-16	2024-11-15
Power Sensor	Anritsu	MA2411B	1726104	2024-04-16	2025-04-15
Power Sensor	Anritsu	MA2411B	1726107	2024-04-16	2025-04-15
Power Meter	Anritsu	ML2496A	1804001	2024-04-16	2025-04-15
Signal Analyzer	KEYSIGHT	N9030B	MY62291089	2023-10-13	2024-10-12
Attenuator	Marvelous Microwave Ine	MVE2213-10	08	2023-11-07	2024-11-06
Software	Radio Test Software Ver. 21				

966A_Radiated					
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Date**	**Calibration Due**
Signal Analyzer	KEYSIGHT	N9010A	MY52220817	2024-03-15	2025-03-14
Thermo-Hygro Meter	WISEWIND	1206	D07	2023-12-07	2024-12-06
Active Loop Antenna	SCHWARZBECK	FMZB 1513-60	1513-60-028	2023-12-13	2024-12-12
Bi-Log Antenna	Sunol Sciences	JB1	A052609	2024-02-02	2025-02-01
Preamplifier	EMEC	EM330	060609	2024-02-21	2025-02-20
Cable	Huber+Suhner	104PEA	20995+21000+182330	2024-02-21	2025-02-20
Horn Antenna	ETC	MCTD 1209	DRH13M02003	2023-12-28	2024-12-27
Preamplifier	HP	8449B	3008A00965	2023-12-22	2024-12-21
Cable	EMCI	EMC101G	221213+221011+221012	2023-10-17	2024-10-16
Turn Table	CCS	CC-T-1F	N/A	N.C.R	N.C.R
Controller	CCS	CC-C-1F	N/A	N.C.R	N.C.R
Antenna Tower	CCS	CC-A-1F	N/A	N.C.R	N.C.R
Software	e3 V9-210616c				

Remark:
1. Each piece of equipment is scheduled for calibration once a year.
2. N.C.R. = No Calibration Required.

1.7 SUPPORT AND EUT ACCESSORIES EQUIPMENT

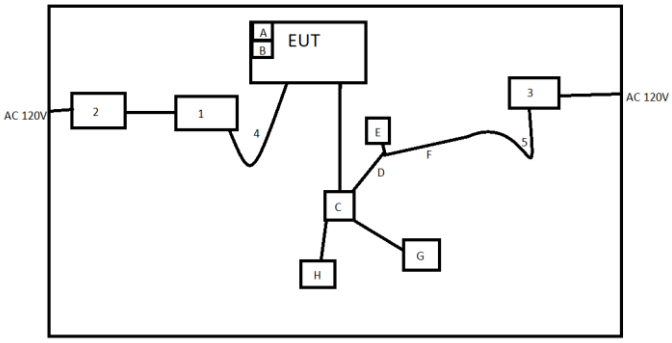
EUT Accessories Equipment						
No.	**Equipment**	**Brand**	**Model**	**Series No.**	**FCC ID**	**IC**
	N/A					

Support Equipment (Conducted)						
No.	**Equipment**	**Brand**	**Model**	**Series No.**	**FCC ID**	**IC**
1	NB(I)	Lenovo	X260	N/A	N/A	N/A
2	Mini USB	RS Pro	2369084	N/A	N/A	N/A
3	DC Power Cable	MISUMI	MCR3S-RE	N/A	N/A	N/A
A	Main entry cable	N/A	N/A	N/A	N/A	N/A

Support Equipment (RSE)						
No.	**Equipment**	**Brand**	**Model**	**Series No.**	**FCC ID**	**IC**
1	NB(D)	Lenovo	ThinkPad X260	N/A	N/A	N/A
2	Adapter	Lenovo	ADLX45DLC3A	N/A	N/A	N/A
3	Power Supply	ABM	9603D	D011314	N/A	N/A
4	Cable TypeA to TypeC	Silicon-Power	SP BOOST LINK LK10AC	N/A	N/A	N/A
5	DC Cable	MISUMI	MCR3S-RE	N/A	N/A	N/A
A	Micro SD Card	SP	N/A	N/A	N/A	N/A
B	Micro SD Card	SP	N/A	N/A	N/A	N/A
C	12V TVI cable	N/A	N/A	N/A	N/A	N/A
D	OBDII power cable for 12V TVI cable	N/A	N/A	N/A	N/A	N/A
E	Panic button	N/A	Panic button	N/A	N/A	N/A
F	ODB Transfer Cable	N/A	ODB Transfer Cable	N/A	N/A	N/A
G	AE-CH11A (TVI camera)	N/A	AE-CH11A	N/A	N/A	N/A
H	AE-CM30HB (TVI camera)	N/A	AE-CM30HB	N/A	N/A	N/A

1.8 TEST SETUP DIAGRAM

RSE:



1.9 TEST PROGRAM

The EUT connection corresponds to the surrounding fixture control board.
This EUT uses "QRCT4" software to set the frequency, modulation, and power to allow the sample to continuously transmit (including frequency hopping mode).

1.10 TEST METHODOLOGY AND APPLIED STANDARDS

The test methodology, setups and results comply with all requirements in accordance with ANSI C63.10:2013, FCC Part 2, FCC Part 15.407, KDB 789033 D02, RSS-247 Issue 3 and RSS-GEN Issue 5.

2. TEST SUMMARY

FCC Standard Sec.	IC Standard Sec.	Chapter	Test Item	Result
15.203	RSS-Gen (6.8)	1.3	Antenna Requirement	Pass
15.407(a)	RSS-247(6)	4.1	Output Power Measurement	Verify
15.407(b) 15.209 15.205	RSS-247 (6) RSS-Gen (8.9/8.10)	4.2	Radiation Spurious Emission	Pass

Verify: Verify RF power and confirm it does not exceed Tune power.
Note: For new changes, adding accessories and replacing speakers do not modify the RF part, so the original RF performance and characteristics are not affected. Therefore, the maximum power mode is selected for verification power. In this mode, the radiation is evaluated30MHz to 6GHz. For other projects, refer to the original ID. Bring products into compliance.

3. DESCRIPTION OF TEST MODES

3.1 THE EUT CHANNEL NUMBER OF OPERATING CONDITION

<table>
<tr><td>Operation mode</td><td>1. IEEE 802.11a mode: 6Mbps
2. IEEE 802.11n HT 20 mode: MCS0
3. IEEE 802.11n HT 40 mode: MCS0
4. IEEE 802.11ac VHT 80 mode: MCS0</td></tr>
<tr><td>Operating Frequency</td><td>
<table>
<tr><th></th><th>Mode</th><th>Frequency Range (MHz)</th></tr>
<tr><td rowspan="4">U-NII-1</td><td>IEEE 802.11a</td><td>5180, 5220, 5240</td></tr>
<tr><td>IEEE 802.11n HT 20</td><td>5180, 5220, 5240</td></tr>
<tr><td>IEEE 802.11n HT 40</td><td>5190, 5230</td></tr>
<tr><td>IEEE 802.11ac VHT 80</td><td>5210</td></tr>
<tr><td rowspan="4">U-NII-3</td><td>IEEE 802.11a</td><td>5745, 5785, 5825</td></tr>
<tr><td>IEEE 802.11n HT 20</td><td>5745, 5785, 5825</td></tr>
<tr><td>IEEE 802.11n HT 40</td><td>5755, 5795</td></tr>
<tr><td>IEEE 802.11ac VHT 80</td><td>5775</td></tr>
</table>
</td></tr>
</table>

Remark:
1. EUT pre-scanned data rate of output power for each mode, the worst data rate were recorded in this report.
2. he worst-case data rates are determined to be as follows for each mode based upon investigations by evaluation judgment the average power and PSD across all date rates, bandwidths, and modulations.

3.2 THE WORST MODE OF MEASUREMENT

Radiated Emission Measurement Below 1G	
Test Condition	**Radiated Emission Below 1G**
Power supply Mode	**Mode 1: EUT power by Power supply (SD+12V TVI cable+OBDII power cable for 12V TVI cable+ Panic button +ODB Transfer Cable+AE-CH11A (TVI camera)+ AE-CM30HB (TVI camera))** **Mode2: EUT power by Power supply (SD+12V TVI cable+ Hardwire power cable for 12V TVI cable+ Panic button +ODB Transfer Cable+AE-CH11A (TVI camera)+ AE-CM30HB (TVI camera))** **Mode 3: EUT power by Power supply (SD+Mini USB Relay+A60 Camera+ A60 power cable+ Open wire power cable+ Panic button)** **Mode 4: EUT power by Power supply (SD+Mini USB Relay+A60 Camera+ A60 power cable+ Clean installation V.2 cable + ODB Transfer Cable + Panic button)**
Worst Mode	☒ **Mode 1** ☐ **Mode 2** ☐ **Mode 3** ☐ **Mode 4**

Radiated Emission Measurement Above 1G	
Test Condition	**Radiated Emission Above 1G**
Power supply Mode	**Mode 1: EUT power by Power supply (SD+12V TVI cable+OBDII power cable for 12V TVI cable+ Panic button +ODB Transfer Cable+AE-CH11A (TVI camera)+ AE-CM30HB (TVI camera))**
Worst Mode	☒ **Mode 1** ☐ **Mode 2** ☐ **Mode 3** ☐ **Mode 4**

Remark:
1. The worst mode was record in this test report.
2. EUT pre-scanned in three axis ,X,Y, Z and two polarity, for radiated measurement. The worst case(Y-Plane) were recorded in this report
3. The device supports 12V or 24V. The original ID has been fully evaluated as 12V as the worst mode. In this accessory combination, 12V is used as the worst mode evaluation.
4. Variations between models/brands are evaluated by laboratories and the test results reported here apply to the worst model: N702B.

4. TEST RESULT

4.1 OUTPUT POWER MEASUREMENT

4.1.1 Test Limit

FCC according to §15.407 (a)(1) and 15.407(a)(3),

UNII-1 :

The maximum conducted output power over the frequency band of operation shall not For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

UNII-3:

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, 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.

UNII-1 Limit	☒ Antenna not exceed 6 dBi：30dBm ☐ Antenna with DG greater than 6 dBi： [Limit = 24 – (DG – 6)]
UNII-3 Limit	☒ Antenna not exceed 6 dBi：30dBm ☐ Antenna with DG greater than 6 dBi： [Limit = 30 – (DG – 6)]

IC according to RSS-247 section 6.2.1.1 and section 6.2.4.2,

UNII-1 :

For OEM devices installed in vehicles, the maximum e.i.r.p. shall not exceed 30 mW or 1.76 + 10 log10B, dBm, whichever is less. Devices shall implement transmitter power control (TPC) in order to have the capability to operate at least 3 dB below the maximum permitted e.i.r.p. of 30 mW.
For other devices, the maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 log10B, dBm, whichever power is less. B is the 99% emission bandwidth in megahertz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

UNII-3:

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, 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.

UNII-1 Limit	☒ 200mW or 10 + 10 log10B for IC ☐ Antenna with DG greater than 6 dBi： [Limit = 30 – (DG – 6)]
UNII-3 Limit	☐ Antenna not exceed 6 dBi：30dBm ☒ Antenna with DG greater than 6 dBi： [Limit = 30 – (DG – 6)]

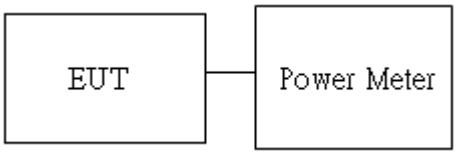
4.1.2 Test Procedure

Test method Refer as KDB 789033 D02, Section E.3.b for BW 20MHz and 40MHz, E.2.b for BW 80MHz.

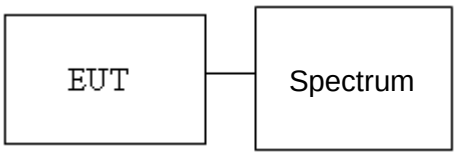
1. The EUT RF output connected to the power meter or spectrum by RF cable.
2. Setting maximum power transmit of EUT.
3. The path loss was compensated to the results for each measurement.
4. Measure and record the result of Average output power. in the test report.

4.1.3 Test Setup

For BW 20MHz and 40MHz



For BW 80MHz



4.1.4 Test Result

Temperature:	21.8 ~ 23.8℃	**Test date:**	July 3 ~ 12, 2024
Humidity:	53 ~ 58% RH	**Tested by:**	Jerry Chang

Conducted output power：

FCC:

802.11a_Ch0

CH	Frequency (MHz)	Data Rate	TOTAL POWER (mW)	TOTAL POWER (dBm)	REQUIRED LIMIT (dBm)	RESULT
36	5180	6	31.256	14.95	23.98	PASS
44	5220	6	39.988	**16.02**	23.98	PASS
48	5240	6	39.168	15.93	23.98	PASS
149	5745	6	170.189	**22.31**	30	PASS
157	5785	6	163.280	22.13	30	PASS
165	5825	6	141.557	21.51	30	PASS

802.11n_HT20_Ch0

CH	Frequency (MHz)	Data Rate	TOTAL POWER (mW)	TOTAL POWER (dBm)	REQUIRED LIMIT (dBm)	RESULT
36	5180	MCS0	39.090	**15.92**	23.98	PASS
44	5220	MCS0	37.937	15.79	23.98	PASS
48	5240	MCS0	37.589	15.75	23.98	PASS
149	5745	MCS0	168.293	**22.26**	30	PASS
157	5785	MCS0	156.338	21.94	30	PASS
165	5825	MCS0	133.065	21.24	30	PASS

802.11n_HT40_Ch0

CH	Frequency (MHz)	Data Rate	TOTAL POWER (mW)	TOTAL POWER (dBm)	REQUIRED LIMIT (dBm)	RESULT
38	5190	MCS0	38.124	15.81	23.98	PASS
46	5230	MCS0	73.315	**18.65**	23.98	PASS
151	5755	MCS0	162.253	**22.10**	30	PASS
159	5795	MCS0	156.745	21.95	30	PASS

802.11ac_VHT80_Ch0

CH	Frequency (MHz)	Data Rate	TOTAL POWER (mW)	TOTAL POWER (dBm)	REQUIRED LIMIT (dBm)	RESULT
42	5210	MCS0	24.914	**13.96**	23.98	PASS
155	5775	MCS0	125.445	**20.98**	30	PASS

IC:

802.11a_Ch0

CH	Frequency (MHz)	TOTAL POWER (mW)	TOTAL POWER (dBm)	REQUIRED LIMIT (dBm)	RESULT
149	5745	**170.189**	**22.31**	30	PASS
157	5785	163.280	22.13	30	PASS
165	5825	141.557	21.51	30	PASS

802.11n_HT20_Ch0

CH	Frequency (MHz)	TOTAL POWER (mW)	TOTAL POWER (dBm)	REQUIRED LIMIT (dBm)	RESULT
149	5745	**168.293**	**22.26**	30	PASS
157	5785	156.338	21.94	30	PASS
165	5825	133.065	21.24	30	PASS

802.11n_HT40_Ch0

151	5755	**162.253**	**22.10**	30	PASS
159	5795	156.745	21.95	30	PASS

802.11ac_VHT80_Ch0

CH	Frequency (MHz)	TOTAL POWER (mW)	TOTAL POWER (dBm)	REQUIRED LIMIT (dBm)	RESULT
155	5775	**125.445**	**20.98**	30	PASS

EIRP:

802.11a_Ch0

CH	Frequency (MHz)	TOTAL POWER (dBm)	Antenna Gain (dBi)	EIRP (mW)	EIRP (dBm)	REQUIRED LIMIT (dBm)	RESULT
36	5180	14.95	2.80	59.566	17.75	23.01	PASS
44	5220	**16.02**	2.80	**76.208**	**18.82**	23.01	PASS
48	5240	15.93	2.80	74.645	18.73	23.01	PASS

802.11n_HT20_Ch0

CH	Frequency (MHz)	TOTAL POWER (dBm)	Antenna Gain (dBi)	EIRP (mW)	EIRP (dBm)	REQUIRED LIMIT (dBm)	RESULT
36	5180	**15.92**	2.80	**74.473**	**18.72**	23.01	PASS
44	5220	15.79	2.80	72.277	18.59	23.01	PASS
48	5240	15.75	2.80	71.614	18.55	23.01	PASS

802.11n_HT40_Ch0

CH	Frequency (MHz)	TOTAL POWER (dBm)	Antenna Gain (dBi)	EIRP (mW)	EIRP (dBm)	REQUIRED LIMIT (dBm)	RESULT
38	5190	15.81	2.80	72.611	18.61	23.01	PASS
46	5230	**18.65**	2.80	**139.637**	**21.45**	23.01	PASS

802.11ac_VHT80_Ch0

CH	Frequency (MHz)	TOTAL POWER (dBm)	Antenna Gain (dBi)	EIRP (mW)	EIRP (dBm)	REQUIRED LIMIT (dBm)	RESULT
42	5210	**13.96**	2.80	**47.424**	**16.76**	23.01	PASS

4.2 RADIATION BANDEDGE AND SPURIOUS EMISSION

4.2.1 Test Limit

FCC according to §15.407, §15.209 and §15.205,

Below 30 MHz

Frequency	Field Strength (microvolts/m)	Magnetic H-Field (microamperes/m)	Measurement Distance (metres)
9-490 kHz	2,400/F (F in kHz)	2,400/F (F in kHz)	300
490-1,705 kHz	24,000/F (F in kHz)	24,000/F (F in kHz)	30
1.705-30 MHz	30	N/A	30

Above 30 MHz

Frequency (MHz)	Field Strength microvolts/m at 3 metres (watts, e.i.r.p.)	
	Transmitters	Receivers
30-88	100 (3 nW)	100 (3 nW)
88-216	150 (6.8 nW)	150 (6.8 nW)
216-960	200 (12 nW)	200 (12 nW)
Above 960	500 (75 nW)	500 (75 nW)

UNII-1 :

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

UNII-3:

All emissions shall be limited to a level of −27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

IC according to RSS-247 section 6.2.1.2 and 6.2.4.3,

Below 30 MHz

Frequency	Field Strength (microvolts/m)	Magnetic H-Field (microamperes/m)	Measurement Distance (metres)
9-490 kHz	2,400/F (F in kHz)	2,400/F (F in kHz)	300
490-1,705 kHz	24,000/F (F in kHz)	24,000/F (F in kHz)	30
1.705-30 MHz	30	N/A	30

Above 30 MHz

Frequency (MHz)	Field Strength microvolts/m at 3 metres (watts, e.i.r.p.)	
	Transmitters	Receivers
30-88	100 (3 nW)	100 (3 nW)
88-216	150 (6.8 nW)	150 (6.8 nW)
216-960	200 (12 nW)	200 (12 nW)
Above 960	500 (75 nW)	500 (75 nW)

RSS-Gen Table 3 and Table 5 – General Field Strength Limits for Transmitters and Receivers at Frequencies Above 30 MHz (Note)

Frequency (MHz)	Field Strength microvolts/m at 3 metres (watts, e.i.r.p.)	
	Transmitters	Receivers
30-88	100 (3 nW)	100 (3 nW)
88-216	150 (6.8 nW)	150 (6.8 nW)
216-960	200 (12 nW)	200 (12 nW)
Above 960	500 (75 nW)	500 (75 nW)

Note: Measurements for compliance with the limits in table 3 may be performed at distances other than 3 metres, in accordance with Section 6.6.

RSS-Gen Table 6: General Field Strength Limits for Transmitters at Frequencies Below 30 MHz (Transmit)

Frequency	Magnetic field strength (H-Field) (μA/m)	Measurement Distance (m)
9-490 kHz Note	6.37/F (F in kHz)	300
490-1,705 kHz	63.7/F (F in kHz)	30
1.705-30 MHz	0.08	30

Note: The emission limits for the ranges 9-90 kHz and 110-490 kHz are based on measurements employing a linear average detector..

UNII-1 :

For transmitters operating in the band 5150-5250 MHz, all emissions outside the band 5150-5350 MHz shall not exceed -27 dBm/MHz e.i.r.p. However, any unwanted emissions that fall into the band 5250-5350 MHz must be 26 dBc, when measured using a resolution bandwidth between 1 and 5% of the occupied bandwidth, above 5.25 GHz. Otherwise, the transmission is considered as intentional and the devices shall implement dynamic frequency selection (DFS) and transmitter power control (TPC) as per the requirements for the band 5250-5350 MHz

UNII-3:

For the band 5725-5850 MHz, emissions at frequencies from the band edges to 10 MHz above or below the band edges shall not exceed -17 dBm/MHz e.i.r.p.
For emissions at frequencies more than 10 MHz above or below the band edges, the emissions power shall not exceed -27 dBm/MHz

4.2.2 Test Procedure

Test method Refer as KDB 789033 D02.

1. The EUT is placed on a turntable, Above 1 GHz is 1.5m and below 1 GHz is 0.8m above ground plane. The EUT Configured un accordance with ANSI C63.10: 2013, and the EUT set in a continuous mode.

2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level. And EUT is set 3m away from the receiving antenna, which is scanned from 1m to 4m above the ground plane to find out the highest emissions. Measurement are made polarized in both the vertical and the horizontal positions with antenna.

3. Span shall wide enough to full capture the emission measured. The SA from 9kHz to 1GHz set to the max power channels with the EUT transmit.

4. No emission found between lowest internal used/generated frequency to 30MHz (9KHz~30MHz)

Radiated emission below 30MHz is measured in a 9m*6m*6m semi-ane choic chamber, the measurements correspond to those obtained at an open-field test site. There is a comparison data of both open-field test site and semi-Anechoic chamber, and the result came out very similar.

5. The SA setting following：

(1) Below 30MHz：

(1.1) 9KHz-490KHz : RBW=200Hz / VBW=1kHz / Sweep=AUTO

(1.2) 490KHz-30MHz : RBW=10kHz / VBW=30kHz / Sweep=AUTO

(2) 30MHz to 1GHz：RBW = 100kHz, VBW ≥ 3*RBW, Sweep = Auto,

Detector = Peak, Trace = Max hold.

(3) Above 1G：

(2.1) For Peak measurement：RBW = 1MHz, VBW ≥ 3 RBW, Sweep = Auto, Detector = Peak, Trace = Max hold.

(2.2) For Average measurement：RBW = 1MHz, VBW

˙If Duty Cycle ≥ 98%, VBW=10Hz.

˙If Duty Cycle < 98%, VBW≥1/T.

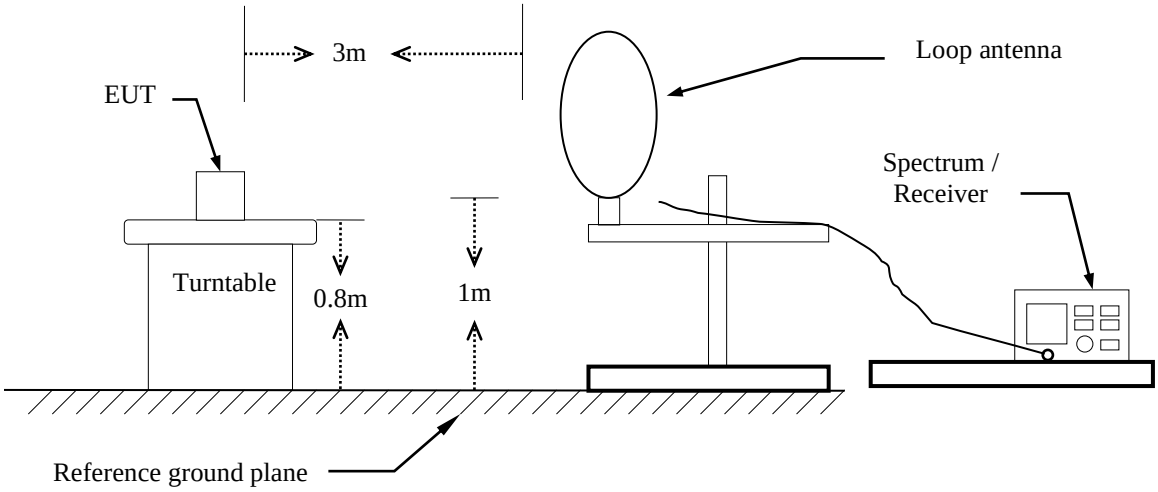
6. Data result：

Actual FS=Spectrum Reading Level + Factor

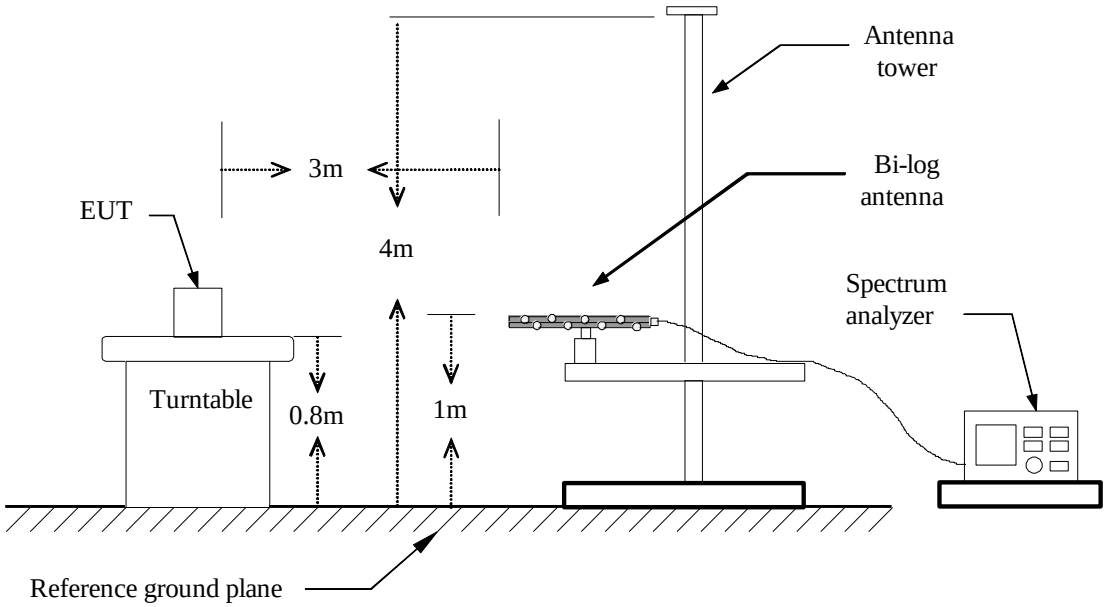
Margin=Actual FS- Limit

4.2.3 Test Setup

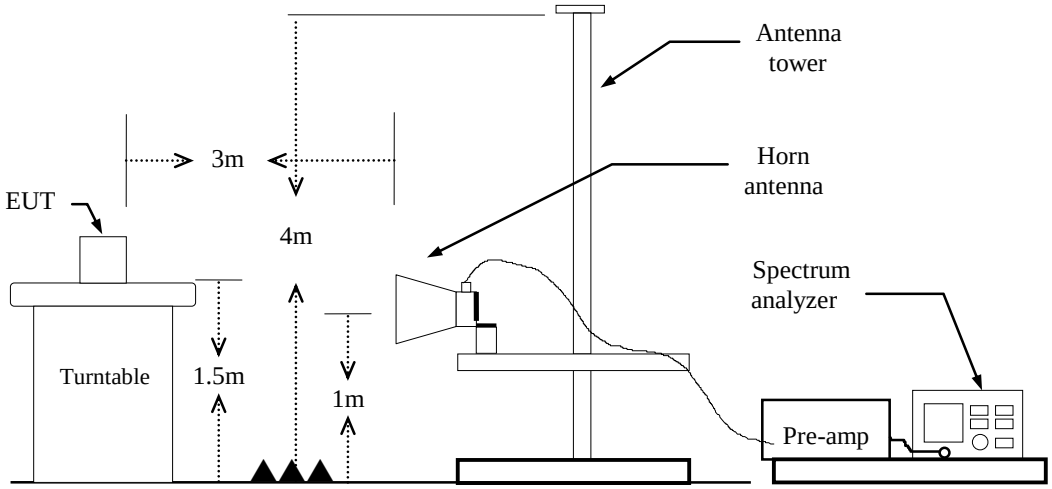
9kHz ~ 30MHz



30MHz ~ 1GHz

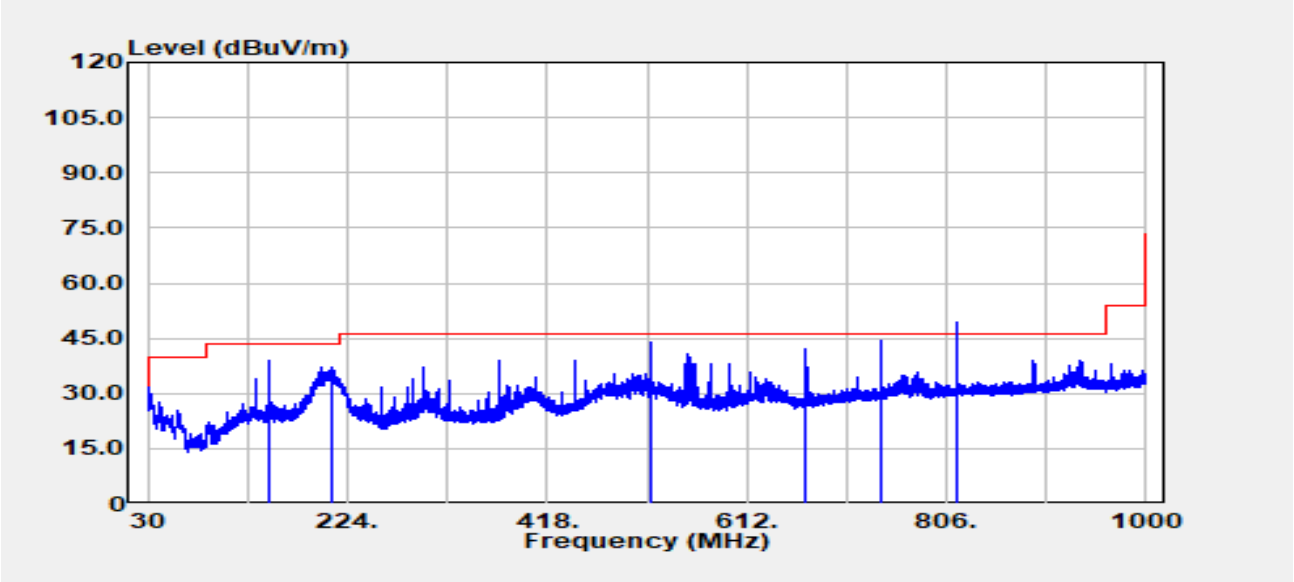


Above 1 GHz



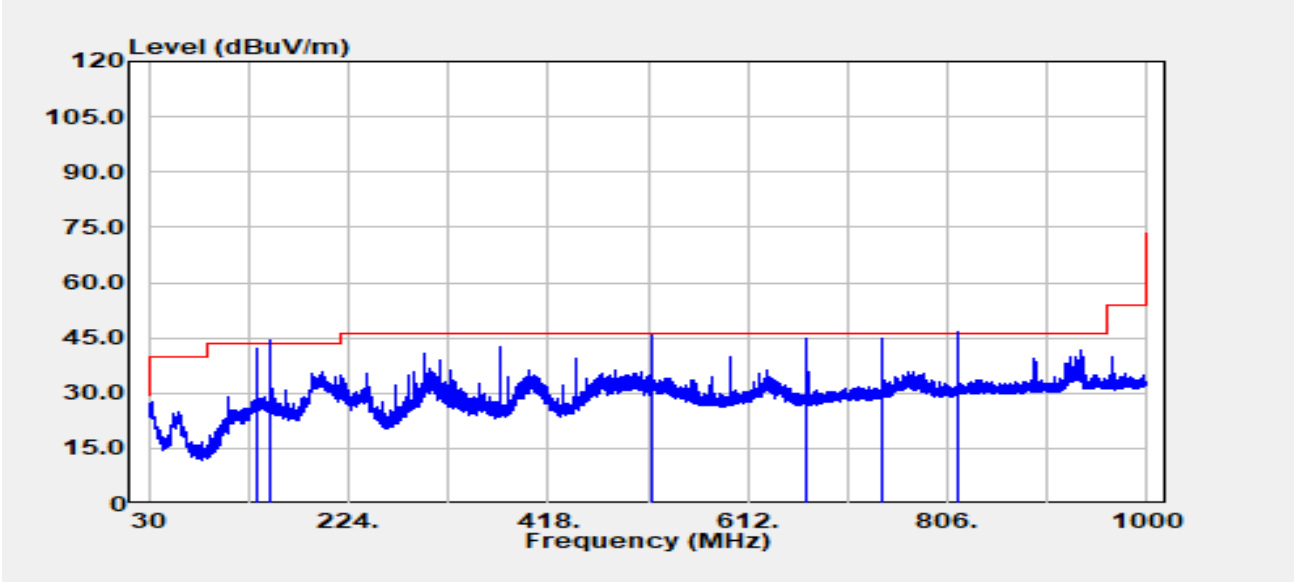
4.2.4 Test Result

Project No	:TM-2405000397P	Test Date	:2024-07-12
Operation Band	:802.11n40/Band1	Temp./Humi.	:23.9/55
Frequency	:5190 MHz	Antenna Pol.	:VERTICAL
Operation Mode	:TX	Engineer	:Ray Li
EUT Pol	:E1	Test Chamber	: 966A
Setting	:		



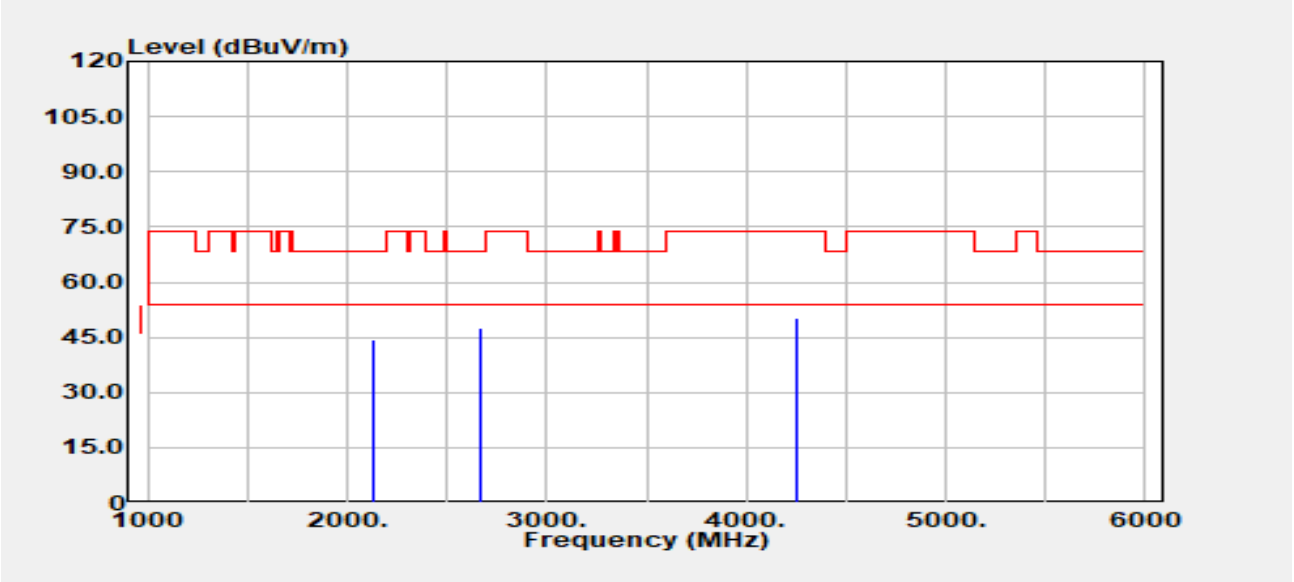
Freq. MHz	Detector Mode PK/QP/AV	Spectrum Read Level dBµV	Factor dB	Actual FS dBµV/m	Limit dBµV/m	Margin dB
148.50	Peak	49.51	-10.43	39.07	43.50	-4.43
209.00	Peak	49.12	-11.86	37.26	43.50	-6.24
519.80	Peak	46.84	-2.75	44.10	46.00	-1.90
668.30	Peak	42.51	-0.32	42.19	46.00	-3.81
742.50	Peak	43.38	1.17	44.55	46.00	-1.45
816.80	QP	43.26	2.54	45.80	46.00	-0.20

Project No	:TM-2405000397P	Test Date	:2024-07-12
Operation Band	:802.11n40/Band1	Temp./Humi.	:23.9/55
Frequency	:5190 MHz	Antenna Pol.	:HORIZONTAL
Operation Mode	:TX	Engineer	:Ray Li
EUT Pol	:E1	Test Chamber	: 966A
Setting	:		



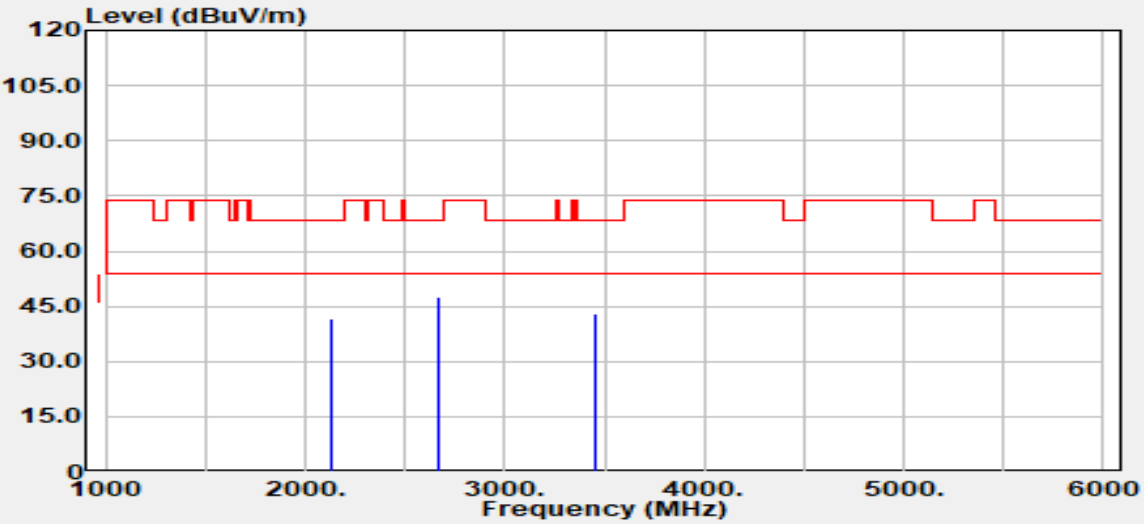
Freq. MHz	Detector Mode PK/QP/AV	Spectrum Read Level dBµV	Factor dB	Actual FS dBµV/m	Limit dBµV/m	Margin dB
135.00	Peak	51.35	-9.14	42.21	43.50	-1.29
148.50	QP	52.79	-10.43	42.35	43.50	-1.15
519.80	QP	46.43	-2.75	43.68	46.00	-2.32
668.30	Peak	45.08	-0.32	44.76	46.00	-1.24
742.50	Peak	43.68	1.17	44.85	46.00	-1.15
816.80	QP	41.99	2.54	44.53	46.00	-1.47

Project No	:TM-2405000397P	Test Date	:2024-08-13
Operation Band	:802.11n40/Band1	Temp./Humi.	:24.6/57
Frequency	:5190 MHz	Antenna Pol.	:VERTICAL
Operation Mode	:TX	Engineer	:Tony Chao
EUT Pol	:E1	Test Chamber	: 966A
Setting	:		



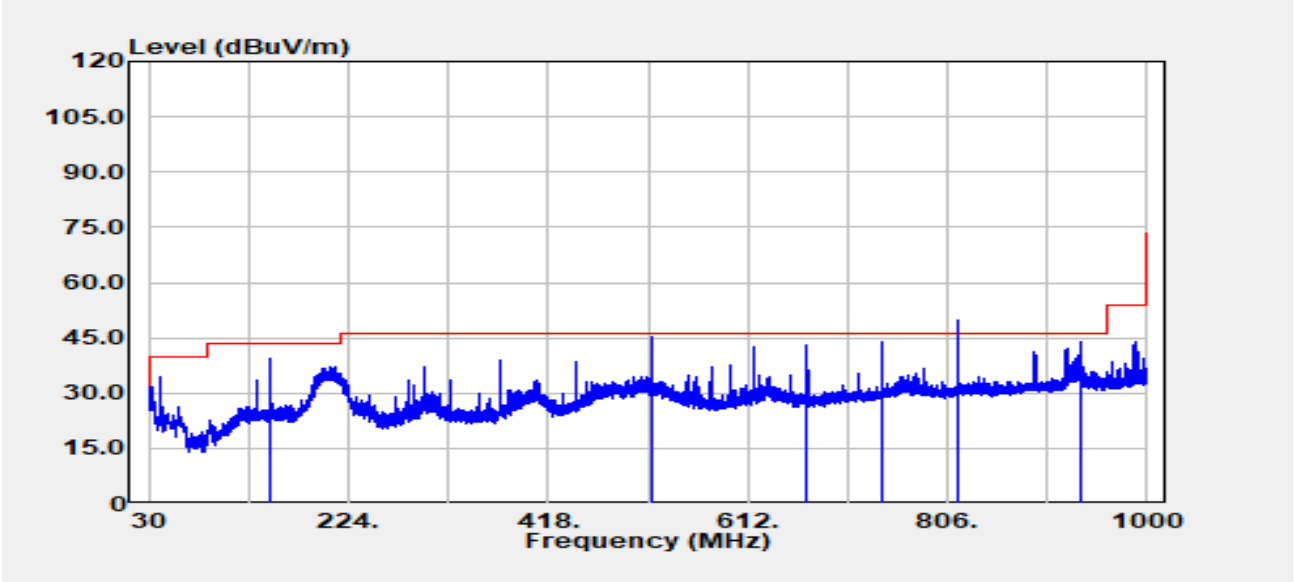
Freq. MHz	Detector Mode PK/QP/AV	Spectrum Read Level dBµV	Factor dB	Actual FS dBµV/m	Limit dBµV/m	Margin dB
2130.29	Peak	47.10	-2.57	44.54	68.20	-23.66
2663.82	Peak	49.84	-2.12	47.72	68.20	-20.48
4249.41	Peak	48.99	1.24	50.23	74.00	-23.77

Project No	:TM-2405000397P	Test Date	:2024-08-13
Operation Band	:802.11n40/Band1	Temp./Humi.	:24.6/57
Frequency	:5190 MHz	Antenna Pol.	:HORIZONTAL
Operation Mode	:TX	Engineer	:Tony Chao
EUT Pol	:E1	Test Chamber	: 966A
Setting	:		



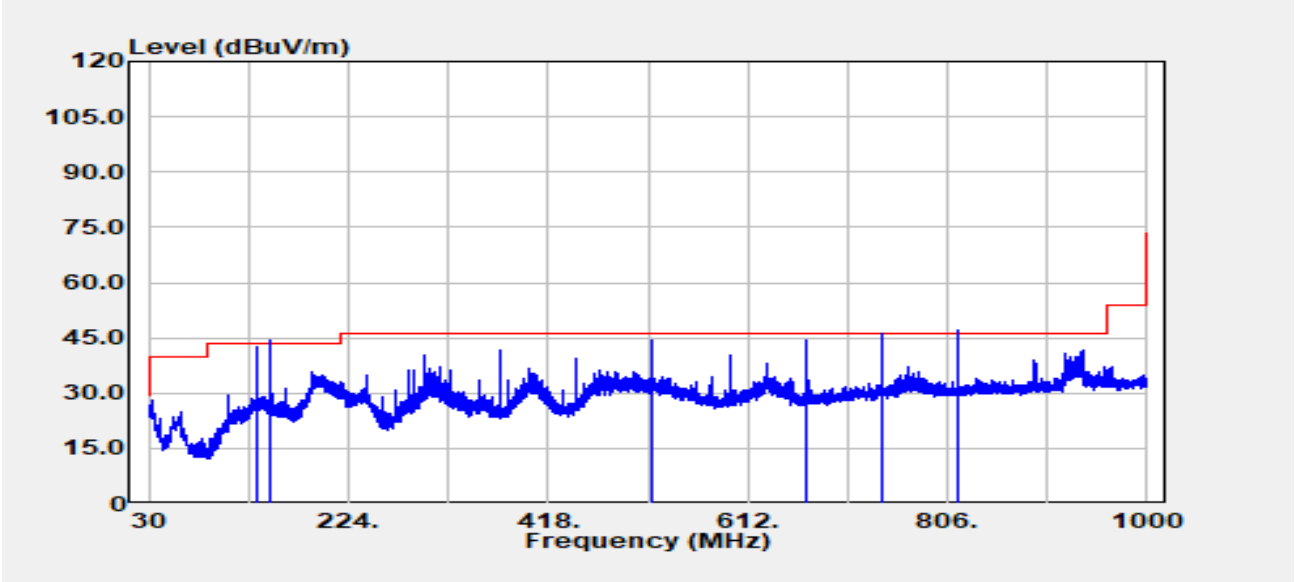
Freq. MHz	Detector Mode PK/QP/AV	Spectrum Read Level dBµV	Factor dB	Actual FS dBµV/m	Limit dBµV/m	Margin dB
2132.35	Peak	44.43	-2.59	41.84	68.20	-26.36
2666.47	Peak	49.50	-2.12	47.38	68.20	-20.82
3460.59	Peak	43.76	-0.65	43.10	68.20	-25.10

Project No	:TM-2405000397P	Test Date	:2024-07-12
Operation Band	:802.11ac80/Band4	Temp./Humi.	:23.9/55
Frequency	:5775 MHz	Antenna Pol.	:VERTICAL
Operation Mode	:TX	Engineer	:Ray Li
EUT Pol	:E1	Test Chamber	: 966A
Setting	:		



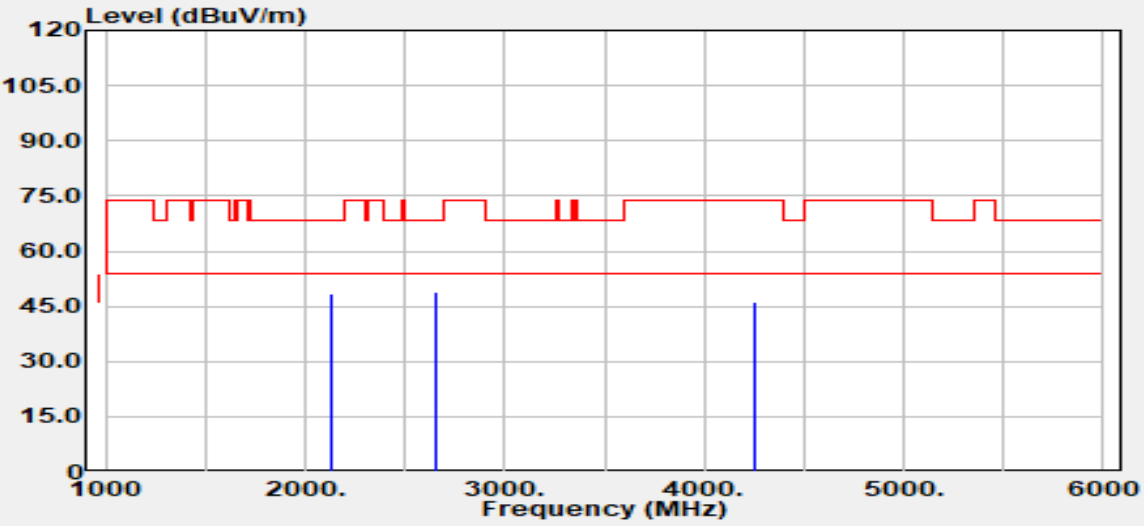
Freq. MHz	Detector Mode PK/QP/AV	Spectrum Read Level dBµV	Factor dB	Actual FS dBµV/m	Limit dBµV/m	Margin dB
148.50	Peak	49.67	-10.43	39.23	43.50	-4.27
519.80	Peak	47.90	-2.75	45.15	46.00	-0.85
668.30	Peak	43.51	-0.32	43.19	46.00	-2.81
742.50	Peak	42.56	1.17	43.73	46.00	-2.27
816.80	QP	43.31	2.54	45.84	46.00	-0.16
936.30	Peak	39.86	4.24	44.11	46.00	-1.89

Project No	:TM-2405000397P	Test Date	:2024-07-12
Operation Band	:802.11ac80/Band4	Temp./Humi.	:23.9/55
Frequency	:5775 MHz	Antenna Pol.	:HORIZONTAL
Operation Mode	:TX	Engineer	:Ray Li
EUT Pol	:E1	Test Chamber	: 966A
Setting	:		



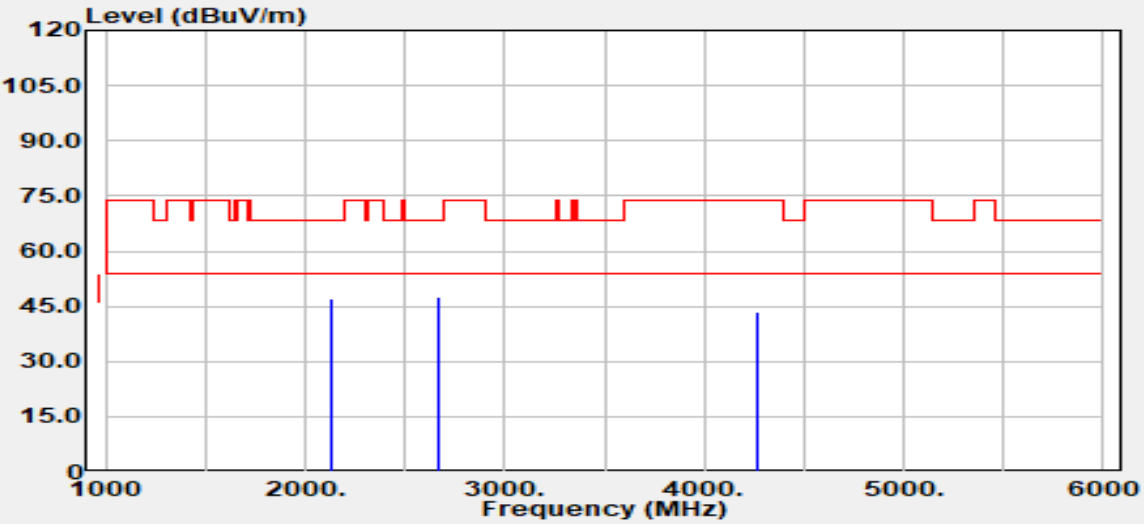
Freq. MHz	Detector Mode PK/QP/AV	Spectrum Read Level dBµV	Factor dB	Actual FS dBµV/m	Limit dBµV/m	Margin dB
135.00	QP	49.78	-9.14	40.64	43.50	-2.86
148.50	QP	52.94	-10.43	42.51	43.50	-0.99
519.80	Peak	46.91	-2.75	44.16	46.00	-1.84
668.30	Peak	44.68	-0.32	44.36	46.00	-1.64
742.50	QP	43.00	1.17	44.17	46.00	-1.83
816.80	QP	42.63	2.54	45.17	46.00	-0.83

Project No	:TM-2405000397P	Test Date	:2024-08-13
Operation Band	:802.11ac80/Band4	Temp./Humi.	:24.6/57
Frequency	:5775 MHz	Antenna Pol.	:VERTICAL
Operation Mode	:TX	Engineer	:Tony Chao
EUT Pol	:E1	Test Chamber	: 966A
Setting	:		



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Read Level dBµV	Factor dB	Actual FS dBµV/m	Limit dBµV/m	Margin dB
2129.41	Peak	50.97	-2.56	48.41	68.20	-19.79
2659.12	Peak	51.12	-2.13	48.99	68.20	-19.21
4252.65	Peak	44.74	1.25	45.99	74.00	-28.01

Project No	:TM-2405000397P	Test Date	:2024-08-13
Operation Band	:802.11ac80/Band4	Temp./Humi.	:24.6/57
Frequency	:5775 MHz	Antenna Pol.	:HORIZONTAL
Operation Mode	:TX	Engineer	:Tony Chao
EUT Pol	:E1	Test Chamber	: 966A
Setting	:		



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Read Level dBµV	Factor dB	Actual FS dBµV/m	Limit dBµV/m	Margin dB
2127.35	Peak	49.45	-2.53	46.92	68.20	-21.28
2665.88	Peak	49.60	-2.12	47.48	68.20	-20.72
4260.29	Peak	42.07	1.29	43.36	74.00	-30.64

- End of Test Report -