

低功率射頻器材試驗報告

申請廠商	HMD Global Oy
製造廠商	Bertel Jungin aukio 9,02600 ESPOO. FINLAND
產品名稱	HMD Global Oy
廠牌	4G無線藍牙手持式行動電話機
型號	NOKIA
技術標準	TA-1337
試驗件收樣日期	LP0002, 4.10.1 節
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	民國110年1月7日

待測裝置已於台灣檢驗科技股份有限公司射頻實驗中心，依據國家通訊傳播委員會於中華民國一百零九年七月頒佈之低功率射頻器材技術規範測試。

台灣檢驗科技股份有限公司根據此條文規範項目測試，測試各項數據皆能符合此規範規定之限度值。

報告中所描述之測試結果和待測設備的架構組合，均根據實際量測情況作詳實的記錄，且本測試報告僅對上述待測設備樣品負責。

Approved By:

楊景嵐



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Revision History

Report Number	Revision	Description	Issue Date	Remark
ER/2020/A0091	00	Original.	Jan. 07, 2021	Revised By: Yuri Tsai

Note:

1、Disclaimer

Antenna information is provided by the applicant, the test results of this report are applicable to the sample EUT received.

2、測試報告 ER/2020/A0088 之電源線傳導干擾及 Fully system 場強輻射測試數據，沿用於此報告中。

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1 測試實驗室資料

實驗室認可登錄： 中華民國實驗室認證體系

認可編號： TAF 3702，認可頻率範圍9kHz ~ 200GHz

認證有效期間： 109年01月30日起至110年06月13日止

測試場地： 新北市新北產業園區五工路134號

實驗室名稱： 台灣檢驗科技股份有限公司
射頻實驗中心

實驗室地址： 新北市新北產業園區五工路134號

電話： 886-2-22993939

傳真： 886-2-22982698

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2 實驗室之量測不確定度

量測項目	量測不確定度 (擴充不確定度)		
傳導干擾量測	電源線	0.15-30MHz	2.586dB
輻射干擾量測 (3m測距)	水平極化	9kHz - 30MHz	2.3dB
		30-167MHz	4.22dB
		167-500MHz	3.44dB
		0.5-1GHz	3.39dB
		1-18GHz	4.08dB
		18-40GHz	4.08dB
	垂直極化	9kHz - 30MHz	2.3dB
		30-180MHz	3.37dB
		180-417MHz	3.19dB
		0.417-1GHz	3.19dB
		1-18GHz	4.04dB
		18-40GHz	4.04dB
頻率誤差量測	範例一	2.4 GHz	290 Hz
	範例二	5 GHz	724.3 Hz
輸出功率	傳導方式	2.4 GHz	1.3 dB
		5 GHz	1.55 dB
有效輻射功率 (輻射方式)	水平極化	2.4GHz	4.21 dB
		5 GHz	4.62 dB
	垂直極化	2.4 GHz	4.42 dB
		5 GHz	4.74 dB
功率頻譜密度	傳導方式	2.4GHz	1.3dB
		5GHz	1.67dB
鄰頻道功率量測 (輻射方式)	水平極化	30-167MHz	4.22dB
		167-500MHz	3.44dB
		0.5-1GHz	3.39dB
	垂直極化	30-180MHz	3.37dB
		180-417MHz	3.19dB
		0.417-1GHz	3.19dB

附註: 1. K=2 即代表測試結果具有95%的量測可信度。

2. 本報告中的符合性判定僅依據試驗結果，不考慮其試驗結果的量測不確定度。

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3 一般資料

3.1 產品描述

產品名稱	4G無線藍牙手持式行動電話機	
型號	TA-1337	
產品商標	NOKIA	
USB Cable	1. Model No: SHQ-A069A, Brand: Saibao 2. Model No: L56B-052000100, Brand: Liqi	
Headset	Model No: NLD-EM300M-07SF, Brand: NEW Leader	
使用電源	3.8 Vdc from Rechargeable Li-polymer Battery or 5 Vdc from AC/DC Adapter	
	Battery:	1. Model No: HQ430, Brand: NOKIA 2. Model No: HQ430, Brand: NOKIA
	Adapter:	Model No: CH-21U, Brand: NOKIA

3.2 射頻特性

Wi-Fi	發射頻帶	頻道數	輸出功率	Modulation Technology
11b/g	2412-2462	11	b: 19.70 dBm g: 21.62 dBm	DSSS, OFDM
11n	HT20 2412-2462	11	20.99 dBm	OFDM
11n	HT40 2422-2452	7	19.68 dBm	OFDM
調變方式:		CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM		
Transition Rate:		802.11 b: 1/2/5.5/11 Mbps 802.11 g: 6/9/12/18/24/36/48/54 Mbps 802.11 n_20MHz: 6.5 – 72.2Mbps 802.11 n_40MHz: 13.5 – 150.0Mbps		

3.3 天線資訊

天線型式	Brand	Model No.	發射頻帶(MHz)	天線增益(dBi)
PIFA	Nokia	ANT3	2412-2462	0.4

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3.4 產品特性

此裝置符合IEEE Std 802.11b/g/n標準。其發射頻率落於2.4GHz至2.4835GHz。

802.11b mode採用直接序列展頻 (Direct Sequence Spread Spectrum) 調變技術之發射頻率全段：落於2400~2483.5GHz共有11個頻道；802.11g/n HT20, HT40 mode採用正交分頻多工OFDM調變技術有全段：落於2400~2483.5GHz 共有11個頻道。802.11n HT40 mode採用正交分頻多工OFDM調變技術有全段：落於2400~2483.5GHz 共有7個頻道。

2.4 GHz使用頻率表如下：

802.11b/g/n_HT 20 Mode	
頻率範圍 2400 MHz – 2483.5 MHz	
2412	2442
2417	2447
2422	2452
2427	2457
2432	2462
2437	

802.11n_HT 40 Mode	
頻率範圍 2400 MHz – 2483.5 MHz	
2422	2442
2427	2447
2432	2452
2437	

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3.5 最差量測模式

經評估後，比較所有調變、data rate 及 H, E1 & E2 Plan 測試值後，依據下表附上最差模式數據。

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)	PLAN
RADIATED EMISSION TEST (BELOW 1 GHz)					
802.11g	1 to 11	6	OFDM	6	H
Fully System					E1
RADIATED EMISSION TEST (ABOVE 1 GHz)					
802.11b	1 to 11	1, 6, 11	DSSS	1	H
802.11g	1 to 11	1, 6, 11	OFDM	6	
802.11n (HT20)	1 to 11	1, 6, 11	OFDM	MCS 0	
802.11n (HT40)	3 to 9	3, 6, 9	OFDM	MCS 0	

CONDUCTED TEST :				
MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)
802.11b	1 to 11	1,6,11	DSSS	1
802.11g	1 to 11	1,6,11	OFDM	6
802.11n (HT20)	1 to 11	1, 6, 11	OFDM	MCS 0
802.11n (HT40)	3 to 9	3, 6, 9	OFDM	MCS 0

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3.6 測試方法之依據

本測試報告之所有項目皆依據國家通訊傳播委員會低功率射頻器材技術規範(LP0002, 109.7.1 版本) 如無國家標準可適用者，得依美國 EIA、IEEE ANSI 檢驗法檢驗，及美國 FCC 47 CFR Part 2 有關檢驗之規定及參考 ANSI 63.10:2013、FCC CFR 47 15.247 之檢驗法。

項次	測試項目	適用規範	測試結果
1	場強輻射	低功率射頻器材技術規範4.10.1.5節	合格
2	電源線傳導干擾	低功率射頻器材技術規範3.3節	合格
3	天線增益之要求	低功率射頻器材技術規範4.10.1.3 (1) 節	合格
4	發射頻寬	低功率射頻器材技術規範4.10.1.6(2) (A) 節	合格
5	輸出峰值功率	低功率射頻器材技術規範4.10.1.2(1) (C) 節	合格
6	開放頻帶邊緣之發射	低功率射頻器材技術規範4.10.1.5節	合格
7	功率密度	低功率射頻器材技術規範4.10.1.6(2) (B) 節	合格

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4 適用規範

4.1 規範要求 (一般規定)

(1) 傳導之規定

依據NCC低功率射頻器材技術規範之3.3節，以市電為電源之低功率射頻器材，其傳導回電源線上頻率自150 kHz~30 百萬赫(MHz) 之射頻電壓(在電源端子每一電源線對接地點)應小於或等於下表所列之限制值。測量時應經過50 微亨利(uH)及50 歐姆(Ω)之電源線阻抗穩定網路。頻率重疊處，以較低限制值為準。

頻率(MHz)	傳導限制值 (dBuV)	
	準峰值 (Quasi – peak)	平均值 (Average)
0.15 – 0.5	66 – 56	56 - 46
0.5 – 5	56	46
5 - 30	60	50

(2) 輻射之規定

依據NCC低功率射頻器材技術規範3.5之要求，其他開放頻帶外不必要之輻射需符合3.6節之一般限制要求，其電場強度不得超過下表之限值，且其不必要之發射皆不得大於主波發射強度。各頻段重疊處，以較嚴格之限制值為準。

頻率 MHz	測試距離 m	其他發射之限制值	
		dB μ V/m	μ V/m
0.009 – 0.490 (含)	300	128.5-93.8	2,400 / 頻率 (千赫)
0.490 (不含) – 1.705 (含)	30	73.8-62.9	24,000 / 頻率 (千赫)
1.705 (不含) – 30 (含)	30		30
30 - 88	3	40.0	100
88 - 216	3	43.5	150
216 - 960	3	46.0	200
960以上	3	54.0	500

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(3) 禁用頻帶限制之規定

依據NCC低功率射頻器材技術規範3.5節之要求，任何低功率射頻器材之主波皆不得使用下表所列各頻帶內之頻率；低功率射頻器材落於下表所列頻帶內之混附發射，其電場強度必須符合第3.6節的限制規定。

頻率 (MHz)	頻率 (MHz)	頻率 (MHz)
0.090~0.110	240.00~285.00	3332.0~3339.0
0.490~0.510	322.00~335.40	3345.8~3358.0
2.172~2.198	399.90~410.00	3500.0~4400.0
3.013~3.033	485.00~510.00	4500.0~5250.0
4.115~4.198	608.00~614.00	5350.0~5460.0
5.670~5.690	703.00~748.00	7250.0~7750.0
6.200~6.300	758.00~803.00	8025.0~8500.0
8.230~8.400	825.00~915.00	9000.0~9200.0
12.265~12.600	930.00~1240.0	9300.0~9500.0
13.340~13.430	1300.0~1427.0	10600~12700
14.965~15.020	1435.0~1626.5	13250~13400
16.700~16.755	1660.0~1785.0	14470~14500
19.965~20.020	1805.0~1880.0	15350~16200
25.500~25.700	1885.0~1900.0	17700~21400
37.475~38.275	1905.0~1985.0	22010~23120
73.500~75.400	2010.0~2025.0	23600~24000
108.00~138.00	2110.0~2170.0	31200~31800
149.90~150.05	2200.0~2300.0	36430~36500
156.70~156.90	2310.0~2390.0	38600 以上
162.01~167.17	2483.5~2900.0	
167.72~173.20	3260.0~3267.0	

(4) 依據NCC低功率射頻器材技術規範3.9節之要求，收、發信機為成套銷售者，收、發信機應一併送審或提供經型式認證合格之對應收、發信機之送審資料；送信機之輻射電場強度不得超過第3.6節之發射規定，且不得接收、解調第3.5節所列之頻率。

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4.2 規範要求

依據NCC低功率射頻器材技術規範4.10節 數位調變 (Digitally Modulated) 之要求，使用頻率為2400 MHz至2483.5 MHz 及 5725 MHz 至5850 MHz

(A) 峰值輸出功率之要求

依據 NCC 低功率射頻器材技術規範 4.10.1.2(1) (A)(C)之規定，操作於 2400-2483.5 兆赫(MHz)與 5725-5850 兆赫(MHz)之所有數位調變技術系統：1 瓦(W)以下。

除使用附件二之峰值輸出功率量測方式外，並得使用以最大傳導輸出功率(Maximum Conducted Output Power)作為量測方式。

最大傳導輸出功率，定義為發射器操作在最大功率時，輸出至所有天線及天線單元 (antenna elements) 之總發射功率對信號集 (signaling alphabet) 所有符號 (symbol) 之平均值。此平均值不含發射器停止或已降低發射功率位準之任何時間區段。器材可操作於不同調變模式等多種模式時，最大傳導輸出功率為各模式之總發射功率其中最高者。

(B) 天線增益之要求

依據NCC低功率射頻器材技術規範4.10.1.3之規定，進行固定式點對點操作時，應符合下列情現之一：依據NCC低功率射頻器材技術規範4.10.1.3 (1)之規定，操作頻率為2400-2483.5兆赫(MHz)者，其發射天線之方向性增益超過6dBi，每超過3dB應降低1dB之最大傳導輸出功率。

依據NCC低功率射頻器材技術規範4.10.1.3 (2)之規定，操作頻率為5725-5850兆赫(MHz)者，其發射天線之方向性增益超過6dBi，不需降低最大傳導輸出功率。

依據NCC低功率射頻器材技術規範4.10.1.3 (3)之規定，用於點對多點操作時，如其發射天線之方向性增益超過 6dBi，應依所超過之dB數等量降低最大傳導輸出功率。

(C) 發射限制之要求

依據NCC低功率射頻器材技術規範4.10.1.5之規定，帶外發射限制：操作頻帶範圍外之任意100 kHz 內，發射機所產生的射頻功率相較於使用頻帶範圍中包含最高所需功率之100 kHz 內的射頻功率，其衰減值限制如下：

(1) 輸出功率以附件二之峰值輸出功率方式測量者，至少須衰減20 dB，可使用射頻傳導或輻射方式測量。

(2) 輸出功率以4.10.1.2(1)(C)之最大傳導輸出功率測量方式者，至少須衰減30 dB。

此外，落於3.5 禁用頻段之輻射發射，應符合3.6 之規定。

(D) 頻寬之要求

依據NCC低功率射頻器材技術規範4.10.1.6(2) (A)規定，6dB之頻寬至少應500kHz。

(E) 功率密度之要求

依據NCC低功率射頻器材技術規範4.10.1.6(2) (B)規定，在使用頻率範圍之任意3千赫(kHz)頻寬內，由發射機傳導至天線之峰值發射電功率密度在任意期間內，皆不得大於8dBm。

註：此產品為點對多點操作。

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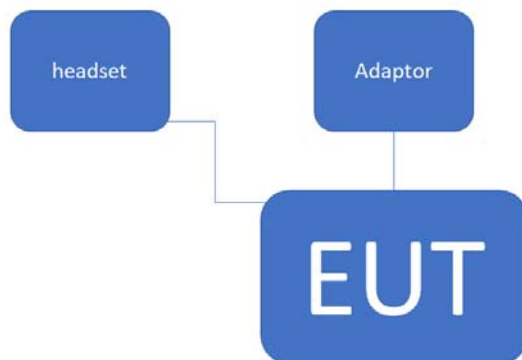
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5 測試配置

5.1 待測物與測試週邊配置圖

Conduction (AC power line) & Fully System



Conducted (Antenna Port) & Radiated Emission



5.2 測試週邊描述

編號	產品別	商標	版本	型號	序號
1.	QRCT4	N/A	4.0.00138.0	N/A	N/A
2.	Adapter	Nokia	N/A	CH-21U	N/A
3.	Headset	NEW Leader	N/A	NLD-EM300M-07SF	N/A
4.	Notebook	Lenovo	N/A	L430	PK-126TN

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6 量測儀器設備

6.1 AC 電源端傳導干擾之量測儀器

Conducted Emission Test Site					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
EMI Test Receiver	R&S	ESCI 7	100759	07/13/2020	07/12/2021
LISN	SCHWARZBECK	NSLK 8127	8127-465	04/09/2020	04/08/2021
Coaxial Cables	N/A	Coaxial Cable	161207	12/07/2019	12/06/2020
Test Software	audix	e3	Ver. 6.11-20180413	N.C.R	N.C.R

註: 以上部份設備跟量測值沒有影響, 且沒有直接關聯, 因此不需要進行校正。

6.2 天線端傳導測試之量測儀器

Conducted Emission Test Site					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Power Meter	Anritsu	ML2496A	1804001	02/20/2020	02/19/2021
Power Sensor	Anritsu	MA2411B	1726104	02/20/2020	02/19/2021
Power Sensor	Anritsu	MA2411B	1726107	02/20/2020	02/19/2021
Attenuator	Mini-Circuit	BW-S10W2+	2	01/02/2020	01/01/2021
EXM Spectrum Analyzer	KEYSIGHT	N9010B	MY59071571	06/27/2020	06/26/2021
Attenuator	Mini-Circuit	BW-S10W2+	2	01/02/2020	01/01/2021
DC Block	Mini-Circuits	BLK-18-S+	1	01/02/2020	01/01/2021

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6.3 量測場強輻射之量測儀器 & Fully System

966 Chamber					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Horn Antenna	Schwarzbeck	BBHA9170	184	12/25/2019	12/24/2020
Horn Antenna	Schwarzbeck	BBHA9120D	D803	12/20/2019	12/19/2020
Bi-log Antenna	TESEO	CBL 6112D	35242 & AT-N0555	01/13/2020	01/12/2021
Loop Antenna	ETS.LINDGREN	6502	148045	10/19/2020	10/18/2021
Spectrum Analyzer	Agilent	E4446A	MY51100003	10/29/2020	10/28/2021
EMI Test Receiver	R&S	ESCI 7	100759	07/13/2020	07/12/2021
Pre-Amplifier	EMC Instruments	EMC184045B	980135	01/02/2020	01/01/2021
Pre-Amplifier	EMC Instruments	EMC051825	980152	01/02/2020	01/01/2021
Pre-Amplifier	HP	8447D	2944A09469	01/02/2020	01/01/2021
Attenuator	Mini-Circuit	BW-S10W2+	4	01/02/2020	01/01/2021
Filter 2400-2483.5 MHz	EWT	EWT-14-0166	M1	01/02/2020	01/01/2021
High Pass Filter	WI	WHKX4.0/18G-10SS	22	01/02/2020	01/01/2021
Coaxial Cable	Huber Suhner	succoflex 102	MY2622/2	01/02/2020	01/01/2021
Coaxial Cable	Huber Suhner	succoflex 104A	800086/4a	01/02/2020	01/01/2021
Coaxial Cable	Huber Suhner	EMC 104-SM-SM-2000	160123	01/02/2020	01/01/2021

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7 電源線傳導干擾之量測

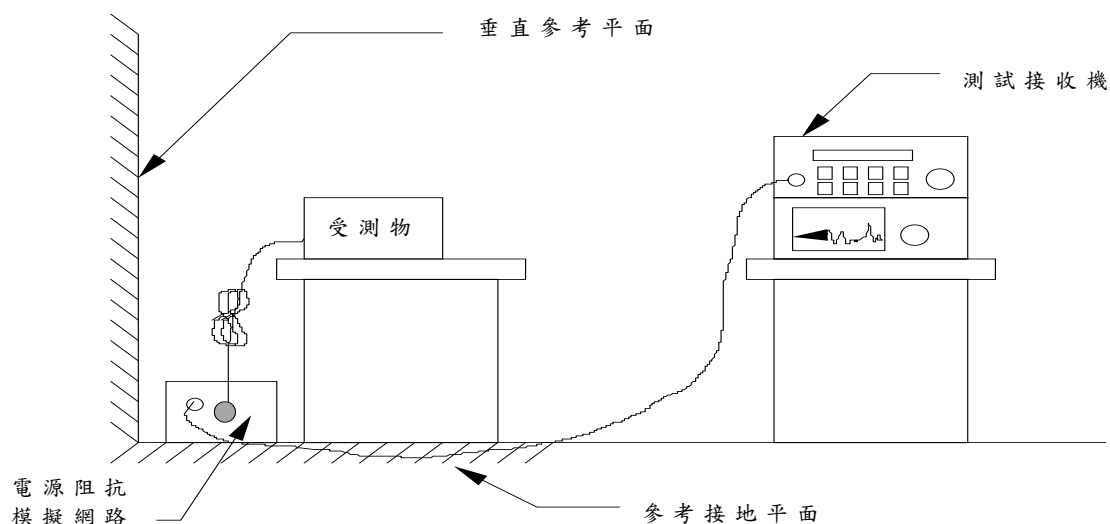
7.1 適用標準

依據NCC低功率射頻器材技術規範3.3節之要求。

7.2 測試方法

將待測物置於0.8米高的非金屬桌面，使其在工作狀態，待測物電源線接至電源線阻抗穩定網路上，從測試接收機記錄頻率由 0.15MHz 至 30MHz 之間之電源線傳導放射強度的峰值量側(Peak)並提供掃描圖，Mark 最大的六個頻率點進行準峰值量測(QP),如果準峰值QP結果值已低於AV限制值時將不再進行AV值的量測。

7.3 測試配置



7.4 干擾值之計算

電源傳導干擾電壓之計算公式如下

$$\text{結果值} = \text{儀器讀值}(QP/AV) + \text{校正因子}$$

其中校正因子為：

$$\text{饋線損失} + \text{電源阻抗模擬網路損失}$$

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7.5 傳導干擾之量測結果

Report Number :ER-2020-A0088

Test Site :Conduction 6F

Test Mode :Operation

Test Date :2020-12-01

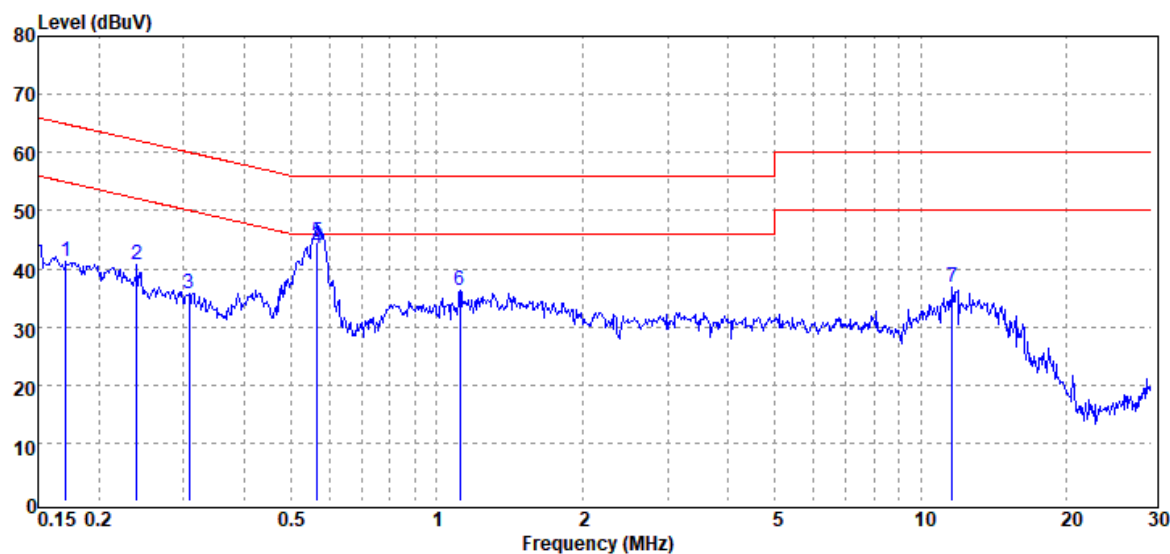
Power :AC 110V/60Hz

Temp./Humi. :25.0/61

Probe :L

Engineer :Neo

Note :



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV	Limit dBμV	Margin dB
0.17	Peak	38.98	2.14	41.12	64.90	-23.78
0.24	Peak	38.49	2.14	40.63	62.08	-21.45
0.31	Peak	33.68	2.15	35.83	60.02	-24.19
0.57	Average	41.23	2.16	43.39	46.00	-2.61
0.57	QP	42.44	2.16	44.60	56.00	-11.40
1.12	Peak	34.08	2.19	36.27	56.00	-19.73
11.62	Peak	33.91	2.88	36.79	60.00	-23.21

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Report Number :ER-2020-A0088

Test Site :Conduction 6F

Test Mode :Operation

Test Date :2020-12-01

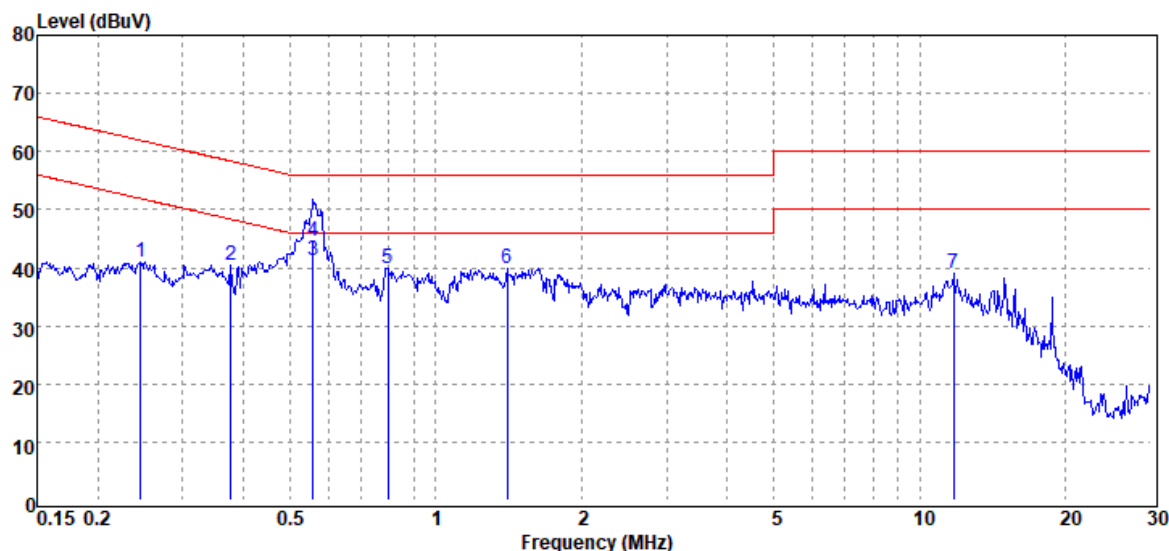
Power :AC 110V/60Hz

Temp./Humi. :25.0/61

Probe :N

Engineer :Neo

Note: :



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV	Limit dBμV	Margin dB
0.25	Peak	38.67	2.21	40.88	61.91	-21.03
0.38	Peak	38.22	2.21	40.43	58.34	-17.91
0.56	Average	38.89	2.22	41.11	46.00	-4.89
0.56	QP	42.46	2.22	44.68	56.00	-11.32
0.80	Peak	37.63	2.24	39.87	56.00	-16.13
1.40	Peak	37.65	2.27	39.92	56.00	-16.08
11.75	Peak	36.29	2.79	39.08	60.00	-20.92

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8 場強輻射之量測

8.1 適用標準

依據NCC低功率射頻器材技術規範4.10.1.5之要求，其他開放頻帶外不必要之輻射干擾需符合3.6節之一般限制要求。

8.2 量測方法

將待測物置於非金屬桌面，測試頻率1GHz以下時，使用桌高0.8 米，1GHz以上時，使用桌高1.5 米，使其在工作狀態，接收天線置於 3 米外相同的高度。待測物分別要垂直或水平放置，而且桌面要 360 度旋轉，另外接收天線也要從 1.0 米至 4.0 米升降變化，以找出最大的輻射電場強度，接收天線置於水平、垂直極向各執行測試一次。

以下為頻譜儀的設定：

9kHz~150kHz 測試

解析頻寬:	300Hz	視訊頻寬:	300Hz
量測天線:	6502	檢測器:	Quasi-Peak

150kHz~30MHz 測試

解析頻寬:	10kHz	視訊頻寬:	10kHz
量測天線:	6502	檢測器:	Quasi-Peak

1GHz 以下測試

解析頻寬:	100kHz	視訊頻寬:	100kHz
量測天線:	CBL 6112D	檢測器:	Quasi-Peak/Average

1GHz 以上測試

量測天線:	BBHA9170 BBHA9120D	檢測器:	Peak
頻譜分析儀設定	Peak: RBW: 1MHz ; VBW: 1MHz , Average: RBW: 1MHz ; VBW: 10Hz		

註: 9 kHz ~ 30MHz 之輻射量測皆低於限制值 20dB 以上，依據LP0002 6.13規定混附發射毋需記錄。

輻射量測僅放最差模式 (30MHz 以上)。

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8.3 場強度之計算

場強之計算公式如

$$\text{結果值} = \text{讀值} + \text{校正因子}$$

其中校正因子為：

天線因子+ 饋線損失 + 濾波器損失（若有使用） - 放大器增益（若有使用）
量測結果請見下頁。

註1:比較H Plane、E1 Plane和E2 Plane測試值後，附上最差模式 H Plane 數據。

註2: Fully System 附上最差模式 E1 Plane 數據。

Note: Actual FS(dBμV/m) = SPA. Reading level(dBμV) + Factor(dB)

Factor(dB) = Antenna Factor(dBμV/m) + Cable Loss(dB) – Pre_Amplifier Gain(dB)

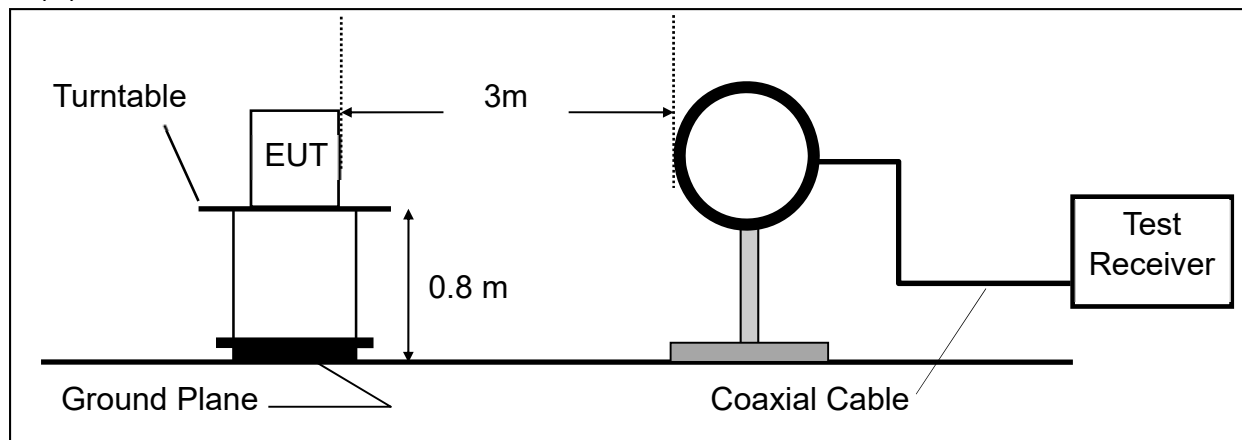
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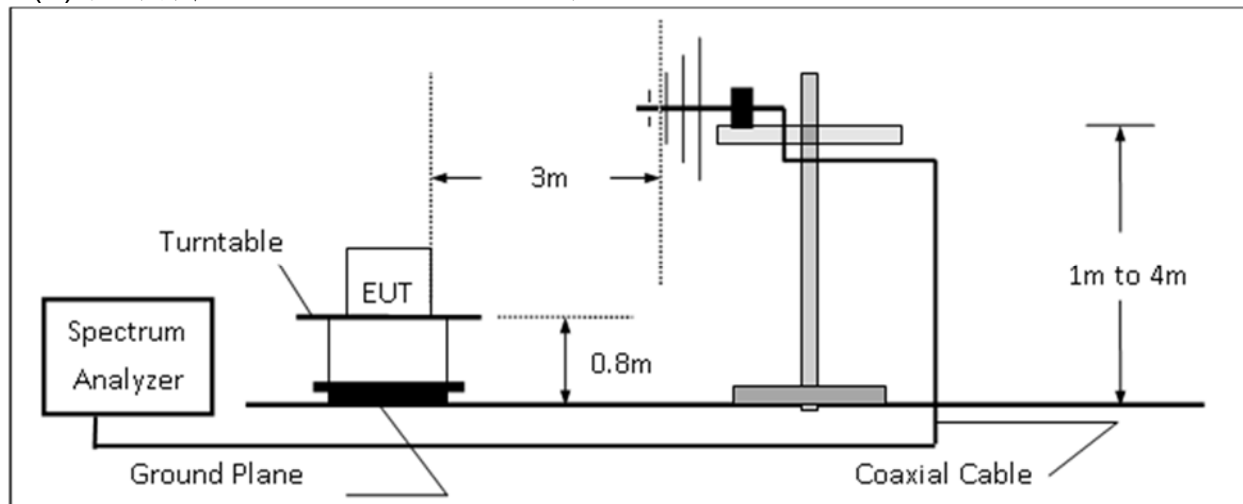
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8.4 輻射之測試配置

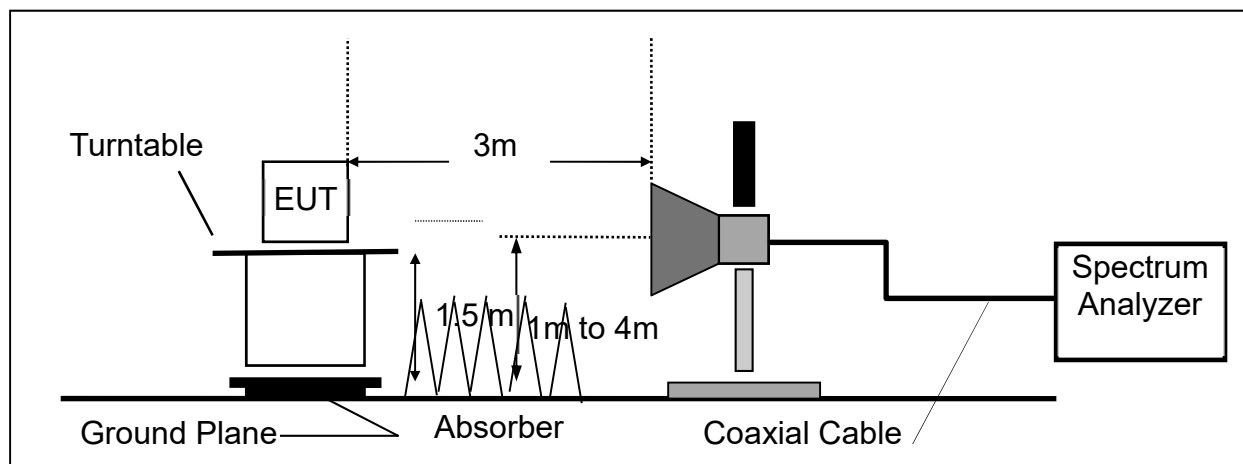
(A) 量測頻率低於 30MHz 以下之測試配置



(B) 量測頻率 30MHz 至 1000MHz 之測試配置



(C) 量測頻率 1000MHz 以上之測試配置



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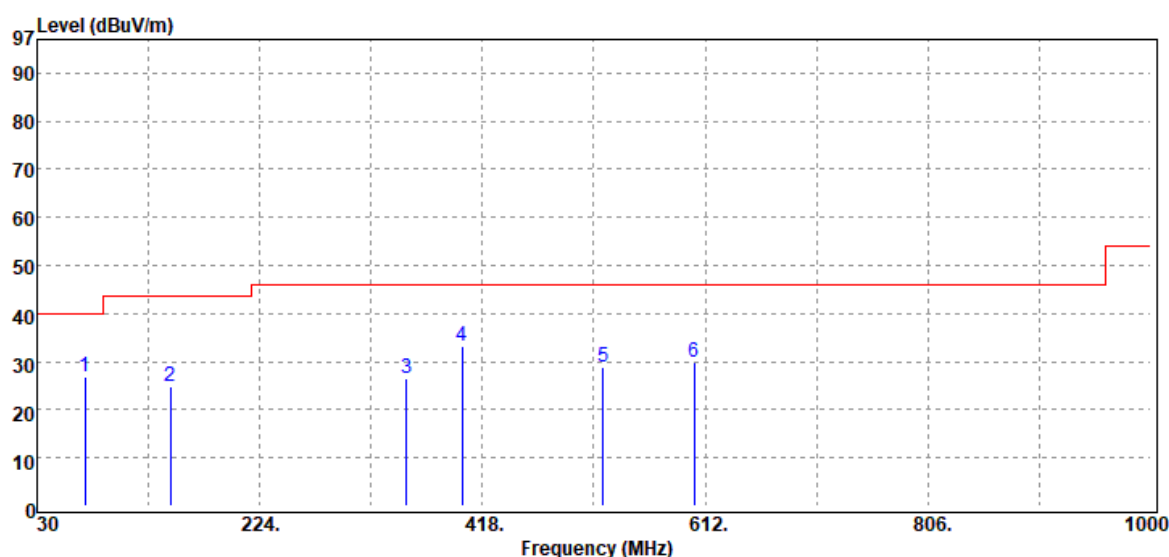
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8.5 場強輻射之量測結果

8.5.1 發射模式 1GHz 以下測試 (最差模式)

Report Number :ER/2020/A0091
 Operation Mode :802.11g
 Test Frequency :2437 MHz
 Test Mode :Tx CH Mid
 EUT Pol :H Plane

Test Site :SAC I Chamber
 Test Date :2020-12-01
 Temp./Humi. :23.8/61
 Antenna Pol. :VERTICAL
 Engineer :Neo



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBuV	Factor dB	Actual FS dBuV/m	Limit @3m dBuV/m	Margin dB
71.71	Peak	43.88	-17.04	26.84	40.00	-13.16
146.40	Peak	36.87	-11.92	24.95	43.50	-18.55
352.04	Peak	33.70	-7.28	26.42	46.00	-19.58
400.54	Peak	39.33	-6.02	33.31	46.00	-12.69
522.76	Peak	33.54	-4.75	28.79	46.00	-17.21
602.30	Peak	33.13	-3.35	29.78	46.00	-16.22

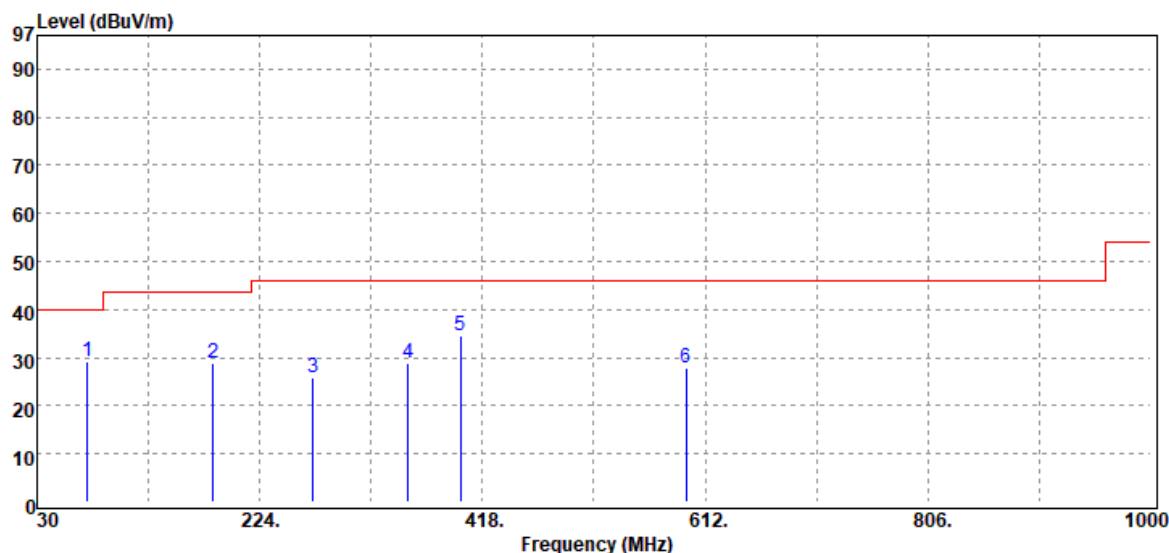
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Report Number :ER/2020/A0091
Operation Mode :802.11g
Test Frequency :2437 MHz
Test Mode :Tx CH Mid
EUT Pol :H Plane

Test Site :SAC I Chamber
Test Date :2020-12-01
Temp./Humi. :23.8/61
Antenna Pol. :HORIZONTAL
Engineer :Neo



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBuV	Factor dB	Actual FS dBuV/m	Limit @3m dBuV/m	Margin dB
73.65	Peak	46.18	-16.90	29.28	40.00	-10.72
183.26	Peak	41.94	-13.23	28.71	43.50	-14.79
270.56	Peak	34.62	-8.80	25.82	46.00	-20.18
353.01	Peak	36.21	-7.21	29.00	46.00	-17.00
398.60	Peak	40.73	-6.12	34.61	46.00	-11.39
595.51	Peak	31.32	-3.46	27.86	46.00	-18.14

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Fully System

Report Number :ER/2020/A0088

Operation Mode :System

Test Frequency :System

Test Mode :System

EUT Pol :E1 Plane

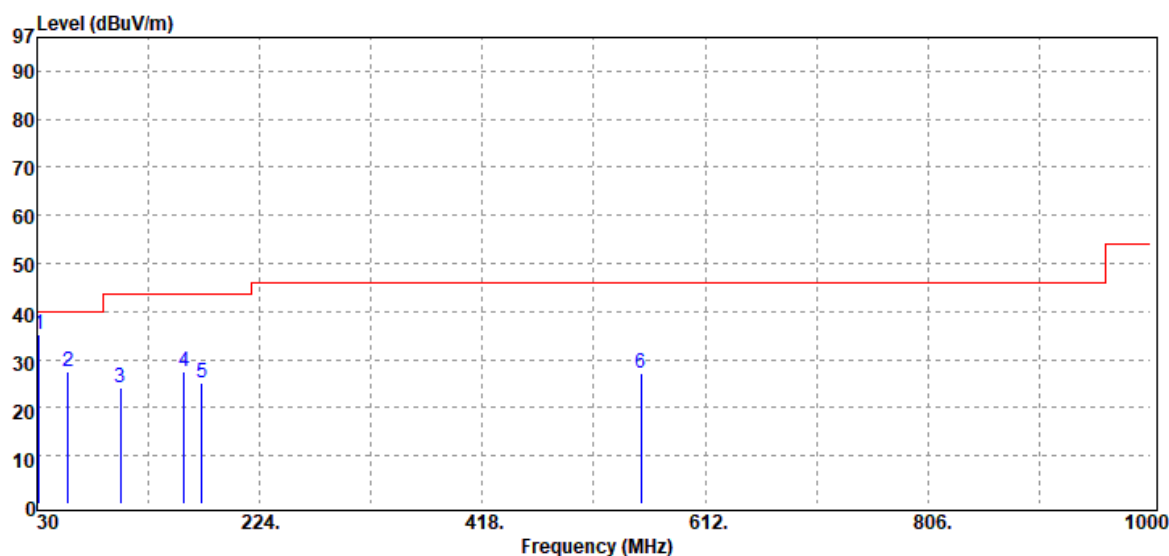
Test Site :SAC I Chamber

Test Date :2020-12-01

Temp./Humi. :23.8/61

Antenna Pol. :VERTICAL

Engineer :Neo



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBUV	Factor dB	Actual FS dBUV/m	Limit @3m dBUV/m	Margin dB
31.94	QP	40.61	-5.32	35.29	40.00	-4.71
57.16	Peak	44.29	-16.69	27.60	40.00	-12.40
102.75	Peak	36.36	-12.24	24.12	43.50	-19.38
158.04	Peak	39.70	-12.20	27.50	43.50	-16.00
173.56	Peak	38.11	-13.09	25.02	43.50	-18.48
555.74	Peak	31.26	-4.19	27.07	46.00	-18.93

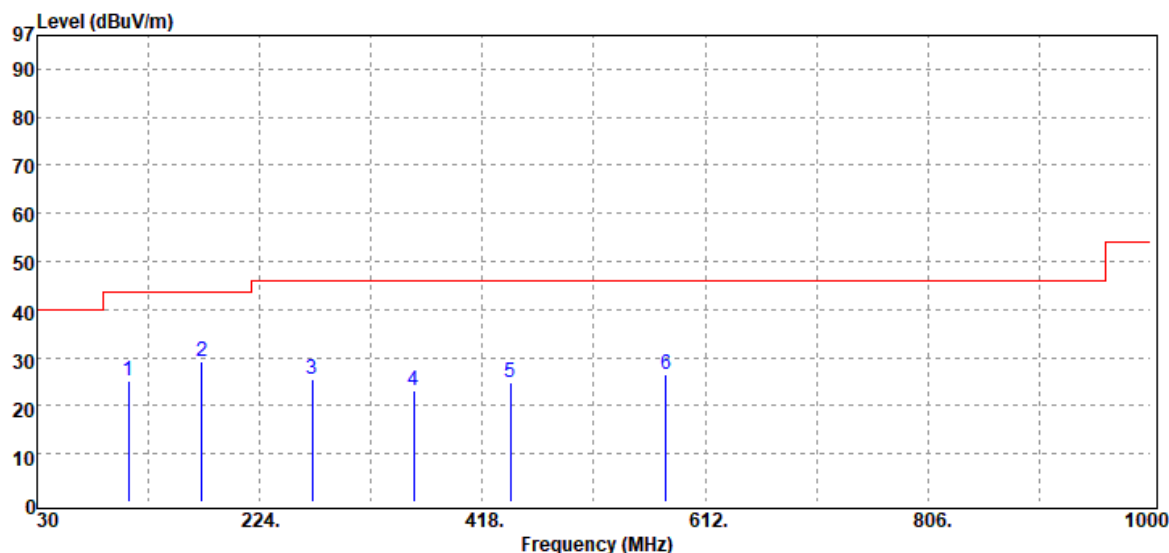
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Report Number :ER/2020/A0088
Operation Mode :System
Test Frequency :System
Test Mode :System
EUT Pol :E1 Plane

Test Site :SAC I Chamber
Test Date :2020-12-01
Temp./Humi. :23.8/61
Antenna Pol. :HORIZONTAL
Engineer :Neo



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dB μ V	Factor dB	Actual FS dB μ V/m	Limit @3m dB μ V/m	Margin dB
109.54	Peak	36.84	-11.73	25.11	43.50	-18.39
173.56	Peak	42.18	-13.09	29.09	43.50	-14.41
269.59	Peak	34.27	-8.75	25.52	46.00	-20.48
357.86	Peak	30.01	-6.92	23.09	46.00	-22.91
442.25	Peak	30.88	-6.08	24.80	46.00	-21.20
578.05	Peak	30.81	-4.32	26.49	46.00	-19.51

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8.5.2 發射模式 1GHz 以上測試

Report Number :ER/2020/A0091

Operation Mode :802.11b

Test Frequency :2412 MHz

Test Mode :Tx CH Low

EUT Pol :H Plane

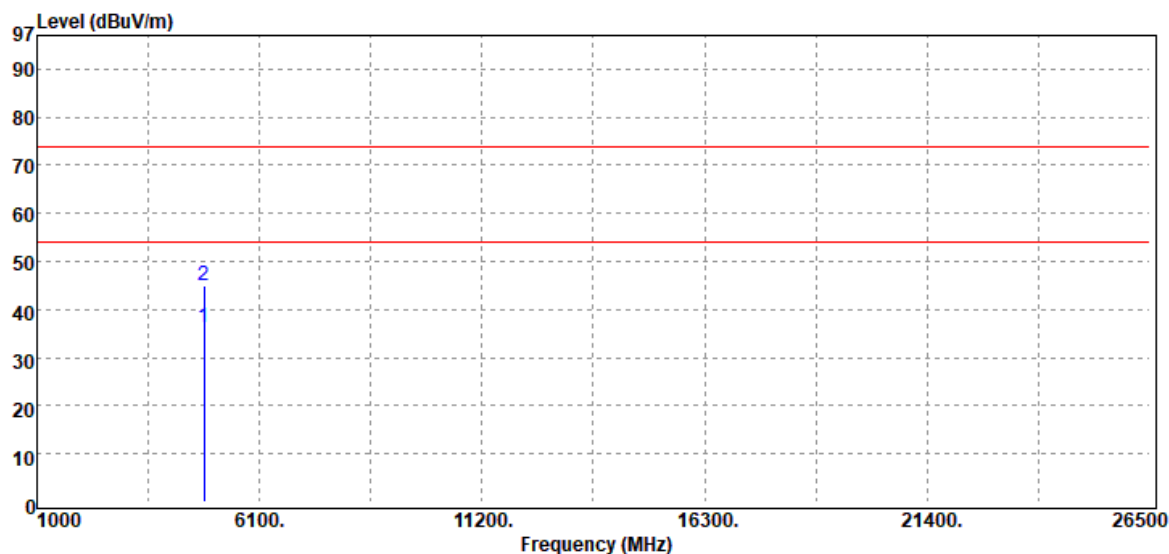
Test Site :SAC I Chamber

Test Date :2020-11-30

Temp./Humi. :24.6/61

Antenna Pol. :VERTICAL

Engineer :Neo



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
4824.00	Average	21.78	14.56	36.34	54.00	-17.66
4824.00	Peak	30.37	14.56	44.93	74.00	-29.07

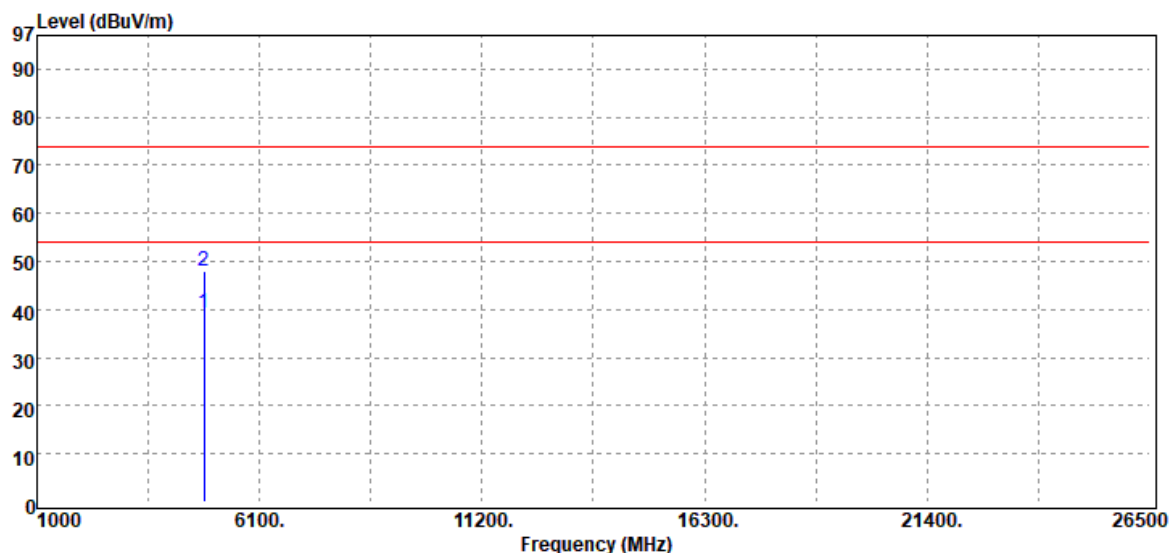
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Report Number :ER/2020/A0091
 Operation Mode :802.11b
 Test Frequency :2412 MHz
 Test Mode :Tx CH Low
 EUT Pol :H Plane

Test Site :SAC I Chamber
 Test Date :2020-11-30
 Temp./Humi. :24.6/61
 Antenna Pol. :HORIZONTAL
 Engineer :Neo



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dB μ V	Factor dB	Actual FS dB μ V/m	Limit @3m dB μ V/m	Margin dB
4824.00	Average	24.57	14.56	39.13	54.00	-14.87
4824.00	Peak	33.28	14.56	47.84	74.00	-26.16

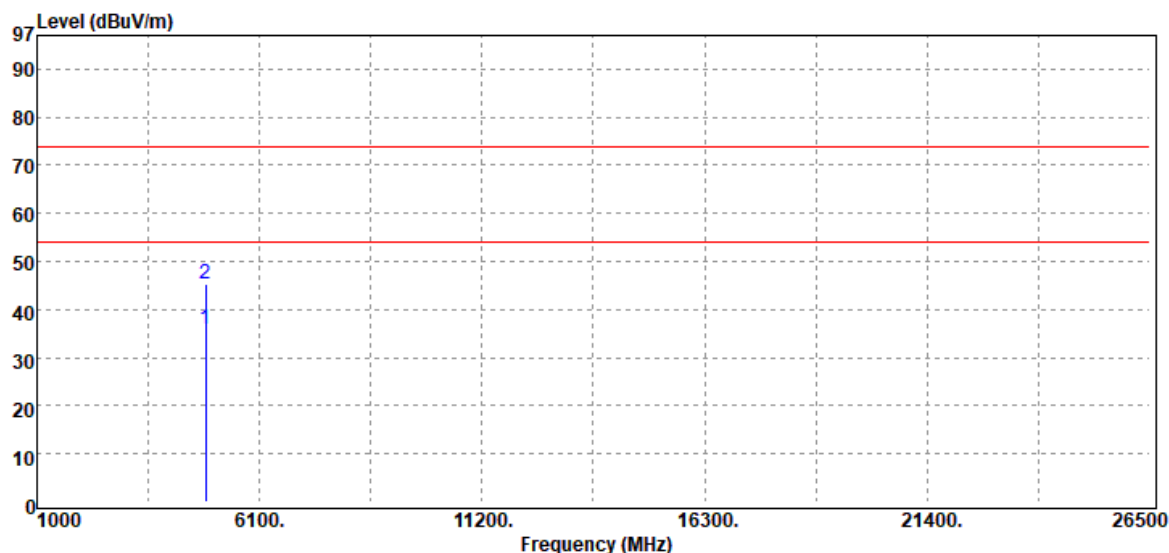
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Report Number :ER/2020/A0091
 Operation Mode :802.11b
 Test Frequency :2437 MHz
 Test Mode :Tx CH Mid
 EUT Pol :H Plane

Test Site :SAC I Chamber
 Test Date :2020-11-30
 Temp./Humi. :24.6/61
 Antenna Pol. :VERTICAL
 Engineer :Neo



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
4874.00	Average	21.00	14.85	35.85	54.00	-18.15
4874.00	Peak	30.41	14.85	45.26	74.00	-28.74

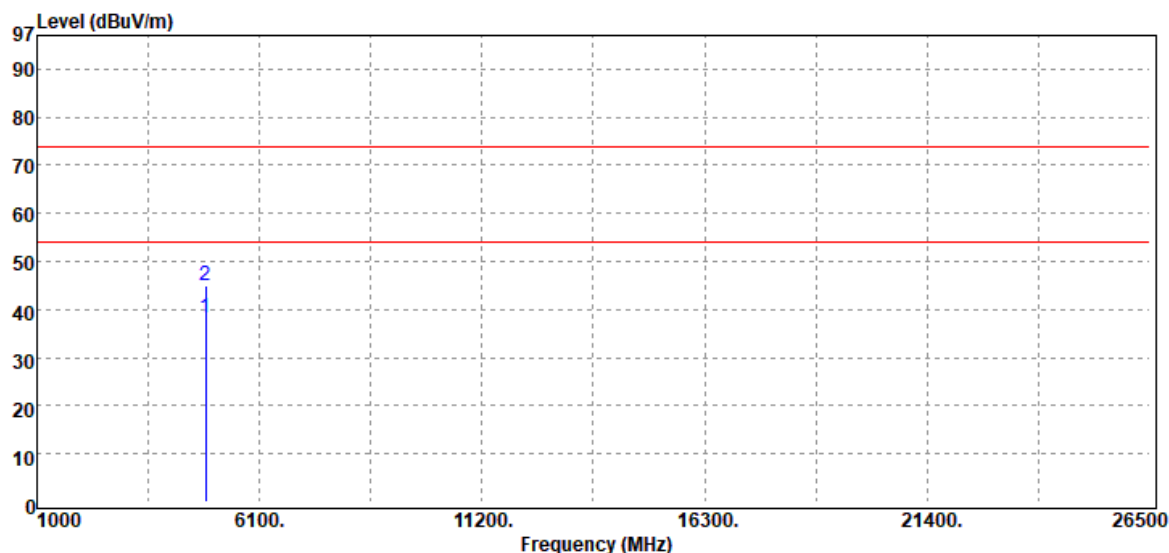
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Report Number :ER/2020/A0091
 Operation Mode :802.11b
 Test Frequency :2437 MHz
 Test Mode :Tx CH Mid
 EUT Pol :H Plane

Test Site :SAC I Chamber
 Test Date :2020-11-30
 Temp./Humi. :24.6/61
 Antenna Pol. :HORIZONTAL
 Engineer :Neo



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dB μ V	Factor dB	Actual FS dB μ V/m	Limit @3m dB μ V/m	Margin dB
4874.00	Average	23.41	14.85	38.26	54.00	-15.74
4874.00	Peak	29.97	14.85	44.82	74.00	-29.18

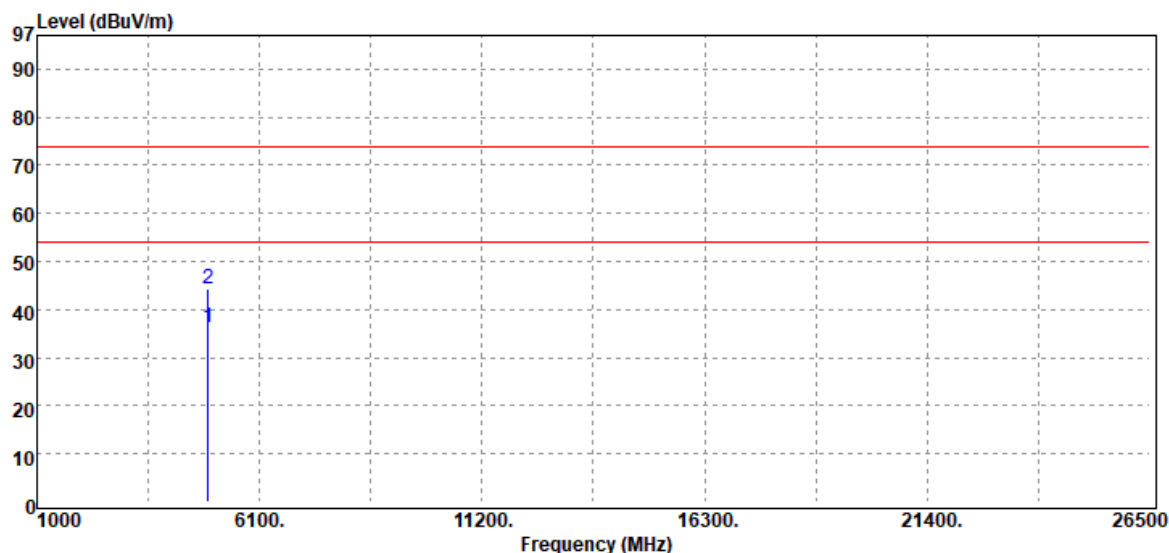
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Report Number :ER/2020/A0091
 Operation Mode :802.11b
 Test Frequency :2462 MHz
 Test Mode :Tx CH High
 EUT Pol :H Plane

Test Site :SAC I Chamber
 Test Date :2020-11-30
 Temp./Humi. :24.6/61
 Antenna Pol. :VERTICAL
 Engineer :Neo



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
4924.00	Average	21.42	14.87	36.29	54.00	-17.71
4924.00	Peak	29.32	14.87	44.19	74.00	-29.81

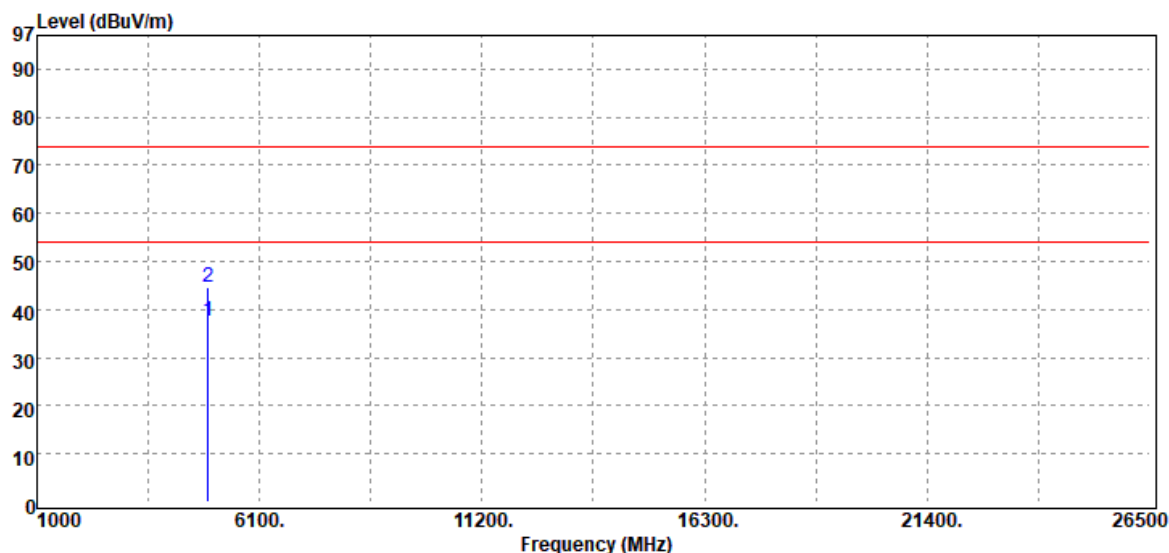
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Report Number :ER/2020/A0091
 Operation Mode :802.11b
 Test Frequency :2462 MHz
 Test Mode :Tx CH High
 EUT Pol :H Plane

Test Site :SAC I Chamber
 Test Date :2020-11-30
 Temp./Humi. :24.6/61
 Antenna Pol. :HORIZONTAL
 Engineer :Neo



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dB μ V	Factor dB	Actual FS dB μ V/m	Limit @3m dB μ V/m	Margin dB
4924.00	Average	22.76	14.87	37.63	54.00	-16.37
4924.00	Peak	29.66	14.87	44.53	74.00	-29.47

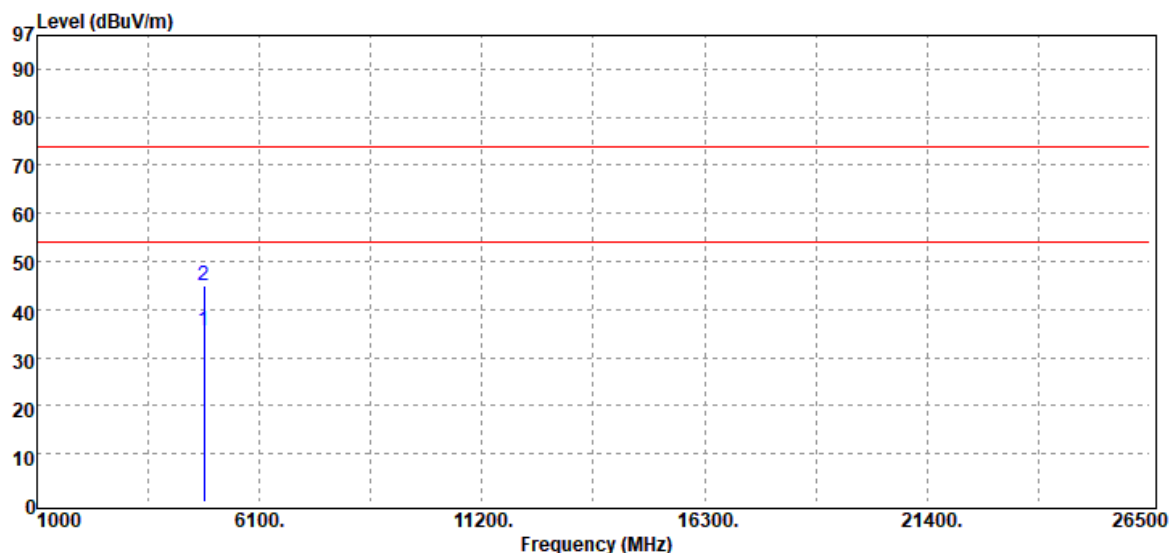
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Report Number :ER/2020/A0091
 Operation Mode :802.11g
 Test Frequency :2412 MHz
 Test Mode :Tx CH Low
 EUT Pol :H Plane

Test Site :SAC I Chamber
 Test Date :2020-11-30
 Temp./Humi. :24.6/61
 Antenna Pol. :VERTICAL
 Engineer :Neo



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
4824.00	Average	20.94	14.56	35.50	54.00	-18.50
4824.00	Peak	30.30	14.56	44.86	74.00	-29.14

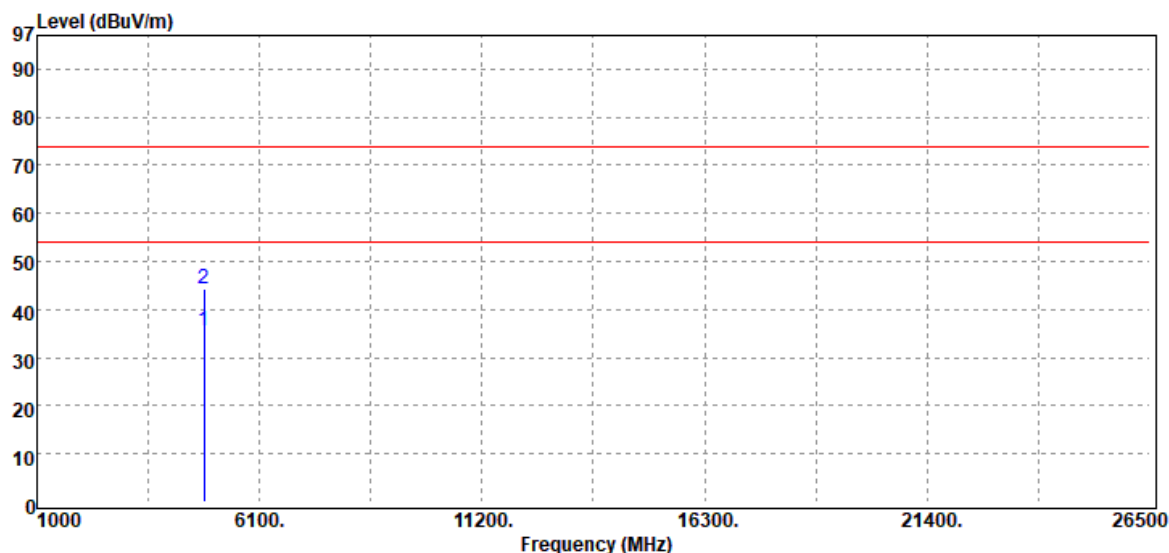
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Report Number :ER/2020/A0091
 Operation Mode :802.11g
 Test Frequency :2412 MHz
 Test Mode :Tx CH Low
 EUT Pol :H Plane

Test Site :SAC I Chamber
 Test Date :2020-11-30
 Temp./Humi. :24.6/61
 Antenna Pol. :HORIZONTAL
 Engineer :Neo



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dB μ V	Factor dB	Actual FS dB μ V/m	Limit @3m dB μ V/m	Margin dB
4824.00	Average	21.01	14.56	35.57	54.00	-18.43
4824.00	Peak	29.86	14.56	44.42	74.00	-29.58

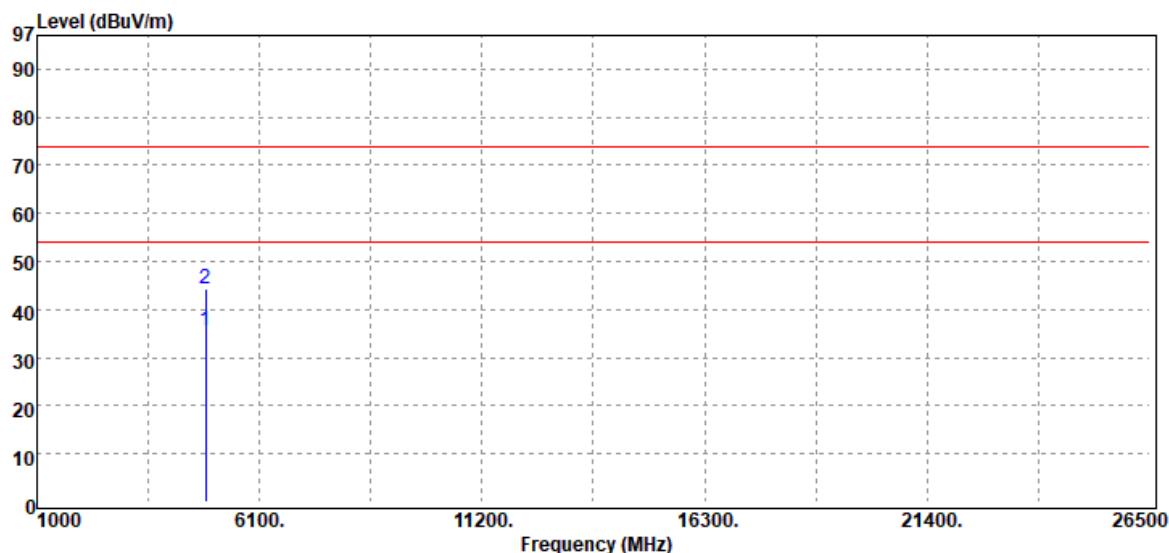
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Report Number :ER/2020/A0091
 Operation Mode :802.11g
 Test Frequency :2437 MHz
 Test Mode :Tx CH Mid
 EUT Pol :H Plane

Test Site :SAC I Chamber
 Test Date :2020-11-30
 Temp./Humi. :24.6/61
 Antenna Pol. :VERTICAL
 Engineer :Neo



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
4874.00	Average	20.70	14.85	35.55	54.00	-18.45
4874.00	Peak	29.39	14.85	44.24	74.00	-29.76

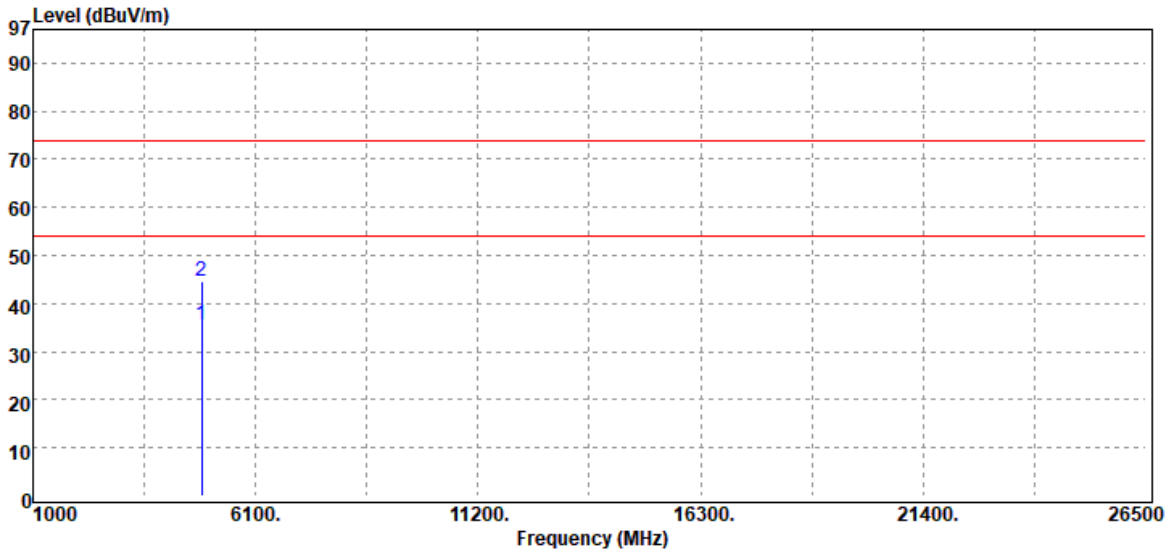
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Report Number :ER/2020/A0091
 Operation Mode :802.11g
 Test Frequency :2437 MHz
 Test Mode :Tx CH Mid
 EUT Pol :H Plane

Test Site :SAC I Chamber
 Test Date :2020-11-30
 Temp./Humi. :24.6/61
 Antenna Pol. :HORIZONTAL
 Engineer :Neo



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dB μ V	Factor dB	Actual FS dB μ V/m	Limit @3m dB μ V/m	Margin dB
4874.00	Average	20.86	14.85	35.71	54.00	-18.29
4874.00	Peak	29.66	14.85	44.51	74.00	-29.49

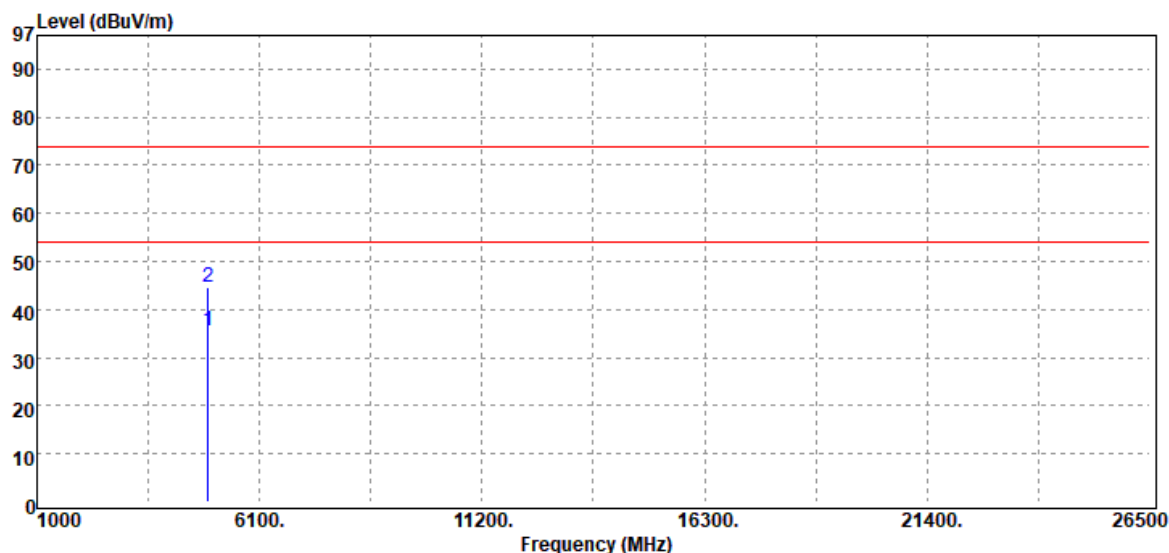
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Report Number :ER/2020/A0091
 Operation Mode :802.11g
 Test Frequency :2462 MHz
 Test Mode :Tx CH High
 EUT Pol :H Plane

Test Site :SAC I Chamber
 Test Date :2020-11-30
 Temp./Humi. :24.6/61
 Antenna Pol. :VERTICAL
 Engineer :Neo



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dB μ V	Factor dB	Actual FS dB μ V/m	Limit @3m dB μ V/m	Margin dB
4924.00	Average	20.61	14.87	35.48	54.00	-18.52
4924.00	Peak	29.72	14.87	44.59	74.00	-29.41

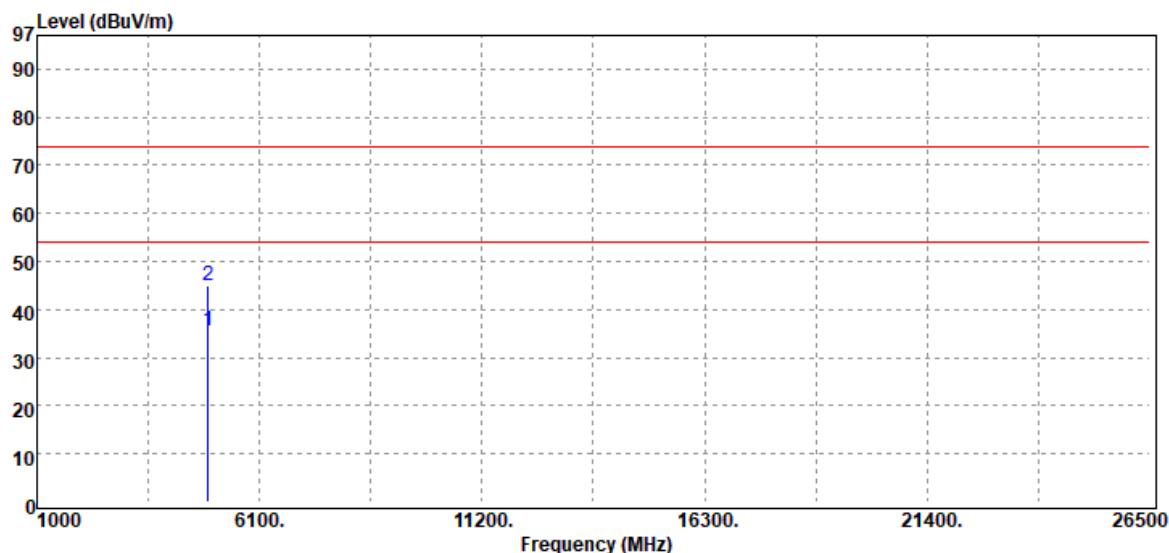
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Report Number :ER/2020/A0091
 Operation Mode :802.11g
 Test Frequency :2462 MHz
 Test Mode :Tx CH High
 EUT Pol :H Plane

Test Site :SAC I Chamber
 Test Date :2020-11-30
 Temp./Humi. :24.6/61
 Antenna Pol. :HORIZONTAL
 Engineer :Neo



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dB μ V	Factor dB	Actual FS dB μ V/m	Limit @3m dB μ V/m	Margin dB
4924.00	Average	20.64	14.87	35.51	54.00	-18.49
4924.00	Peak	30.20	14.87	45.07	74.00	-28.93

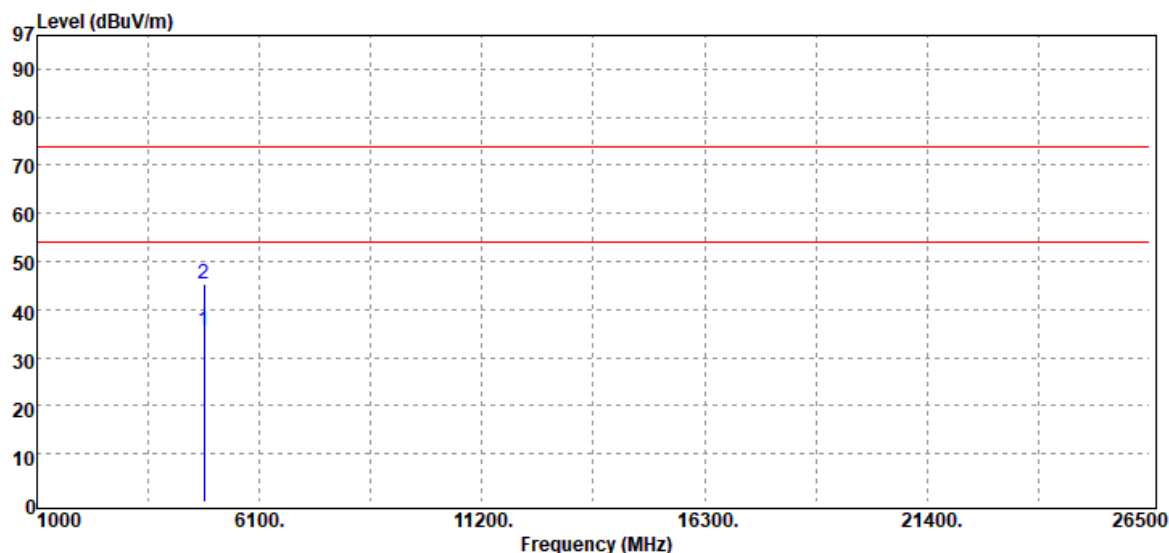
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Report Number :ER/2020/A0091
 Operation Mode :802.11n20
 Test Frequency :2412 MHz
 Test Mode :Tx CH Low
 EUT Pol :H Plane

Test Site :SAC I Chamber
 Test Date :2020-11-30
 Temp./Humi. :24.6/61
 Antenna Pol. :VERTICAL
 Engineer :Neo



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dB μ V	Factor dB	Actual FS dB μ V/m	Limit @3m dB μ V/m	Margin dB
4824.00	Average	20.89	14.56	35.45	54.00	-18.55
4824.00	Peak	30.70	14.56	45.26	74.00	-28.74

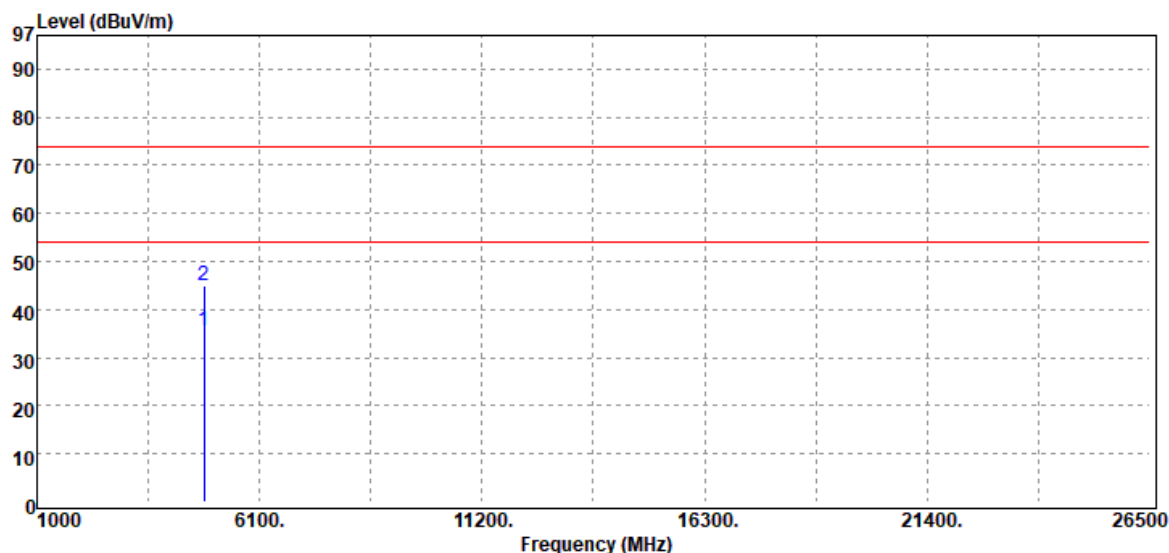
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Report Number :ER/2020/A0091
 Operation Mode :802.11n20
 Test Frequency :2412 MHz
 Test Mode :Tx CH Low
 EUT Pol :H Plane

Test Site :SAC I Chamber
 Test Date :2020-11-30
 Temp./Humi. :24.6/61
 Antenna Pol. :HORIZONTAL
 Engineer :Neo



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
4824.00	Average	21.11	14.56	35.67	54.00	-18.33
4824.00	Peak	30.27	14.56	44.83	74.00	-29.17

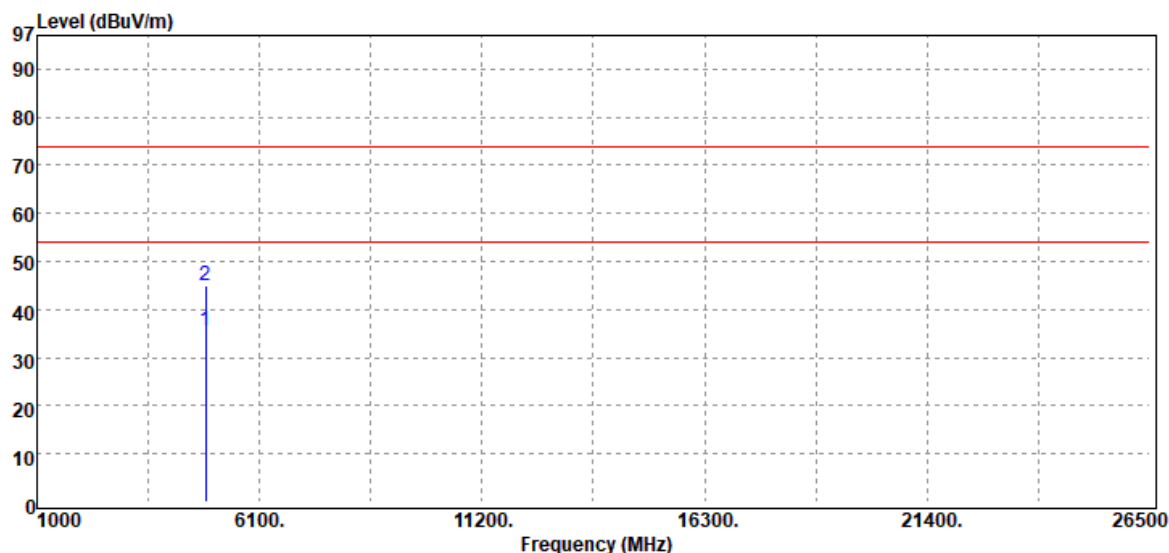
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Report Number :ER/2020/A0091
 Operation Mode :802.11n20
 Test Frequency :2437 MHz
 Test Mode :Tx CH Mid
 EUT Pol :H Plane

Test Site :SAC I Chamber
 Test Date :2020-11-30
 Temp./Humi. :24.6/61
 Antenna Pol. :VERTICAL
 Engineer :Neo



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
4874.00	Average	20.84	14.85	35.69	54.00	-18.31
4874.00	Peak	30.22	14.85	45.07	74.00	-28.93

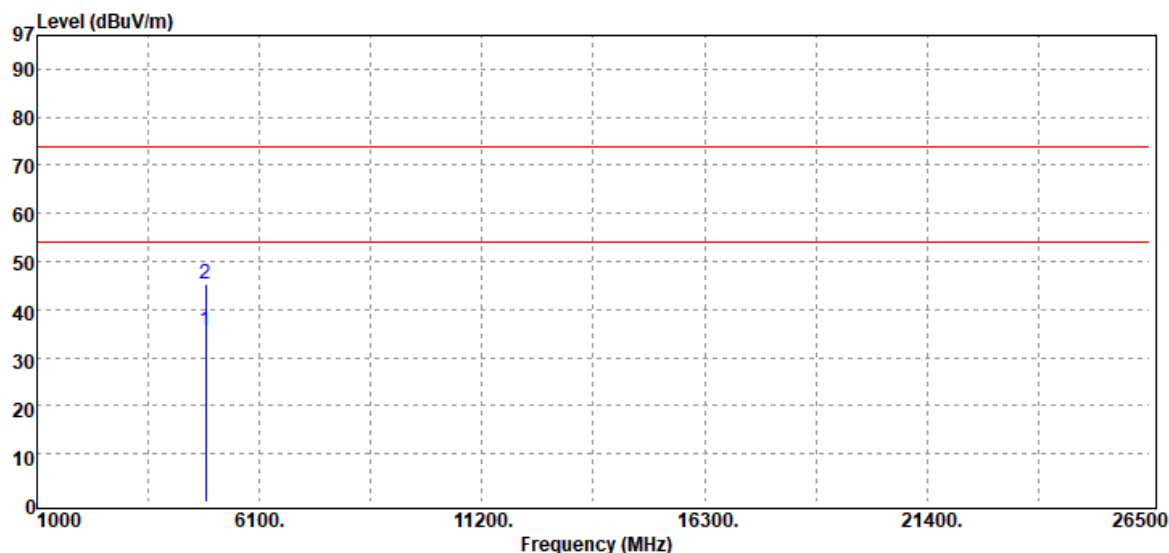
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Report Number :ER/2020/A0091
 Operation Mode :802.11n20
 Test Frequency :2437 MHz
 Test Mode :Tx CH Mid
 EUT Pol :H Plane

Test Site :SAC I Chamber
 Test Date :2020-11-30
 Temp./Humi. :24.6/61
 Antenna Pol. :HORIZONTAL
 Engineer :Neo



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dB μ V	Factor dB	Actual FS dB μ V/m	Limit @3m dB μ V/m	Margin dB
4874.00	Average	20.71	14.85	35.56	54.00	-18.44
4874.00	Peak	30.31	14.85	45.16	74.00	-28.84

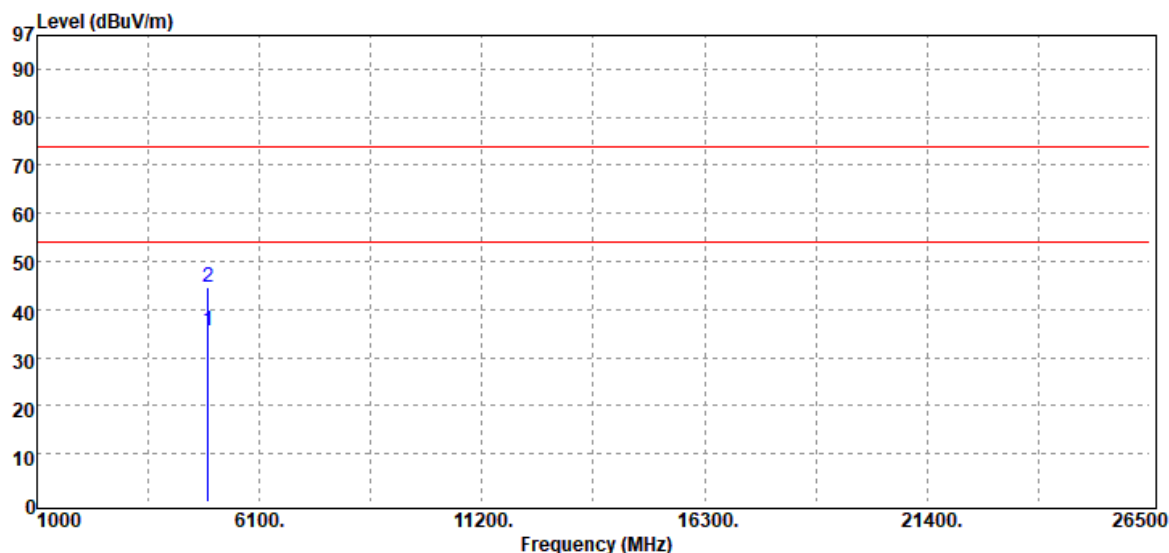
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Report Number :ER/2020/A0091
 Operation Mode :802.11n20
 Test Frequency :2462 MHz
 Test Mode :Tx CH High
 EUT Pol :H Plane

Test Site :SAC I Chamber
 Test Date :2020-11-30
 Temp./Humi. :24.6/61
 Antenna Pol. :VERTICAL
 Engineer :Neo



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
4924.00	Average	20.63	14.87	35.50	54.00	-18.50
4924.00	Peak	29.80	14.87	44.67	74.00	-29.33

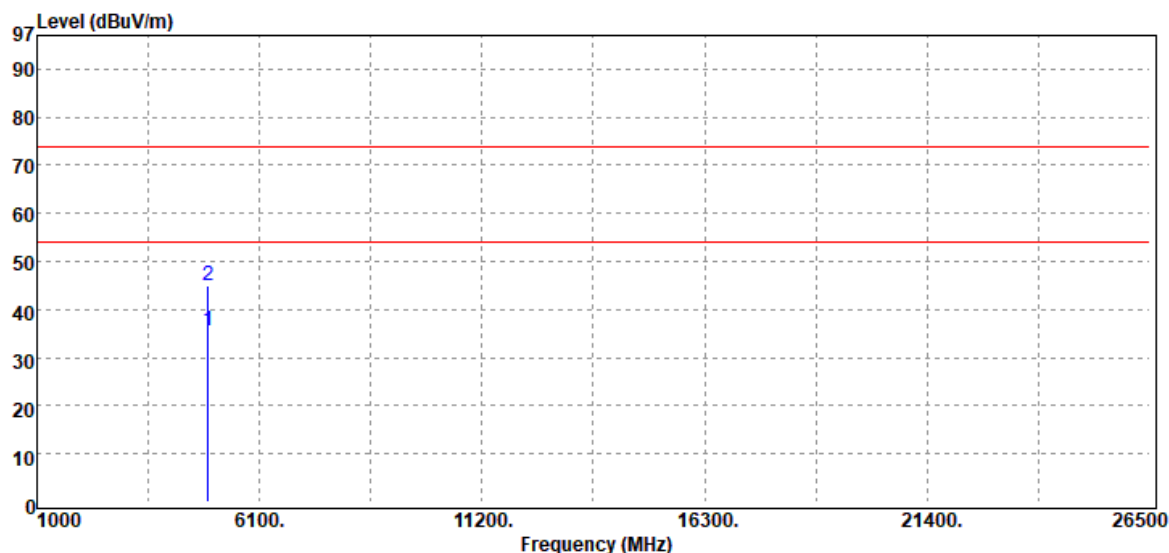
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Report Number :ER/2020/A0091
 Operation Mode :802.11n20
 Test Frequency :2462 MHz
 Test Mode :Tx CH High
 EUT Pol :H Plane

Test Site :SAC I Chamber
 Test Date :2020-11-30
 Temp./Humi. :24.6/61
 Antenna Pol. :HORIZONTAL
 Engineer :Neo



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dB μ V	Factor dB	Actual FS dB μ V/m	Limit @3m dB μ V/m	Margin dB
4924.00	Average	20.68	14.87	35.55	54.00	-18.45
4924.00	Peak	30.05	14.87	44.92	74.00	-29.08

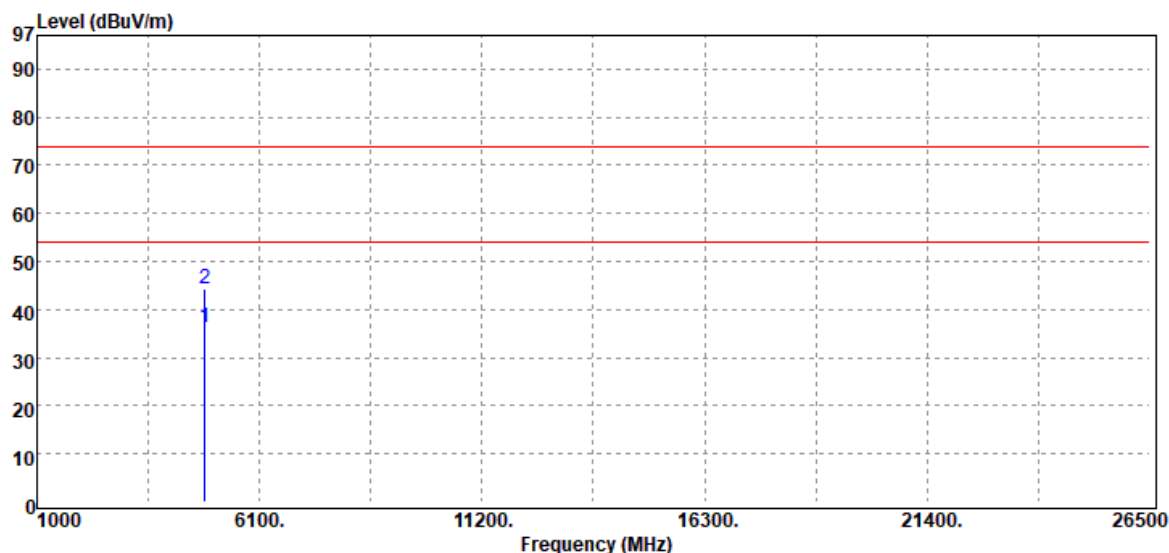
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Report Number :ER/2020/A0091
 Operation Mode :802.11n40
 Test Frequency :2422 MHz
 Test Mode :Tx CH Low
 EUT Pol :H Plane

Test Site :SAC I Chamber
 Test Date :2020-11-30
 Temp./Humi. :24.6/61
 Antenna Pol. :VERTICAL
 Engineer :Neo



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
4844.00	Average	21.56	14.58	36.14	54.00	-17.86
4844.00	Peak	29.89	14.58	44.47	74.00	-29.53

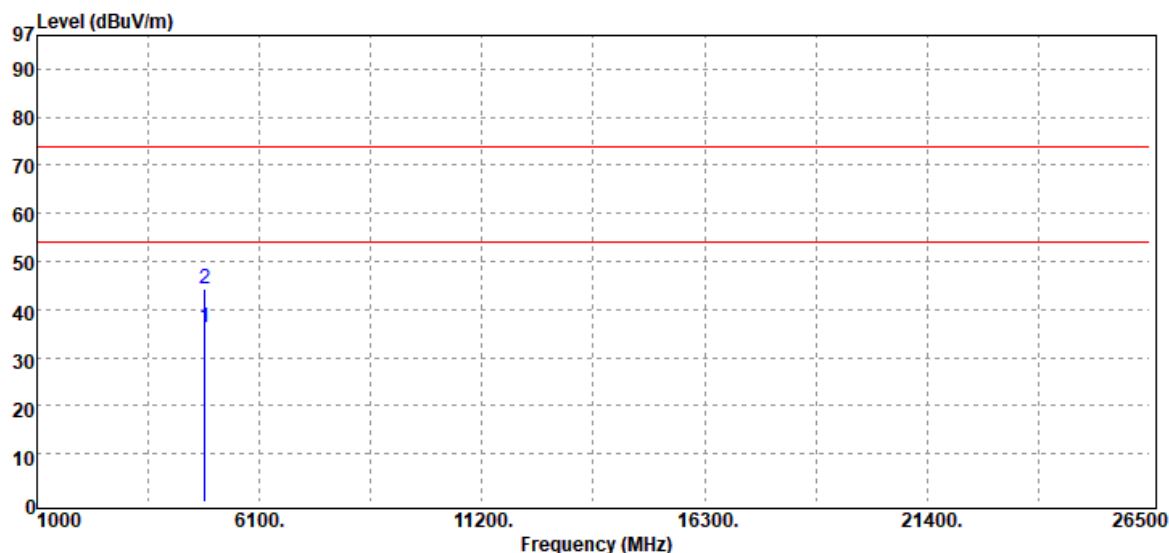
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Report Number :ER/2020/A0091
 Operation Mode :802.11n40
 Test Frequency :2422 MHz
 Test Mode :Tx CH Low
 EUT Pol :H Plane

Test Site :SAC I Chamber
 Test Date :2020-11-30
 Temp./Humi. :24.6/61
 Antenna Pol. :HORIZONTAL
 Engineer :Neo



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
4844.00	Average	21.59	14.58	36.17	54.00	-17.83
4844.00	Peak	29.88	14.58	44.46	74.00	-29.54

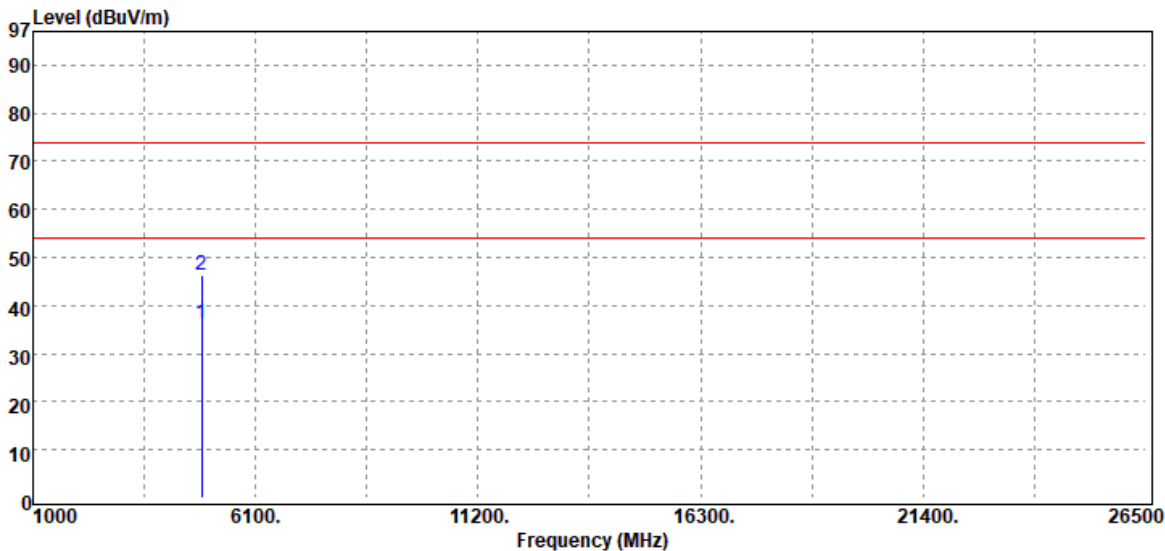
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Report Number :ER/2020/A0091
 Operation Mode :802.11n40
 Test Frequency :2437 MHz
 Test Mode :Tx CH Mid
 EUT Pol :H Plane

Test Site :SAC I Chamber
 Test Date :2020-11-30
 Temp./Humi. :24.6/61
 Antenna Pol. :VERTICAL
 Engineer :Neo



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dB μ V	Factor dB	Actual FS dB μ V/m	Limit @3m dB μ V/m	Margin dB
4874.00	Average	21.51	14.85	36.36	54.00	-17.64
4874.00	Peak	31.46	14.85	46.31	74.00	-27.69

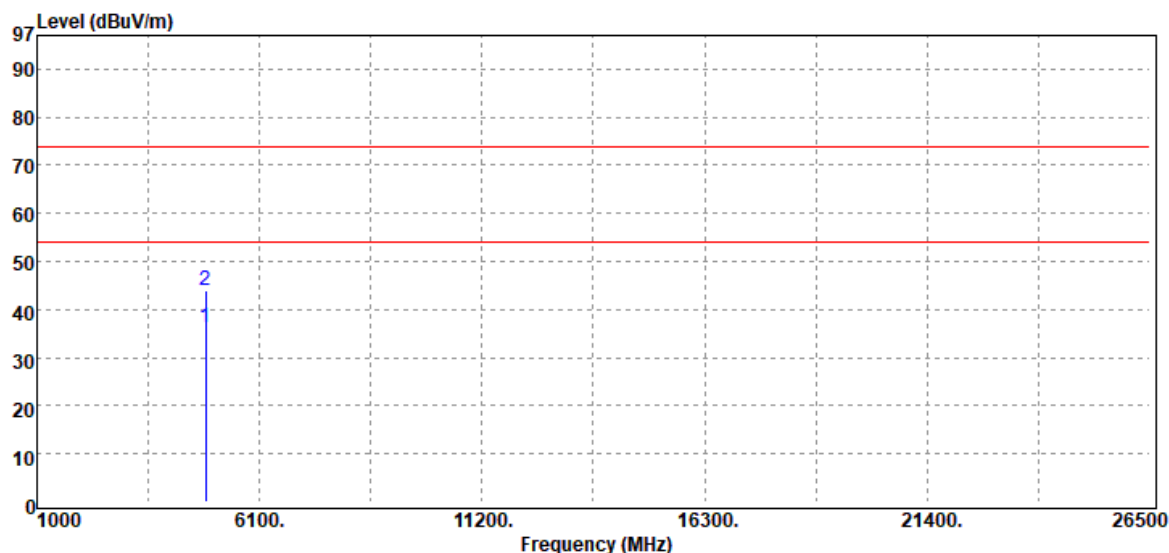
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Report Number :ER/2020/A0091
 Operation Mode :802.11n40
 Test Frequency :2437 MHz
 Test Mode :Tx CH Mid
 EUT Pol :H Plane

Test Site :SAC I Chamber
 Test Date :2020-11-30
 Temp./Humi. :24.6/61
 Antenna Pol. :HORIZONTAL
 Engineer :Neo



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
4874.00	Average	21.53	14.85	36.38	54.00	-17.62
4874.00	Peak	29.18	14.85	44.03	74.00	-29.97

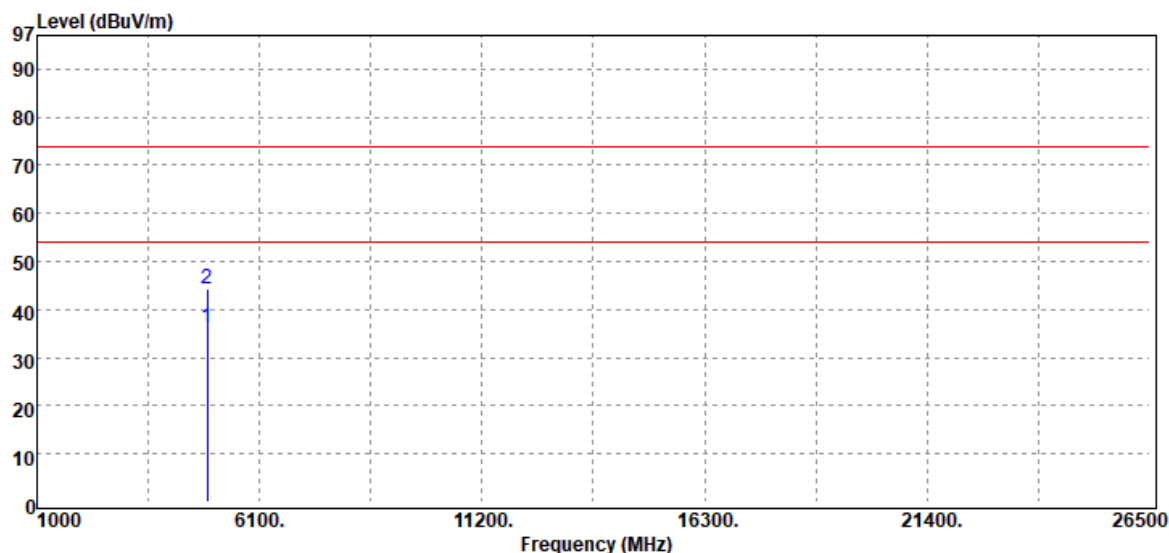
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Report Number :ER/2020/A0091
 Operation Mode :802.11n40
 Test Frequency :2452 MHz
 Test Mode :Tx CH High
 EUT Pol :H Plane

Test Site :SAC I Chamber
 Test Date :2020-11-30
 Temp./Humi. :24.6/61
 Antenna Pol. :VERTICAL
 Engineer :Neo



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
4904.00	Average	21.29	15.12	36.41	54.00	-17.59
4904.00	Peak	29.30	15.12	44.42	74.00	-29.58

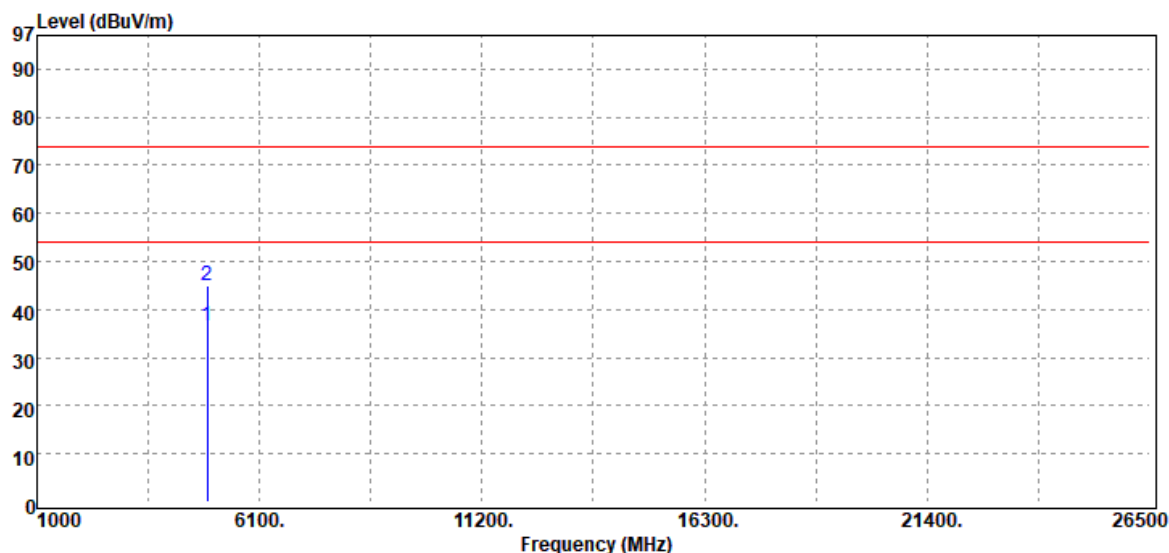
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Report Number :ER/2020/A0091
 Operation Mode :802.11n40
 Test Frequency :2452 MHz
 Test Mode :Tx CH High
 EUT Pol :H Plane

Test Site :SAC I Chamber
 Test Date :2020-11-30
 Temp./Humi. :24.6/61
 Antenna Pol. :HORIZONTAL
 Engineer :Neo



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
4904.00	Average	21.40	15.12	36.52	54.00	-17.48
4904.00	Peak	29.78	15.12	44.90	74.00	-29.10

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8.5.3 接收機場強輻射之量測結果(1GHz 以下) (最差模式)

Report Number :ER/2020/A0091

Operation Mode :802.11g

Test Frequency :2437 MHz

Test Mode :Rx CH Mid

EUT Pol :H Plane

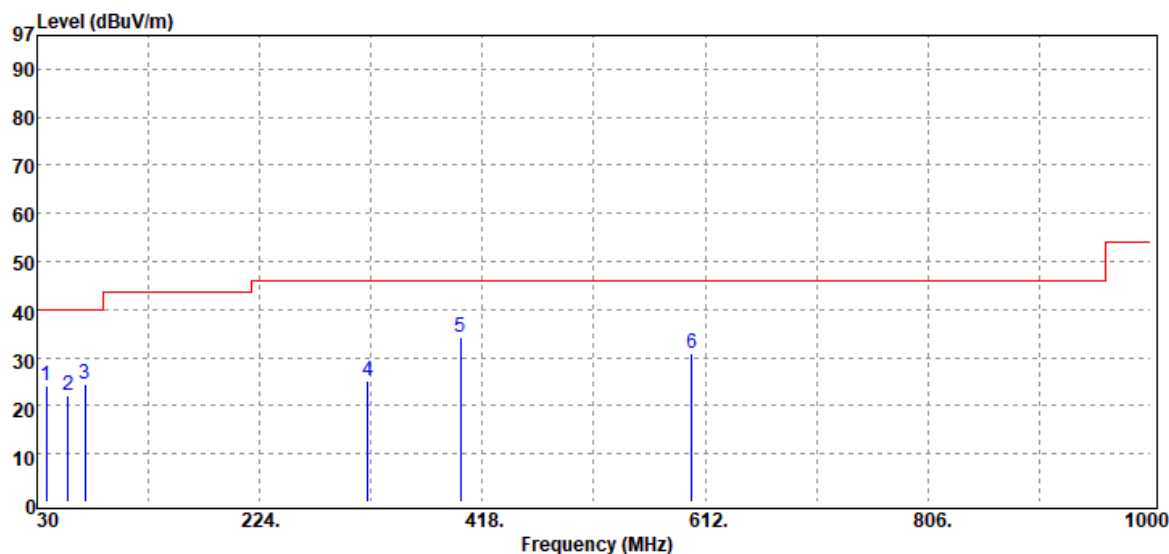
Test Site :SAC I Chamber

Test Date :2020-12-01

Temp./Humi. :23.8/61

Antenna Pol. :VERTICAL

Engineer :Neo



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
37.76	Peak	32.83	-8.79	24.04	40.00	-15.96
57.16	Peak	38.88	-16.69	22.19	40.00	-17.81
71.71	Peak	41.60	-17.04	24.56	40.00	-15.44
318.09	Peak	33.17	-7.83	25.34	46.00	-20.66
398.60	Peak	40.20	-6.12	34.08	46.00	-11.92
600.36	Peak	34.21	-3.40	30.81	46.00	-15.19

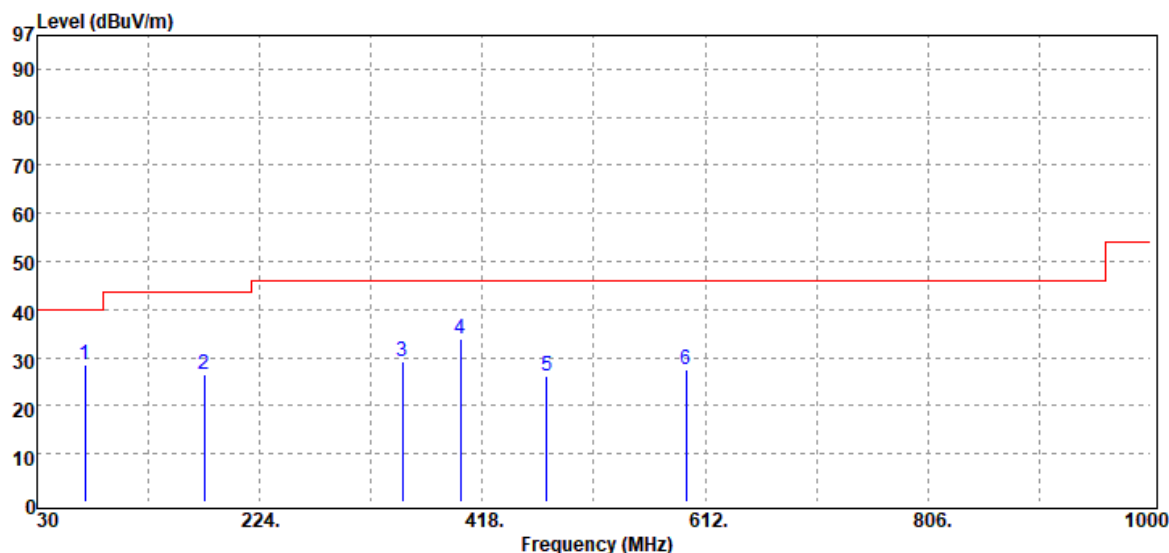
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Report Number :ER/2020/A0091
 Operation Mode :802.11g
 Test Frequency :2437 MHz
 Test Mode :Rx CH Mid
 EUT Pol :H Plane

Test Site :SAC I Chamber
 Test Date :2020-12-01
 Temp./Humi. :23.8/61
 Antenna Pol. :HORIZONTAL
 Engineer :Neo



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBuV	Factor dB	Actual FS dBuV/m	Limit @3m dBuV/m	Margin dB
71.71	Peak	45.56	-17.04	28.52	40.00	-11.48
175.50	Peak	39.81	-13.19	26.62	43.50	-16.88
348.16	Peak	36.50	-7.47	29.03	46.00	-16.97
398.60	Peak	39.90	-6.12	33.78	46.00	-12.22
474.26	Peak	31.76	-5.41	26.35	46.00	-19.65
595.51	Peak	31.08	-3.46	27.62	46.00	-18.38

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8.5.4 接收機場強輻射之量測結果(1GHz 以上) (最差模式)

Report Number :ER/2020/A0091

Operation Mode :802.11g

Test Frequency :2437 MHz

Test Mode :Rx CH Mid

EUT Pol :H Plane

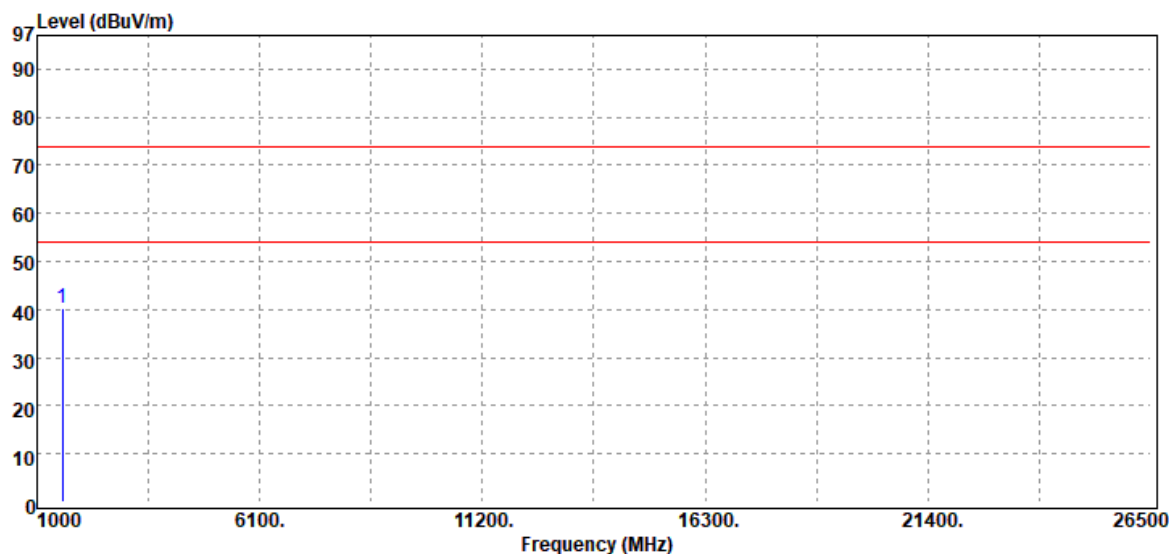
Test Site :SAC I Chamber

Test Date :2020-11-30

Temp./Humi. :24.6/61

Antenna Pol. :VERTICAL

Engineer :Neo



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
1588.00	Peak	36.95	3.29	40.24	74.00	-33.76

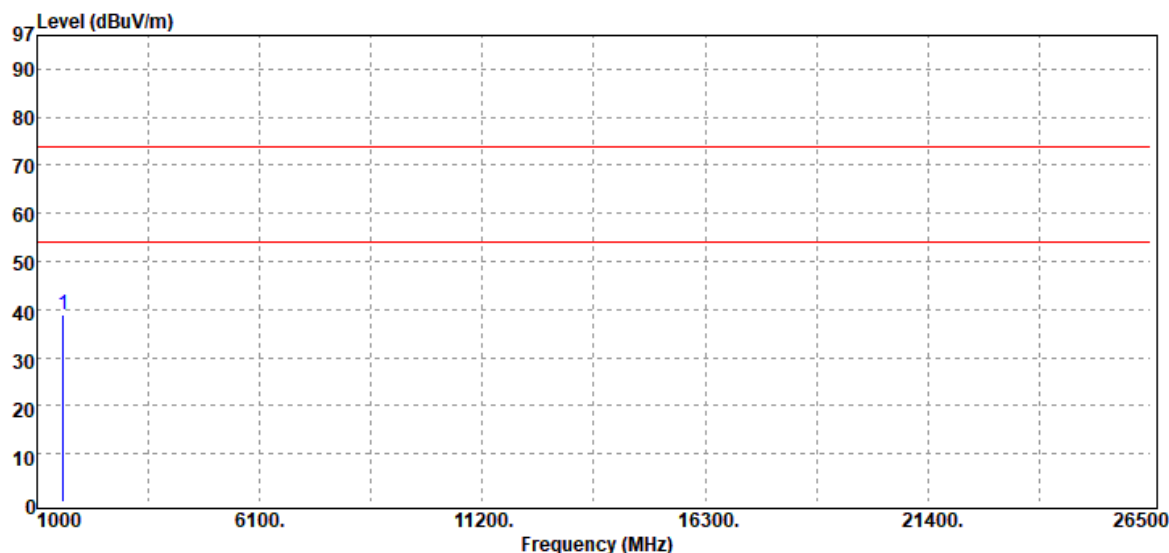
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Report Number :ER/2020/A0091
 Operation Mode :802.11g
 Test Frequency :2437 MHz
 Test Mode :Rx CH Mid
 EUT Pol :H Plane

Test Site :SAC I Chamber
 Test Date :2020-11-30
 Temp./Humi. :24.6/61
 Antenna Pol. :HORIZONTAL
 Engineer :Neo



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dB μ V	Factor dB	Actual FS dB μ V/m	Limit @3m dB μ V/m	Margin dB
1595.00	Peak	35.51	3.28	38.79	74.00	-35.21

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9 天線增益之要求

9.1 適用標準

依據NCC低功率射頻電機技術規範4.10.1.3 (1)之規定，操作於2400-2483.5MHz 者，僅用於固定式點對點操作，其發射天線之方向性增益超過 6dBi，每超過3dB應降低1dB之峰值輸出功率。

依據NCC低功率射頻電機技術規範4.10.1.3 (2)之規定，操作於5725-5850MHz 者，其發射天線之方向性增益超過 6dBi，無須降低峰值輸出功率。

依據NCC低功率射頻電機技術規範4.10.1.3 (2)之規定，用於點對多點操作時，如其發射天線之方向性增益超過 6dBi，應依所超過之dB數等量降低最大傳導輸出功率。

註：固定式點對點操作使用方式，並不包括使用點對多點之系統、全向性之應用以及發射相同資訊之共同安裝的多重發射機。展頻或數位調變之發射器需要專業安裝，該設備操作者或安裝者有責任確認該系統是限用於固定式、點對點之操作，隨機所附之使用手冊必須包含此訊息以告知使用者或安裝者須負之責任。

9.2 天線增益

此裝置使用天線如下，詳細規格請參考附件天線規格書。

天線型式/天線增益	PIFA Antenna, Gain: 0.4dBi Model No.: ANT3; Supplier: Nokia
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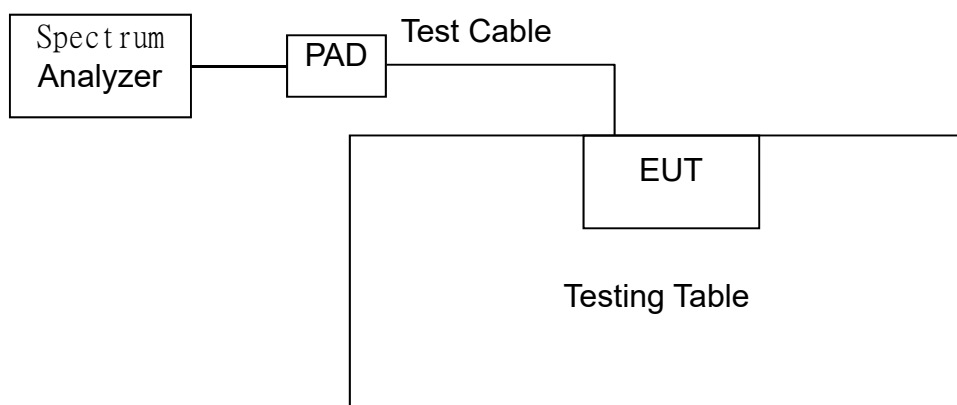
10 發射頻寬之要求

10.1 適用標準

對使用數位調變技術之低功率發射機，依據NCC低功率射頻器材技術規範4.10.1.6(2)(A)之規定，6dB之頻寬至少應有500kHz。

10.2 測試配置

圖 4: 發射頻寬之測試配置



10.3 量測結果

802.11b Ch0

Freq. (MHz)	BW (kHz)	Limit (kHz)	Result
2412	8564	> 500	PASS
2437	9063	> 500	PASS
2462	9046	> 500	PASS

802.11g Ch0

Freq. (MHz)	BW (kHz)	Limit (kHz)	Result
2412	15160	> 500	PASS
2437	15470	> 500	PASS
2462	15150	> 500	PASS

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802.11n_HT20M Ch0

Freq. (MHz)	BW (kHz)	Limit (kHz)	Result
2412	15160	> 500	PASS
2437	15360	> 500	PASS
2462	15940	> 500	PASS

802.11n_HT40M Ch0

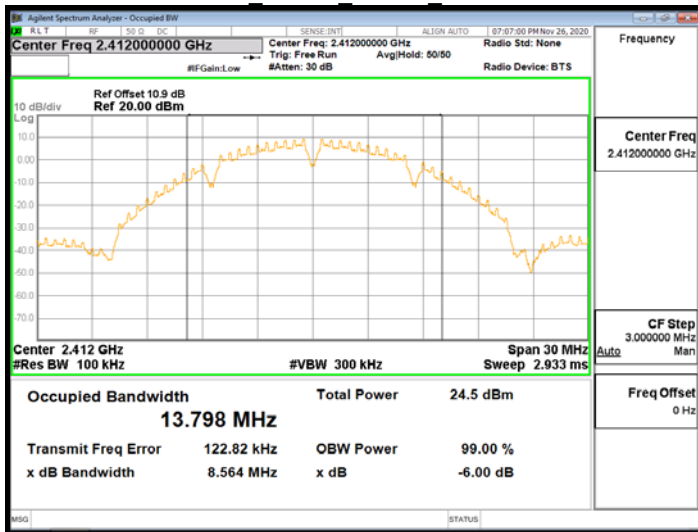
Freq. (MHz)	BW (kHz)	Limit (kHz)	Result
2422	35480	> 500	PASS
2437	35640	> 500	PASS
2452	35930	> 500	PASS

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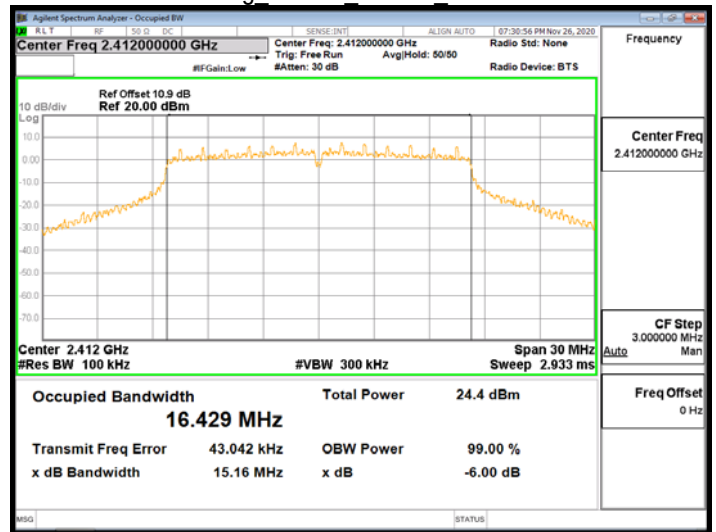
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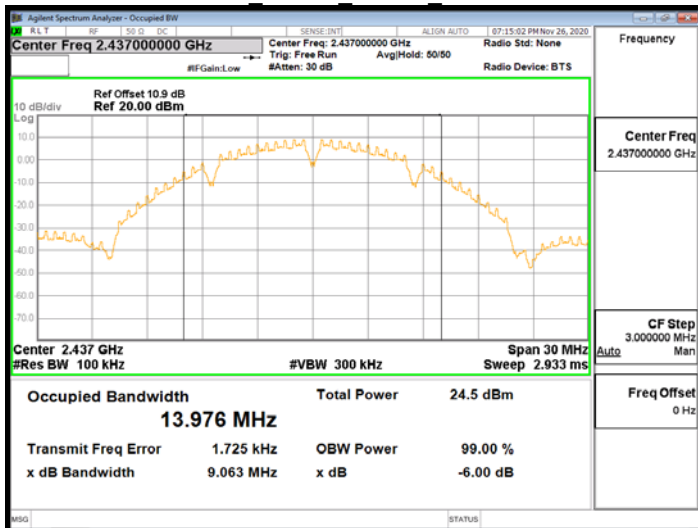
802.11b 20MHz Chain0 2412MHz



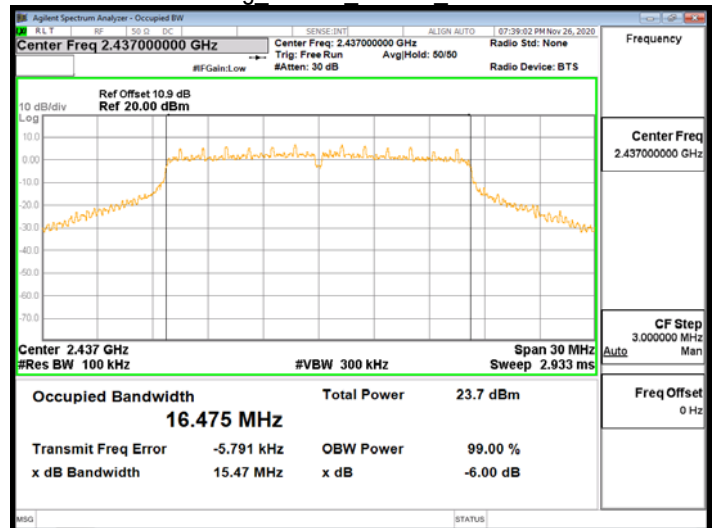
802.11g 20MHz Chain0 2412MHz



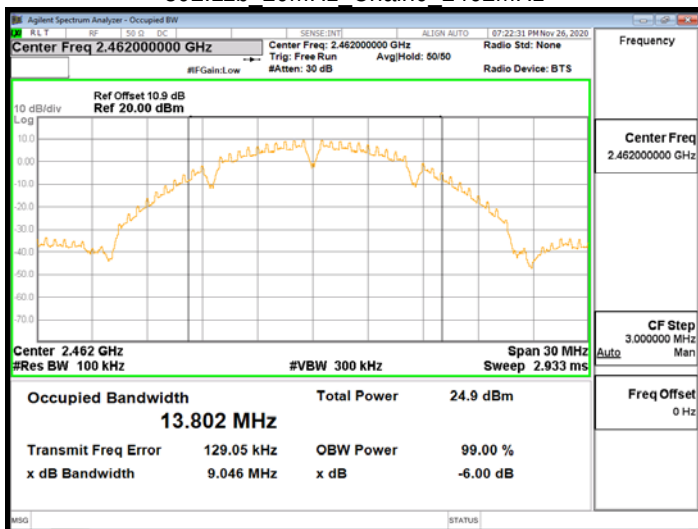
802.11b 20MHz Chain0 2437MHz



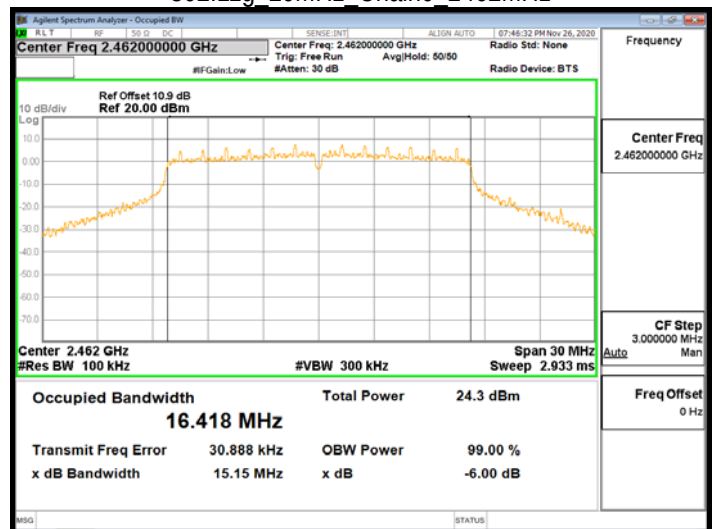
802.11g 20MHz Chain0 2437MHz



802.11b 20MHz Chain0 2462MHz



802.11g 20MHz Chain0 2462MHz

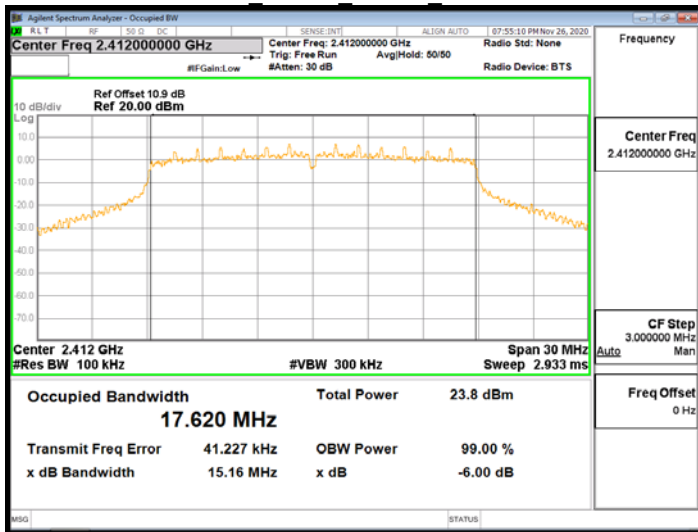


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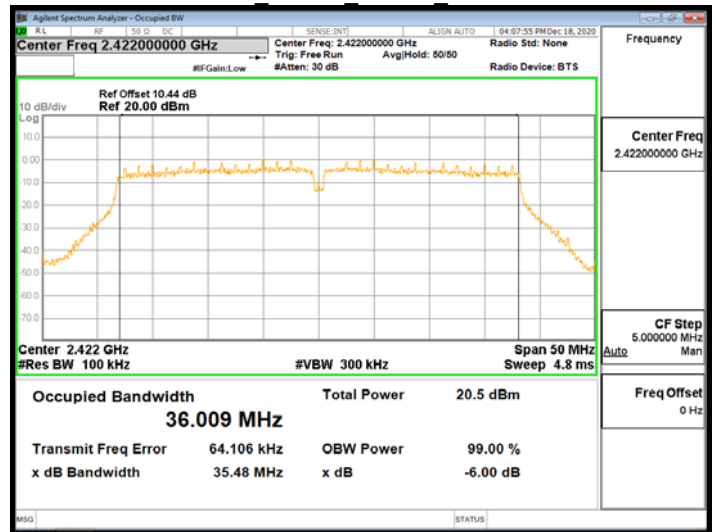
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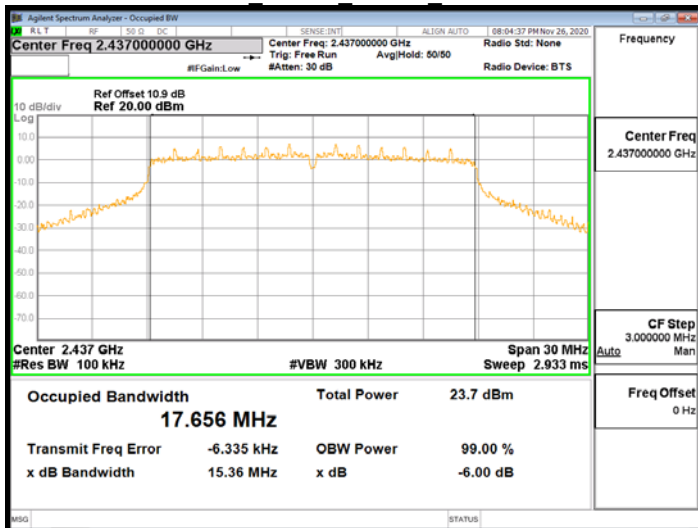
802.11n 20MHz Chain0 2412MHz



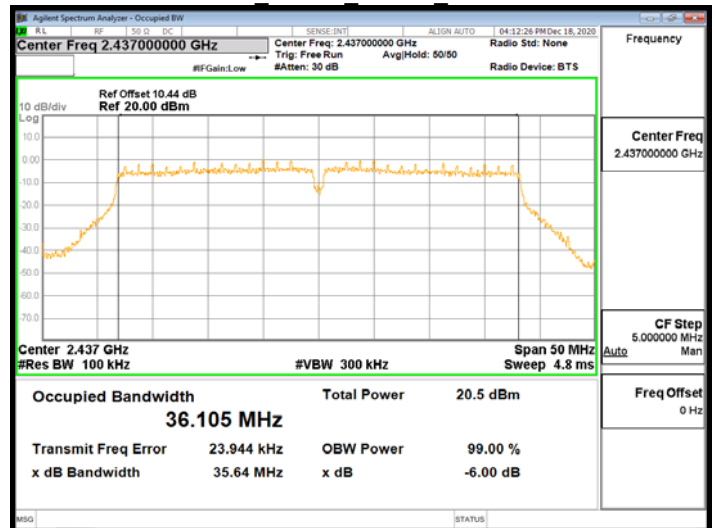
802.11n 40MHz Chain0 2422MHz



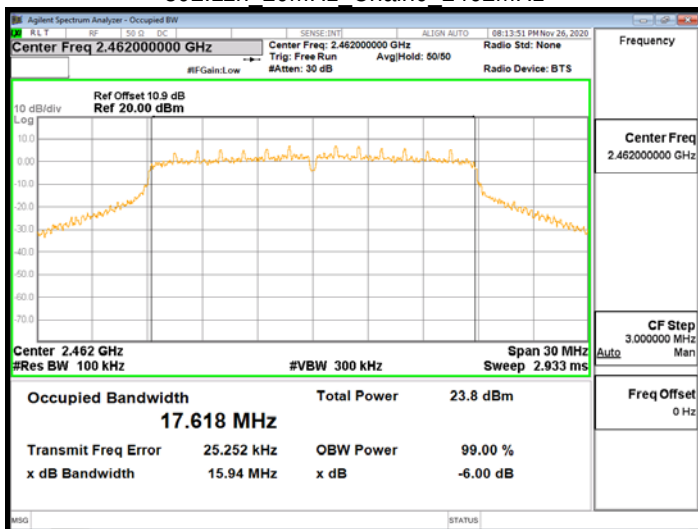
802.11n 20MHz Chain0 2437MHz



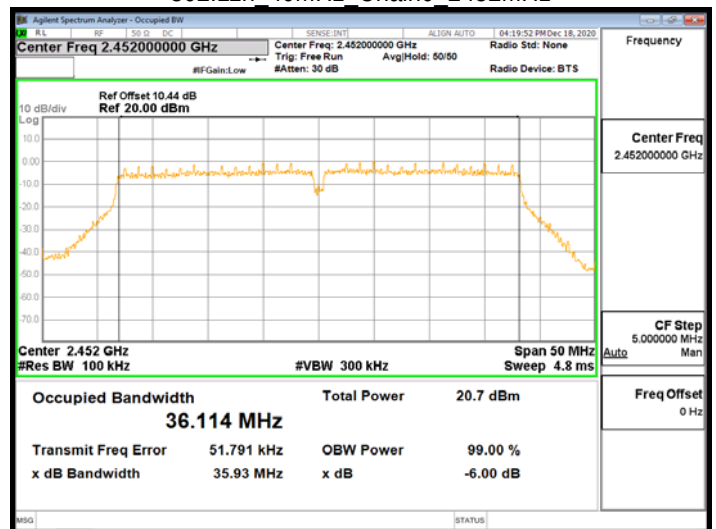
802.11n 40MHz Chain0 2437MHz



802.11n 20MHz Chain0 2462MHz



802.11n 40MHz Chain0 2452MHz



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11 輸出峰值功率之量測

11.1 適用標準

依據 NCC 低功率射頻器材技術規範 4.10.1.2(1) (A)(C)之規定，操作於 2400-2483.5MHz 與 5725-5850MHz 之所有數位調變技術系統：1 Watt(含)以下。

依據NCC低功率射頻器材技術規範4.10.1.3之規定，用於非固定式點對點操作時，若其發射天線之方向性增益超過6dBi，應依所超過之dB數等量降低峰值輸出功率。如用於固定式點對點操作時，應符合下列情現之一：

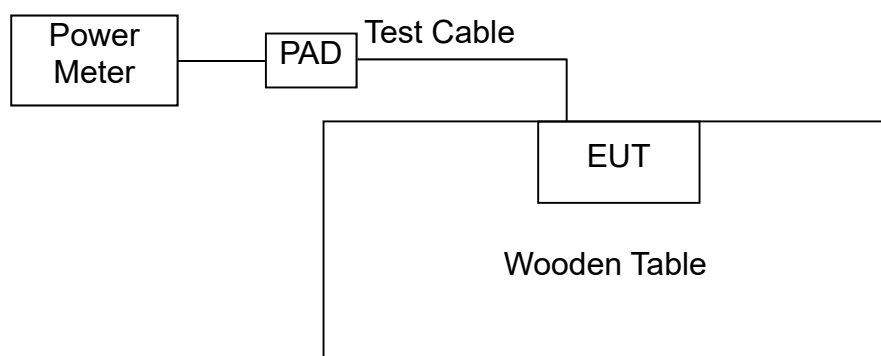
依據NCC低功率射頻器材技術規範4.10.1.3 (1)之規定，操作於2400-2483.5MHz 者，僅用於固定式點對點操作，其發射天線之方向性增益超過 6dBi，每超過3dB應降低1dB之峰值輸出功率。

依據NCC低功率射頻器材技術規範4.10.1.3 (2)之規定，操作於5725-5850MHz 者，其發射天線之方向性增益超過 6dBi，無須降低峰值輸出功率。

依據NCC低功率射頻器材技術規範4.10.1.3 (3)之規定，用於點對多點操作時，如其發射天線之方向性增益超過 6dBi，應依所超過之dB數等量降低最大傳導輸出功率。

註：固定式點對點操作使用方式，並不包括使用點對多點之系統、全向性之應用以及發射相同資訊之共同安裝的多重發射機。展頻或數位調變之發射器需要專業安裝，該設備操作者或安裝者有責任確認該系統是限用於固定式、點對點之操作，隨機所附之使用手冊必須包含此訊息以告知使用者或安裝者須負之責任。

11.2 輸出功率之測試配置



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11.3 輸出功率之量測結果

802.11b Ch0						
CH	Freq. (MHz)	Data Rate	Power set	Peak Output Power (dBm)	Limit	RESULT
1	2412	1	18	19.46	1 Watt = 30.00 dBm	PASS
6	2437	1	18	19.32	1 Watt = 30.00 dBm	PASS
11	2462	1	18.5	19.70	1 Watt = 30.00 dBm	PASS
802.11b Ch0						
CH	Freq. (MHz)	Data Rate	Power set	Avg. Output Power (dBm)	Limit	RESULT
1	2412	1	18	17.21	1 Watt = 30.00 dBm	PASS
6	2437	1	18	17.13	1 Watt = 30.00 dBm	PASS
11	2462	1	18.5	17.32	1 Watt = 30.00 dBm	PASS
802.11g Ch0						
CH	Freq. (MHz)	Data Rate	Power set	Peak Output Power (dBm)	Limit	RESULT
1	2412	6	18	21.62	1 Watt = 30.00 dBm	PASS
6	2437	6	17.5	20.83	1 Watt = 30.00 dBm	PASS
11	2462	6	18	21.55	1 Watt = 30.00 dBm	PASS
802.11g Ch0						
CH	Freq. (MHz)	Data Rate	Power set	Avg. Output Power (dBm)	Limit	RESULT
1	2412	6	18	16.48	1 Watt = 30.00 dBm	PASS
6	2437	6	17.5	16.17	1 Watt = 30.00 dBm	PASS
11	2462	6	18	16.49	1 Watt = 30.00 dBm	PASS
802.11n_HT20M Ch0						
CH	Freq. (MHz)	Data Rate	Power set	Peak Output Power (dBm)	Limit	RESULT
1	2412	MCS0	17.5	20.95	1 Watt = 30.00 dBm	PASS
6	2437	MCS0	17.5	20.77	1 Watt = 30.00 dBm	PASS
11	2462	MCS0	17.5	20.99	1 Watt = 30.00 dBm	PASS
802.11n_HT20M Ch0						
CH	Freq. (MHz)	Data Rate	Power set	Avg. Output Power (dBm)	Limit	RESULT
1	2412	MCS0	17.5	15.89	1 Watt = 30.00 dBm	PASS
6	2437	MCS0	17.5	15.75	1 Watt = 30.00 dBm	PASS
11	2462	MCS0	17.5	15.85	1 Watt = 30.00 dBm	PASS

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802.11n_HT40M Ch0						
CH	Freq. (MHz)	Data Rate	Power set	Peak Output Power (dBm)	Limit	RESULT
3	2422	MCS0	14	19.49	1 Watt = 30.00 dBm	PASS
6	2437	MCS0	14	19.33	1 Watt = 30.00 dBm	PASS
9	2452	MCS0	14	19.68	1 Watt = 30.00 dBm	PASS
802.11n_HT40M Ch0						
CH	Freq. (MHz)	Data Rate	Power set	Avg. Output Power (dBm)	Limit	RESULT
3	2422	MCS0	14	13.05	1 Watt = 30.00 dBm	PASS
6	2437	MCS0	14	13.14	1 Watt = 30.00 dBm	PASS
9	2452	MCS0	14	13.26	1 Watt = 30.00 dBm	PASS

Note:

offset 10.90 dB for SISO mode

*Note: Measured by Power Meter.

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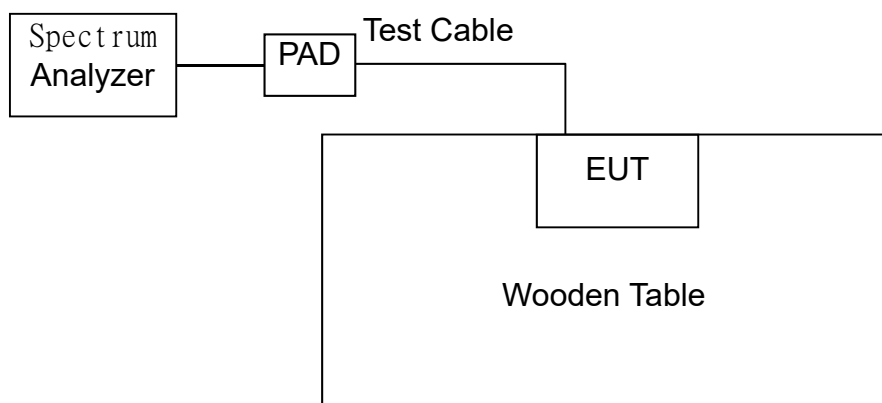
12 開放頻帶邊緣 100KHZ 頻寬內之限制

12.1 適用標準

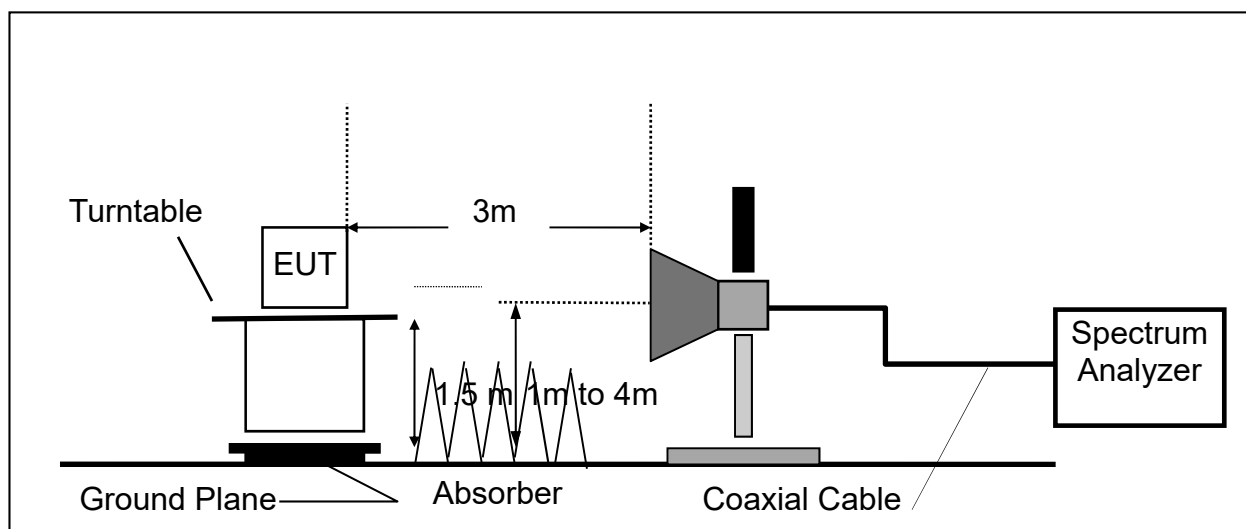
依據 NCC 低功率射頻器材技術規範 4.10.1.5 之規定，使用頻帶範圍外之任意 100kHz 內，發射器所產生的射頻功率相較於使用頻帶範圍中包含最高所需功率之 100kHz 內的射頻功率，須衰減 20 分貝 (dB)，以射頻傳導或輻射方式測量。此外，落於第 3.5 節禁用頻段之輻射發射，應符合第 3.6 節之規定。

12.2 開放頻帶邊緣之測試配置

(a) 傳導量測配置圖:



(b) 輻射量測配置圖:



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12.3 開放頻帶邊緣之量測結果

發射限制測試值 CH Low (下邊緣頻帶): 在 2400.00MHz 之 100kHz 頻寬內最大值皆比主波低 20dB 以上。

發射限制測試值 CH High(上邊緣頻帶): 在 2483.50MHz 之 100kHz 頻寬內最大值皆比主波低 20dB 以上。

NOTE:

$Actual\ FS(dB\mu V/m) = SPA.\ Reading\ level(dB\mu V) + Factor(dB)$

$Factor(dB) = Antenna\ Factor(dB\mu V/m) + Cable\ Loss(dB) - Pre_Amplifier\ Gain(dB)$

頻帶外發射傳導限制值

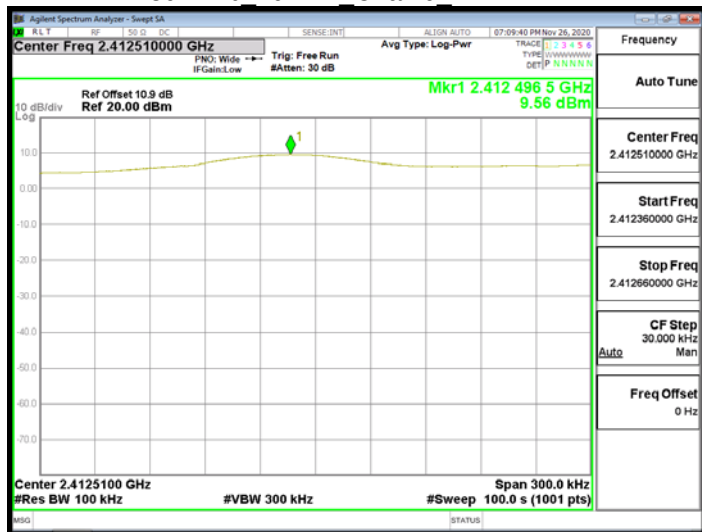
Bandedge Limit 802.11b MODE		
Frequency (MHz)	RF Power Density (dBm)	Bandedge Limit (dBm)
2412	9.56	-10.44
2437	9.53	-10.47
2462	9.94	-10.06
Bandedge Limit 802.11g MODE		
Frequency (MHz)	RF Power Density (dBm)	Bandedge Limit (dBm)
2412	4.28	-15.72
2437	4.08	-15.92
2462	4.17	-15.83
Bandedge Limit 802.11n20 MODE		
Frequency (MHz)	RF Power Density (dBm)	Bandedge Limit (dBm)
2412	3.89	-16.11
2437	6.97	-13.03
2462	7.14	-12.86
Bandedge Limit 802.11n40 MODE		
Frequency (MHz)	RF Power Density (dBm)	Bandedge Limit (dBm)
2422	-1.69	-21.69
2437	-3.03	-23.03
2452	-3.19	-23.19

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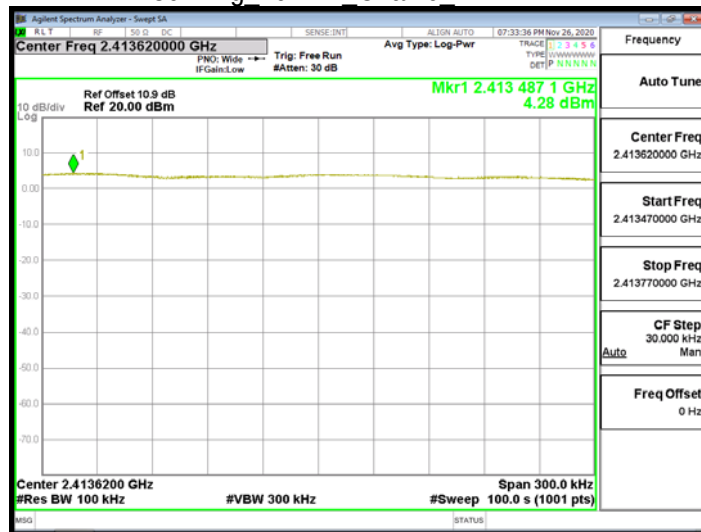
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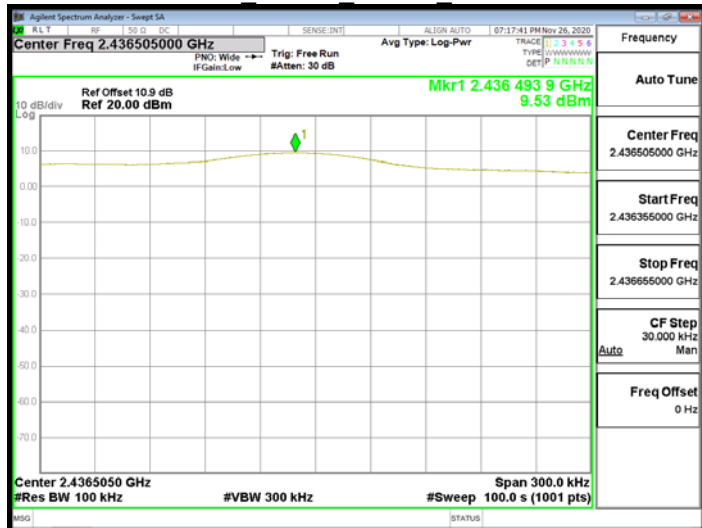
802.11b 20MHz Chain0 2412MHz



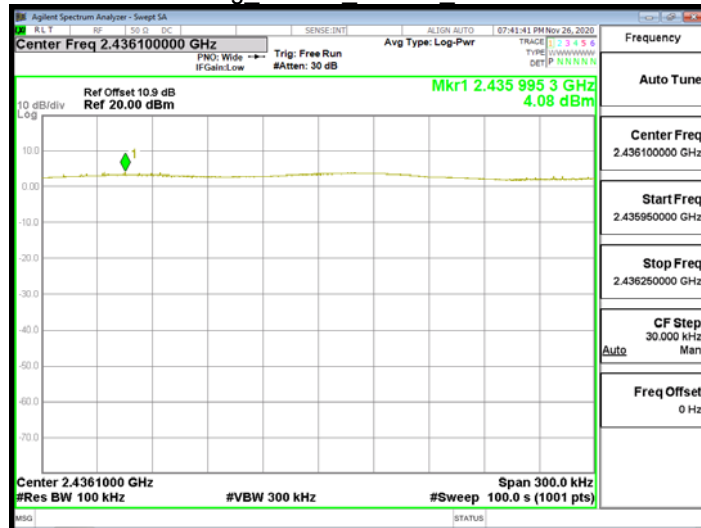
802.11g 20MHz Chain0 2412MHz



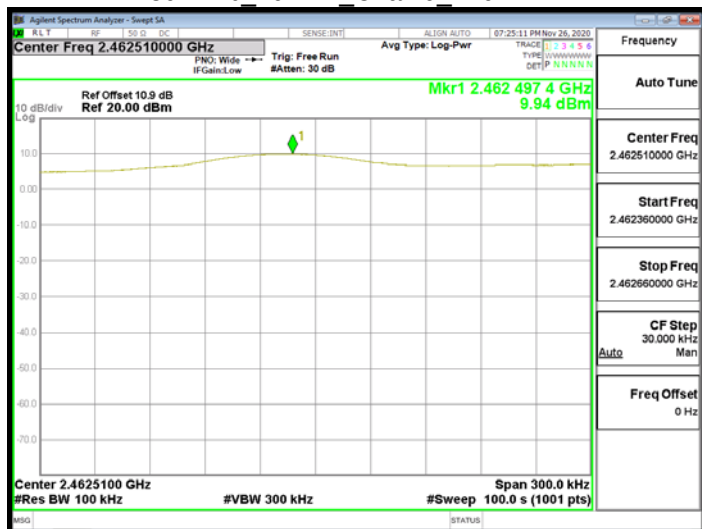
802.11b 20MHz Chain0 2437MHz



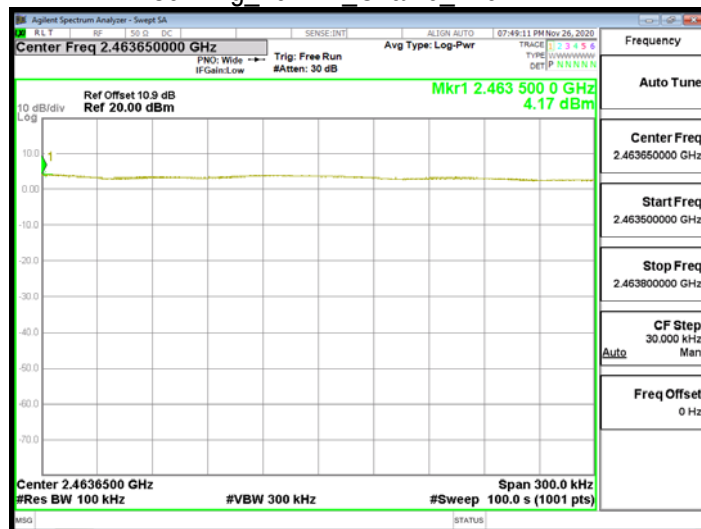
802.11g 20MHz Chain0 2437MHz



802.11b 20MHz Chain0 2462MHz



802.11g 20MHz Chain0 2462MHz

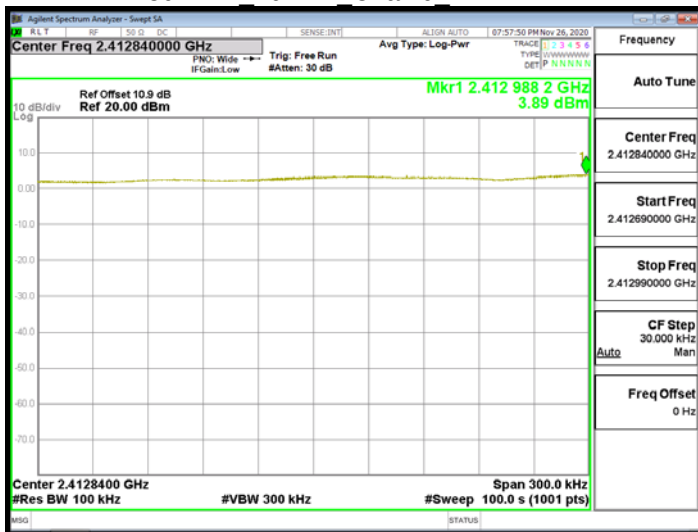


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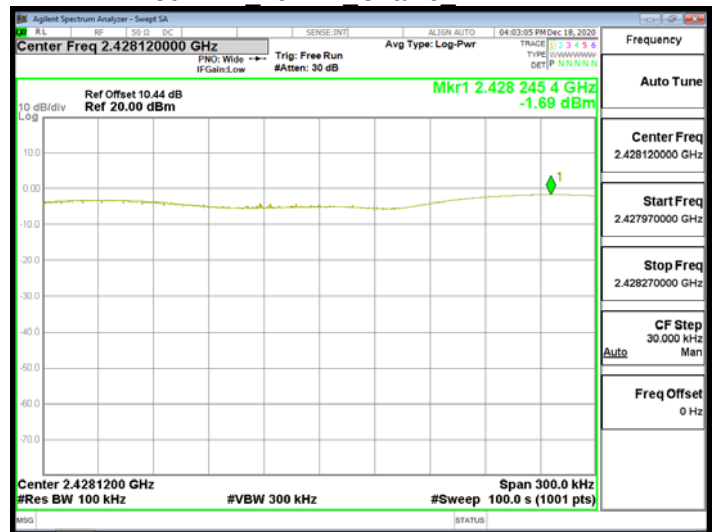
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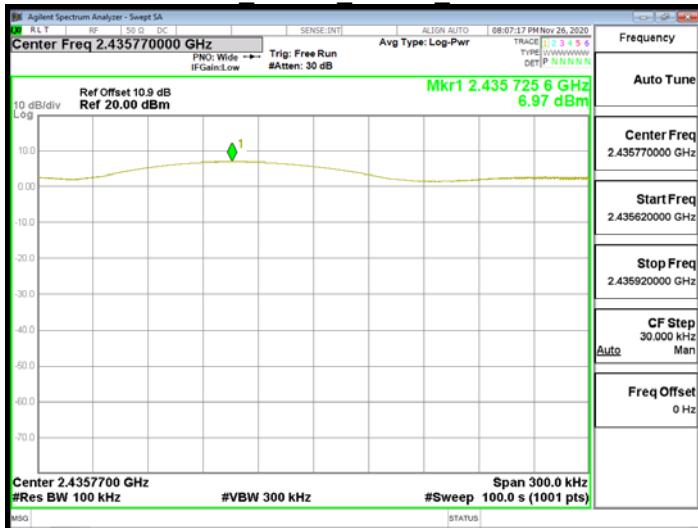
802.11n 20MHz Chain0 2412MHz



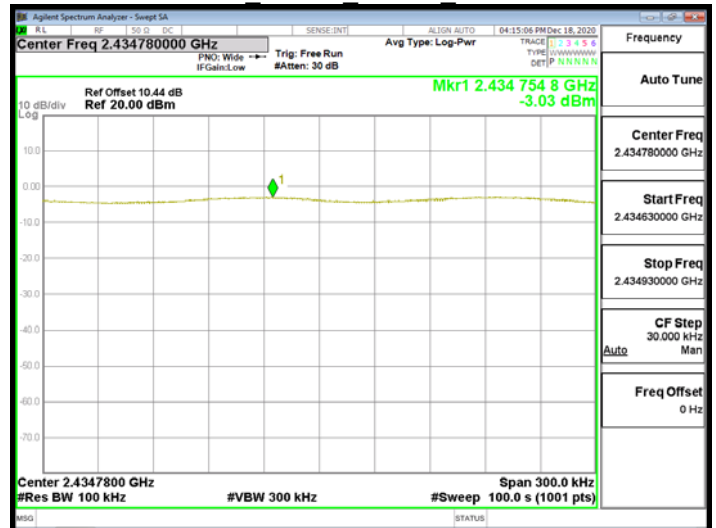
802.11n 40MHz Chain0 2422MHz



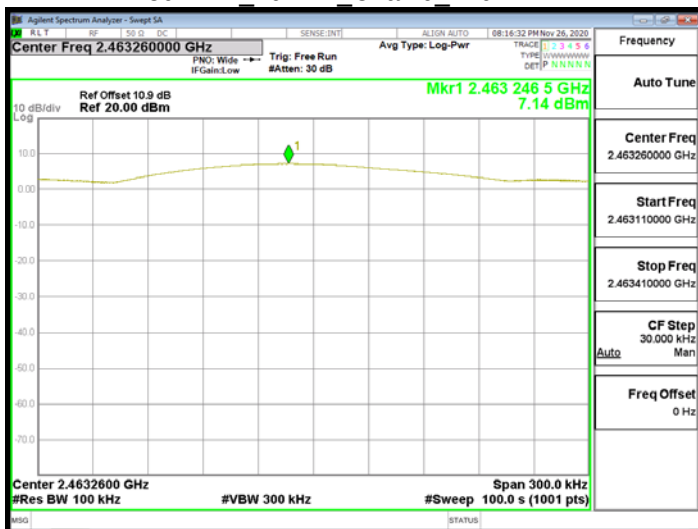
802.11n 20MHz Chain0 2437MHz



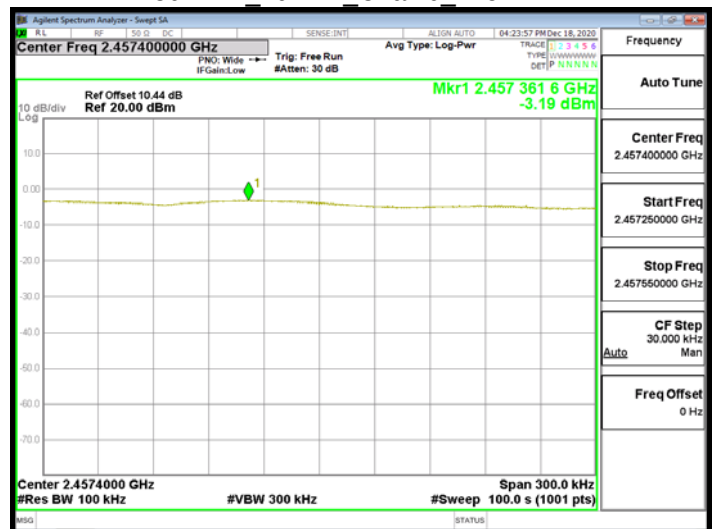
802.11n 40MHz Chain0 2437MHz



802.11n 20MHz Chain0 2462MHz



802.11n 40MHz Chain0 2452MHz

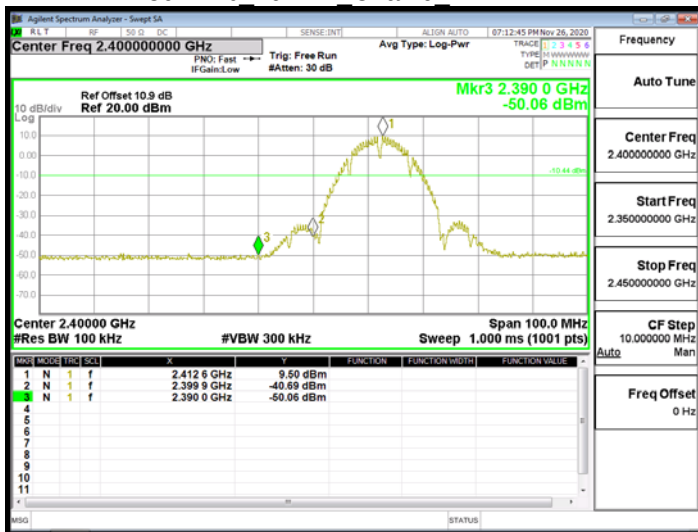


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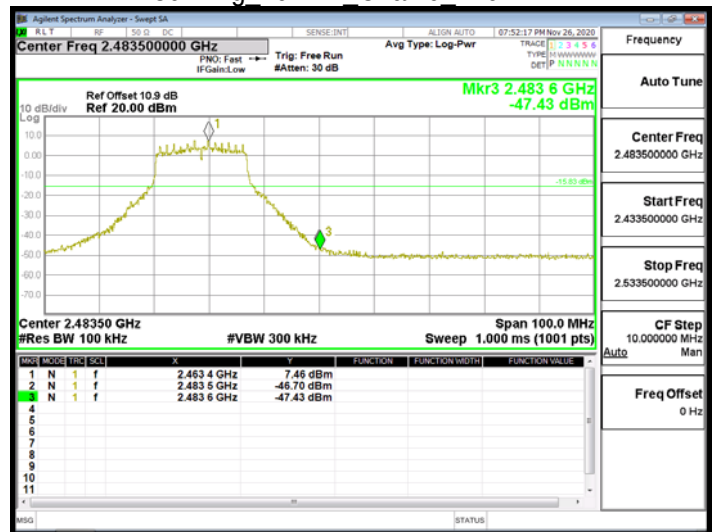
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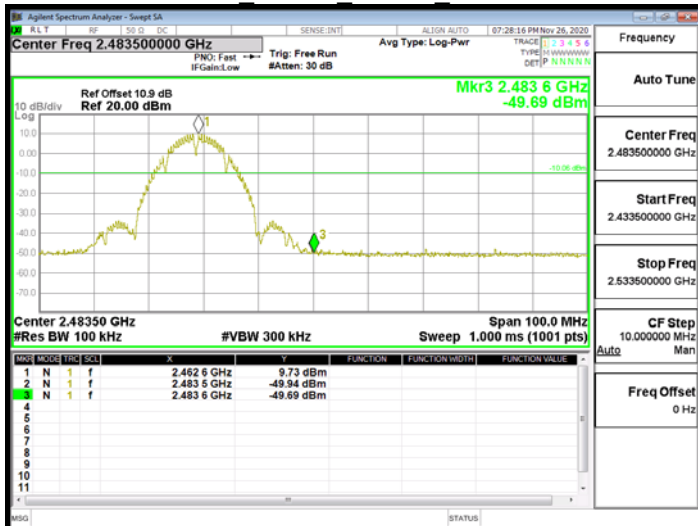
802.11b 20MHz Chain0 2412MHz



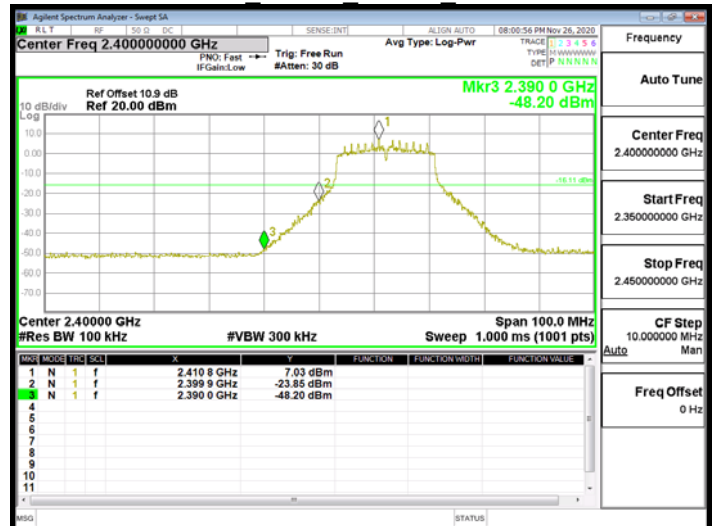
802.11g 20MHz Chain0 2462MHz



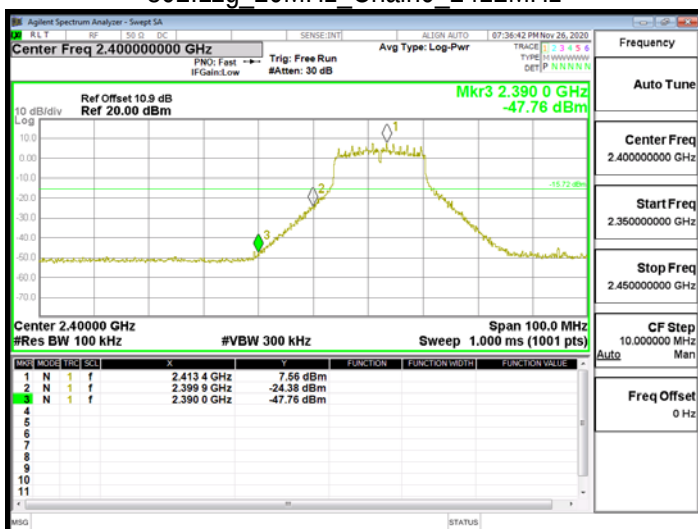
802.11b 20MHz Chain0 2462MHz



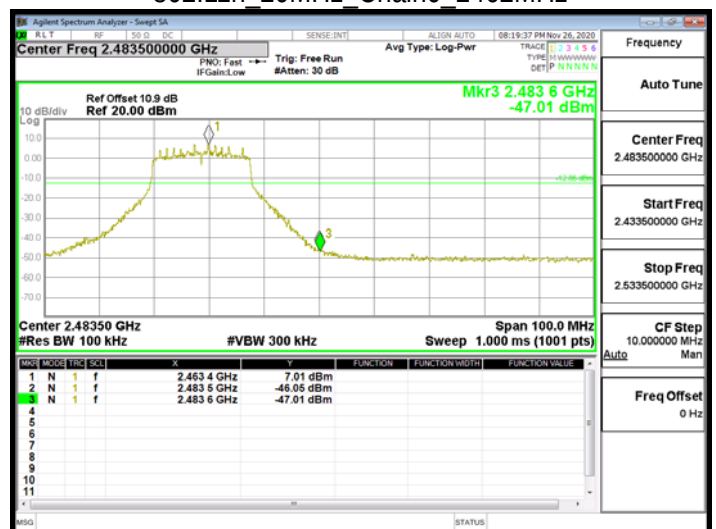
802.11n 20MHz Chain0 2412MHz



802.11g 20MHz Chain0 2412MHz



802.11n 20MHz Chain0 2462MHz

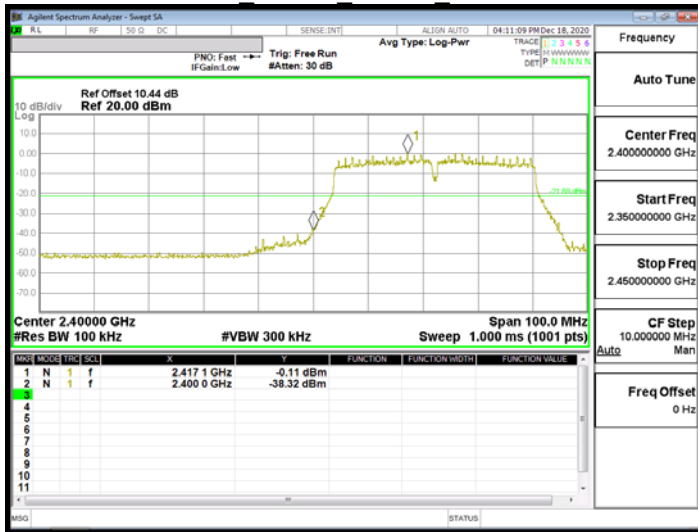


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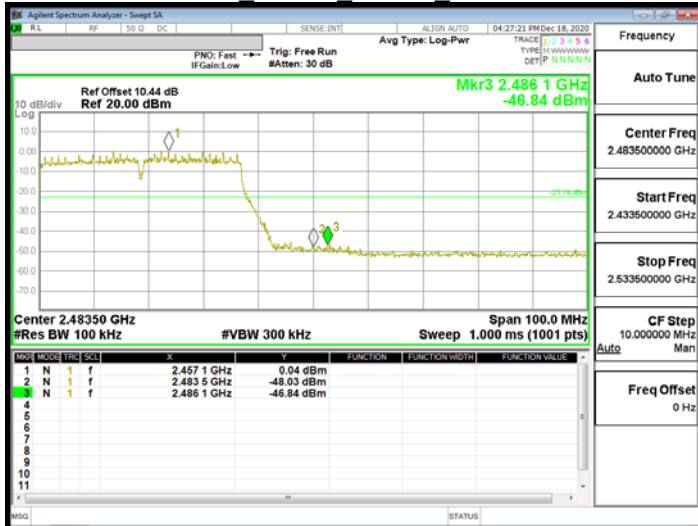
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802.11n 40MHz Chain0 2422MHz



802.11n 40MHz Chain0 2452MHz



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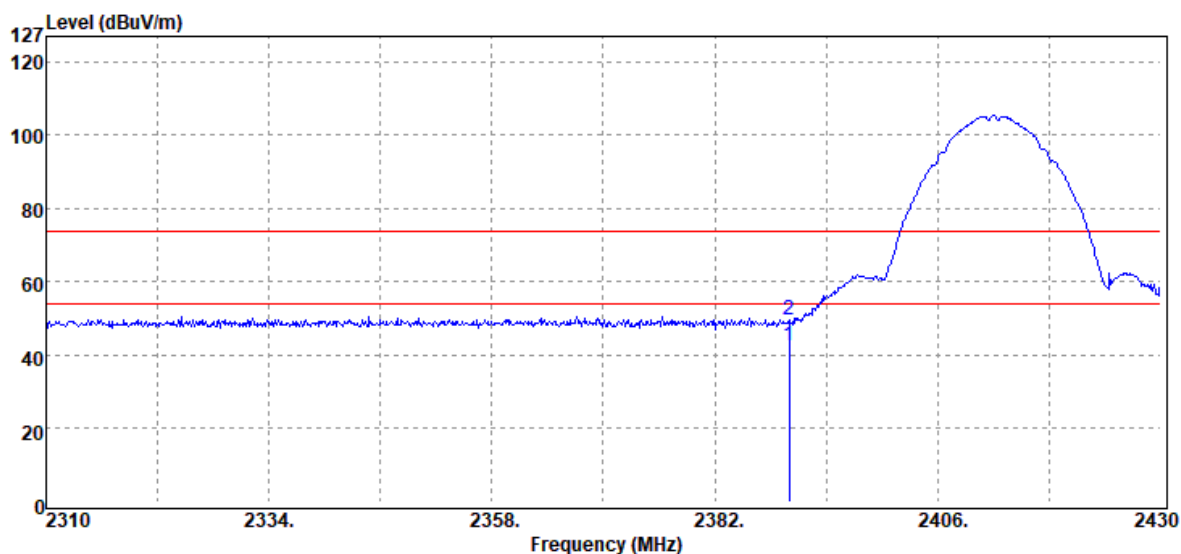
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12.3.1 禁用頻帶輻射量測值

Report Number :ER/2020/A0091
 Operation Mode :802.11b
 Test Frequency :2412 MHz
 Test Mode :Bandedge CH Low
 EUT Pol :H Plane

Test Site :SAC I Chamber
 Test Date :2020-11-27
 Temp./Humi. :23.4/65
 Antenna Pol. :VERTICAL
 Engineer :Neo



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
2390.00	Average	35.06	7.46	42.52	54.00	-11.48
2390.00	Peak	42.10	7.46	49.56	74.00	-24.44

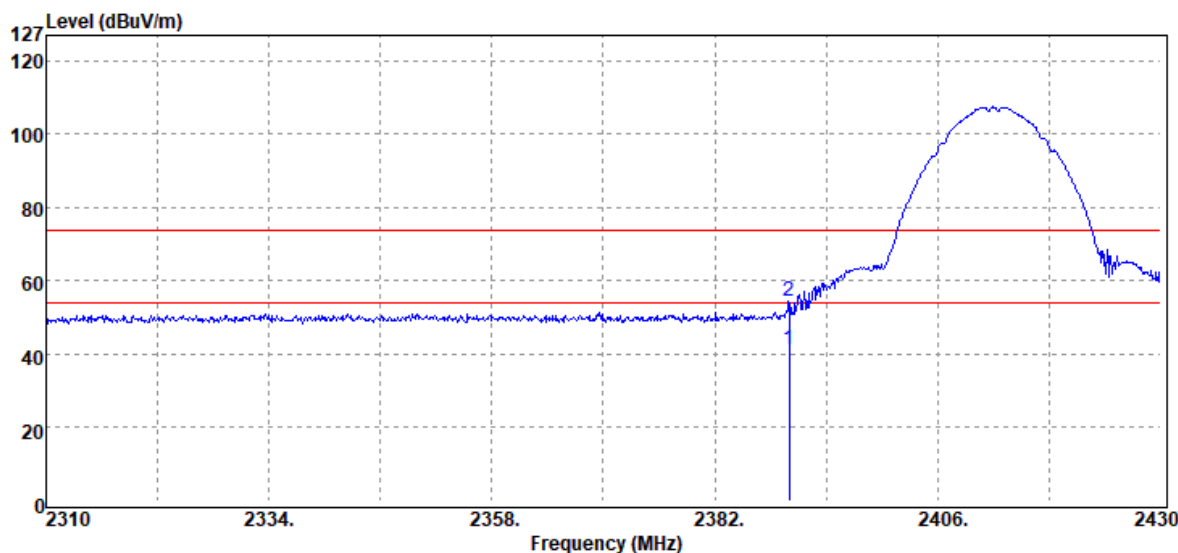
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Report Number :ER/2020/A0091
 Operation Mode :802.11b
 Test Frequency :2412 MHz
 Test Mode :Bandedge CH Low
 EUT Pol :H Plane

Test Site :SAC I Chamber
 Test Date :2020-11-27
 Temp./Humi. :23.4/65
 Antenna Pol. :HORIZONTAL
 Engineer :Neo



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
2390.00	Average	33.76	7.46	41.22	54.00	-12.78
2390.00	Peak	47.20	7.46	54.66	74.00	-19.34

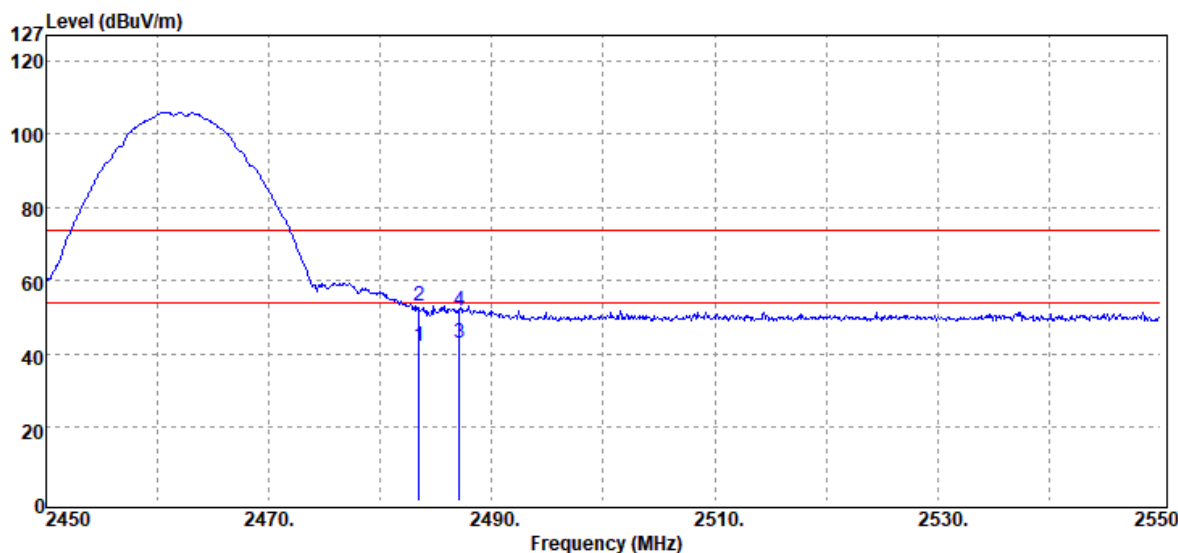
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Report Number :ER/2020/A0091
 Operation Mode :802.11b
 Test Frequency :2462 MHz
 Test Mode :Bandedge CH High
 EUT Pol :H Plane

Test Site :SAC I Chamber
 Test Date :2020-11-27
 Temp./Humi. :23.4/65
 Antenna Pol. :VERTICAL
 Engineer :Neo



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dB μ V	Factor dB	Actual FS dB μ V/m	Limit @3m dB μ V/m	Margin dB
2483.50	Average	34.84	7.46	42.30	54.00	-11.70
2483.50	Peak	45.78	7.46	53.24	74.00	-20.76
2487.10	Average	35.39	7.46	42.85	54.00	-11.15
2487.10	Peak	44.45	7.46	51.91	74.00	-22.09

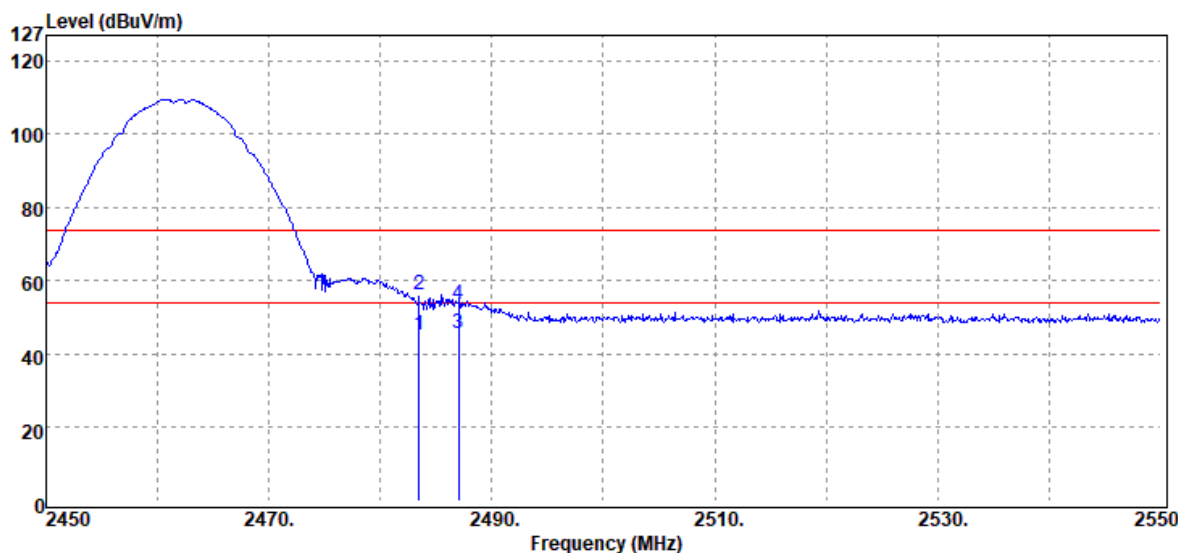
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Report Number :ER/2020/A0091
 Operation Mode :802.11b
 Test Frequency :2462 MHz
 Test Mode :Bandedge CH High
 EUT Pol :H Plane

Test Site :SAC I Chamber
 Test Date :2020-11-27
 Temp./Humi. :23.4/65
 Antenna Pol. :HORIZONTAL
 Engineer :Neo



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
2483.50	Average	37.86	7.46	45.32	54.00	-8.68
2483.50	Peak	48.64	7.46	56.10	74.00	-17.90
2487.00	Average	38.27	7.46	45.73	54.00	-8.27
2487.00	Peak	46.35	7.46	53.81	74.00	-20.19

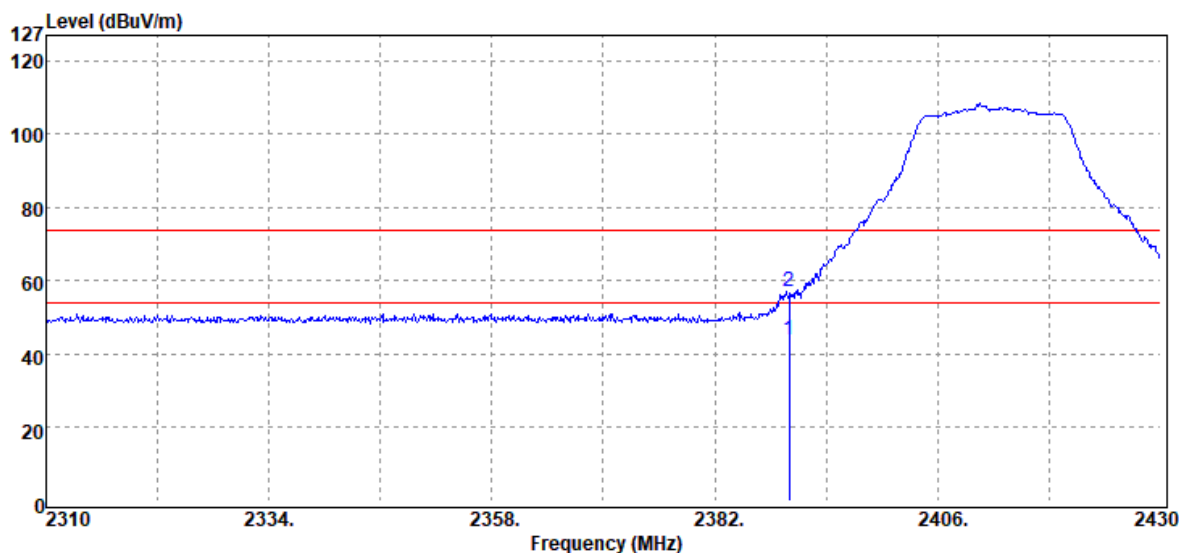
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Report Number :ER/2020/A0091
 Operation Mode :802.11g
 Test Frequency :2412 MHz
 Test Mode :Bandedge CH Low
 EUT Pol :H Plane

Test Site :SAC I Chamber
 Test Date :2020-11-27
 Temp./Humi. :23.4/65
 Antenna Pol. :VERTICAL
 Engineer :Neo



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
2390.00	Average	36.35	7.46	43.81	54.00	-10.19
2390.00	Peak	49.87	7.46	57.33	74.00	-16.67

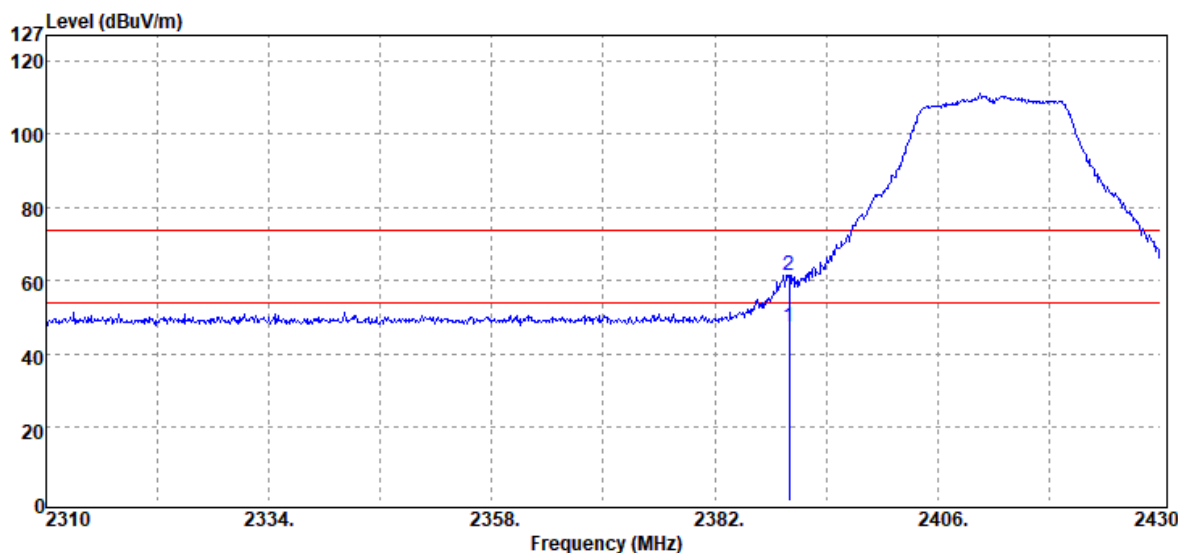
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Report Number :ER/2020/A0091
 Operation Mode :802.11g
 Test Frequency :2412 MHz
 Test Mode :Bandedge CH Low
 EUT Pol :H Plane

Test Site :SAC I Chamber
 Test Date :2020-11-27
 Temp./Humi. :23.4/65
 Antenna Pol. :HORIZONTAL
 Engineer :Neo



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
2390.00	Average	39.87	7.46	47.33	54.00	-6.67
2390.00	Peak	54.26	7.46	61.72	74.00	-12.28

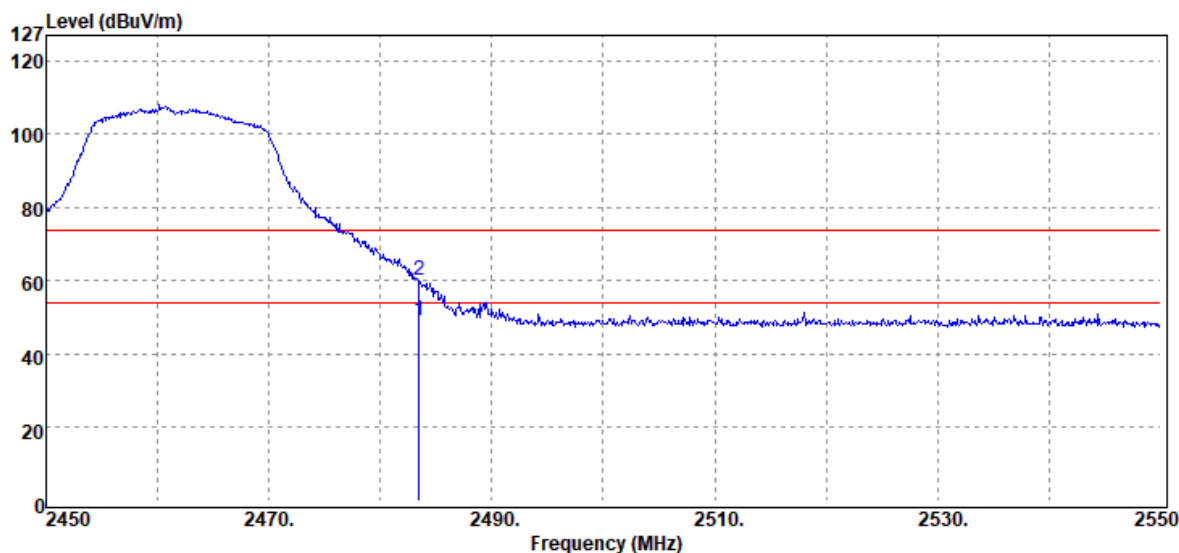
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Report Number :ER/2020/A0091
 Operation Mode :802.11g
 Test Frequency :2462 MHz
 Test Mode :Bandedge CH High
 EUT Pol :H Plane

Test Site :SAC I Chamber
 Test Date :2020-11-27
 Temp./Humi. :23.4/65
 Antenna Pol. :VERTICAL
 Engineer :Neo



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
2483.50	Average	41.56	7.46	49.02	54.00	-4.98
2483.50	Peak	52.91	7.46	60.37	74.00	-13.63

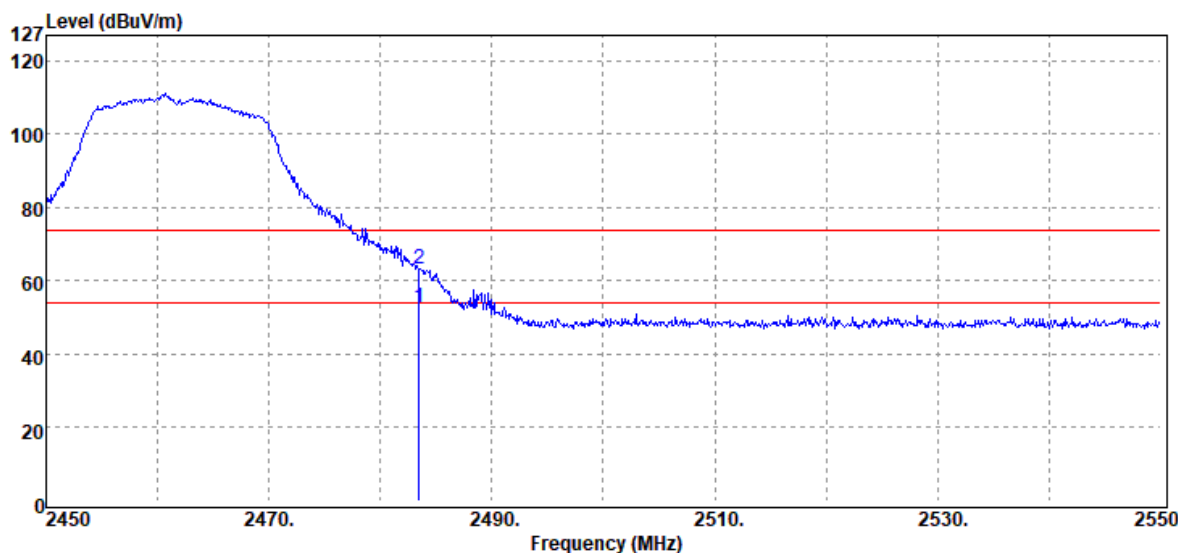
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Report Number :ER/2020/A0091
 Operation Mode :802.11g
 Test Frequency :2462 MHz
 Test Mode :Bandedge CH High
 EUT Pol :H Plane

Test Site :SAC I Chamber
 Test Date :2020-11-27
 Temp./Humi. :23.4/65
 Antenna Pol. :HORIZONTAL
 Engineer :Neo



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
2483.50	Average	45.46	7.46	52.92	54.00	-1.08
2483.50	Peak	55.88	7.46	63.34	74.00	-10.66

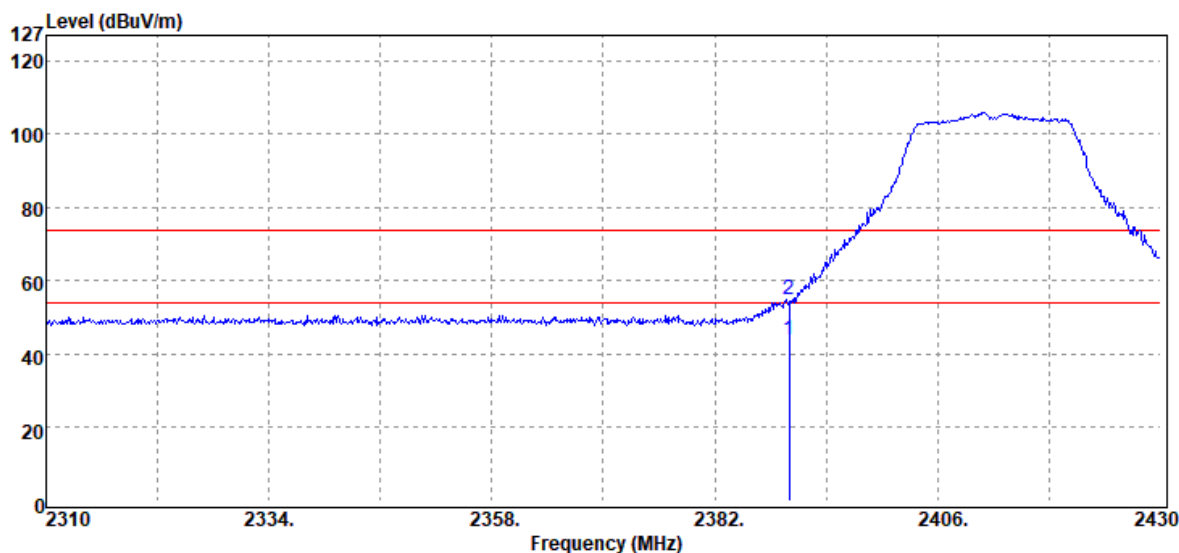
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Report Number :ER/2020/A0091
 Operation Mode :802.11n20
 Test Frequency :2412 MHz
 Test Mode :Bandedge CH Low
 EUT Pol :H Plane

Test Site :SAC I Chamber
 Test Date :2020-11-27
 Temp./Humi. :23.4/65
 Antenna Pol. :VERTICAL
 Engineer :Neo



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dB μ V	Factor dB	Actual FS dB μ V/m	Limit @3m dB μ V/m	Margin dB
2390.00	Average	36.36	7.46	43.82	54.00	-10.18
2390.00	Peak	47.31	7.46	54.77	74.00	-19.23

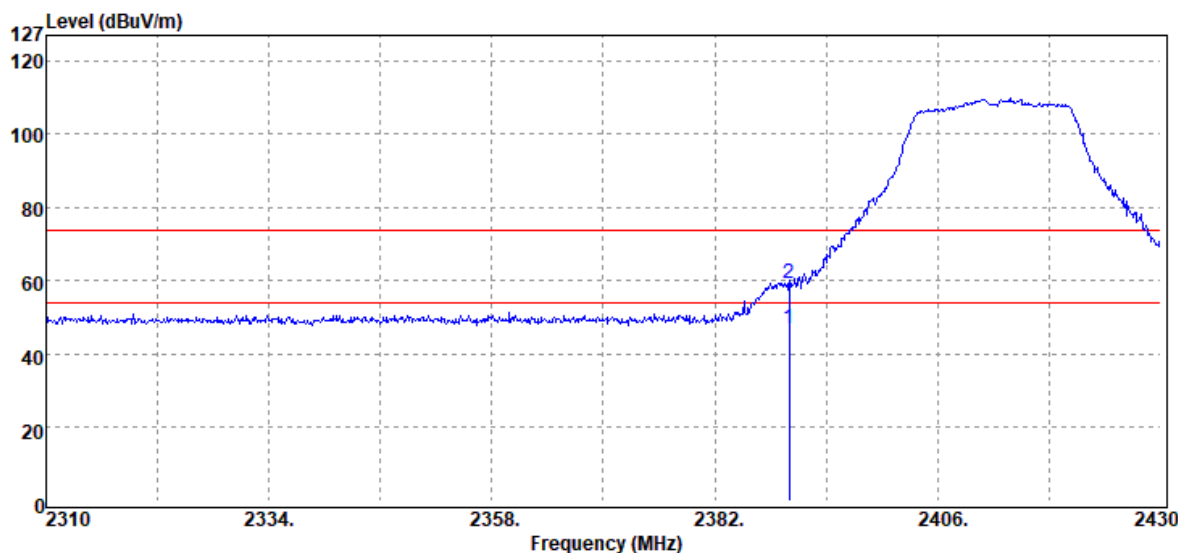
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Report Number :ER/2020/A0091
 Operation Mode :802.11n20
 Test Frequency :2412 MHz
 Test Mode :Bandedge CH Low
 EUT Pol :H Plane

Test Site :SAC I Chamber
 Test Date :2020-11-27
 Temp./Humi. :23.4/65
 Antenna Pol. :HORIZONTAL
 Engineer :Neo



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
2390.00	Average	39.64	7.46	47.10	54.00	-6.90
2390.00	Peak	51.96	7.46	59.42	74.00	-14.58

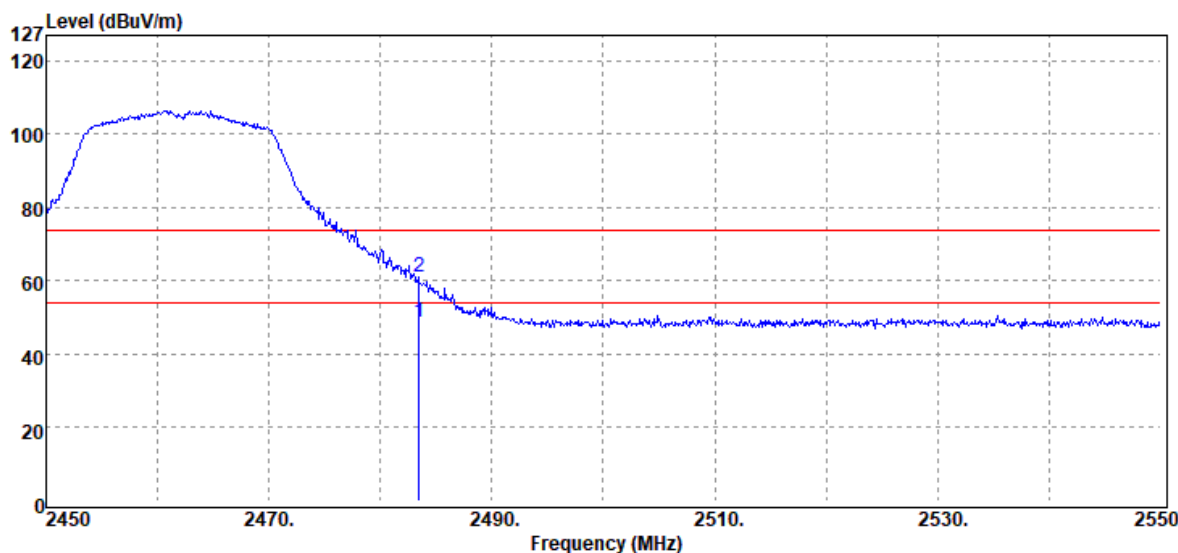
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Report Number :ER/2020/A0091
 Operation Mode :802.11n20
 Test Frequency :2462 MHz
 Test Mode :Bandedge CH High
 EUT Pol :H Plane

Test Site :SAC I Chamber
 Test Date :2020-11-27
 Temp./Humi. :23.4/65
 Antenna Pol. :VERTICAL
 Engineer :Neo



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dB μ V	Factor dB	Actual FS dB μ V/m	Limit @3m dB μ V/m	Margin dB
2483.50	Average	41.27	7.46	48.73	54.00	-5.27
2483.50	Peak	53.43	7.46	60.89	74.00	-13.11

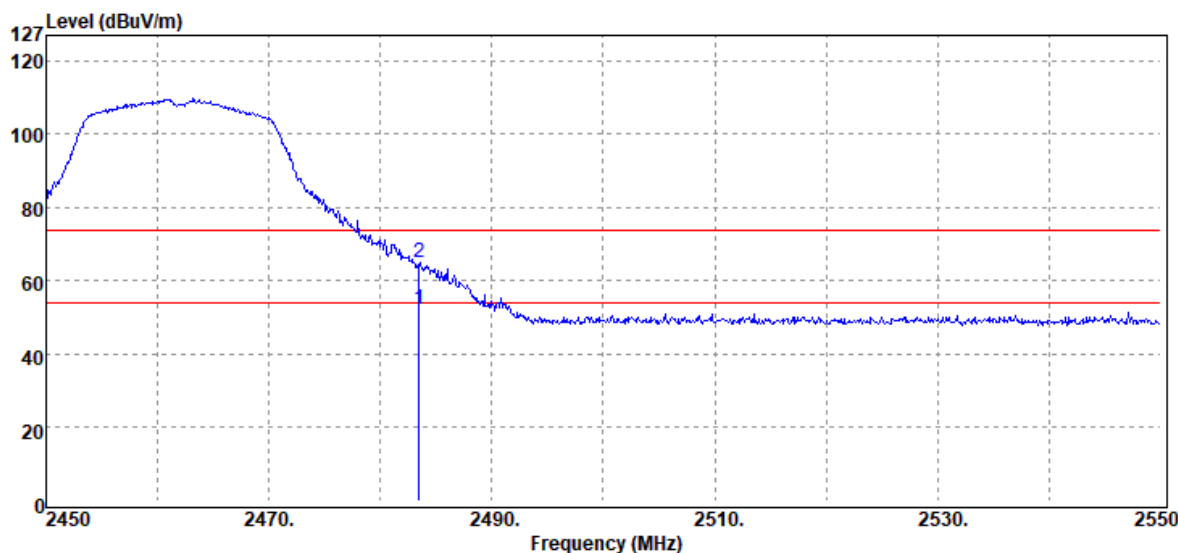
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 Operation Mode :802.11n20
 Test Frequency :2462 MHz
 Test Mode :Bandedge CH High
 EUT Pol :H Plane

Test Site :SAC I Chamber
 Test Date :2020-11-27
 Temp./Humi. :23.4/65
 Antenna Pol. :HORIZONTAL
 Engineer :Neo



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
2483.50	Average	44.62	7.46	52.08	54.00	-1.92
2483.50	Peak	57.68	7.46	65.14	74.00	-8.86

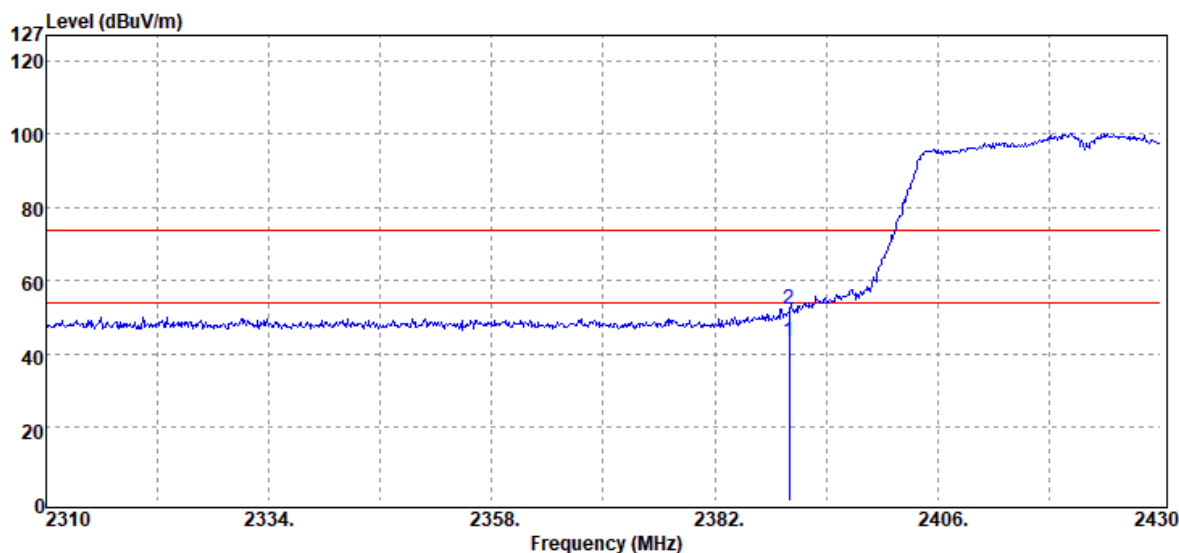
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Report Number :ER/2020/A0091
 Operation Mode :802.11n40
 Test Frequency :2422 MHz
 Test Mode :Bandedge CH Low
 EUT Pol :H Plane

Test Site :SAC I Chamber
 Test Date :2020-12-18
 Temp./Humi. :22.1/63
 Antenna Pol. :VERTICAL
 Engineer :Neo



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
2390.00	Average	35.91	7.46	43.37	54.00	-10.63
2390.00	Peak	44.79	7.46	52.25	74.00	-21.75

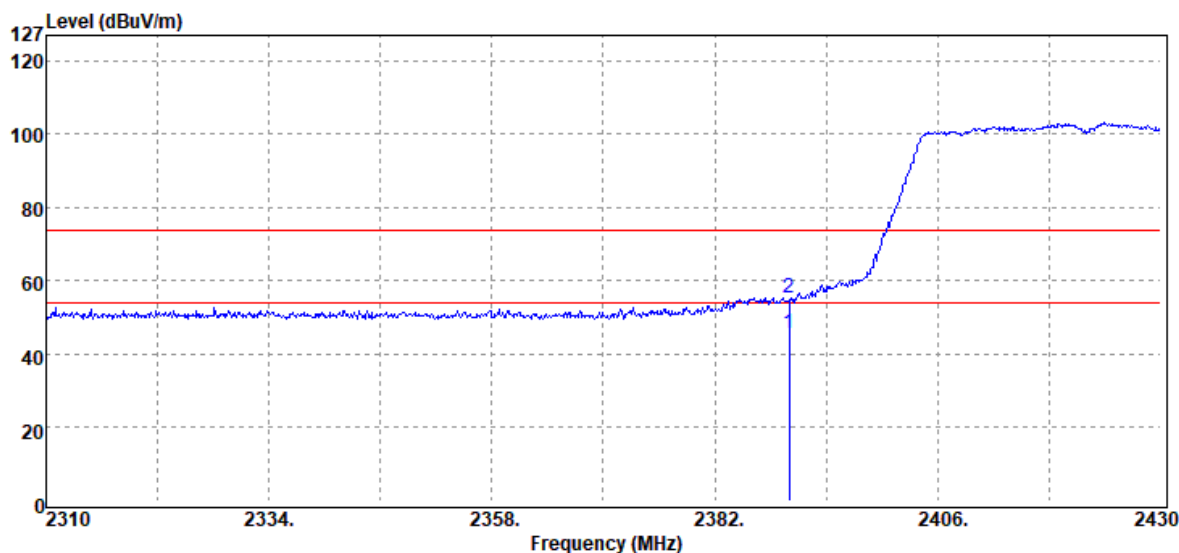
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Report Number :ER/2020/A0091
 Operation Mode :802.11n40
 Test Frequency :2422 MHz
 Test Mode :Bandedge CH Low
 EUT Pol :H Plane

Test Site :SAC I Chamber
 Test Date :2020-12-18
 Temp./Humi. :22.1/63
 Antenna Pol. :HORIZONTAL
 Engineer :Neo



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
2390.00	Average	38.41	7.46	45.87	54.00	-8.13
2390.00	Peak	48.10	7.46	55.56	74.00	-18.44

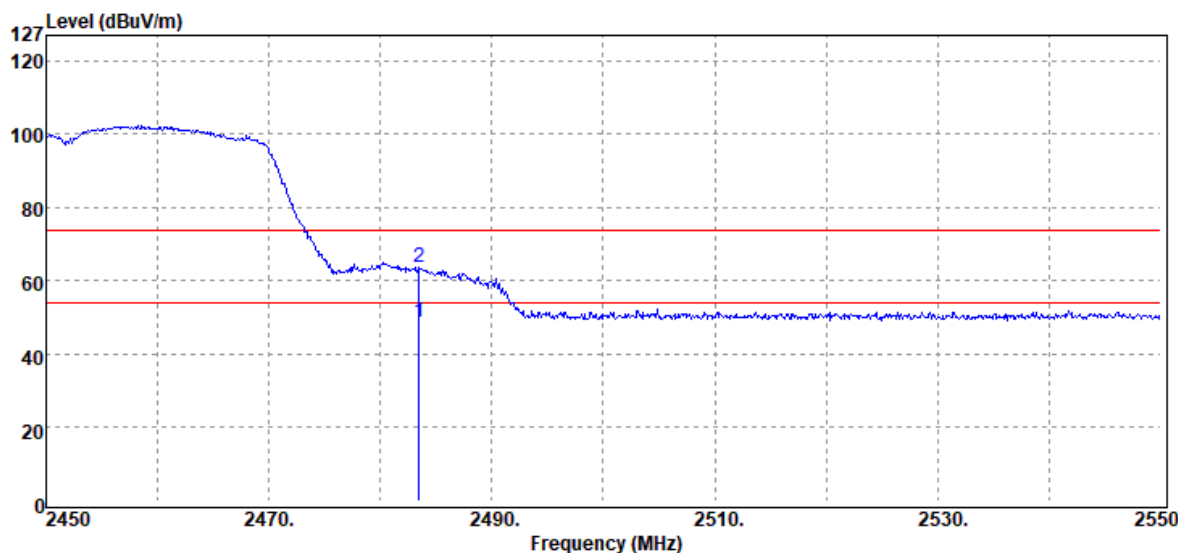
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Report Number :ER/2020/A0091
 Operation Mode :802.11n40
 Test Frequency :2452 MHz
 Test Mode :Bandedge CH High
 EUT Pol :H Plane

Test Site :SAC I Chamber
 Test Date :2020-12-17
 Temp./Humi. :22.1/60
 Antenna Pol. :VERTICAL
 Engineer :Neo



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
2483.50	Average	41.19	7.46	48.65	54.00	-5.35
2483.50	Peak	56.24	7.46	63.70	74.00	-10.30

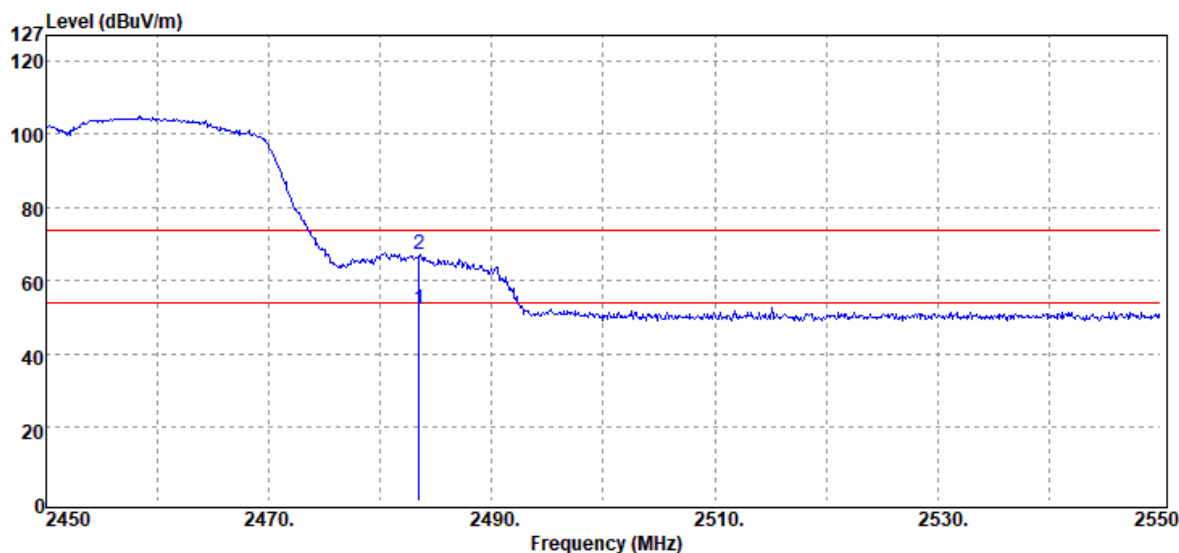
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Report Number :ER/2020/A0091
 Operation Mode :802.11n40
 Test Frequency :2452 MHz
 Test Mode :Bandedge CH High
 EUT Pol :H Plane

Test Site :SAC I Chamber
 Test Date :2020-12-17
 Temp./Humi. :22.1/60
 Antenna Pol. :HORIZONTAL
 Engineer :Neo



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dB μ V	Factor dB	Actual FS dB μ V/m	Limit @3m dB μ V/m	Margin dB
2483.50	Average	44.71	7.46	52.17	54.00	-1.83
2483.50	Peak	59.64	7.46	67.10	74.00	-6.90

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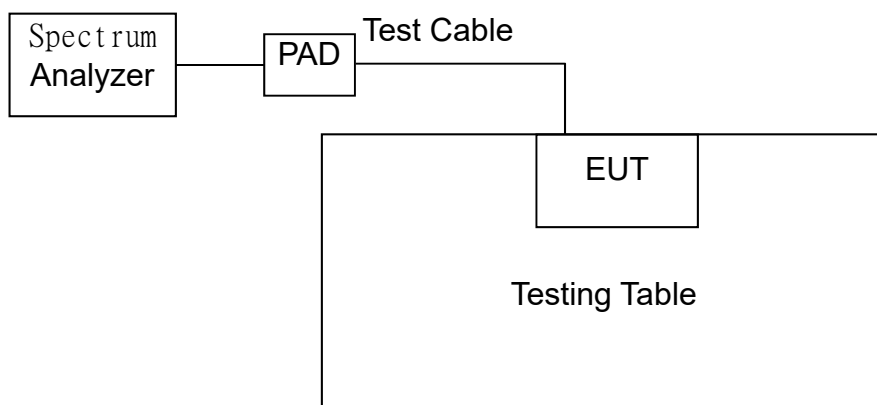
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13 功率密度之量測

13.1 適用標準

依據 NCC 低功率射頻器材技術規範 4.10.1.6(2) (B)規定，對數位調變之展頻系統，在使用頻率範圍之任意 3kHz 頻寬內，由發射機傳導至天線之峰值發射電功率密度在任意期間內，皆不得大於 8dBm。

13.2 功率密度之測試配置



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13.3 功率密度量測結果

POWER DENSITY 802.11b MODE				
Freq. (MHz)	Ch0 PSD	PSD (dBm/3kHz)	Maximum Limit (dBm/3kHz)	Result
2412	-4.17	-4.17	8.00	PASS
2437	-4.66	-4.66	8.00	PASS
2462	-3.8	-3.80	8.00	PASS
POWER DENSITY 802.11g MODE				
Freq. (MHz)	Ch0 PSD	PSD (dBm/3kHz)	Maximum Limit (dBm/3kHz)	Result
2412	-8.33	-8.33	8.00	PASS
2437	-8.38	-8.38	8.00	PASS
2462	-8.07	-8.07	8.00	PASS
POWER DENSITY 802.11n HT20 MODE				
Freq. (MHz)	Ch0 PSD	PSD (dBm/3kHz)	Maximum Limit (dBm/3kHz)	Result
2412	-7.86	-7.86	8.00	PASS
2437	-6.55	-6.55	8.00	PASS
2462	-8.2	-8.20	8.00	PASS
POWER DENSITY 802.11n HT40 MODE				
Freq. (MHz)	Ch0 PSD	PSD (dBm/3kHz)	Maximum Limit (dBm/3kHz)	Result
2422	-15.15	-15.15	8.00	PASS
2437	-14.39	-14.39	8.00	PASS
2452	-14.54	-14.54	8.00	PASS

Note:

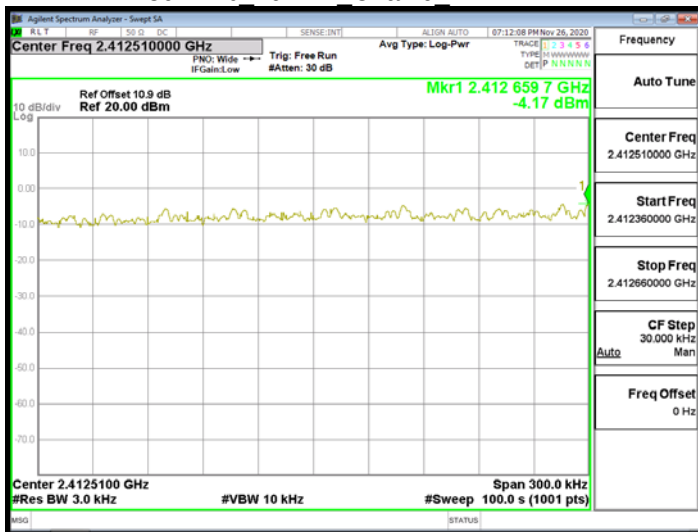
offset 10.90 dB for SISO mode

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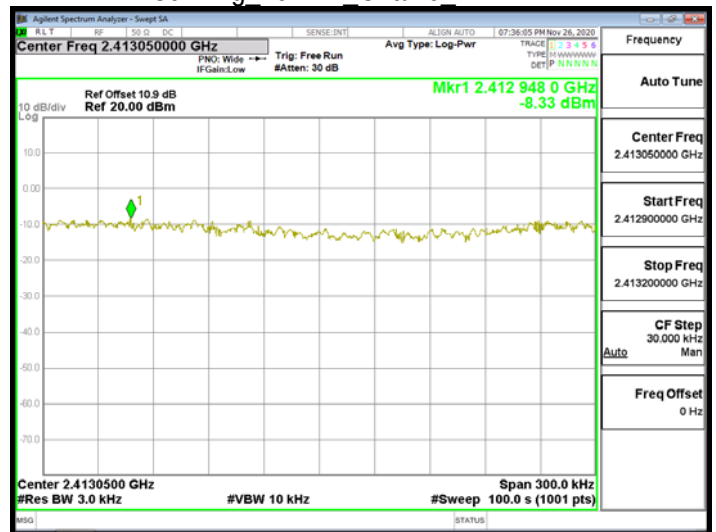
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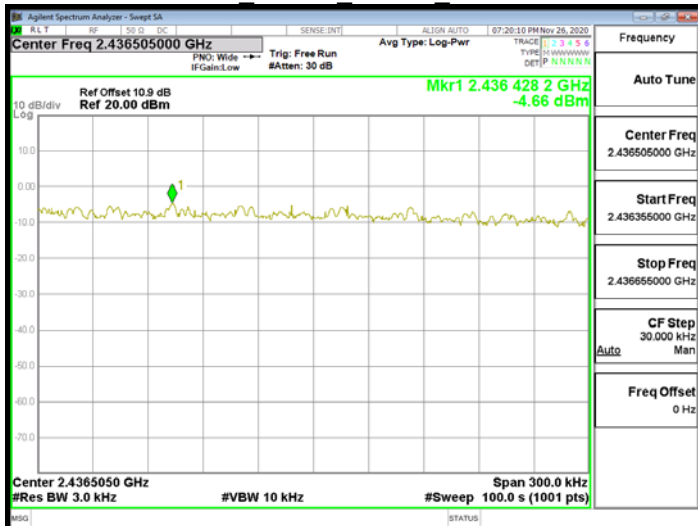
802.11b 20MHz Chain0 2412MHz



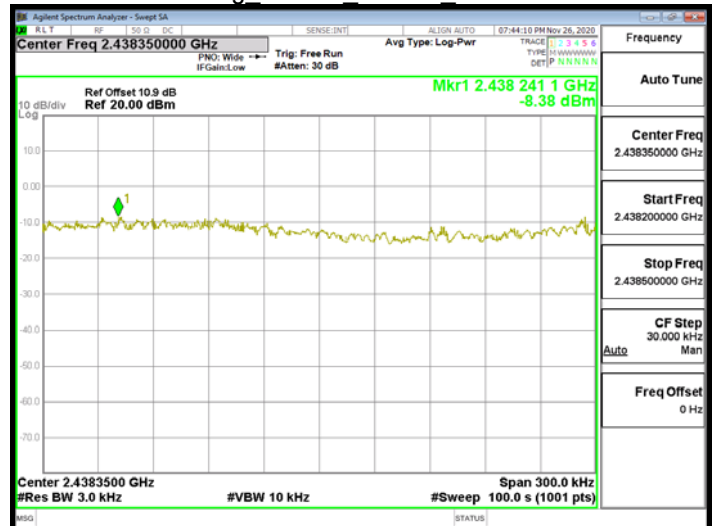
802.11g 20MHz Chain0 2412MHz



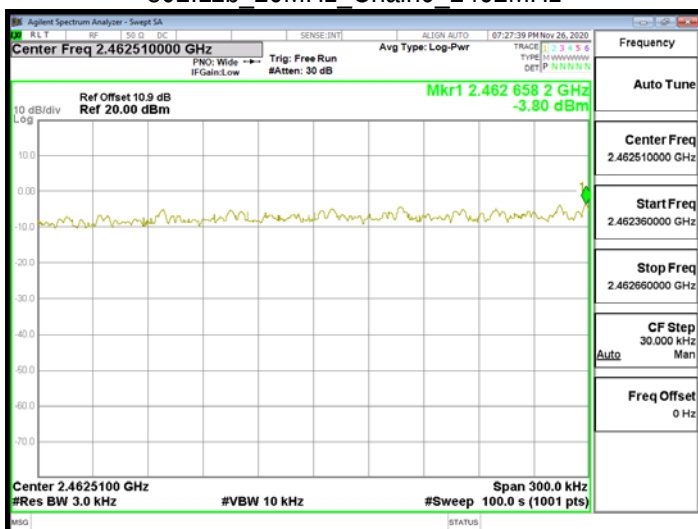
802.11b 20MHz Chain0 2437MHz



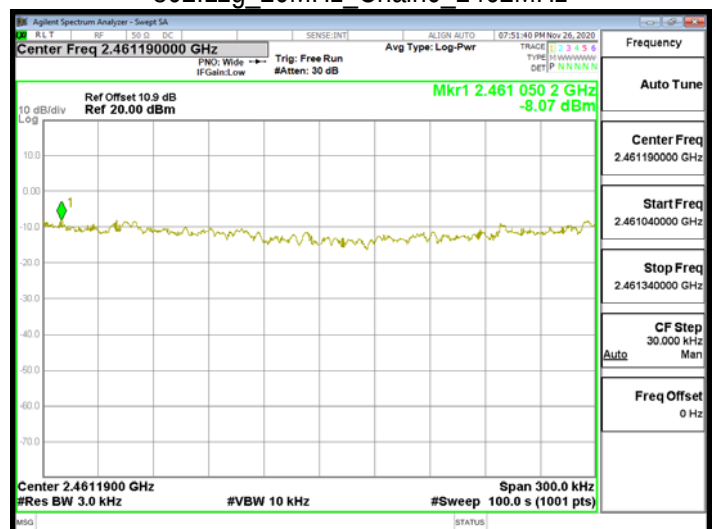
802.11g 20MHz Chain0 2437MHz



802.11b 20MHz Chain0 2462MHz



802.11g 20MHz Chain0 2462MHz

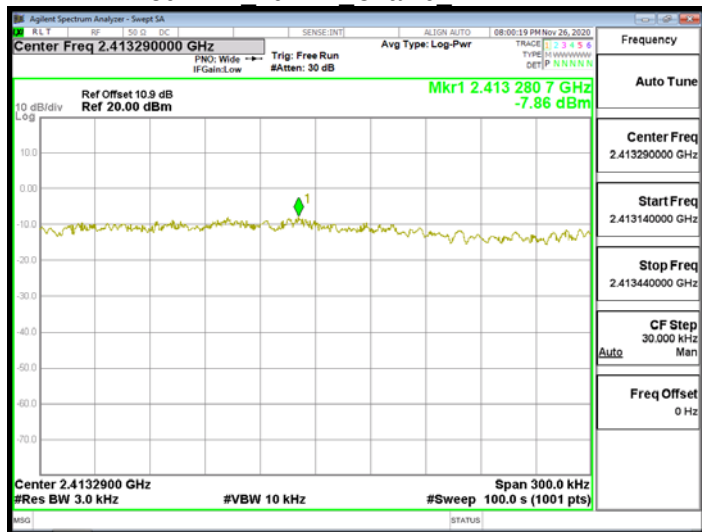


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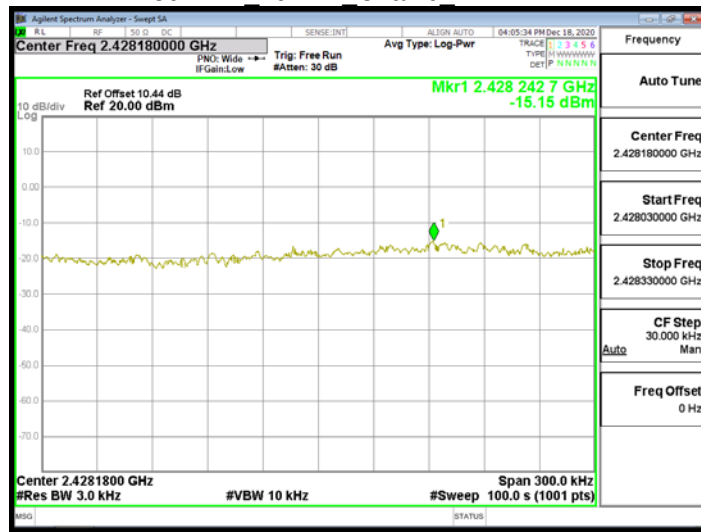
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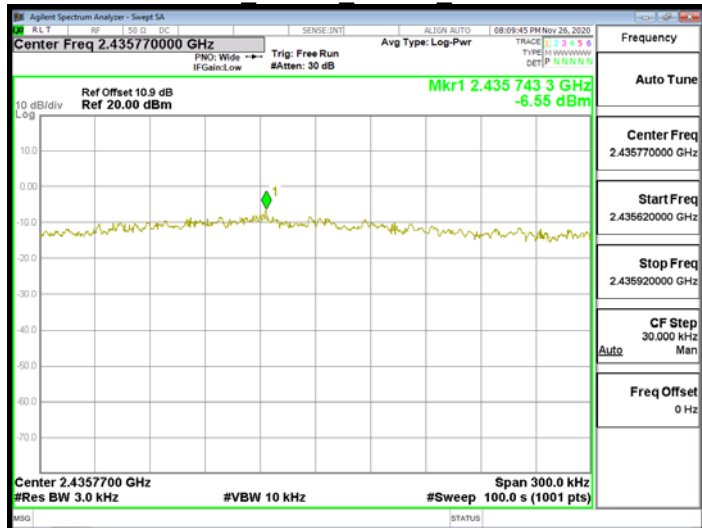
802.11n 20MHz Chain0 2412MHz



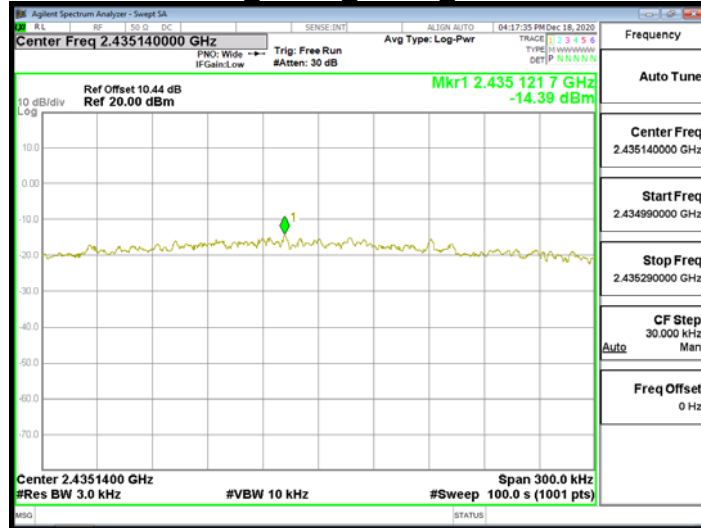
802.11n 40MHz Chain0 2422MHz



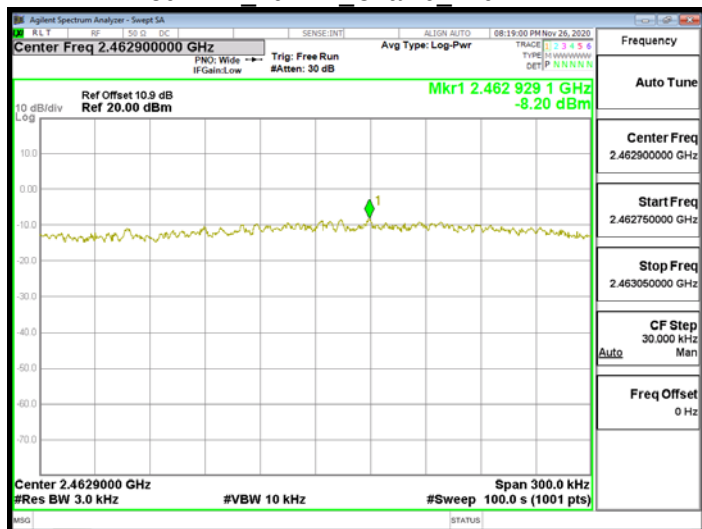
802.11n 20MHz Chain0 2437MHz



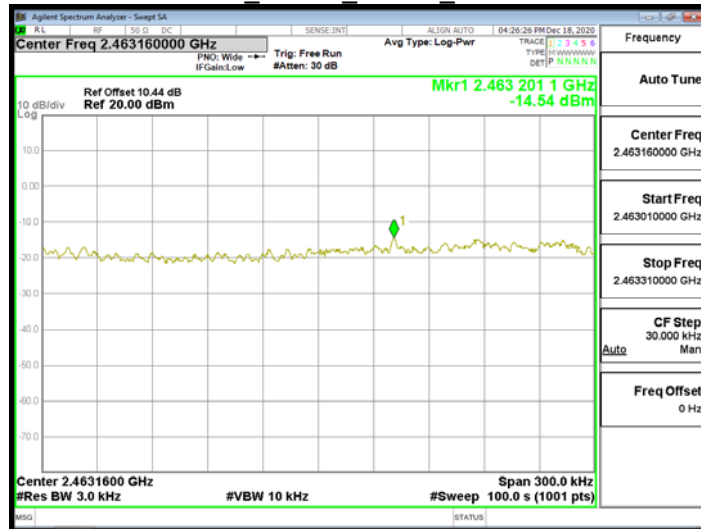
802.11n 40MHz Chain0 2437MHz



802.11n 20MHz Chain0 2462MHz



802.11n 40MHz Chain0 2452MHz



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