

NCC

低功率射頻電機型式試驗報告

產品名稱 : ACCESS POINT
主型號 : APIN0318
廠牌 : 
申請者 : 慧與科技股份有限公司
申請者地址 : 臺北市南港區經貿二路 66 號 10 樓之 1
測試標準 : LP0002 (107 年版)
參考法規 : ANSI C63.10-2013
測試結果 : 符合
測試日期 : 2017.08.05 ~ 2018.03.18
發行日期 : 2018.04.10

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修訂紀錄

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1. 一般資訊

申請者	慧與科技股份有限公司
申請者地址	臺北市南港區經貿二路 66 號 10 樓之 1
製造商	Hewlett Packard Enterprise Company
製造商地址	3000 Hanover St. Palo Alto, CA 94304, USA
認證實驗室	台灣曼瑞檢測科技有限公司
實驗室地址	臺灣桃園市龜山區復興二路 38 號
測試設備序列號	傳導樣品序列號: CNDNK7Y002, 輻射樣品序列號: CNDJK8001M

Test Facility / Accreditations

Measurements were performed at MRT Laboratory located in Fuxing Rd., Taoyuan, Taiwan (R.O.C)

- MRT facility is a FCC registered (MRT Reg. No. 153292) test facility with the site description report on file and is designated by the FCC as an Accredited Test Film.
- MRT facility is an IC registered (MRT Reg. No. 21723-1) test laboratory with the site description on file at Industry Canada.
- MRT Lab is accredited to ISO 17025 by the Taiwan Accreditation Foundation (TAF Cert. No. 3261) in EMC, Telecommunications and Radio testing for FCC, Industry Taiwan, EU and TELEC Rules.

2. 產品資訊

2.1. 待測物裝置資料

產品名稱	ACCESS POINT
產品型號	APIN0318
天線樣式	Refer to the table "Antenna List"
天線規格	Refer to the table "Antenna List"
待測物額定電壓	POE input
調變模式	DSSS for IEEE 802.11 b, OFDM for IEEE 802.11g/n
傳輸速率	Up to 11Mbps for IEEE 802.11 b Up to 54Mbps for IEEE 802.11 g Up to 300Mbps for IEEE 802.11 n
頻道控制	Auto

Note 1: The applicant provide one POE adapter (Manufacturer: MICROSEMI & Model: PD-9001GR/AT/AC) for approval testing, it is not for sale.

2.2. 通道清單

802.11b/g/n-HT20

Channel	Frequency	Channel	Frequency	Channel	Frequency
01	2412 MHz	02	2417 MHz	03	2422 MHz
04	2427 MHz	05	2432 MHz	06	2437 MHz
07	2442 MHz	08	2447 MHz	09	2452 MHz
10	2457 MHz	11	2462 MHz	--	--

802.11n-HT40

Channel	Frequency	Channel	Frequency	Channel	Frequency
03	2422 MHz	04	2427 MHz	05	2432 MHz
06	2437 MHz	07	2442 MHz	08	2447 MHz
09	2452 MHz	--	--	--	--

2.3. 測試模式

Mode 1: 發射器 802.11b

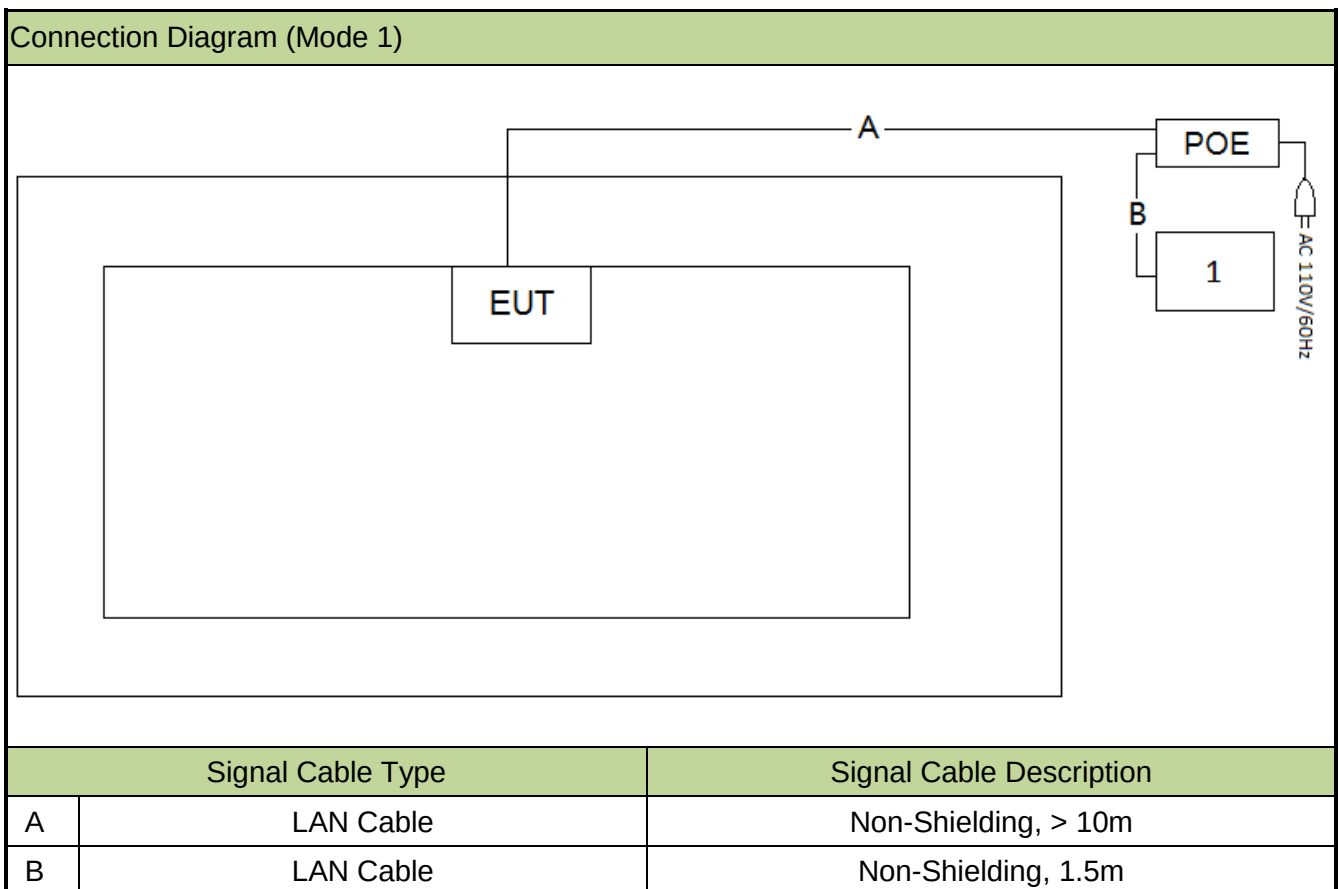
Mode 2: 發射器 802.11g

Mode 3: 發射器 802.11n-HT20

Mode 4: 發射器 802.11n-HT40

2.4GHz Test Mode	Ant 0 + 1	
	CDD	Beam-Forming
802.11b	√	×
802.11g	√	×
802.11n-HT20	√	√
802.11n-HT40	√	√

2.4. 測試系統組合圖



2.5. 測試周邊

Item	Product	Manufacturer	Model No.	Serial No.	Power Cord
1	Notebook	Lenovo	E430c	N/A	Non-Shielded, 1.8m

2.6. 待測裝置測試時之典型操作程式

1.	Setup the EUT and simulators as shown on 2.4
2.	Turn on the power of all equipment.
3.	Execute “QCARCT” program.
4.	Configure the test channel and the data rate.
5.	Start test.

3. 量測不確定度

AC Conducted Emission Measurement - SR2
Measuring Uncertainty for a Level of Confidence of 95% ($U=2U_c(y)$): 150kHz~30MHz: 3.46dB
Radiated Emission Measurement - AC1
Measuring Uncertainty for a Level of Confidence of 95% ($U=2U_c(y)$): 9kHz ~ 1GHz: 4.18dB 1GHz ~ 25GHz: 4.76dB
Spurious Emissions, Conducted - SR1
Measuring Uncertainty for a Level of Confidence of 95% ($U=2U_c(y)$): 0.78dB
Output Power - SR1
Measuring Uncertainty for a Level of Confidence of 95% ($U=2U_c(y)$): 1.13dB
Power Spectrum Density - SR1
Measuring Uncertainty for a Level of Confidence of 95% ($U=2U_c(y)$): 1.15dB
Occupied Bandwidth - SR1
Measuring Uncertainty for a Level of Confidence of 95% ($U=2U_c(y)$): 0.28%

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=2$.

4. 測試設備明細

Conducted Emissions

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EMI Test Receiver	R&S	ESR3	MRTTWA00045	1 year	2018/5/9
Two-Line V-Network	R&S	ENV216	MRTTWA00019	1 year	2019/3/20
Two-Line V-Network	R&S	ENV216	MRTTWA00020	1 year	2018/4/18
Temperature/Humidity Meter	TFA	35.1078.10.IT	MRTTWA00033	1 year	2018/06/08

Radiated Emissions

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
Signal Analyzer	R&S	FSV40	MRTTWA00007	1 year	2019/3/20
EMI Test Receiver	R&S	ESR3	MRTTWA00009	1 year	2019/3/19
Broadband Preamplifier	SCHWARZBECK	BBV 9718	MRTTWA00005	1 year	2018/4/19
Broadband Amplifier	SCHWARZBECK	BBV 9721	MRTTWA00006	1 year	2018/04/24
Active Loop Antenna	SCHWARZBECK	FMZB 1519B	MRTTWA00002	1 year	2018/04/13
Broadband TRILOG Antenna	SCHWARZBECK	VULB 9162	MRTTWA00001	1 year	2018/05/14
Broadband Hornantenna	SCHWARZBECK	BBHA 9120D	MRTTWA00003	1 year	2018/04/17
Breitband Hornantenna	SCHWARZBECK	BBHA 9170	MRTTWA00004	1 year	2018/04/24
Temperature/Humidity Meter	TFA	35.1078.10.IT	MRTTWA00033	1 year	2018/06/08

Conducted Test Equipment

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EXA Signal Analyzer	KEYSIGHT	N9010A	MRTTWA00012	1 year	2018/7/24
PSA Series Spectrum Analyzer	Agilent	E4447A	MRTTWA00060	1 year	2018/4/19
X-Series USB Peak and Average Power Sensor	KEYSIGHT	U2021XA	MRTTWA00014	1 year	2019/3/20
X-Series USB Peak and Average Power Sensor	KEYSIGHT	U2021XA	MRTTWA00015	1 year	2018/05/10
Programmable Temperature & Humidity Chamber	TEN BILLION	TTH-B3UP	MRTTWA00036	1 year	2018/06/08
Temperature/Humidity Meter	TFA	35.1078.10.IT	MRTTWA00033	1 year	2018/7/24

Test software

Software	Version	Function
e3	V 8.3.5	EMI Test Software
EMI	Quietek	V3

5. 測試結果

產品名稱 ACCESS POINT
型號 APIN0318

章節	量測項目	限制值	測試結果	測試數據
2.3	電源傳導	低功率射頻電機技術規範 2.3 節	符合	第 5.1 章節
3.10.1.2	峰值傳導輸出功率	$\leq 30.00\text{dBm}$	符合	第 5.2 章節
3.10.1.3	天線之要求	低功率射頻電機技術規範 3.10.1.3 節	符合	第 5.3 章節
3.10.1.5	帶外發射限制	$\leq 30\text{dBc(Average)}$	符合	第 5.4 章節
2.7	輻射電場強度	低功率射頻電機技術規範 2.8 節	符合	第 5.5 章節
2.7	頻帶邊緣	$\leq 74\text{dBuV/m(Peak)}$ $\leq 54\text{dBuV/m(Average)}$	符合	第 5.6 章節
3.10.1.6(2)(A)	佔用頻寬	$\geq 500\text{kHz}$	符合	第 5.7 章節
3.10.1.6(2)(B)	功率頻譜密度	$\leq 8\text{dBm}$	符合	第 5.8 章節

5.1. 電源端點干擾測試

5.1.1. 適用標準

依據國家通訊傳播委員會低功率射頻電機技術規範之第 2.3 節，以市電為電源之低功率射頻電機，其傳導回電源線上頻率自 150kHz 至 30MHz 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值。測量時應經過 50 微亨利(μH)及 50 歐姆(Ω)之電源線阻抗模擬網路(LISN)。頻率重疊處，以較低限值為準。

Frequency 頻率範圍 MHz	傳導限制值(dBuV)	
	準尖峰值	平均值
0.15 - 0.50	66-56 ^(註)	56-46 ^(註)
0.50 - 5.0	56	46
5.0 - 30	60	50

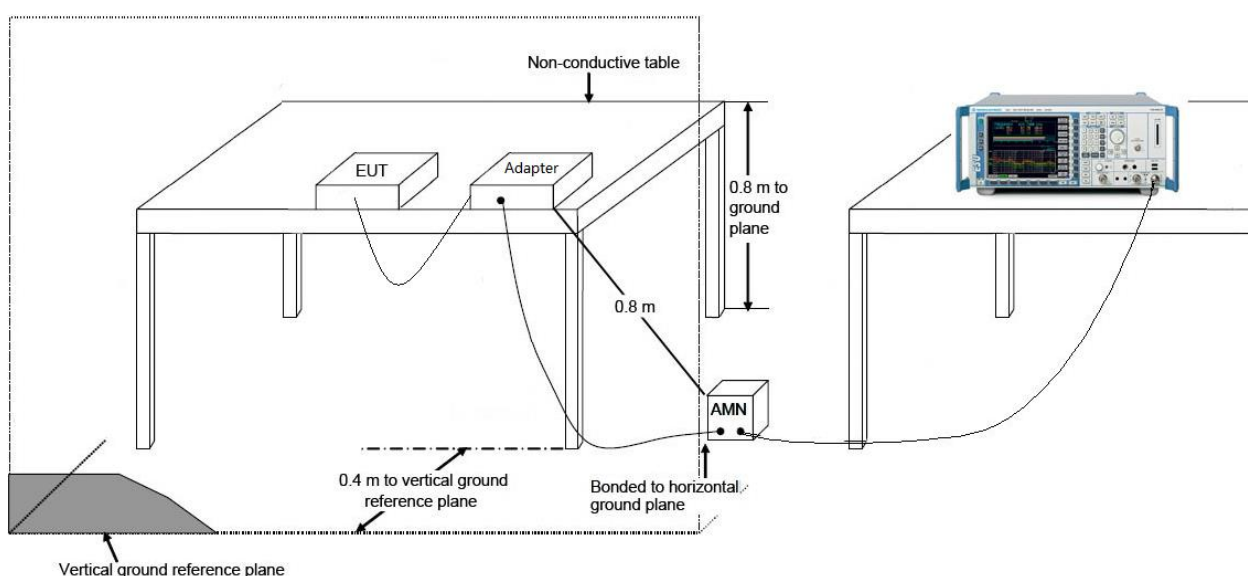
註:隨頻率之對數遞減

5.1.2. 量測方法

待測物置於高 80 公分之非導體桌面（落地型產品置於地上），將待測物之電源線接至電源阻抗網路器(LISN)，同時保持待測物至 LISN 距 80 公分，並將電源線多餘部份以 30 至 40 公分之八字形捆綁於電源線中央並離地 40cm，於在正常工作狀態下，執行待測物之火線(Line)及地線(neutral)各一次量測。電源端點場強之測量範圍由 0.15MHz –30MHz，所量測之讀值皆為準尖峰值(Quasi-Peak Value)及平均值(Average Value)。場強接收機之解析頻寬為 9kHz。

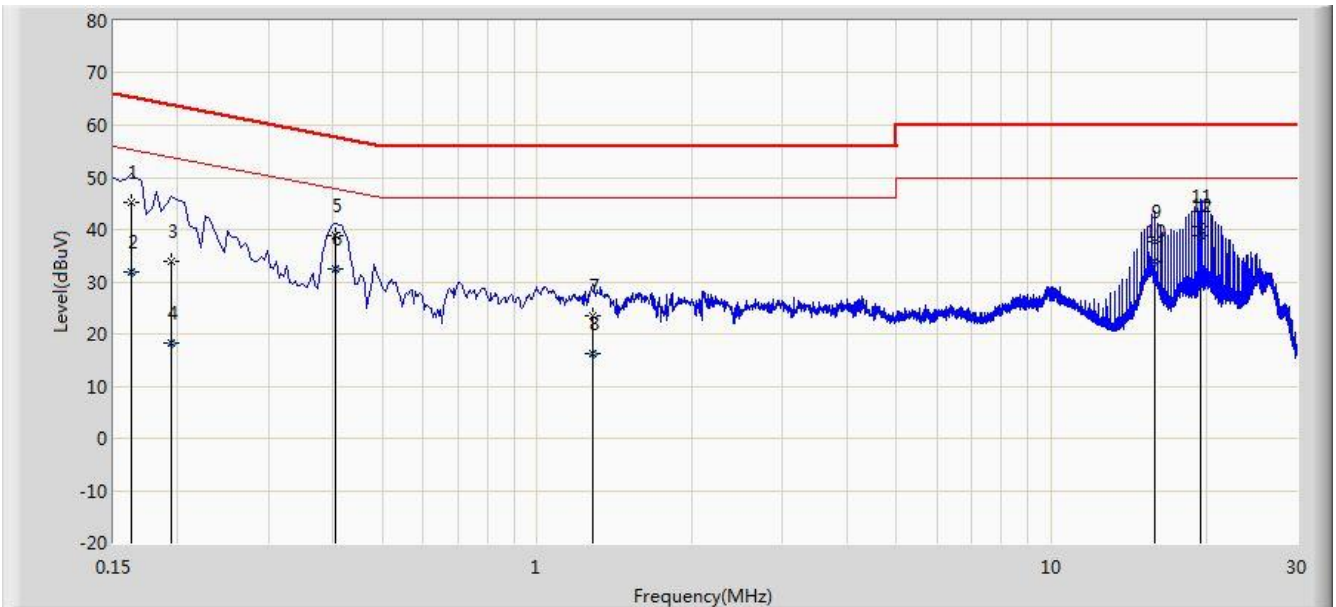
備 註: 經初測驗證過，電源端點干擾測試對測試頻道數並無差異，因此檢附其中一個測試頻道之測試數。

5.1.3. 測試架構圖



5.1.4. 電源端點測試結果

Site: SR2	Time: 2018/03/08 - 16:17
Limit: NCC LP0002_CE_0.15MHz-30MHz	Engineer: Kevin Ker
Probe: ENV216_101683_Filter On	Polarity: Line
EUT: ACCESS POINT	Power: Powered by POE Adapter
Test Mode 1	

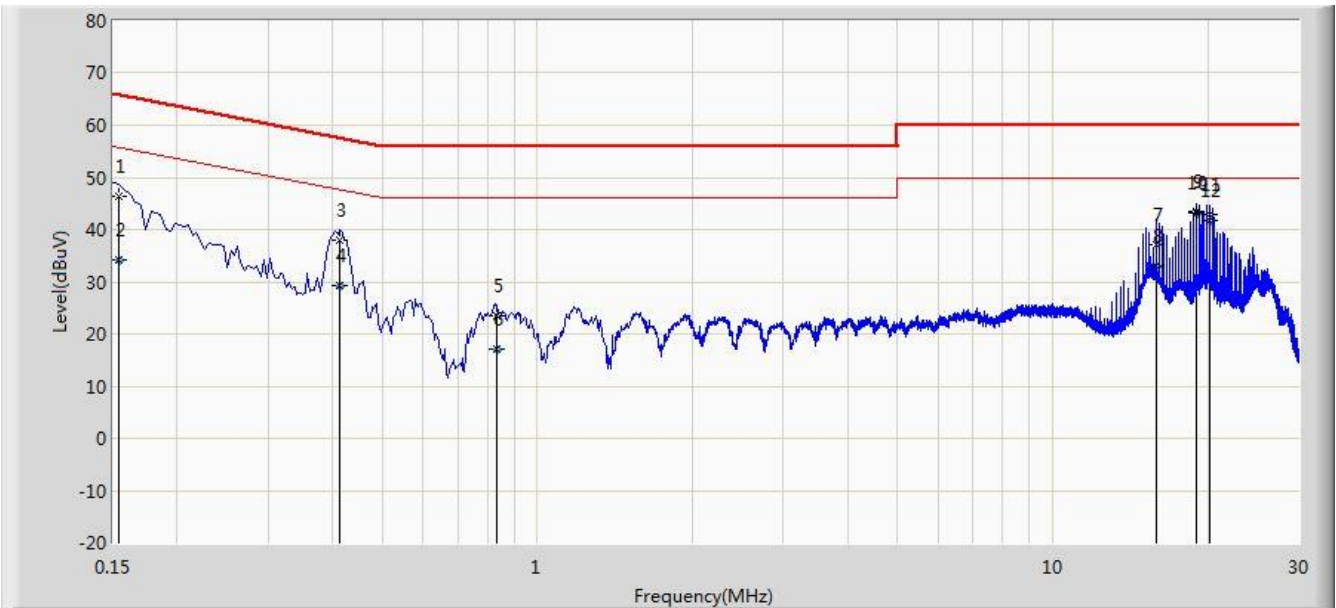


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV)	Factor (dB)	Type
1			0.162	45.313	35.216	-20.048	65.361	10.097	QP
2			0.162	31.791	21.694	-23.570	55.361	10.097	AV
3			0.194	33.975	23.958	-29.888	63.864	10.017	QP
4			0.194	18.142	8.125	-35.722	53.864	10.017	AV
5			0.406	38.918	28.828	-18.812	57.730	10.090	QP
6			0.406	32.577	22.487	-15.152	47.730	10.090	AV
7			1.282	23.476	13.578	-32.524	56.000	9.898	QP
8			1.282	16.376	6.478	-29.624	46.000	9.898	AV
9			15.886	37.631	27.567	-22.369	60.000	10.065	QP
10			15.886	33.948	23.883	-16.052	50.000	10.065	AV
11			19.442	40.445	30.314	-19.555	60.000	10.131	QP
12		*	19.442	38.792	28.661	-11.208	50.000	10.131	AV

Note: Measure Level (dBμV) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + LISN Factor (dB)

Site: SR2	Time: 2018/03/08 - 16:25
Limit: NCC LP0002_CE_0.15MHz-30MHz	Engineer: Kevin Ker
Probe: ENV216_101683_Filter On	Polarity: Neutral
EUT: ACCESS POINT	Power: Powered by POE Adapter
Test Mode 1	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV)	Factor (dB)	Type
1			0.154	46.514	35.799	-19.267	65.781	10.716	QP
2			0.154	34.262	23.546	-21.520	55.781	10.716	AV
3			0.414	38.029	27.906	-19.539	57.568	10.123	QP
4			0.414	29.162	19.039	-18.406	47.568	10.123	AV
5			0.834	23.587	13.586	-32.413	56.000	10.001	QP
6			0.834	17.001	7.001	-28.999	46.000	10.001	AV
7			15.890	37.068	26.957	-22.932	60.000	10.111	QP
8			15.890	32.921	22.810	-17.079	50.000	10.111	AV
9			18.970	43.620	33.472	-16.380	60.000	10.147	QP
10		*	18.970	43.301	33.154	-6.699	50.000	10.147	AV
11			20.158	42.999	32.828	-17.001	60.000	10.171	QP
12			20.158	41.775	31.604	-8.225	50.000	10.171	AV

Note: Measure Level (dBμV) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + LISN Factor (dB)

5.2. 峰值傳導輸出功率

5.2.1. 適用標準

依據國家通訊傳播委員會低功率射頻電機技術規範之第 3.10.1.2(1)(C)節，操作於 2400-2483.5 MHz 之數位調變的發射器材：1 瓦(W)(含)以下。

依據國家通訊傳播委員會低功率射頻電機技術規範之第 3.10.1.3 節，天線增益限制如下：

(1) 操作於 2400 MHz～2483.5 MHz 頻段：

(A) 進行固定式點對點操作時，其發射天線之方向性增益超過 6 dBi，每超過 3 dBi，最大傳導輸出功率限制值應降低 1 dB。

(B) 天線以多向波束發射方式(含同時發射或循序發射)將訊號導向多個接收機或接收機群組時，應符合下列規定：

(a) 非同時發射多向波束者，所有載波或頻道傳輸至所有天線陣列或陣列群之總和傳導輸出功率應符合 3.10.1.2 之功率限制值。如天線/天線陣列群之方向性增益超過 6 dBi，每超過 3 dBi，總和傳導輸出功率限制值應降低 1 dB。方向性增益值應計算如下：

(i) 方向性增益值 = $10\log(\text{天線陣列之單元數目}) + \text{各單元中最高之方向性增益值}$ 。

(ii) 天線陣列間之遮蔽效應或波束干涉損失能充分佐證時，方向性增益得低於(i)計算數值。

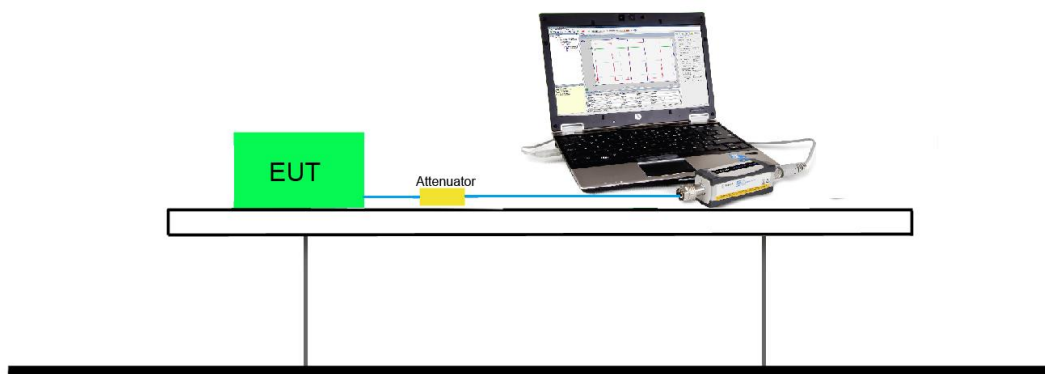
同時發射多向波束於相同或不同頻道者，其每一波束功率應符合(a)之功率限制值。如發射波束有重疊現象，功率應降低，以確保總和傳導輸出功率符合(a)之限制值。同時發射的所有波束總和傳導輸出功率不大於(a) 總和傳導輸出功率限制值加 8 dB。方向性增益值計算同(a)。

(c) 發射機之天線具備單向波束功能者，應符合(1)(A)及(3)後段之規定。

5.2.2. 量測方法

待測物之天線埠經由適當之衰減直接連至頻譜分析儀 RF 輸入端，設定頻譜分析儀之解析度頻寬大於 6dB 發射頻寬或使用峰值功率表。

5.2.3. 測試架構圖



5.2.4. 峰值傳導輸出功率測試結果

For Ant 0 / Ant 0 + 1 port of Omni Antenna (AP-ANT-20W):

Test Mode	Bandwidth (MHz)	Channel No.	Frequency (MHz)	Data Rate/ MCS	Average Power (dBm)
802.11b	20	6	2437	1Mbps	22.40
				5.5Mbps	22.13
				11Mbps	21.94
802.11g	20	6	2437	6Mbps	21.93
				24Mbps	21.69
				54Mbps	21.43
802.11n	20	6	2437	MCS0	21.70
				MCS3	21.54
				MCS7	21.36
802.11n	40	6	2437	MCS0	20.05
				MCS3	19.87
				MCS7	19.62

Product	ACCESS POINT	Temperature	23°C
Test Engineer	Kevin Ker	Relative Humidity	55%
Test Site	SR2	Test Date	2018/02/04
Antenna Type	Omni Antenna (AP-ANT-20W)	Test Item	Output Power

Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	Ant 0 Average Power (dBm)	Ant 1 Average Power (dBm)	Total Average Power (dBm)	Limit (dBm)	Result
Ant 0 + 1 (CDD Mode)								
11b	1Mbps	01	2412	21.83	22.14	25.00	≤ 30.00	Pass
11b	1Mbps	06	2437	22.40	22.09	25.26	≤ 30.00	Pass
11b	1Mbps	11	2462	21.94	22.13	25.05	≤ 30.00	Pass
11g	6Mbps	01	2412	21.89	22.05	24.98	≤ 30.00	Pass
11g	6Mbps	06	2437	21.93	22.26	25.11	≤ 30.00	Pass
11g	6Mbps	11	2462	21.96	22.11	25.05	≤ 30.00	Pass
11n-HT20	MCS0	01	2412	19.12	19.35	22.25	≤ 30.00	Pass
11n-HT20	MCS0	06	2437	21.70	22.02	24.87	≤ 30.00	Pass
11n-HT20	MCS0	11	2462	22.18	22.30	25.25	≤ 30.00	Pass
11n-HT40	MCS0	03	2422	16.17	16.18	19.19	≤ 30.00	Pass
11n-HT40	MCS0	04	2427	17.12	17.23	20.19	≤ 30.00	Pass
11n-HT40	MCS0	05	2432	18.01	18.06	21.05	≤ 30.00	Pass
11n-HT40	MCS0	06	2437	20.05	20.39	23.23	≤ 30.00	Pass
11n-HT40	MCS0	09	2452	19.74	19.69	22.73	≤ 30.00	Pass
Ant 0 + 1 (Beam-Forming Mode)								
11n-HT20	MCS0	01	2412	21.98	22.19	25.10	≤ 30.00	Pass
11n-HT20	MCS0	06	2437	21.70	22.02	24.87	≤ 30.00	Pass
11n-HT20	MCS0	11	2462	22.18	22.30	25.25	≤ 30.00	Pass
11n-HT40	MCS0	03	2422	19.03	19.26	22.16	≤ 30.00	Pass
11n-HT40	MCS0	06	2437	21.93	22.25	25.10	≤ 30.00	Pass
11n-HT40	MCS0	09	2452	20.04	20.07	23.07	≤ 30.00	Pass

Note 1: Total Average Power (dBm) = $10 \cdot \log\{10^{(\text{Ant 0 Average Power}/10)} + 10^{(\text{Ant 1 Average Power}/10)}\}$ (dBm).

Note 2: Limit (dBm) = 30.00 dBm.

Product	ACCESS POINT	Temperature	27°C
Test Engineer	Kevin Ker	Relative Humidity	65%
Test Site	SR2	Test Date	2017/09/03
Antenna Type	Omni Antenna (AP-ANT-40)	Test Item	Output Power

Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	Ant 0 Average Power (dBm)	Ant 1 Average Power (dBm)	Total Average Power (dBm)	Limit (dBm)	Result
Ant 0 + 1 (CDD Mode)								
11b	1Mbps	01	2412	22.57	22.71	25.65	≤ 30.00	Pass
11b	1Mbps	06	2437	22.50	22.44	25.48	≤ 30.00	Pass
11b	1Mbps	11	2462	21.58	22.01	24.81	≤ 30.00	Pass
11g	6Mbps	01	2412	21.61	22.01	24.82	≤ 30.00	Pass
11g	6Mbps	06	2437	22.19	22.56	25.39	≤ 30.00	Pass
11g	6Mbps	11	2462	22.06	22.20	25.14	≤ 30.00	Pass
11n-HT20	MCS0	01	2412	21.36	21.90	24.65	≤ 30.00	Pass
11n-HT20	MCS0	06	2437	22.05	22.44	25.26	≤ 30.00	Pass
11n-HT20	MCS0	11	2462	22.02	21.94	24.99	≤ 30.00	Pass
11n-HT40	MCS0	03	2422	16.96	17.27	20.13	≤ 30.00	Pass
11n-HT40	MCS0	04	2427	18.01	18.29	21.16	≤ 30.00	Pass
11n-HT40	MCS0	06	2437	20.13	20.47	23.31	≤ 30.00	Pass
11n-HT40	MCS0	09	2452	19.39	19.78	22.60	≤ 30.00	Pass
Ant 0 + 1 (Beam-Forming Mode)								
11n-HT20	MCS0	01	2412	21.83	22.34	25.10	≤ 28.99	Pass
11n-HT20	MCS0	06	2437	21.99	22.41	25.22	≤ 28.99	Pass
11n-HT20	MCS0	11	2462	21.95	22.11	25.04	≤ 28.99	Pass
11n-HT40	MCS0	03	2422	22.25	22.54	25.41	≤ 28.99	Pass
11n-HT40	MCS0	06	2437	22.12	22.70	25.43	≤ 28.99	Pass
11n-HT40	MCS0	09	2452	22.21	22.25	25.24	≤ 28.99	Pass

Note 1: Total Average Power (dBm) = $10 \cdot \log\{10^{(\text{Ant 0 Average Power}/10)} + 10^{(\text{Ant 1 Average Power}/10)}\}$ (dBm).

Note 2: Limit (dBm) = 30 dBm – (7.01 dBi – 6 dBi) = 28.99 dBm.

Product	ACCESS POINT	Temperature	23°C
Test Engineer	Kevin Ker	Relative Humidity	55%
Test Site	SR2	Test Date	2018/02/04
Antenna Type	Directional Antenna (ANT-2x2-2314)	Test Item	Output Power

Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	Ant 0 Average Power (dBm)	Ant 1 Average Power (dBm)	Total Average Power (dBm)	Limit (dBm)	Result
Ant 0 + 1 (CDD Mode)								
11b	1Mbps	01	2412	18.75	18.98	21.88	≤ 22.00	Pass
11b	1Mbps	06	2437	18.82	18.45	21.65	≤ 22.00	Pass
11b	1Mbps	11	2462	18.96	18.81	21.90	≤ 22.00	Pass
11g	6Mbps	01	2412	16.27	16.45	19.37	≤ 22.00	Pass
11g	6Mbps	02	2417	18.26	18.53	21.41	≤ 22.00	Pass
11g	6Mbps	06	2437	18.38	18.74	21.57	≤ 22.00	Pass
11g	6Mbps	11	2462	16.11	16.32	19.23	≤ 22.00	Pass
11n-HT20	MCS0	01	2412	14.89	15.12	18.02	≤ 22.00	Pass
11n-HT20	MCS0	02	2417	18.65	18.82	21.75	≤ 22.00	Pass
11n-HT20	MCS0	06	2437	18.09	18.42	21.27	≤ 22.00	Pass
11n-HT20	MCS0	11	2462	16.18	15.92	19.06	≤ 22.00	Pass
11n-HT40	MCS0	03	2422	10.87	10.93	13.91	≤ 22.00	Pass
11n-HT40	MCS0	04	2427	12.74	12.83	15.80	≤ 22.00	Pass
11n-HT40	MCS0	06	2437	15.02	15.32	18.18	≤ 22.00	Pass
11n-HT40	MCS0	09	2452	13.47	13.59	16.54	≤ 22.00	Pass
Ant 0 + 1 (Beam-Forming Mode)								
11n-HT20	MCS0	01	2412	17.41	17.74	20.59	≤ 22.00	Pass
11n-HT20	MCS0	06	2437	18.09	18.42	21.27	≤ 22.00	Pass
11n-HT20	MCS0	11	2462	16.19	16.21	19.21	≤ 22.00	Pass
11n-HT40	MCS0	03	2422	13.13	13.39	16.27	≤ 22.00	Pass
11n-HT40	MCS0	06	2437	15.02	15.32	18.18	≤ 22.00	Pass
11n-HT40	MCS0	09	2452	12.98	13.13	16.07	≤ 22.00	Pass

Note 1: Total Average Power (dBm) = $10 \cdot \log\{10^{(\text{Ant 0 Average Power}/10)} + 10^{(\text{Ant 1 Average Power}/10)}\}$ (dBm).

Note 2: Limit (dBm) = 30.00 dBm - (14.00 dBi - 6.00 dBi) = 22.00 dBm.

5.3. 天線之要求

5.3.1. 適用標準

低功率射頻電機之發射機或收發信機所使用之天線，應為全固定、半固定式或以獨特之耦合(unique coupling)方式連接機體。製造者可設計供使用者因損壞而替換之天線，但不得設計或使用原認證以外之天線或可供引接各類電纜之標準天線插座或電氣連接頭，如：BNC、F type、N type、M type、UG type、RCA、SMA、SMB...等及其他各類工業或通訊標準接頭。

5.3.2. 天線樣式

Antenna No.	Polarization	Frequency Band (GHz)	Model No.	Max Peak Gain (dBi)	BF Gain (dBi)	CDD Directional Gain (dBi)	
						For Power	For PSD
Wi-Fi External Antenna List (2.4GHz 2*2 MIMO, 5GHz 4*4 MIMO)							
1	Omni	2.4	AP-ANT-40	4.0	3.01	4.0	7.01
		5		5.0	6.02	5.0	11.02
2	Omni	2.4	AP-ANT-19	3.0	3.01	3.0	6.01
		5		6.0	6.02	6.0	12.02
3	Omni	2.4	AP-ANT-1W	3.8	3.01	3.8	6.81
		5		5.8	6.02	5.8	11.82
4	Omni	2.4	AP-ANT-13B	2.3	3.01	2.3	5.31
		5		4.0	6.02	4.0	10.02
5	Omni	2.4	AP-ANT-20W	2.0	3.01	2.0	5.01
		5		2.0	6.02	2.0	8.02
6	Omni	2.4	AP-ANT-22	2.0	3.01	2.0	5.01
		5		4.0	6.02	4.0	10.02
7 (Note 3)	Directional	2.4	AP-ANT-45	4.5	0.0	4.5	4.50
		5		5.5	3.01	5.5	8.51
8 (Note 3)	Directional	2.4	AP-ANT-48	8.5	0.0	8.5	8.5
		5		8.5	3.01	8.5	11.51
9 (Note 3)	Directional	2.4	ANT-2x2-2314	14.0	0.0	14.0	14.0
10 (Note 3)	Directional	5	ANT-4x4-5314	14.0	3.01	14.0	17.01
11 (Note 3)	Directional	5	ANT-3x3-5712	11.5	3.01	11.5	14.51
12 (Note 3)	Directional	2.4	AP-ANT-25A	5.0	0.0	5.0	5.0
		5		5.0	3.01	5.0	8.01
13 (Note 3)	Directional	2.4	AP-ANT-28	7.5	0.0	7.5	7.5
		5		7.5	3.01	7.5	10.51
14	Omni	2.4	AP-ANT-16	3.9	3.01	3.9	6.91
		5		4.7	6.02	4.7	10.72
Bluetooth Internal Antenna							
PCB		2.4		6.8			

Note:

1. The EUT supports Cyclic Delay Diversity (CDD) mode, and CDD signals are correlated.
For CDD transmissions, directional gain is calculated as follows, $N_{ANT} = 2$, $N_{SS} = 1$.
If all antennas have the same gain, G_{ANT} , Directional gain = $G_{ANT} + \text{Array Gain}$, where Array Gain is as follows.
 - For power spectral density (PSD) measurements on all devices,
Array Gain = $10 \log (N_{ANT} / N_{SS}) \text{ dB} = 3.01$;
 - For power measurements on IEEE 802.11 devices,
Array Gain = 0 dB for $N_{ANT} \leq 4$;
2. The EUT also supports Beam Forming mode, and the Beam Forming support 802.11n/ac, not include 802.11a/b/g. Directional gain = $G_{ANT} + \text{BF Gain}$, BF Gain was declared by the applicant.
3. These antennas have Cross-Polarized design, the detail see the antenna specification.
4. We selected the Omni antenna 5# (minimum antenna gain, in order to obtain the max power value shown in the grant) & Omni antenna 1# (maximum antenna gain) & Directional antenna 9# (maximum antenna gain) to perform 2.4GHz RF testing.

5.4. 輻射干擾測試

5.4.1. 適用標準

依據國家通訊傳播委員會低功率射頻電機技術規範之第 3.10.1.5 節，使用頻帶範圍外之任意 100 千赫 (kHz) 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 100 千赫 (kHz) 內的射頻功率，衰減值限制如下：

(1) 輸出功率以低功率射頻電機技術規範附件二之峰值輸出功率方式量測者，至少須衰減 20 dB，可使用射頻傳導或輻射方式測量。

(2) 輸出功率以低功率射頻電機技術規範 3.10.1(2)(2.3) 之最大傳導輸出功率量測方式者，至少須衰減 30 dB。

此外，落於第 2.7 節禁用頻段之輻射發射，應符合第 2.8 節之規定。

依據國家通訊傳播委員會低功率射頻電機技術規範之第 2.8 節，低功率射頻電機，除本規範各章節另有放寬規定者外，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(兆赫)	電場強度(微伏/公尺)	測距(公尺)
0.009 - 0.490(含)	2,400/頻率(千赫)	300
0.490 (不含) – 1.705 (含)	24,000/頻率(千赫)	30
1.705(不含) – 30 (不含)	30	30
30 (含) – 88 (含)	100	3
88 (不含)- 216 (含)	150	3
216 (不含)- 960 (含)	200	3
960 (不含)以上	500	3

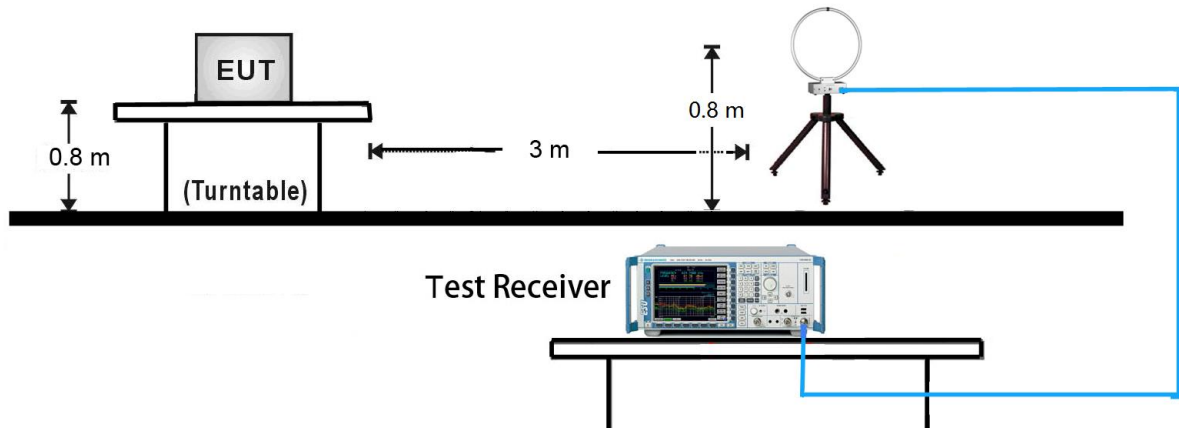
上表規定之電場強度，頻率在 9-90kHz 千赫(kHz)、110-490 千赫(kHz)以及 1000 兆赫(MHz)以上之發射，其量測以平均值檢波器為基準，且須符合第 5.14 節之規定；其他頻率之發射，應以 CISPR 準峰值(quasi-peak) 檢波器測量；非以上表所指定之距離測量時須符合第 5.5 節之規定，而輻射發射之量測頻率範圍須符合第 5.12 節之規定。

5.4.2. 量測方法

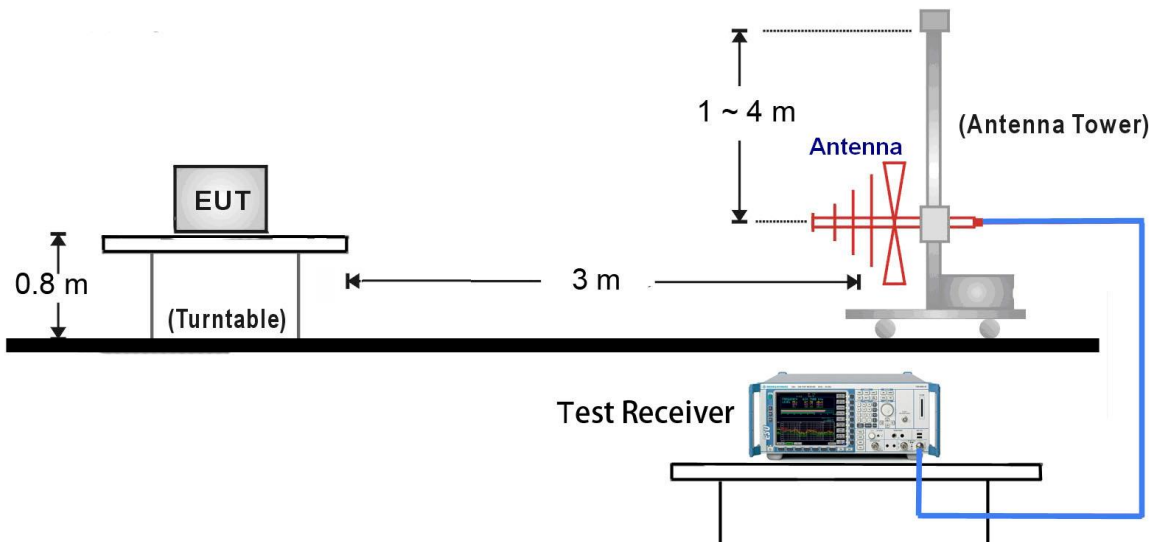
低頻待測物置於高 80 公分之非導體桌面（落地型產品置於地上），高頻待測物置於高 150 公分之非導體桌面，受測物與配件設備之電源線無須束綁，桌面上受測設備的所有電源線由桌子的後緣垂下沿旋轉桌表面接至交流插座。落地型設備的交流電源線可以方便的型態走線。桌面可 360 度旋轉，接收天線置於距待測物 3m 距離，高度可在 1 至 4 公尺間變動，以量測待測物之最大輻射電場強度。接收天線並應於水準及垂直極化方向各量測一次。

5.4.3. 測試架構圖

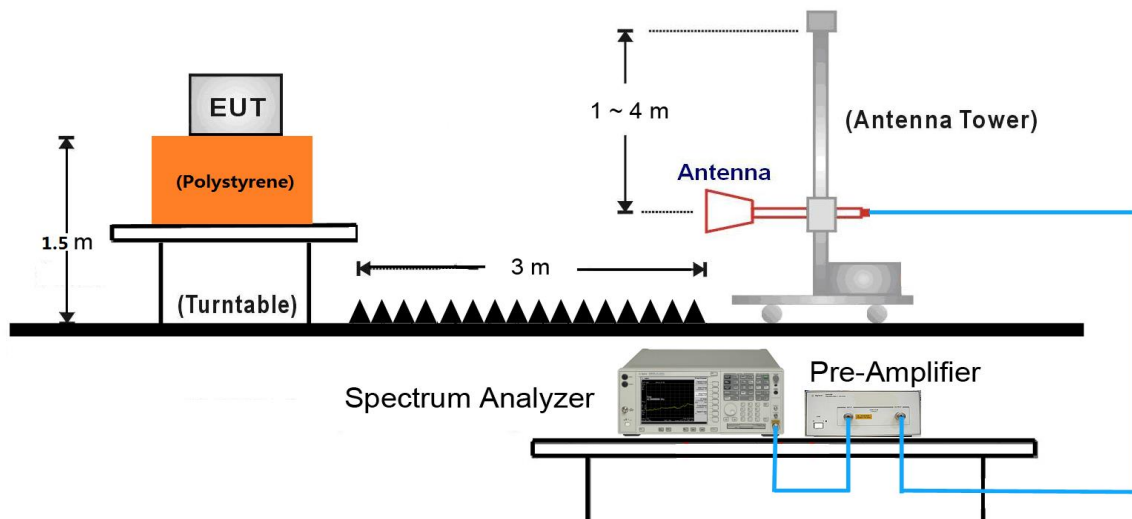
9kHz ~ 30MHz Test Setup:



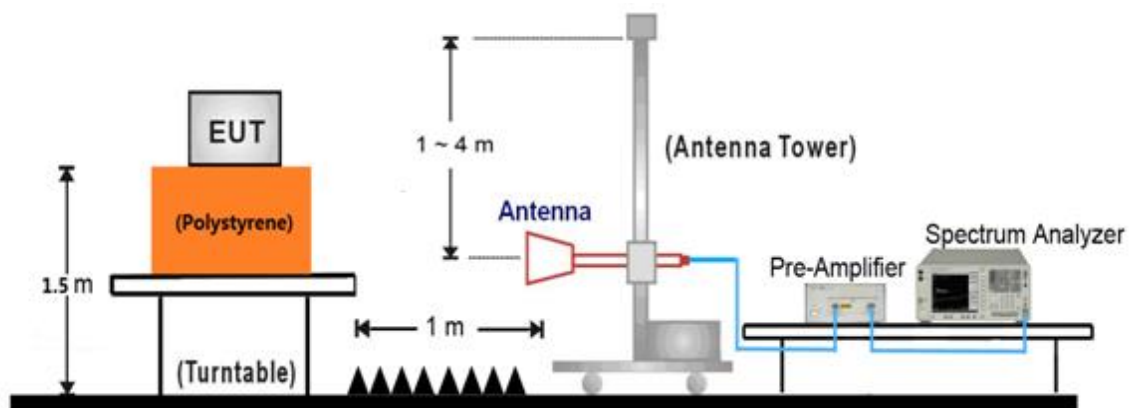
30MHz ~ 1GHz Test Setup:



1GHz ~ 18GHz Test Setup:



18GHz ~ 25GHz Test Setup:



5.4.4. 輻射干擾測試結果

Product	ACCESS POINT- Omni Antenna (AP-ANT-20W)	Temperature	26°C
Test Engineer	Kevin Ker	Relative Humidity	56%
Test Site	AC1	Test Date	2018/02/25
Test Mode:	802.11b - Ant 0 + 1 (CDD Mode)	Test Channel:	01
Remark:	1. Average measurement was not performed if peak level lower than average limit. So the margin was calculated using the average limit for emissions fall within the restricted bands. So the margin was calculated using the average limit for emissions fall within the restricted bands. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	4825.0	48.2	3.7	51.9	54.0	-2.1	Peak	Horizontal
	7451.5	36.6	12.8	49.4	54.0	-4.6	Peak	Horizontal
*	8811.5	35.2	14.0	49.2	87.4	-38.2	Peak	Horizontal
*	9959.0	36.8	15.3	52.1	87.4	-35.3	Peak	Horizontal
	4825.0	44.1	5.9	50.0	54.0	-4.0	Peak	Vertical
	7400.5	36.8	12.6	49.4	54.0	-4.6	Peak	Vertical
*	8854.0	34.7	14.0	48.7	87.4	-38.7	Peak	Vertical
*	10035.5	36.2	15.5	51.7	87.4	-35.7	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 30dBc of the fundamental emission level (117.4dBμV/m) or 15.209 which is higher.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

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

Product	ACCESS POINT- Omni Antenna (AP-ANT-20W)	Temperature	26°C
Test Engineer	Kevin Ker	Relative Humidity	56%
Test Site	AC1	Test Date	2018/02/25
Test Mode:	802.11b - Ant 0 + 1 (CDD Mode)	Test Channel:	06
Remark:	1. Average measurement was not performed if peak level lower than average limit. So the margin was calculated using the average limit for emissions fall within the restricted bands. So the margin was calculated using the average limit for emissions fall within the restricted bands. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	4876.0	46.9	3.7	50.6	54.0	-3.4	Peak	Horizontal
	7443.0	35.9	12.7	48.6	54.0	-5.4	Peak	Horizontal
*	8820.0	35.0	14.0	49.0	88.1	-39.1	Peak	Horizontal
*	10078.0	36.6	15.6	52.2	88.1	-35.9	Peak	Horizontal
	4876.0	48.1	3.7	51.8	54.0	-2.2	Peak	Vertical
	7460.0	35.9	12.8	48.7	54.0	-5.3	Peak	Vertical
*	8845.5	34.6	14.0	48.6	88.1	-39.5	Peak	Vertical
*	9755.0	35.7	14.8	50.5	88.1	-37.6	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is 30dBc of the fundamental emission level (118.1dBμV/m) or 15.209 which is higher.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

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

Product	ACCESS POINT- Omni Antenna (AP-ANT-20W)	Temperature	26°C
Test Engineer	Kevin Ker	Relative Humidity	56%
Test Site	AC1	Test Date	2018/02/25
Test Mode:	802.11b - Ant 0 + 1 (CDD Mode)	Test Channel:	11
Remark:	1. Average measurement was not performed if peak level lower than average limit. So the margin was calculated using the average limit for emissions fall within the restricted bands. So the margin was calculated using the average limit for emissions fall within the restricted bands. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	4825.0	39.2	3.7	42.9	54.0	-11.1	Peak	Horizontal
	7638.5	36.7	12.6	49.3	54.0	-4.7	Peak	Horizontal
*	8718.0	33.0	13.8	46.8	84.9	-38.1	Peak	Horizontal
*	9857.0	34.9	16.2	51.1	84.9	-33.8	Peak	Horizontal
	4927.0	41.1	3.7	44.8	54.0	-9.2	Peak	Vertical
	7494.0	35.1	12.8	47.9	54.0	-6.1	Peak	Vertical
*	8735.0	33.9	13.9	47.8	84.9	-37.1	Peak	Vertical
*	9780.5	35.7	14.9	50.6	84.9	-34.3	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is 30dBc of the fundamental emission level (114.9dBμV/m) or 15.209 which is higher.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

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

Product	ACCESS POINT- Omni Antenna (AP-ANT-20W)	Temperature	26°C
Test Engineer	Kevin Ker	Relative Humidity	56%
Test Site	AC1	Test Date	2018/02/25
Test Mode:	802.11g - Ant 0 + 1 (CDD Mode)	Test Channel:	01
Remark:	1. Average measurement was not performed if peak level lower than average limit. So the margin was calculated using the average limit for emissions fall within the restricted bands. So the margin was calculated using the average limit for emissions fall within the restricted bands. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	4825.0	41.4	3.7	45.1	54.0	-8.9	Peak	Horizontal
	7468.5	34.1	12.8	46.9	54.0	-7.1	Peak	Horizontal
*	8845.5	33.0	14.0	47.0	89.1	-42.1	Peak	Horizontal
*	9857.0	33.0	16.2	49.2	89.1	-39.9	Peak	Horizontal
	4833.5	41.7	3.7	45.4	54.0	-8.6	Peak	Vertical
	7672.5	35.0	12.5	47.5	54.0	-6.5	Peak	Vertical
*	8752.0	32.1	13.9	46.0	89.1	-43.1	Peak	Vertical
*	9857.0	33.0	16.2	49.2	89.1	-39.9	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 30dBc of the fundamental emission level (119.1dBμV/m) or 15.209 which is higher.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

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

Product	ACCESS POINT- Omni Antenna (AP-ANT-20W)	Temperature	26°C
Test Engineer	Kevin Ker	Relative Humidity	56%
Test Site	AC1	Test Date	2018/02/25
Test Mode:	802.11g - Ant 0 + 1 (CDD Mode)	Test Channel:	06
Remark:	1. Average measurement was not performed if peak level lower than average limit. So the margin was calculated using the average limit for emissions fall within the restricted bands. So the margin was calculated using the average limit for emissions fall within the restricted bands. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	4867.5	40.7	3.7	44.4	54.0	-9.6	Peak	Horizontal
	7528.0	35.4	12.8	48.2	54.0	-5.8	Peak	Horizontal
*	8769.0	33.8	13.9	47.7	89.7	-42.0	Peak	Horizontal
*	9789.0	35.7	15.0	50.7	89.7	-39.0	Peak	Horizontal
	4876.0	40.5	3.7	44.2	54.0	-9.8	Peak	Vertical
	7545.0	34.5	12.8	47.3	54.0	-6.7	Peak	Vertical
*	8684.0	34.2	13.7	47.9	89.7	-41.8	Peak	Vertical
*	9729.5	35.1	14.7	49.8	89.7	-39.9	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is 30dBc of the fundamental emission level (119.7dBμV/m) or 15.209 which is higher.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

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

Product	ACCESS POINT- Omni Antenna (AP-ANT-20W)	Temperature	26°C
Test Engineer	Kevin Ker	Relative Humidity	56%
Test Site	AC1	Test Date	2018/02/25
Test Mode:	802.11g - Ant 0 + 1 (CDD Mode)	Test Channel:	11
Remark:	1. Average measurement was not performed if peak level lower than average limit. So the margin was calculated using the average limit for emissions fall within the restricted bands. So the margin was calculated using the average limit for emissions fall within the restricted bands. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	4927.0	41.2	3.7	44.9	54.0	-9.1	Peak	Horizontal
	7519.5	34.8	12.8	47.6	54.0	-6.4	Peak	Horizontal
*	8735.0	34.6	13.9	48.5	88.7	-40.2	Peak	Horizontal
*	9874.0	35.0	15.8	50.8	88.7	-37.9	Peak	Horizontal
	4927.0	39.5	3.7	43.2	54.0	-10.8	Peak	Vertical
	7434.5	35.1	12.7	47.8	54.0	-6.2	Peak	Vertical
*	8862.5	33.6	14.0	47.6	88.7	-41.1	Peak	Vertical
*	9967.5	35.4	15.3	50.7	88.7	-38.0	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is 30dBc of the fundamental emission level (118.7dBμV/m) or 15.209 which is higher.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

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

Product	ACCESS POINT- Omni Antenna (AP-ANT-20W)	Temperature	26°C
Test Engineer	Kevin Ker	Relative Humidity	56%
Test Site	AC1	Test Date	2018/02/25
Test Mode:	802.11n-HT20 - Ant 0 + 1 (CDD Mode)	Test Channel:	01
Remark:	1. Average measurement was not performed if peak level lower than average limit. So the margin was calculated using the average limit for emissions fall within the restricted bands. So the margin was calculated using the average limit for emissions fall within the restricted bands. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	4825.0	43.5	3.7	47.2	54.0	-6.8	Peak	Horizontal
	7358.0	36.0	12.4	48.4	54.0	-5.6	Peak	Horizontal
*	8692.5	32.5	13.7	46.2	88.1	-41.9	Peak	Horizontal
*	10188.5	35.3	16.2	51.5	88.1	-36.6	Peak	Horizontal
	4825.0	41.1	3.7	44.8	54.0	-9.2	Peak	Vertical
	7434.5	35.5	12.7	48.2	54.0	-5.8	Peak	Vertical
*	8658.5	33.2	13.6	46.8	88.1	-41.3	Peak	Vertical
*	9976.0	35.5	15.3	50.8	88.1	-37.3	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is 30dBc of the fundamental emission level (118.1dBμV/m) or 15.209 which is higher.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

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

Product	ACCESS POINT- Omni Antenna (AP-ANT-20W)	Temperature	26°C
Test Engineer	Kevin Ker	Relative Humidity	56%
Test Site	AC1	Test Date	2018/02/25
Test Mode:	802.11n-HT20 - Ant 0 + 1 (CDD Mode)	Test Channel:	06
Remark:	1. Average measurement was not performed if peak level lower than average limit. So the margin was calculated using the average limit for emissions fall within the restricted bands. So the margin was calculated using the average limit for emissions fall within the restricted bands. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	4867.5	43.0	3.7	46.7	54.0	-7.3	Peak	Horizontal
	7451.5	35.2	12.8	48.0	54.0	-6.0	Peak	Horizontal
*	8692.5	35.2	13.7	48.9	89.7	-40.8	Peak	Horizontal
*	9899.5	35.0	15.4	50.4	89.7	-39.3	Peak	Horizontal
	4876.0	44.5	3.7	48.2	54.0	-5.8	Peak	Vertical
	7426.0	35.6	12.7	48.3	54.0	-5.7	Peak	Vertical
*	8692.5	33.7	13.7	47.4	89.7	-42.3	Peak	Vertical
*	9959.0	35.3	15.3	50.6	89.7	-39.1	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is 30dBc of the fundamental emission level (119.7dBμV/m) or 15.209 which is higher.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

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

Product	ACCESS POINT- Omni Antenna (AP-ANT-20W)	Temperature	26°C
Test Engineer	Kevin Ker	Relative Humidity	56%
Test Site	AC1	Test Date	2018/02/25
Test Mode:	802.11n-HT20 - Ant 0 + 1 (CDD Mode)	Test Channel:	11
Remark:	1. Average measurement was not performed if peak level lower than average limit. So the margin was calculated using the average limit for emissions fall within the restricted bands. So the margin was calculated using the average limit for emissions fall within the restricted bands. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	4927.0	42.5	3.7	46.2	54.0	-7.8	Peak	Horizontal
	7434.5	34.2	12.7	46.9	54.0	-7.1	Peak	Horizontal
*	8845.5	34.2	14.0	48.2	90.1	-41.9	Peak	Horizontal
*	9967.5	35.1	15.3	50.4	90.1	-39.7	Peak	Horizontal
	4927.0	42.5	3.7	46.2	54.0	-7.8	Peak	Vertical
	7434.5	34.2	12.7	46.9	54.0	-7.1	Peak	Vertical
*	8845.5	34.2	14.0	48.2	90.1	-41.9	Peak	Vertical
*	9967.5	35.1	15.3	50.4	90.1	-39.7	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is 30dBc of the fundamental emission level (120.1dBμV/m) or 15.209 which is higher.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

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

Product	ACCESS POINT- Omni Antenna (AP-ANT-20W)	Temperature	26°C
Test Engineer	Kevin Ker	Relative Humidity	56%
Test Site	AC1	Test Date	2018/02/25
Test Mode:	802.11n-HT40 - Ant 0 + 1 (CDD Mode)	Test Channel:	03
Remark:	1. Average measurement was not performed if peak level lower than average limit. So the margin was calculated using the average limit for emissions fall within the restricted bands. So the margin was calculated using the average limit for emissions fall within the restricted bands. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	4842.0	38.3	3.7	42.0	54.0	-12.0	Peak	Horizontal
	7723.5	36.1	12.4	48.5	54.0	-5.5	Peak	Horizontal
*	8854.0	34.3	14.0	48.3	82.5	-34.2	Peak	Horizontal
*	9865.5	34.6	16.0	50.6	82.5	-31.9	Peak	Horizontal
	4901.5	39.6	3.7	43.3	54.0	-10.7	Peak	Vertical
	7562.0	35.3	12.8	48.1	54.0	-5.9	Peak	Vertical
*	8641.5	34.8	13.5	48.3	82.5	-34.2	Peak	Vertical
*	10001.5	35.5	15.4	50.9	82.5	-31.6	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is 30dBc of the fundamental emission level (112.5dBμV/m) or 15.209 which is higher.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

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

Product	ACCESS POINT- Omni Antenna (AP-ANT-20W)	Temperature	26°C
Test Engineer	Kevin Ker	Relative Humidity	56%
Test Site	AC1	Test Date	2018/02/25
Test Mode:	802.11n-HT40 - Ant 0 + 1 (CDD Mode)	Test Channel:	06
Remark:	1. Average measurement was not performed if peak level lower than average limit. So the margin was calculated using the average limit for emissions fall within the restricted bands. So the margin was calculated using the average limit for emissions fall within the restricted bands. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	4859.0	39.2	3.7	42.9	54.0	-11.1	Peak	Horizontal
	7604.5	34.1	12.7	46.8	54.0	-7.2	Peak	Horizontal
*	8854.0	33.0	14.0	47.0	85.1	-38.1	Peak	Horizontal
*	9831.5	34.5	15.9	50.4	85.1	-34.7	Peak	Horizontal
	4859.0	38.7	3.7	42.4	54.0	-11.6	Peak	Vertical
	7502.5	33.9	12.8	46.7	54.0	-7.3	Peak	Vertical
*	8692.5	32.7	13.7	46.4	85.1	-38.7	Peak	Vertical
*	9823.0	35.6	15.6	51.2	85.1	-33.9	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is 30dBc of the fundamental emission level (115.1dBμV/m) or 15.209 which is higher.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

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

Product	ACCESS POINT- Omni Antenna (AP-ANT-20W)	Temperature	26°C
Test Engineer	Kevin Ker	Relative Humidity	56%
Test Site	AC1	Test Date	2018/02/25
Test Mode:	802.11n-HT40 - Ant 0 + 1 (CDD Mode)	Test Channel:	09
Remark:	1. Average measurement was not performed if peak level lower than average limit. So the margin was calculated using the average limit for emissions fall within the restricted bands. So the margin was calculated using the average limit for emissions fall within the restricted bands. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	4816.5	38.8	3.7	42.5	54.0	-11.5	Peak	Horizontal
	7409.0	35.0	12.6	47.6	54.0	-6.4	Peak	Horizontal
*	8896.5	34.2	14.0	48.2	84.8	-36.6	Peak	Horizontal
*	9891.0	35.6	15.5	51.1	84.8	-33.7	Peak	Horizontal
	4978.0	39.1	3.8	42.9	54.0	-11.1	Peak	Vertical
	7443.0	36.3	12.7	49.0	54.0	-5.0	Peak	Vertical
*	8709.5	34.2	13.8	48.0	84.8	-36.8	Peak	Vertical
*	10035.5	35.3	15.5	50.8	84.8	-34.0	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is 30dBc of the fundamental emission level (114.8dBμV/m) or 15.209 which is higher.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

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

Product	ACCESS POINT- Omni Antenna (AP-ANT-20W)	Temperature	26°C
Test Engineer	Kevin Ker	Relative Humidity	56%
Test Site	AC1	Test Date	2018/03/03
Test Mode:	802.11n-HT20 - Ant 0 + 1 (Beam-Forming Mode)	Test Channel:	01
Remark:	1. Average measurement was not performed if peak level lower than average limit. So the margin was calculated using the average limit for emissions fall within the restricted bands. So the margin was calculated using the average limit for emissions fall within the restricted bands. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	4842.0	40.1	3.7	43.8	54.0	-10.2	Peak	Horizontal
	7417.5	37.2	12.6	49.8	54.0	-4.2	Peak	Horizontal
*	8658.5	35.8	13.6	49.4	88.5	-39.1	Peak	Horizontal
*	9967.5	37.0	15.3	52.3	88.5	-36.2	Peak	Horizontal
	4289.5	42.7	1.5	44.2	54.0	-9.8	Peak	Vertical
	7647.0	36.8	12.5	49.3	54.0	-4.7	Peak	Vertical
*	8947.5	33.9	14.0	47.9	88.5	-40.6	Peak	Vertical
*	10001.5	38.0	15.4	53.4	88.5	-35.1	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is 30dBc of the fundamental emission level (118.5dBμV/m) or 15.209 which is higher.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

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

Product	ACCESS POINT- Omni Antenna (AP-ANT-20W)	Temperature	26°C
Test Engineer	Kevin Ker	Relative Humidity	56%
Test Site	AC1	Test Date	2018/03/03
Test Mode:	802.11n-HT20 - Ant 0 + 1 (Beam-Forming Mode)	Test Channel:	06
Remark:	1. Average measurement was not performed if peak level lower than average limit. So the margin was calculated using the average limit for emissions fall within the restricted bands. So the margin was calculated using the average limit for emissions fall within the restricted bands. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	4774.0	40.7	3.7	44.4	54.0	-9.6	Peak	Horizontal
	7468.5	37.0	12.8	49.8	54.0	-4.2	Peak	Horizontal
*	8667.0	36.0	13.6	49.6	88.8	-39.2	Peak	Horizontal
*	10035.5	37.3	15.5	52.8	88.8	-36.0	Peak	Horizontal
	4723.0	40.3	3.6	43.9	54.0	-10.1	Peak	Vertical
	7681.0	36.4	12.5	48.9	54.0	-5.1	Peak	Vertical
*	8922.0	35.8	14.0	49.8	88.8	-39.0	Peak	Vertical
*	9942.0	36.7	15.3	52.0	88.8	-36.8	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is 30dBc of the fundamental emission level (118.8dBμV/m) or 15.209 which is higher.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

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

Product	ACCESS POINT- Omni Antenna (AP-ANT-20W)	Temperature	26°C
Test Engineer	Kevin Ker	Relative Humidity	56%
Test Site	AC1	Test Date	2018/03/03
Test Mode:	802.11n-HT20 - Ant 0 + 1 (Beam-Forming Mode)	Test Channel:	11
Remark:	1. Average measurement was not performed if peak level lower than average limit. So the margin was calculated using the average limit for emissions fall within the restricted bands. So the margin was calculated using the average limit for emissions fall within the restricted bands. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	4748.5	40.3	3.7	44.0	54.0	-10.0	Peak	Horizontal
	7519.5	37.2	12.8	50.0	54.0	-4.0	Peak	Horizontal
*	8709.5	35.1	13.8	48.9	88.5	-39.6	Peak	Horizontal
*	10129.0	37.1	15.9	53.0	88.5	-35.5	Peak	Horizontal
	4910.0	40.0	3.7	43.7	54.0	-10.3	Peak	Vertical
	7715.0	36.9	12.4	49.3	54.0	-4.7	Peak	Vertical
*	8888.0	36.1	14.0	50.1	88.5	-38.4	Peak	Vertical
*	10248.0	37.0	16.4	53.4	88.5	-35.1	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is 30dBc of the fundamental emission level (118.5dBμV/m) or 15.209 which is higher.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

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

Product	ACCESS POINT- Omni Antenna (AP-ANT-20W)	Temperature	26°C
Test Engineer	Kevin Ker	Relative Humidity	56%
Test Site	AC1	Test Date	2018/03/03
Test Mode:	802.11n-HT40 - Ant 0 + 1 (Beam-Forming Mode)	Test Channel:	03
Remark:	1. Average measurement was not performed if peak level lower than average limit. So the margin was calculated using the average limit for emissions fall within the restricted bands. So the margin was calculated using the average limit for emissions fall within the restricted bands. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	4825.0	40.9	3.7	44.6	54.0	-9.4	Peak	Horizontal
	7485.5	36.4	12.8	49.2	54.0	-4.8	Peak	Horizontal
*	8675.5	37.0	13.7	50.7	85.9	-35.2	Peak	Horizontal
*	9899.5	37.0	15.4	52.4	85.9	-33.5	Peak	Horizontal
	4833.5	40.2	3.7	43.9	54.0	-10.1	Peak	Vertical
	7400.5	37.0	12.6	49.6	54.0	-4.4	Peak	Vertical
*	8820.0	35.4	14.0	49.4	85.9	-36.5	Peak	Vertical
*	9840.0	36.6	16.0	52.6	85.9	-33.3	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is 30dBc of the fundamental emission level (115.9dBμV/m) or 15.209 which is higher.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

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

Product	ACCESS POINT- Omni Antenna (AP-ANT-20W)	Temperature	26°C
Test Engineer	Kevin Ker	Relative Humidity	56%
Test Site	AC1	Test Date	2018/03/03
Test Mode:	802.11n-HT40 - Ant 0 + 1 (Beam-Forming Mode)	Test Channel:	06
Remark:	1. Average measurement was not performed if peak level lower than average limit. So the margin was calculated using the average limit for emissions fall within the restricted bands. So the margin was calculated using the average limit for emissions fall within the restricted bands. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	5029.0	40.2	3.9	44.1	54.0	-9.9	Peak	Horizontal
	7621.5	37.2	12.6	49.8	54.0	-4.2	Peak	Horizontal
*	8641.5	36.0	13.5	49.5	86.1	-36.6	Peak	Horizontal
*	9993.0	37.1	15.4	52.5	86.1	-33.6	Peak	Horizontal
	4825.0	40.1	3.7	43.8	54.0	-10.2	Peak	Vertical
	7689.5	37.7	12.4	50.1	54.0	-3.9	Peak	Vertical
*	8803.0	36.8	14.0	50.8	86.1	-35.3	Peak	Vertical
*	9899.5	36.8	15.4	52.2	86.1	-33.9	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is 30dBc of the fundamental emission level (116.1dBμV/m) or 15.209 which is higher.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

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

Product	ACCESS POINT- Omni Antenna (AP-ANT-20W)	Temperature	26°C
Test Engineer	Kevin Ker	Relative Humidity	56%
Test Site	AC1	Test Date	2018/03/03
Test Mode:	802.11n-HT40 - Ant 0 + 1 (Beam-Forming Mode)	Test Channel:	09
Remark:	1. Average measurement was not performed if peak level lower than average limit. So the margin was calculated using the average limit for emissions fall within the restricted bands. So the margin was calculated using the average limit for emissions fall within the restricted bands. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	4842.0	39.8	3.7	43.5	54.0	-10.5	Peak	Horizontal
	7349.5	36.9	12.4	49.3	54.0	-4.7	Peak	Horizontal
*	8845.5	35.3	14.0	49.3	84.3	-35.0	Peak	Horizontal
*	10010.0	36.3	15.4	51.7	84.3	-32.6	Peak	Horizontal
	4808.0	39.5	3.7	43.2	54.0	-10.8	Peak	Vertical
	7383.5	36.7	12.5	49.2	54.0	-4.8	Peak	Vertical
*	8692.5	35.0	13.7	48.7	84.3	-35.6	Peak	Vertical
*	9840.0	35.1	16.0	51.1	84.3	-33.2	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is 30dBc of the fundamental emission level (114.3dBμV/m) or 15.209 which is higher.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

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

Product	ACCESS POINT- Omni Antenna (AP-ANT-40)	Temperature	26°C
Test Engineer	Kevin Ker	Relative Humidity	56%
Test Site	AC1	Test Date	2017/09/02
Test Mode:	802.11b - Ant 0 + 1 (CDD Mode)	Test Channel:	01
Remark:	3. Average measurement was not performed if peak level lower than average limit. So the margin was calculated using the average limit for emissions fall within the restricted bands. So the margin was calculated using the average limit for emissions fall within the restricted bands. 4. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	7485.5	30.8	12.8	43.6	54.0	-10.4	Peak	Horizontal
	8174.0	32.9	12.0	44.9	54.0	-9.1	Peak	Horizontal
*	10035.5	29.7	15.5	45.2	82.8	-37.6	Peak	Horizontal
*	12747.0	27.6	18.9	46.5	82.8	-36.3	Peak	Horizontal
	7460.0	31.2	12.8	44.0	54.0	-10.0	Peak	Vertical
	8429.0	31.8	12.4	44.2	54.0	-9.8	Peak	Vertical
*	9848.5	30.4	16.1	46.5	82.8	-36.3	Peak	Vertical
*	12815.0	27.4	19.1	46.5	82.8	-36.3	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 30dBc of the fundamental emission level (112.8dBμV/m) or 15.209 which is higher.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

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

Product	ACCESS POINT- Omni Antenna (AP-ANT-40)	Temperature	26°C
Test Engineer	Kevin Ker	Relative Humidity	56%
Test Site	AC1	Test Date	2017/09/02
Test Mode:	802.11b - Ant 0 + 1 (CDD Mode)	Test Channel:	06
Remark:	3. Average measurement was not performed if peak level lower than average limit. So the margin was calculated using the average limit for emissions fall within the restricted bands. So the margin was calculated using the average limit for emissions fall within the restricted bands. 4. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	7443.0	30.6	12.7	43.3	54.0	-10.7	Peak	Horizontal
	8233.5	31.2	11.9	43.1	54.0	-10.9	Peak	Horizontal
*	9942.0	29.7	15.3	45.0	86.4	-41.4	Peak	Horizontal
*	12815.0	27.4	19.1	46.5	86.4	-39.9	Peak	Horizontal
	7443.0	30.6	12.7	43.3	54.0	-10.7	Peak	Vertical
	8463.0	30.9	12.6	43.5	54.0	-10.5	Peak	Vertical
*	10112.0	30.5	15.8	46.3	86.4	-40.1	Peak	Vertical
*	12849.0	27.3	19.2	46.5	86.4	-39.9	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is 30dBc of the fundamental emission level (116.4dBμV/m) or 15.209 which is higher.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

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

Product	ACCESS POINT- Omni Antenna (AP-ANT-40)	Temperature	26°C
Test Engineer	Kevin Ker	Relative Humidity	56%
Test Site	AC1	Test Date	2017/09/02
Test Mode:	802.11b - Ant 0 + 1 (CDD Mode)	Test Channel:	11
Remark:	3. Average measurement was not performed if peak level lower than average limit. So the margin was calculated using the average limit for emissions fall within the restricted bands. So the margin was calculated using the average limit for emissions fall within the restricted bands. 4. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	7400.5	29.8	12.6	42.4	54.0	-11.6	Peak	Horizontal
	8310.0	30.8	11.9	42.7	54.0	-11.3	Peak	Horizontal
*	10095.0	30.3	15.7	46.0	88.2	-42.2	Peak	Horizontal
*	12849.0	27.3	19.2	46.5	88.2	-41.7	Peak	Horizontal
	7400.5	29.8	12.6	42.4	54.0	-11.6	Peak	Vertical
	8165.5	30.5	12.1	42.6	54.0	-11.4	Peak	Vertical
*	9857.0	29.6	16.2	45.8	88.2	-42.4	Peak	Vertical
*	12747.0	27.5	18.9	46.4	88.2	-41.8	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is 30dBc of the fundamental emission level (118.2dBμV/m) or 15.209 which is higher.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

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

Product	ACCESS POINT- Omni Antenna (AP-ANT-40)	Temperature	26°C
Test Engineer	Kevin Ker	Relative Humidity	56%
Test Site	AC1	Test Date	2017/09/02
Test Mode:	802.11g - Ant 0 + 1 (CDD Mode)	Test Channel:	01
Remark:	3. Average measurement was not performed if peak level lower than average limit. So the margin was calculated using the average limit for emissions fall within the restricted bands. So the margin was calculated using the average limit for emissions fall within the restricted bands. 4. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	7324.0	31.7	12.4	44.1	54.0	-9.9	Peak	Horizontal
	8344.0	32.1	12.0	44.1	54.0	-9.9	Peak	Horizontal
*	9933.5	30.4	15.3	45.7	88.8	-43.1	Peak	Horizontal
*	12747.0	27.5	18.9	46.4	88.8	-42.4	Peak	Horizontal
	7324.0	31.7	12.4	44.1	54.0	-9.9	Peak	Vertical
	8310.0	30.6	11.9	42.5	54.0	-11.5	Peak	Vertical
*	9976.0	30.8	15.3	46.1	88.8	-42.7	Peak	Vertical
*	12721.5	25.7	18.8	44.5	88.8	-44.3	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is 30dBc of the fundamental emission level (118.8dBμV/m) or 15.209 which is higher.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

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

Product	ACCESS POINT- Omni Antenna (AP-ANT-40)	Temperature	26°C
Test Engineer	Kevin Ker	Relative Humidity	56%
Test Site	AC1	Test Date	2017/09/02
Test Mode:	802.11g - Ant 0 + 1 (CDD Mode)	Test Channel:	06
Remark:	3. Average measurement was not performed if peak level lower than average limit. So the margin was calculated using the average limit for emissions fall within the restricted bands. So the margin was calculated using the average limit for emissions fall within the restricted bands. 4. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	7519.5	30.9	12.8	43.7	54.0	-10.3	Peak	Horizontal
	8242.0	32.6	11.9	44.5	54.0	-9.5	Peak	Horizontal
*	9950.5	29.9	15.3	45.2	89.1	-43.9	Peak	Horizontal
*	12721.5	25.7	18.8	44.5	89.1	-44.6	Peak	Horizontal
	7519.5	30.9	12.8	43.7	54.0	-10.3	Peak	Vertical
	8310.0	32.1	11.9	44.0	54.0	-10.0	Peak	Vertical
*	9882.5	29.5	15.6	45.1	89.1	-44.0	Peak	Vertical
*	12900.0	27.2	19.5	46.7	89.1	-42.4	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 30dBc of the fundamental emission level (119.1BμV/m) or 15.209 which is higher.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

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

Product	ACCESS POINT- Omni Antenna (AP-ANT-40)	Temperature	26°C
Test Engineer	Kevin Ker	Relative Humidity	56%
Test Site	AC1	Test Date	2017/09/02
Test Mode:	802.11g - Ant 0 + 1 (CDD Mode)	Test Channel:	11
Remark:	3. Average measurement was not performed if peak level lower than average limit. So the margin was calculated using the average limit for emissions fall within the restricted bands. So the margin was calculated using the average limit for emissions fall within the restricted bands. 4. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	7528.0	30.8	12.8	43.6	54.0	-10.4	Peak	Horizontal
	8403.5	31.5	12.2	43.7	54.0	-10.3	Peak	Horizontal
*	10120.5	29.6	15.8	45.4	89.3	-43.9	Peak	Horizontal
*	12900.0	27.2	19.5	46.7	89.3	-42.6	Peak	Horizontal
	7528.0	30.8	12.8	43.6	54.0	-10.4	Peak	Vertical
	8352.5	30.0	12.0	42.0	54.0	-12.0	Peak	Vertical
*	9942.0	28.4	15.3	43.7	89.3	-45.6	Peak	Vertical
*	12755.5	27.1	18.9	46.0	89.3	-43.3	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is 30dBc of the fundamental emission level (119.3dBμV/m) or 15.209 which is higher.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

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

Product	ACCESS POINT- Omni Antenna (AP-ANT-40)	Temperature	26°C
Test Engineer	Kevin Ker	Relative Humidity	56%
Test Site	AC1	Test Date	2017/09/02
Test Mode:	802.11n-HT20 - Ant 0 + 1 (CDD Mode)	Test Channel:	01
Remark:	3. Average measurement was not performed if peak level lower than average limit. So the margin was calculated using the average limit for emissions fall within the restricted bands. So the margin was calculated using the average limit for emissions fall within the restricted bands. 4. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	7366.5	29.6	12.5	42.1	54.0	-11.9	Peak	Horizontal
	8242.0	32.1	11.9	44.0	54.0	-10.0	Peak	Horizontal
*	10129.0	30.4	15.9	46.3	89.8	-43.5	Peak	Horizontal
*	12755.5	27.1	18.9	46.0	89.8	-43.8	Peak	Horizontal
	7366.5	29.6	12.5	42.1	54.0	-11.9	Peak	Vertical
	8386.5	29.9	12.1	42.0	54.0	-12.0	Peak	Vertical
*	9976.0	31.1	15.3	46.4	89.8	-43.4	Peak	Vertical
*	12891.5	26.1	19.4	45.5	89.8	-44.3	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 30dBc of the fundamental emission level (119.8dBμV/m) or 15.209 which is higher.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

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

Product	ACCESS POINT- Omni Antenna (AP-ANT-40)	Temperature	26°C
Test Engineer	Kevin Ker	Relative Humidity	56%
Test Site	AC1	Test Date	2017/09/02
Test Mode:	802.11n-HT20 - Ant 0 + 1 (CDD Mode)	Test Channel:	06
Remark:	3. Average measurement was not performed if peak level lower than average limit. So the margin was calculated using the average limit for emissions fall within the restricted bands. So the margin was calculated using the average limit for emissions fall within the restricted bands. 4. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	7536.5	29.5	12.8	42.3	54.0	-11.7	Peak	Horizontal
	8378.0	32.9	12.1	45.0	54.0	-9.0	Peak	Horizontal
*	10052.5	30.9	15.5	46.4	89.7	-43.3	Peak	Horizontal
*	12891.5	26.1	19.4	45.5	89.7	-44.2	Peak	Horizontal
	7536.5	29.5	12.8	42.3	54.0	-11.7	Peak	Vertical
	8276.0	30.4	11.9	42.3	54.0	-11.7	Peak	Vertical
*	9806.0	30.6	15.2	45.8	89.7	-43.9	Peak	Vertical
*	12883.0	26.4	19.4	45.8	89.7	-43.9	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is 30dBc of the fundamental emission level (119.7dBμV/m) or 15.209 which is higher.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

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

Product	ACCESS POINT- Omni Antenna (AP-ANT-40)	Temperature	26°C
Test Engineer	Kevin Ker	Relative Humidity	56%
Test Site	AC1	Test Date	2017/09/02
Test Mode:	802.11n-HT20 - Ant 0 + 1 (CDD Mode)	Test Channel:	11
Remark:	3. Average measurement was not performed if peak level lower than average limit. So the margin was calculated using the average limit for emissions fall within the restricted bands. So the margin was calculated using the average limit for emissions fall within the restricted bands. 4. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	7519.5	31.7	12.8	44.5	54.0	-9.5	Peak	Horizontal
	8318.5	31.7	11.9	43.6	54.0	-10.4	Peak	Horizontal
*	10044.0	30.3	15.5	45.8	89.6	-43.8	Peak	Horizontal
*	12883.0	26.4	19.4	45.8	89.6	-43.8	Peak	Horizontal
	7519.5	31.7	12.8	44.5	54.0	-9.5	Peak	Vertical
	8395.0	31.1	12.2	43.3	54.0	-10.7	Peak	Vertical
*	9840.0	29.7	16.0	45.7	89.6	-43.9	Peak	Vertical
*	12908.5	26.6	19.5	46.1	89.6	-43.5	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is 30dBc of the fundamental emission level (119.6dBμV/m) or 15.209 which is higher.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

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

Product	ACCESS POINT- Omni Antenna (AP-ANT-40)	Temperature	26°C
Test Engineer	Kevin Ker	Relative Humidity	56%
Test Site	AC1	Test Date	2017/09/02
Test Mode:	802.11n-HT40 - Ant 0 + 1 (CDD Mode)	Test Channel:	03
Remark:	3. Average measurement was not performed if peak level lower than average limit. So the margin was calculated using the average limit for emissions fall within the restricted bands. So the margin was calculated using the average limit for emissions fall within the restricted bands. 4. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	7307.0	31.1	12.3	43.4	54.0	-10.6	Peak	Horizontal
	8148.5	31.6	12.1	43.7	54.0	-10.3	Peak	Horizontal
*	9865.5	29.6	16.0	45.6	81.9	-36.3	Peak	Horizontal
*	12908.5	26.6	19.5	46.1	81.9	-35.8	Peak	Horizontal
	7307.0	31.1	12.3	43.4	54.0	-10.6	Peak	Vertical
	8369.5	31.6	12.1	43.7	54.0	-10.3	Peak	Vertical
*	10078.0	32.4	15.6	48.0	81.9	-33.9	Peak	Vertical
*	12823.5	25.7	19.2	44.9	81.9	-37.0	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is 30dBc of the fundamental emission level (111.9dBμV/m) or 15.209 which is higher.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

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

Product	ACCESS POINT- Omni Antenna (AP-ANT-40)	Temperature	26°C
Test Engineer	Kevin Ker	Relative Humidity	56%
Test Site	AC1	Test Date	2017/09/02
Test Mode:	802.11n-HT40 - Ant 0 + 1 (CDD Mode)	Test Channel:	06
Remark:	3. Average measurement was not performed if peak level lower than average limit. So the margin was calculated using the average limit for emissions fall within the restricted bands. So the margin was calculated using the average limit for emissions fall within the restricted bands. 4. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	7451.5	29.6	12.8	42.4	54.0	-11.6	Peak	Horizontal
	8250.5	30.0	11.9	41.9	54.0	-12.1	Peak	Horizontal
*	10188.5	30.1	16.2	46.3	82.6	-36.3	Peak	Horizontal
*	12823.5	25.7	19.2	44.9	82.6	-37.7	Peak	Horizontal
	7451.5	29.6	12.8	42.4	54.0	-11.6	Peak	Vertical
	8327.0	32.1	11.9	44.0	54.0	-10.0	Peak	Vertical
*	9831.5	30.4	15.9	46.3	82.6	-36.3	Peak	Vertical
*	12951.0	26.6	19.7	46.3	82.6	-36.3	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is 30dBc of the fundamental emission level (112.6dBμV/m) or 15.209 which is higher.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

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

Product	ACCESS POINT- Omni Antenna (AP-ANT-40)	Temperature	26°C
Test Engineer	Kevin Ker	Relative Humidity	56%
Test Site	AC1	Test Date	2017/09/02
Test Mode:	802.11n-HT40 - Ant 0 + 1 (CDD Mode)	Test Channel:	09
Remark:	3. Average measurement was not performed if peak level lower than average limit. So the margin was calculated using the average limit for emissions fall within the restricted bands. So the margin was calculated using the average limit for emissions fall within the restricted bands. 4. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	7468.5	29.7	12.8	42.5	54.0	-11.5	Peak	Horizontal
	8429.0	29.9	12.4	42.3	54.0	-11.7	Peak	Horizontal
*	10188.5	27.3	16.2	43.5	84.8	-41.3	Peak	Horizontal
*	12951.0	26.6	19.7	46.3	84.8	-38.5	Peak	Horizontal
	7468.5	29.7	12.8	42.5	54.0	-11.5	Peak	Vertical
	8429.0	30.4	12.4	42.8	54.0	-11.2	Peak	Vertical
*	9831.5	30.3	15.9	46.2	84.8	-38.6	Peak	Vertical
*	12704.5	27.3	18.8	46.1	84.8	-38.7	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is 30dBc of the fundamental emission level (114.8dBμV/m) or 15.209 which is higher.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

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

Product	ACCESS POINT- Omni Antenna (AP-ANT-40)	Temperature	26°C
Test Engineer	Kevin Ker	Relative Humidity	56%
Test Site	AC1	Test Date	2017/09/02
Test Mode:	802.11n-HT20 - Ant 0 + 1 (Beam-Forming Mode)	Test Channel:	01
Remark:	3. Average measurement was not performed if peak level lower than average limit. So the margin was calculated using the average limit for emissions fall within the restricted bands. So the margin was calculated using the average limit for emissions fall within the restricted bands. 4. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	7434.5	28.4	12.7	41.1	54.0	-12.9	Peak	Horizontal
	8318.5	29.2	11.9	41.1	54.0	-12.9	Peak	Horizontal
*	9772.0	27.7	14.9	42.6	84.5	-41.9	Peak	Horizontal
*	12857.5	28.9	19.3	48.2	84.5	-36.3	Peak	Horizontal
	7434.5	29.5	12.7	42.2	54.0	-11.8	Peak	Vertical
	8437.5	30.0	12.4	42.4	54.0	-11.6	Peak	Vertical
*	10078.0	29.1	15.6	44.7	84.5	-39.8	Peak	Vertical
*	12857.5	28.9	19.3	48.2	84.5	-36.3	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is 30dBc of the fundamental emission level (114.5dBμV/m) or 15.209 which is higher.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

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

Product	ACCESS POINT- Omni Antenna (AP-ANT-40)	Temperature	26°C
Test Engineer	Kevin Ker	Relative Humidity	56%
Test Site	AC1	Test Date	2017/09/02
Test Mode:	802.11n-HT20 - Ant 0 + 1 (Beam-Forming Mode)	Test Channel:	06
Remark:	3. Average measurement was not performed if peak level lower than average limit. So the margin was calculated using the average limit for emissions fall within the restricted bands. So the margin was calculated using the average limit for emissions fall within the restricted bands. 4. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	7468.5	29.4	12.8	42.2	54.0	-11.8	Peak	Horizontal
	8403.5	28.5	12.2	40.7	54.0	-13.3	Peak	Horizontal
*	10078.0	28.2	15.6	43.8	84.2	-40.4	Peak	Horizontal
*	12764.0	27.3	19.0	46.3	84.2	-37.9	Peak	Horizontal
	7341.0	28.7	12.4	41.1	54.0	-12.9	Peak	Vertical
	8352.5	29.6	12.0	41.6	54.0	-12.4	Peak	Vertical
*	10137.5	30.0	15.9	45.9	84.2	-38.3	Peak	Vertical
*	12738.5	27.6	18.9	46.5	84.2	-37.7	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is 30dBc of the fundamental emission level (114.2dBμV/m) or 15.209 which is higher.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

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

Product	ACCESS POINT- Omni Antenna (AP-ANT-40)	Temperature	26°C
Test Engineer	Kevin Ker	Relative Humidity	56%
Test Site	AC1	Test Date	2017/09/02
Test Mode:	802.11n-HT20 - Ant 0 + 1 (Beam-Forming Mode)	Test Channel:	11
Remark:	3. Average measurement was not performed if peak level lower than average limit. So the margin was calculated using the average limit for emissions fall within the restricted bands. So the margin was calculated using the average limit for emissions fall within the restricted bands. 4. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	7341.0	28.7	12.4	41.1	54.0	-12.9	Peak	Horizontal
	8412.0	29.8	12.3	42.1	54.0	-11.9	Peak	Horizontal
*	9993.0	30.4	15.4	45.8	83.9	-38.1	Peak	Horizontal
*	13129.5	27.5	20.1	47.6	83.9	-36.3	Peak	Horizontal
	7366.5	29.8	12.5	42.3	54.0	-11.7	Peak	Vertical
	8276.0	29.2	11.9	41.1	54.0	-12.9	Peak	Vertical
*	10171.5	27.8	16.1	43.9	83.9	-40.0	Peak	Vertical
*	13129.5	27.5	20.1	47.6	83.9	-36.3	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is 30dBc of the fundamental emission level (113.9dBμV/m) or 15.209 which is higher.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

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

Product	ACCESS POINT- Omni Antenna (AP-ANT-40)	Temperature	26°C
Test Engineer	Kevin Ker	Relative Humidity	56%
Test Site	AC1	Test Date	2017/09/02
Test Mode:	802.11n-HT40 - Ant 0 + 1 (Beam-Forming Mode)	Test Channel:	03
Remark:	3. Average measurement was not performed if peak level lower than average limit. So the margin was calculated using the average limit for emissions fall within the restricted bands. So the margin was calculated using the average limit for emissions fall within the restricted bands. 4. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	7366.5	28.8	12.5	41.3	54.0	-12.7	Peak	Horizontal
	8318.5	31.4	11.9	43.3	54.0	-10.7	Peak	Horizontal
*	9916.5	30.2	15.3	45.5	81.8	-36.3	Peak	Horizontal
*	12815.0	28.9	19.1	48.0	81.8	-33.8	Peak	Horizontal
	7443.0	30.8	12.7	43.5	54.0	-10.5	Peak	Vertical
	8369.5	30.4	12.1	42.5	54.0	-11.5	Peak	Vertical
*	10052.5	30.6	15.5	46.1	81.8	-35.7	Peak	Vertical
*	12815.0	28.9	19.1	48.0	81.8	-33.8	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is 30dBc of the fundamental emission level (111.8dBμV/m) or 15.209 which is higher.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

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

Product	ACCESS POINT- Omni Antenna (AP-ANT-40)	Temperature	26°C
Test Engineer	Kevin Ker	Relative Humidity	56%
Test Site	AC1	Test Date	2017/09/02
Test Mode:	802.11n-HT40 - Ant 0 + 1 (Beam-Forming Mode)	Test Channel:	06
Remark:	3. Average measurement was not performed if peak level lower than average limit. So the margin was calculated using the average limit for emissions fall within the restricted bands. So the margin was calculated using the average limit for emissions fall within the restricted bands. 4. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	7451.5	31.1	12.8	43.9	54.0	-10.1	Peak	Horizontal
	8386.5	30.0	12.1	42.1	54.0	-11.9	Peak	Horizontal
*	9831.5	27.3	15.9	43.2	81.6	-38.4	Peak	Horizontal
*	12968.0	28.8	19.8	48.6	81.6	-33.0	Peak	Horizontal
	7400.5	28.5	12.6	41.1	54.0	-12.9	Peak	Vertical
	8471.5	29.5	12.6	42.1	54.0	-11.9	Peak	Vertical
*	10120.5	27.7	15.8	43.5	81.6	-38.1	Peak	Vertical
*	12968.0	28.8	19.8	48.6	81.6	-33.0	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is 30dBc of the fundamental emission level (111.6dBμV/m) or 15.209 which is higher.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

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

Product	ACCESS POINT- Omni Antenna (AP-ANT-40)	Temperature	26°C
Test Engineer	Kevin Ker	Relative Humidity	56%
Test Site	AC1	Test Date	2017/09/02
Test Mode:	802.11n-HT40 - Ant 0 + 1 (Beam-Forming Mode)	Test Channel:	09
Remark:	3. Average measurement was not performed if peak level lower than average limit. So the margin was calculated using the average limit for emissions fall within the restricted bands. So the margin was calculated using the average limit for emissions fall within the restricted bands. 4. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	7400.5	28.5	12.6	41.1	54.0	-12.9	Peak	Horizontal
	8471.5	31.4	12.6	44.0	54.0	-10.0	Peak	Horizontal
*	9899.5	30.0	15.4	45.4	81.1	-35.7	Peak	Horizontal
*	12849.0	26.6	19.2	45.8	81.1	-35.3	Peak	Horizontal
	7434.5	28.4	12.7	41.1	54.0	-12.9	Peak	Vertical
	8191.0	28.1	12.0	40.1	54.0	-13.9	Peak	Vertical
*	10171.5	28.2	16.1	44.3	81.1	-36.8	Peak	Vertical
*	12849.0	26.6	19.2	45.8	81.1	-35.3	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is 30dBc of the fundamental emission level (111.1dBμV/m) or 15.209 which is higher.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

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

Product	ACCESS POINT- Directional Antenna (ANT-2x2-2314)	Temperature	26°C
Test Engineer	Kevin Ker	Relative Humidity	56%
Test Site	AC1	Test Date	2018/02/08
Test Mode:	802.11b - Ant 0 + 1 (CDD Mode)	Test Channel:	01
Remark:	1. Average measurement was not performed if peak level lower than average limit. So the margin was calculated using the average limit for emissions fall within the restricted bands. So the margin was calculated using the average limit for emissions fall within the restricted bands. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
*	8769.0	34.4	13.9	48.3	92.7	-44.4	Peak	Horizontal
*	9814.5	34.9	15.4	50.3	92.7	-42.4	Peak	Horizontal
	11285.0	33.7	18.8	52.5	54.0	-1.5	Peak	Horizontal
	11769.5	32.6	18.8	51.4	54.0	-2.6	Peak	Horizontal
*	8854.0	34.4	14.0	48.4	92.7	-44.3	Peak	Vertical
*	10137.5	33.7	15.9	49.6	92.7	-43.1	Peak	Vertical
	10970.5	32.9	18.4	51.3	54.0	-2.7	Peak	Vertical
	11897.0	32.6	18.6	51.2	54.0	-2.8	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 30dBc of the fundamental emission level (122.7dBμV/m) or 15.209 which is higher.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

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

Product	ACCESS POINT- Directional Antenna (ANT-2x2-2314)	Temperature	26°C
Test Engineer	Kevin Ker	Relative Humidity	56%
Test Site	AC1	Test Date	2018/02/08
Test Mode:	802.11b - Ant 0 + 1 (CDD Mode)	Test Channel:	06
Remark:	1. Average measurement was not performed if peak level lower than average limit. So the margin was calculated using the average limit for emissions fall within the restricted bands. So the margin was calculated using the average limit for emissions fall within the restricted bands. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
*	8820.0	34.1	14.0	48.1	91.7	-43.6	Peak	Horizontal
*	10112.0	34.3	15.8	50.1	91.7	-41.6	Peak	Horizontal
	11276.5	32.5	18.8	51.3	54.0	-2.7	Peak	Horizontal
	12330.5	33.0	18.5	51.5	54.0	-2.5	Peak	Horizontal
*	8913.5	33.5	14.0	47.5	91.7	-44.2	Peak	Vertical
*	9738.0	34.3	14.8	49.1	91.7	-42.6	Peak	Vertical
	11038.5	31.8	18.5	50.3	54.0	-3.7	Peak	Vertical
	12169.0	31.4	18.8	50.2	54.0	-3.8	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 30dBc of the fundamental emission level (121.7dBμV/m) or 15.209 which is higher.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

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

Product	ACCESS POINT- Directional Antenna (ANT-2x2-2314)	Temperature	26°C
Test Engineer	Kevin Ker	Relative Humidity	56%
Test Site	AC1	Test Date	2018/02/08
Test Mode:	802.11b - Ant 0 + 1 (CDD Mode)	Test Channel:	11
Remark:	1. Average measurement was not performed if peak level lower than average limit. So the margin was calculated using the average limit for emissions fall within the restricted bands. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
*	8828.5	33.6	14.0	47.6	91.8	-44.2	Peak	Horizontal
*	10018.5	34.3	15.4	49.7	91.8	-42.1	Peak	Horizontal
	11217.0	31.8	18.8	50.6	54.0	-3.4	Peak	Horizontal
	11956.5	32.4	18.6	51.0	54.0	-3.0	Peak	Horizontal
*	8913.5	33.5	14.0	47.5	91.8	-44.3	Peak	Vertical
*	9916.5	34.2	15.3	49.5	91.8	-42.3	Peak	Vertical
	10877.0	32.9	18.2	51.1	54.0	-2.9	Peak	Vertical
	11693.0	32.1	19.2	51.3	54.0	-2.7	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 30dBc of the fundamental emission level (121.8dBμV/m) or 15.209 which is higher.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

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

Product	ACCESS POINT- Directional Antenna (ANT-2x2-2314)	Temperature	26°C
Test Engineer	Kevin Ker	Relative Humidity	56%
Test Site	AC1	Test Date	2018/02/08
Test Mode:	802.11g - Ant 0 + 1 (CDD Mode)	Test Channel:	01
Remark:	1. Average measurement was not performed if peak level lower than average limit. So the margin was calculated using the average limit for emissions fall within the restricted bands. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
*	8769.0	34.2	13.9	48.1	93.4	-45.3	Peak	Horizontal
*	9874.0	34.9	15.8	50.7	93.4	-42.7	Peak	Horizontal
	10817.5	33.0	18.0	51.0	54.0	-3.0	Peak	Horizontal
	11667.5	32.8	19.3	52.1	54.0	-1.9	Peak	Horizontal
*	8718.0	34.2	13.8	48.0	93.4	-45.4	Peak	Vertical
*	10044.0	33.9	15.5	49.4	93.4	-44.0	Peak	Vertical
	11072.5	32.4	18.6	51.0	54.0	-3.0	Peak	Vertical
	11786.5	31.9	18.8	50.7	54.0	-3.3	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 30dBc of the fundamental emission level (123.4dBμV/m) or 15.209 which is higher.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

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

Product	ACCESS POINT- Directional Antenna (ANT-2x2-2314)	Temperature	26°C
Test Engineer	Kevin Ker	Relative Humidity	56%
Test Site	AC1	Test Date	2018/02/08
Test Mode:	802.11g - Ant 0 + 1 (CDD Mode)	Test Channel:	06
Remark:	1. Average measurement was not performed if peak level lower than average limit. So the margin was calculated using the average limit for emissions fall within the restricted bands. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
*	8692.5	32.8	13.7	46.5	94.3	-47.8	Peak	Horizontal
*	9644.5	33.4	14.4	47.8	94.3	-46.5	Peak	Horizontal
	11327.5	31.5	18.9	50.4	54.0	-3.6	Peak	Horizontal
	12109.5	31.7	18.9	50.6	54.0	-3.4	Peak	Horizontal
*	8862.5	33.7	14.0	47.7	94.3	-46.6	Peak	Vertical
*	10086.5	33.3	15.7	49.0	94.3	-45.3	Peak	Vertical
	11276.5	31.4	18.8	50.2	54.0	-3.8	Peak	Vertical
	12007.5	31.8	18.7	50.5	54.0	-3.5	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 30dBc of the fundamental emission level (124.3dBμV/m) or 15.209 which is higher.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

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

Product	ACCESS POINT- Directional Antenna (ANT-2x2-2314)	Temperature	26°C
Test Engineer	Kevin Ker	Relative Humidity	56%
Test Site	AC1	Test Date	2018/02/08
Test Mode:	802.11g - Ant 0 + 1 (CDD Mode)	Test Channel:	11
Remark:	1. Average measurement was not performed if peak level lower than average limit. So the margin was calculated using the average limit for emissions fall within the restricted bands. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
*	8743.5	34.0	13.9	47.9	93.9	-46.0	Peak	Horizontal
*	9857.0	34.4	16.2	50.6	93.9	-43.3	Peak	Horizontal
	11268.0	33.6	18.8	52.4	54.0	-1.6	Peak	Horizontal
	12075.5	31.4	18.9	50.3	54.0	-3.7	Peak	Horizontal
*	8811.5	33.5	14.0	47.5	93.9	-46.4	Peak	Vertical
*	9874.0	33.6	15.8	49.4	93.9	-44.5	Peak	Vertical
	11072.5	33.2	18.6	51.8	54.0	-2.2	Peak	Vertical
	12109.5	31.8	18.9	50.7	54.0	-3.3	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 30dBc of the fundamental emission level (123.9dBμV/m) or 15.209 which is higher.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

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

Product	ACCESS POINT- Directional Antenna (ANT-2x2-2314)	Temperature	26°C
Test Engineer	Kevin Ker	Relative Humidity	56%
Test Site	AC1	Test Date	2018/02/08
Test Mode:	802.11n-HT20 - Ant 0 + 1 (CDD Mode)	Test Channel:	01
Remark:	1. Average measurement was not performed if peak level lower than average limit. So the margin was calculated using the average limit for emissions fall within the restricted bands. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
*	8862.5	34.1	14.0	48.1	91.9	-43.8	Peak	Horizontal
*	9942.0	35.1	15.3	50.4	91.9	-41.5	Peak	Horizontal
	11123.5	33.1	18.6	51.7	54.0	-2.3	Peak	Horizontal
	12169.0	33.8	18.8	52.6	54.0	-1.4	Peak	Horizontal
*	8854.0	34.9	14.0	48.9	91.9	-43.0	Peak	Vertical
*	9772.0	35.0	14.9	49.9	91.9	-42.0	Peak	Vertical
	11021.5	32.7	18.5	51.2	54.0	-2.8	Peak	Vertical
	11633.5	31.1	19.4	50.5	54.0	-3.5	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 30dBc of the fundamental emission level (121.9dBμV/m) or 15.209 which is higher.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

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

Product	ACCESS POINT- Directional Antenna (ANT-2x2-2314)	Temperature	26°C
Test Engineer	Kevin Ker	Relative Humidity	56%
Test Site	AC1	Test Date	2018/02/08
Test Mode:	802.11n-HT20 - Ant 0 + 1 (CDD Mode)	Test Channel:	06
Remark:	1. Average measurement was not performed if peak level lower than average limit. So the margin was calculated using the average limit for emissions fall within the restricted bands. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
*	8777.5	33.7	13.9	47.6	94.3	-46.7	Peak	Horizontal
*	10069.5	34.1	15.6	49.7	94.3	-44.6	Peak	Horizontal
	11030.0	32.5	18.5	51.0	54.0	-3.0	Peak	Horizontal
	11948.0	33.0	18.6	51.6	54.0	-2.4	Peak	Horizontal
*	8896.5	32.7	14.0	46.7	94.3	-47.6	Peak	Vertical
*	9814.5	33.4	15.4	48.8	94.3	-45.5	Peak	Vertical
	11123.5	33.4	18.6	52.0	54.0	-2.0	Peak	Vertical
	12024.5	31.6	18.8	50.4	54.0	-3.6	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 30dBc of the fundamental emission level (124.3dBμV/m) or 15.209 which is higher.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

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

Product	ACCESS POINT- Directional Antenna (ANT-2x2-2314)	Temperature	26°C
Test Engineer	Kevin Ker	Relative Humidity	56%
Test Site	AC1	Test Date	2018/02/08
Test Mode:	802.11n-HT20 - Ant 0 + 1 (CDD Mode)	Test Channel:	11
Remark:	1. Average measurement was not performed if peak level lower than average limit. So the margin was calculated using the average limit for emissions fall within the restricted bands. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
*	8854.0	33.5	14.0	47.5	93.2	-45.7	Peak	Horizontal
*	10078.0	33.6	15.6	49.2	93.2	-44.0	Peak	Horizontal
	11149.0	31.5	18.7	50.2	54.0	-3.8	Peak	Horizontal
	12339.0	31.3	18.5	49.8	54.0	-4.2	Peak	Horizontal
*	8735.0	33.8	13.9	47.7	93.2	-45.5	Peak	Vertical
*	10069.5	33.4	15.6	49.0	93.2	-44.2	Peak	Vertical
	11038.5	31.8	18.5	50.3	54.0	-3.7	Peak	Vertical
	12118.0	31.1	18.9	50.0	54.0	-4.0	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 30dBc of the fundamental emission level (123.2dBμV/m) or 15.209 which is higher.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

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

Product	ACCESS POINT- Directional Antenna (ANT-2x2-2314)	Temperature	26°C
Test Engineer	Kevin Ker	Relative Humidity	56%
Test Site	AC1	Test Date	2018/02/08
Test Mode:	802.11n-HT40 - Ant 0 + 1 (CDD Mode)	Test Channel:	03
Remark:	1. Average measurement was not performed if peak level lower than average limit. So the margin was calculated using the average limit for emissions fall within the restricted bands. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
*	8854.0	34.7	14.0	48.7	83.7	-35.0	Peak	Horizontal
*	9772.0	34.1	14.9	49.0	83.7	-34.7	Peak	Horizontal
	10919.5	32.6	18.4	51.0	54.0	-3.0	Peak	Horizontal
	11642.0	31.2	19.4	50.6	54.0	-3.4	Peak	Horizontal
*	8803.0	33.0	14.0	47.0	83.7	-36.7	Peak	Vertical
*	9814.5	34.0	15.4	49.4	83.7	-34.3	Peak	Vertical
	10936.5	32.4	18.4	50.8	54.0	-3.2	Peak	Vertical
	11812.0	31.4	18.7	50.1	54.0	-3.9	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 30dBc of the fundamental emission level (113.7dBμV/m) or 15.209 which is higher.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

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

Product	ACCESS POINT- Directional Antenna (ANT-2x2-2314)	Temperature	26°C
Test Engineer	Kevin Ker	Relative Humidity	56%
Test Site	AC1	Test Date	2018/02/08
Test Mode:	802.11n-HT40 - Ant 0 + 1 (CDD Mode)	Test Channel:	06
Remark:	1. Average measurement was not performed if peak level lower than average limit. So the margin was calculated using the average limit for emissions fall within the restricted bands. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
*	8735.0	34.4	13.9	48.3	85.5	-37.2	Peak	Horizontal
*	9814.5	34.1	15.4	49.5	85.5	-36.0	Peak	Horizontal
	11132.0	32.4	18.6	51.0	54.0	-3.0	Peak	Horizontal
	11948.0	31.4	18.6	50.0	54.0	-4.0	Peak	Horizontal
*	8811.5	33.7	14.0	47.7	85.5	-37.8	Peak	Vertical
*	10078.0	33.7	15.6	49.3	85.5	-36.2	Peak	Vertical
	11242.5	31.8	18.8	50.6	54.0	-3.4	Peak	Vertical
	12339.0	31.4	18.5	49.9	54.0	-4.1	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 30dBc of the fundamental emission level (115.5dBμV/m) or 15.209 which is higher.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

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

Product	ACCESS POINT- Directional Antenna (ANT-2x2-2314)	Temperature	26°C
Test Engineer	Kevin Ker	Relative Humidity	56%
Test Site	AC1	Test Date	2018/02/08
Test Mode:	802.11n-HT40 - Ant 0 + 1 (CDD Mode)	Test Channel:	09
Remark:	1. Average measurement was not performed if peak level lower than average limit. So the margin was calculated using the average limit for emissions fall within the restricted bands. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
*	8854.0	32.9	14.0	46.9	87.0	-40.1	Peak	Horizontal
*	9687.0	34.9	14.6	49.5	87.0	-37.5	Peak	Horizontal
	10928.0	33.3	18.4	51.7	54.0	-2.3	Peak	Horizontal
	12109.5	31.6	18.9	50.5	54.0	-3.5	Peak	Horizontal
*	8769.0	34.5	13.9	48.4	87.0	-38.6	Peak	Vertical
*	10027.0	34.1	15.4	49.5	87.0	-37.5	Peak	Vertical
	11132.0	32.2	18.6	50.8	54.0	-3.2	Peak	Vertical
	11948.0	32.2	18.6	50.8	54.0	-3.2	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 30dBc of the fundamental emission level (117.0dBμV/m) or 15.209 which is higher.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

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

Product	ACCESS POINT- Directional Antenna (ANT-2x2-2314)	Temperature	26°C
Test Engineer	Kevin Ker	Relative Humidity	56%
Test Site	AC1	Test Date	2018/02/08
Test Mode:	802.11n-HT20 - Ant 0 + 1 (Beam-Forming Mode)	Test Channel:	01
Remark:	1. Average measurement was not performed if peak level lower than average limit. So the margin was calculated using the average limit for emissions fall within the restricted bands. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
*	6559.0	37.6	8.6	46.2	92.0	-45.8	Peak	Horizontal
*	9661.5	33.6	14.5	48.1	92.0	-43.9	Peak	Horizontal
	11242.5	31.5	18.8	50.3	54.0	-3.7	Peak	Horizontal
	12109.5	31.6	18.9	50.5	54.0	-3.5	Peak	Horizontal
*	6712.0	36.8	8.7	45.5	92.0	-46.5	Peak	Vertical
*	9780.5	34.4	14.9	49.3	92.0	-42.7	Peak	Vertical
	11072.5	32.6	18.6	51.2	54.0	-2.8	Peak	Vertical
	11897.0	32.9	18.6	51.5	54.0	-2.5	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 30dBc of the fundamental emission level (122.0dBμV/m) or 15.209 which is higher.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

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