

低功率射頻器材試驗報告

申請廠商	香港商歷峯亞太有限公司台灣分公司 台北市松山區民生東路3段109號10樓、11樓及14樓
製造廠商	Montblanc-Simplo GmbH
產品名稱	智能腕錶
廠牌	Montblanc
型號	SXL20
電場強度	39.03dBuV/m (Peak)
工作頻率	13.56MHz
調變方式	ASK
法規	LP0002: 4.2.1 節

實驗室資訊

台灣檢驗科技股份有限公司 射頻實驗中心

新北市新北產業園區五工路134號

認證有效期間：109年01月30日起至110年06月13日止

試驗件收樣日期 民國109年07月15日

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試驗執行日期 民國109年07月15日~ 民國109年08月14日

報告發行日期 民國109年10月13日

張俊卿

報告簽署人
張俊卿簽章



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Revision History

Report Number	Revision	Description	Issue Date	Remark
ER/2020/70083	Rev.00	Original.	Oct. 13, 2020	Revised By: Karen Huang

Note:

1、Disclaimer

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

- 2、電源線傳導干擾及 Fully System 測試模式在各個無線功能全開下進行測試，經評估為最差模式。
- 3、測試報告 ER/2020/70081 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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測試標準

國家通訊傳播委員會低功率射頻器材技術規範

民國 109 年 7 月 1 日版本

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一百零七年一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。

台灣檢驗科技股份有限公司依低功率射頻器材技術規範審驗要點規範製作測試結果報告，測試結果評判為合格。

備註：

1. 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。
2. 此份報告未經本公司同意，不得部份摘錄複製使用。

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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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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	2.586 dB
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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1 一般資料

1.1 產品描述

產品名稱	智能腕錶	
產品型號	SXL20	
產品商標	Montblanc	
Cradle:	Model No: SRB-A005A, Brand: Montblanc	
USB Cable:	Model No.: SRB-A004, Brand: Montblanc	
使用電源	3.85Vdc from rechargeable Lithium polymer battery or 5Vdc from USB port	
	Battery:	Model No.: HAGP482427SD, Brand: LISHEN

發射頻率	13.56MHz
調變方式	ASK
頻道數	1 Channel
天線型式	Loop Antenna, Gain: N/A Model No.: 23A1DBW3200; Brand: HONGBO

本案經申請者切結器材不提供隨貨配件，配件由實驗室提供併同檢驗，產品名稱: Adapter，廠牌: Apple，型號: A1385。

1.2 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(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 15.225之檢驗法。

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一般規定項目

項次	測試項目	適用規範	測試結果	量測設備	備註
1	待測試產品確認	低功率射頻器材技術規範3.1節	N/A	N/A	符合
2	天線之要求	低功率射頻器材技術規範4.2節	N/A	N/A	符合，此天線並非標準接頭
3	電源線傳導干擾	低功率射頻器材技術規範3.3節	合格	合格	符合
4	接收機禁用頻帶	低功率射頻器材技術規範3.9節	N/A	N/A	符合，該接收頻率13.56，並非落於禁用頻帶
5	不得發射減幅波	低功率射頻器材技術規範3.4節	合格	合格	符合
6	輻射電場強度	低功率射頻器材技術規範3.6節	合格	合格	符合
7	是否成套銷售	低功率射頻器材技術規範3.9節	N/A	N/A	否
	以下空白				

特別規定：任何發射型式之器材

項次	測試項目	適用規範	測試結果	量測設備	備註
1	主波發射	低功率射頻器材技術規範4.2.1節(1)	請參閱6.5節	請參閱4.2節	合格
2	不必要發射	低功率射頻器材技術規範4.2.1節(2)	請參閱6.5節	請參閱4.2節	合格
3	電源線傳導干擾	低功率射頻器材技術規範3.3節	請參閱5.5節	請參閱4.1節	合格
4	頻率穩定度	低功率射頻器材技術規範4.2.1節(3)	請參閱7.3節	請參閱4.3節	合格
	以下空白				

1.3 測試軟體說明

測試軟體名稱	測試軟體版本	測試軟體功率設定值
N/A	N/A	Default

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2 適用規範

(1) 輻射之規定

依據NCC低功率射頻器材技術規範之4.2節(1)，發射機電場強度之限制要求如下(測試距離 30 米)：特別規定

主波頻率 (MHz)	主波電場強度		不必要之發射	
	uv/m	dBuv/m	uv/m	dBuv/m
13.553～ 13.567	15848	84.0	如下表	
備註：*為線性內差法				

$$3\text{m主波電場強度} = 84 + 40\log(30/3) = 124\text{dBuV/m}$$

依據NCC低功率射頻器材技術規範3.9節，收信機之輻射電場強度不得超過3.5節之規定，即如上表之『其他發射之限制值』，其限制值如下：(一般規定)

頻率 MHz	測試距離 m	其他發射之限制值	
		dBμV/m	μV/m
0.009 – 0.490 (含)	300		2,400 / 頻率 (千赫)
0.490 (不含) – 1.705 (含)	30		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

依據NCC低功率射頻器材技術規範之4.2節(3)，頻率容許差度應維持在主波頻率之±0.01%以內。在正常供應電壓下，溫度在攝氏零下二十度至攝氏五十度間變化；及在攝氏二十度下，供應電壓在額定值之±15%內變化時。以電池作業，應以新電池測試，須符合第6.18節之規定。

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(2) 傳導之規定

依據NCC低功率射頻器材技術規範之3.3節，電源傳導干擾之限制要求如下：

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

(3) 發射天線之要求

低功率發射機，依據NCC低功率射頻器材技術規範4.2節之規定，其發射天線應為全固定式或半固定式，不得使用可供引接之天線接頭。

(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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(5) 限制使用之頻帶

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	
167.72~174.20	3260.0~3267.0	

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3 受測裝置之系統說明

裝置名稱	製造者/申請者	型號
*智能腕錶	Montblanc-Simplo GmbH / 香港商歷峯亞太有限公司台灣分公司	SXL20

標記：“*”表欲申請之受測物。

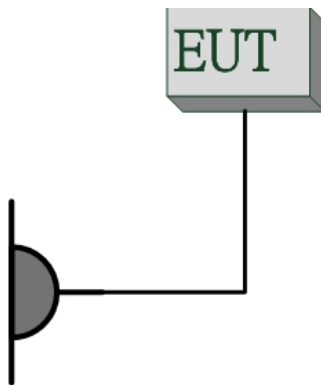
3.1 待測物與測試設備系統圖

3.1.1 量測配置圖

Radiated Emission



Conduction (AC power line) Emission & Fully system



3.2 輔助測試週邊設備名稱描述

編號	產品別	商標	型號	序號
1	Adapter	Apple	A1385	N/A
2	Notebook	Lenovo	T440P	PC-014TAK

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4 量測儀器設備

4.1 AC 電源端傳導干擾之量測儀器

Conducted Emission Test Site					
EQUIPMENT TYPE	MFR/BRAND	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

Note: N.C.R refers to Not Calibrated Required.

4.2 量測場強輻射之量測儀器

966 Chamber					
EQUIPMENT TYPE	MFR/BRAND	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Bi-log Antenna	TESEO	CBL 6112D	35242 & AT-N0555	01/13/2020	01/12/2021
Loop Antenna	ETS.LINDGREN	6502	148045	10/15/2019	10/14/2020
Spectrum Analyzer	Agilent	E4446A	MY51100003	10/23/2019	10/22/2020
EMI Test Receiver	R&S	ESCI 7	100759	07/13/2020	07/12/2021
Pre-Amplifier	HP	8447D	2944A09469	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

4.3 天線端傳導測試之量測儀器

Conducted Emission Test Site					
EQUIPMENT TYPE	MFR/BRAND	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Loop Antenna	ETS.LINDGREN	6502	148045	10/15/2019	10/14/2020
EXA Spectrum Analyzer	Agilent	N9010A	MY50420195	05/06/2020	05/05/2021
DC Power Supply	Agilent	E3640A	MY52410006	12/10/2019	12/09/2020
Temperature Chamber	TERCHY	MHG-120LF	911009	05/20/2020	05/19/2021

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5 電源線傳導干擾之量測

5.1 適用標準

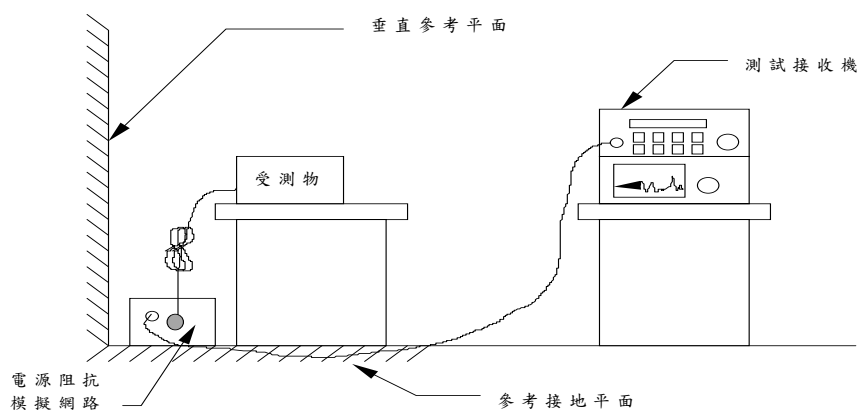
依據NCC低功率射頻器材技術規範3.3節之要求。

5.2 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。

5.3 測試配置

傳導干擾之量測配置圖



5.4 干擾值之計算

電源傳導干擾電壓之計算公式如下

結果值 = 儀器讀值(QP/AV) + 校正因數

其中校正因數為：

饋線損失 + 電源阻抗模擬網路損失

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5.5 傳導干擾之量測結果

Report Number :ER-2020-70081

Test Mode :Operation

Power :AC 110V/60Hz

Probe :L

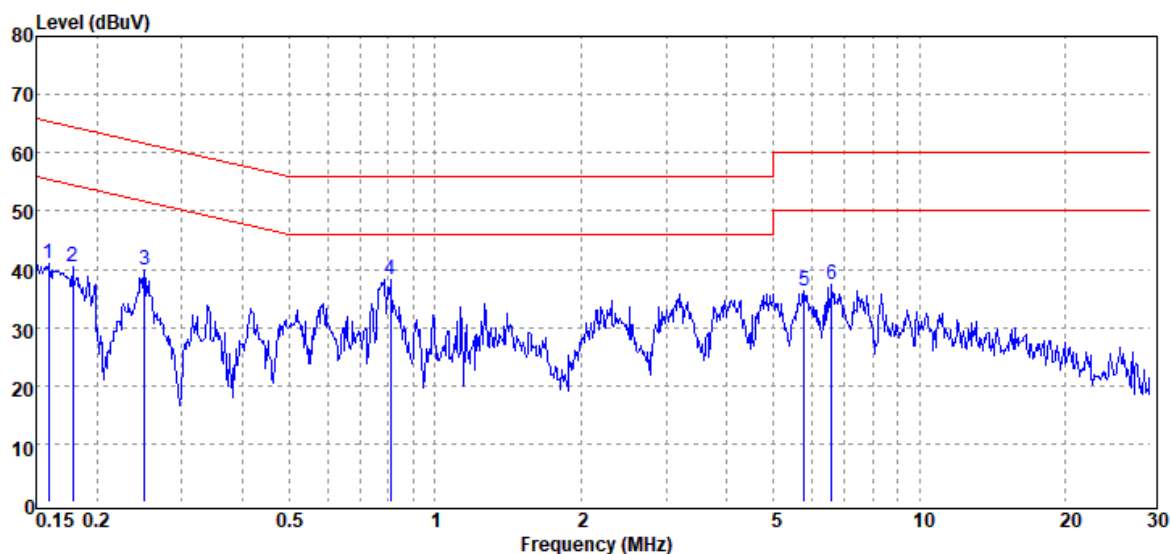
Note: :

Test Site :Conduction 6F

Test Date :2020-08-13

Temp./Humi. :25.3/56

Engineer :Neo



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV	Limit dBμV	Margin dB
0.16	Peak	38.88	2.14	41.02	65.52	-24.50
0.18	Peak	38.16	2.14	40.30	64.55	-24.25
0.25	Peak	37.82	2.14	39.96	61.73	-21.77
0.81	Peak	36.06	2.17	38.23	56.00	-17.77
5.77	Peak	33.77	2.60	36.37	60.00	-23.63
6.59	Peak	34.59	2.66	37.25	60.00	-22.75

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Report Number :ER-2020-70081

Test Mode :Operation

Power :AC 110V/60Hz

Probe :N

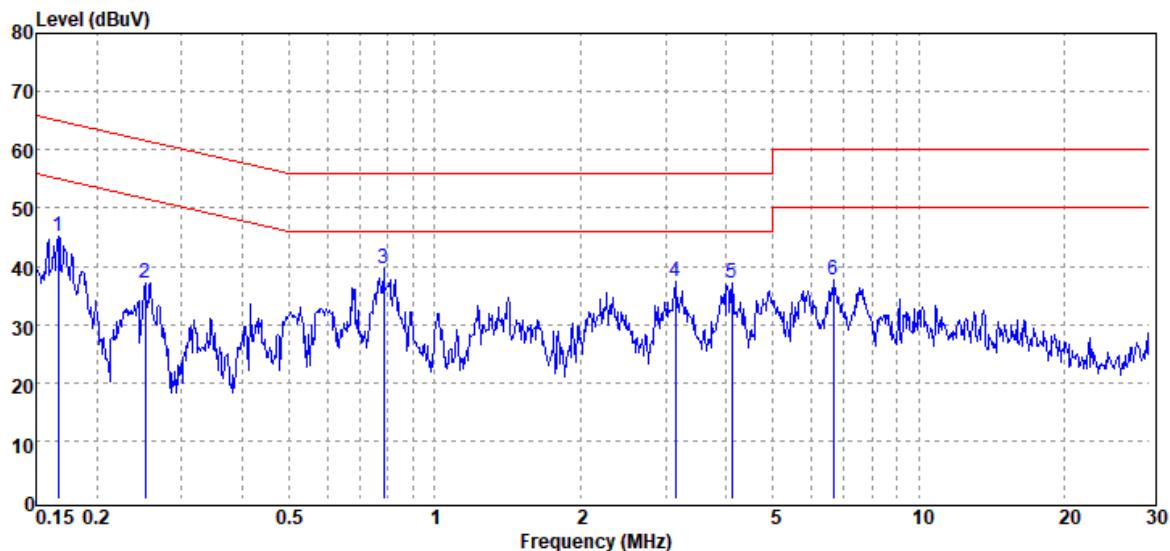
Note: :

Test Site :Conduction 6F

Test Date :2020-08-13

Temp./Humi. :25.3/56

Engineer :Neo



Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin
MHz	Mode	Reading Level		FS		
	PK/QP/AV	dBμV	dB	dBμV	dBμV	dB
0.17	Peak	42.82	2.21	45.03	65.12	-20.09
0.25	Peak	34.97	2.21	37.18	61.69	-24.51
0.78	Peak	37.47	2.24	39.71	56.00	-16.29
3.14	Peak	34.92	2.37	37.29	56.00	-18.71
4.11	Peak	34.71	2.41	37.12	56.00	-18.88
6.66	Peak	35.17	2.57	37.74	60.00	-22.26

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6 場強輻射之量測

6.1 適用標準

依據NCC低功率射頻器材技術規範4.2節(2)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。

6.2 量測方法

將待測物置於 0.8 米高的非金屬桌面，使其在工作狀態，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。

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

註: 場強輻射之量測經評估後，比較 H PLAN、E1 PLAN 和 E2 PLAN 測試值後，附上最差模式 E1 PLAN 數據。Fully system之量測數據，附上最差模式 H PLAN 數據

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6.3 場強度之計算

A. 場強之計算公式如下

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

其中校正因數為：

天線因數 + 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6.5章節。

Frequency of Emission (MHz)	Field Strength ($\mu\text{V/m}$) at 30m	Field Strength (dB $\mu\text{V/m}$) at 30m	Field Strength (dB $\mu\text{V/m}$) at 3m
13.553~13.567	15848	84	124

Field strength of fundamental emissions limit:

The field strength of fundamental emissions shall not exceed 15848 micorvolts/meter at 30 meters.
The Limit is converted to 124.00dBuV/m by offsetting the distance extrapolation factor as measurement distance is taken place at 3 meters.

$$\text{Distance extrapolation} = 40 * \log (30/3) = 40 \text{ dB}$$

30m to 3m

$$\text{Distance extrapolation} = 40 * \log (30/3) = 40 \text{ dB}$$

$$\text{Limit is re-adjusted in terms of limit taken in 3m} = 20 * \log (15848 \text{ uV/m}) + 40 = 124.00\text{dBuV/m}$$

30m to 10m

$$\text{Distance extrapolation} = 40 * \log (30/10) = 19.08 \text{ dB}$$

$$\text{Limit is re-adjusted in terms of limit taken in 3m} = 20 * \log (15848 \text{ uV/m}) + 19.08 = 103.08\text{dBuV/m}$$

10m to 3m

$$\text{Distance extrapolation} = 40 * \log (10/3) = 20.92 \text{ dB}$$

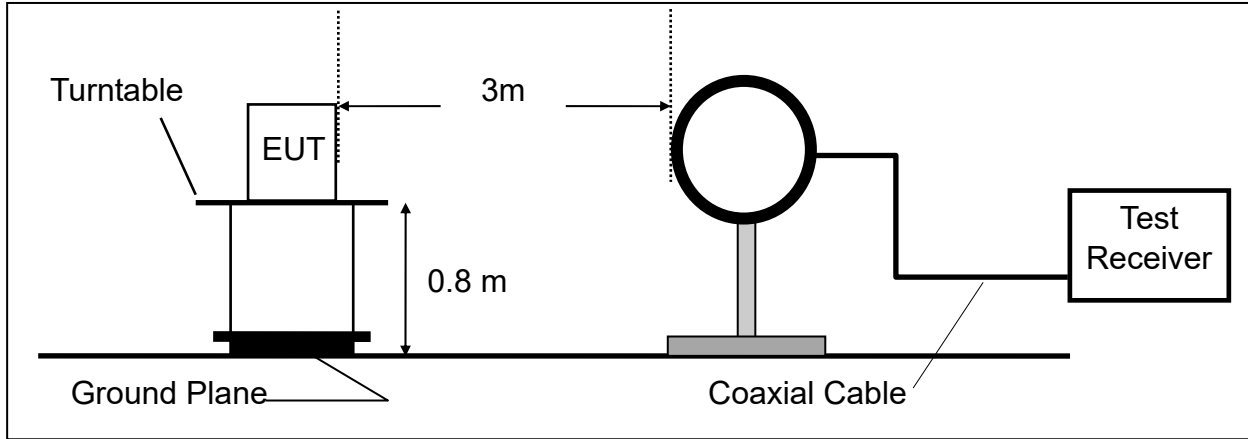
$$\text{Limit is re-adjusted in terms of limit taken in 3m} = 20 * \log (15848 \text{ uV/m}) + 20.92 = 104.92\text{dBuV/m}$$

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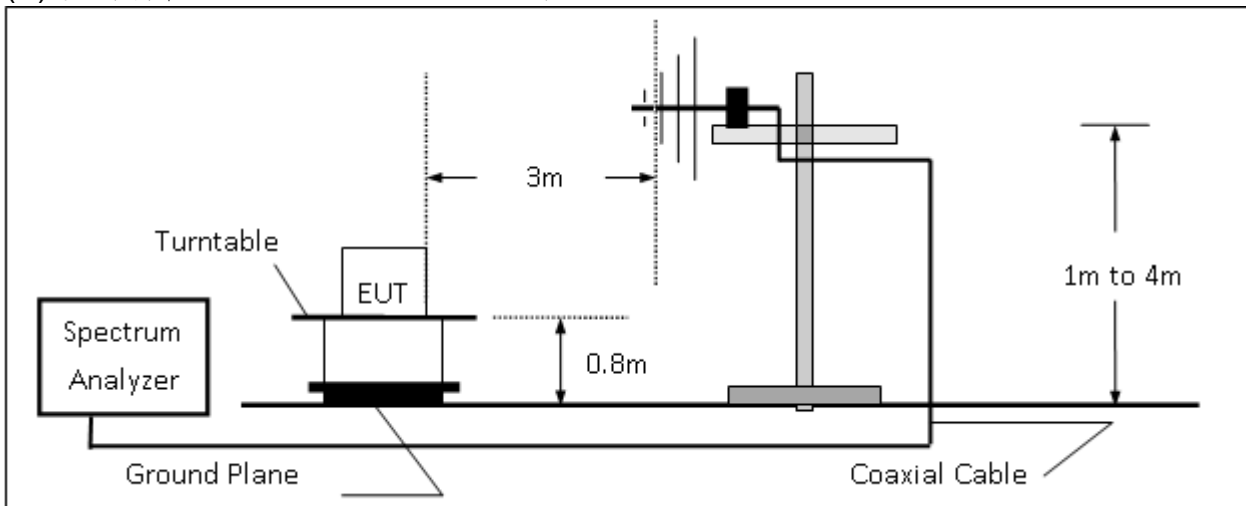
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6.4 輻射之測試配置

(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



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6.5 主波場強輻射之量測結果

6.5.1 發射機

A. RF Portion (特別規定之 4.2.1(1) 節) – 主波：13.56 MHz

Report Number :ER/2020/70083

Test Site :SAC I Chamber

Operation Mode :NFC

Test Date :2020-08-13

Test Frequency :13.56 MHz

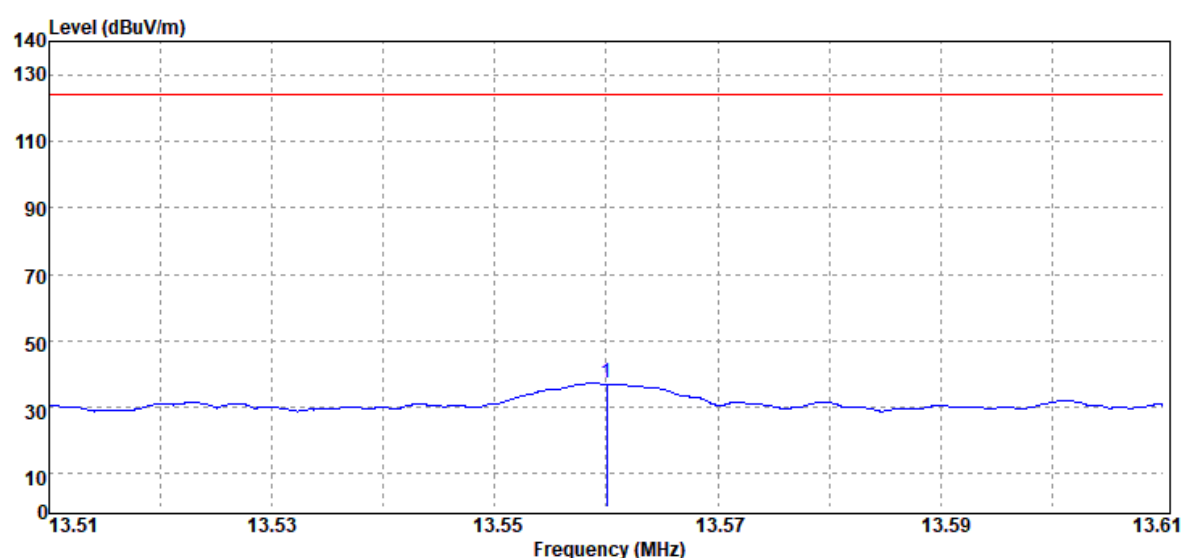
Temp./Humi. :25.0/66

Test Mode :Main

Antenna Pol. :VERTICAL

EUT Pol :E1 Plane

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
13.56	Peak	25.60	11.54	37.14	124.00	-86.86

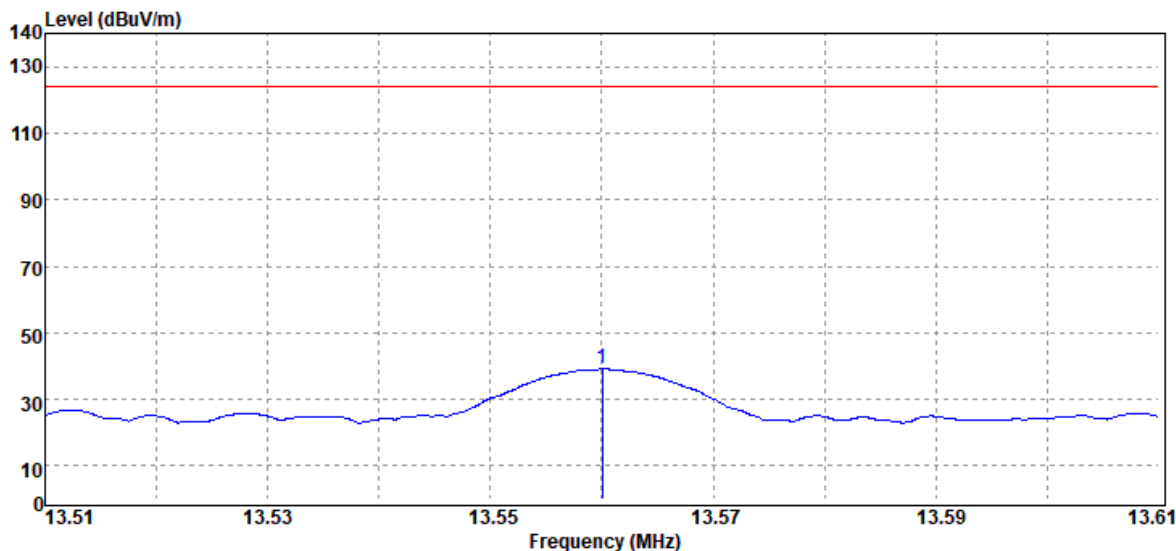
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Report Number :ER/2020/70083
 Operation Mode :NFC
 Test Frequency :13.56 MHz
 Test Mode :Main
 EUT Pol :E1 Plane

Test Site :SAC I Chamber
 Test Date :2020-08-13
 Temp./Humi. :25.0/66
 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
13.56	Peak	27.49	11.54	39.03	124.00	-84.97

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B. 其他不必要之訊號 (一般規定之 3.6 節)

Report Number :ER/2020/70083

Operation Mode :NFC

Test Frequency :13.56 MHz

Test Mode :TX

EUT Pol :E1 Plane

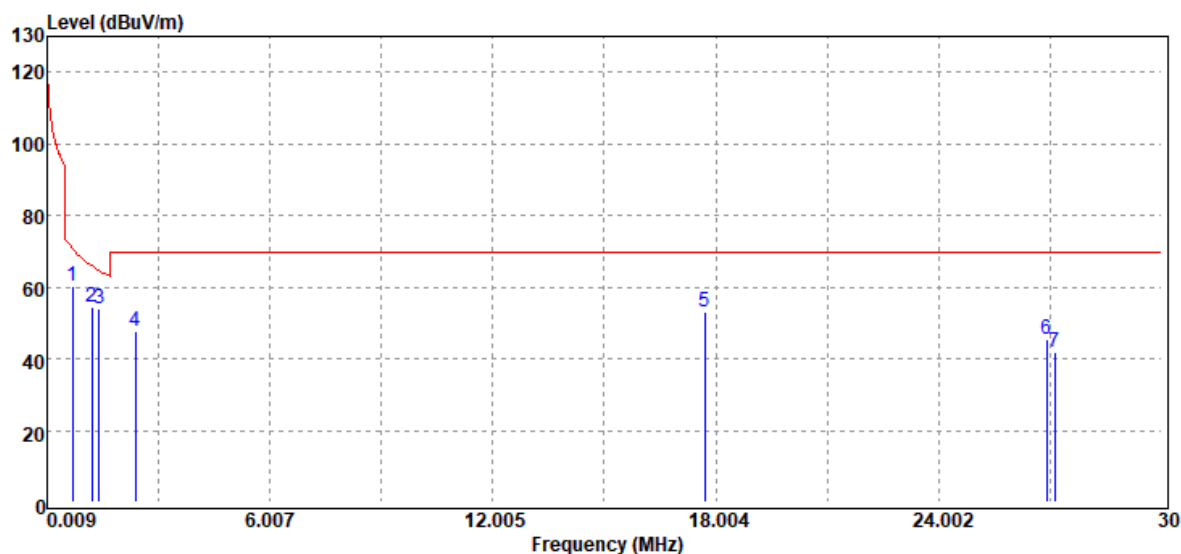
Test Site :SAC I Chamber

Test Date :2020-08-13

Temp./Humi. :25.0/66

Antenna Pol. :VERTICAL

Engineer :Neo



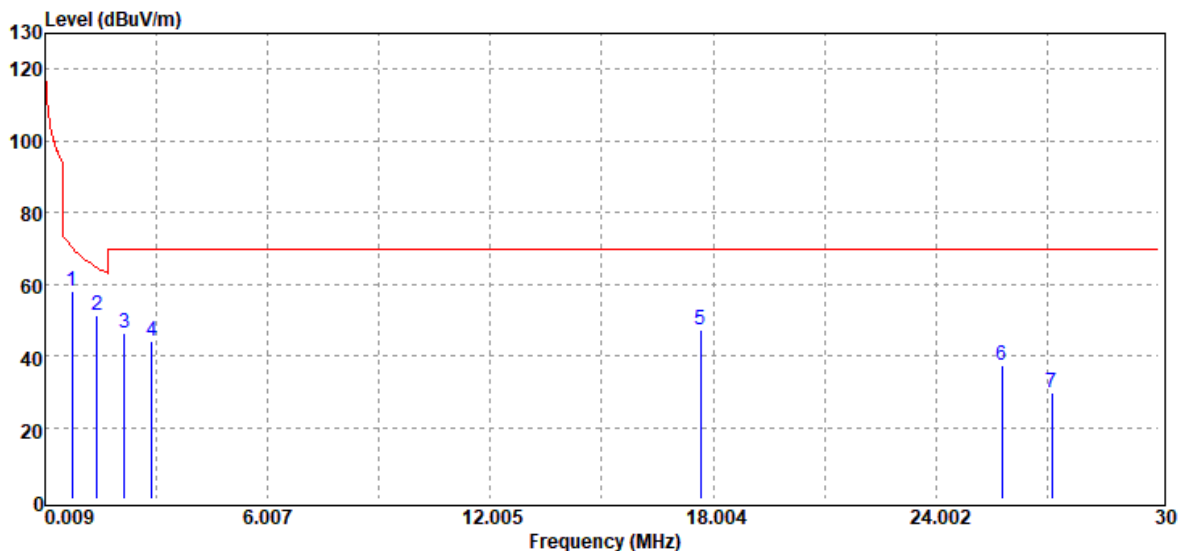
Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBuV	Factor dB	Actual FS dBuV/m	Limit @3m dBuV/m	Margin dB
0.70	Peak	49.34	11.13	60.47	70.72	-10.25
1.21	Peak	43.34	11.31	54.65	65.96	-11.31
1.42	Peak	42.68	11.31	53.99	64.57	-10.58
2.38	Peak	36.62	11.29	47.91	69.54	-21.63
17.70	Peak	42.16	11.10	53.26	69.54	-16.28
26.91	Peak	36.18	9.30	45.48	69.54	-24.06
27.12	Peak	32.79	9.26	42.05	69.54	-27.49

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Report Number :ER/2020/70083
 Operation Mode :NFC
 Test Frequency :13.56 MHz
 Test Mode :TX
 EUT Pol :E1 Plane

Test Site :SAC I Chamber
 Test Date :2020-08-13
 Temp./Humi. :25.0/66
 Antenna Pol. :HORIZONTAL
 Engineer :Neo



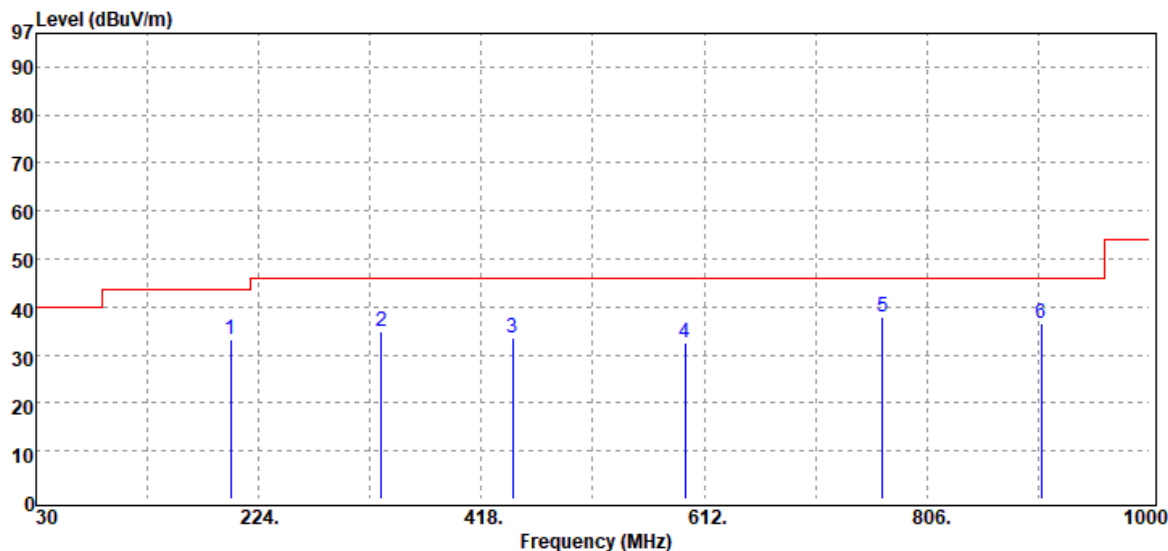
Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBuV	Factor dB	Actual FS dBuV/m	Limit @3m dBuV/m	Margin dB
0.73	Peak	46.68	11.16	57.84	70.35	-12.51
1.42	Peak	39.95	11.31	51.26	64.57	-13.31
2.14	Peak	34.93	11.29	46.22	69.54	-23.32
2.89	Peak	32.92	11.28	44.20	69.54	-25.34
17.67	Peak	35.93	11.10	47.03	69.54	-22.51
25.77	Peak	27.82	9.53	37.35	69.54	-32.19
27.12	Peak	20.23	9.26	29.49	69.54	-40.05

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Report Number :ER/2020/70083
Operation Mode :NFC
Test Frequency :13.56 MHz
Test Mode :TX
EUT Pol :E1 Plane

Test Site :SAC I Chamber
Test Date :2020-08-13
Temp./Humi. :25.0/66
Antenna Pol. :VERTICAL
Engineer :Neo



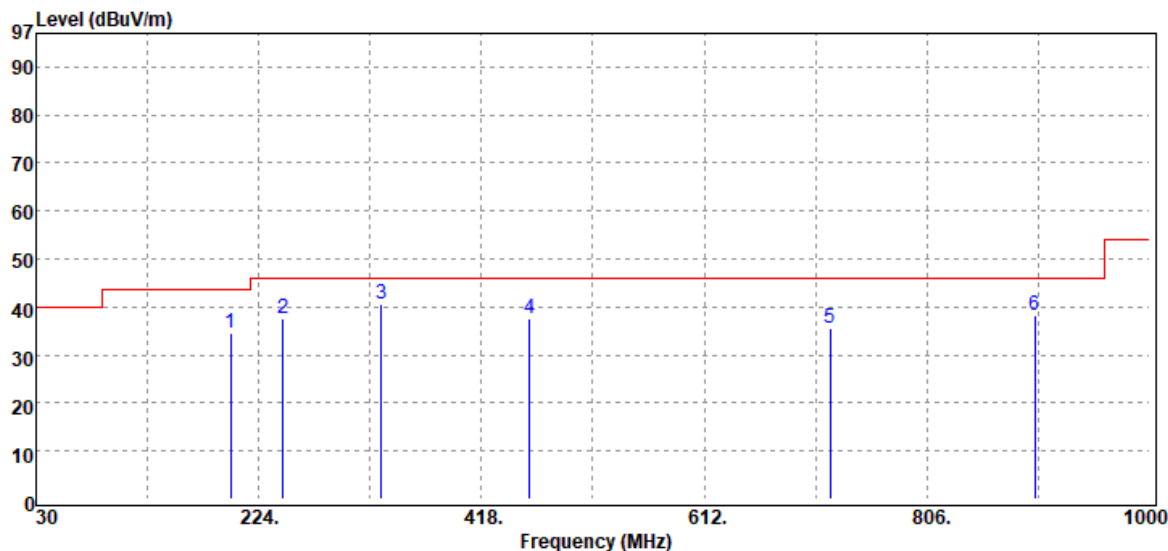
Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBuV	Factor dB	Actual FS dBuV/m	Limit @3m dBuV/m	Margin dB
199.75	Peak	45.46	-12.30	33.16	43.50	-10.34
330.70	Peak	42.59	-7.68	34.91	46.00	-11.09
445.16	Peak	39.45	-5.90	33.55	46.00	-12.45
595.51	Peak	36.00	-3.46	32.54	46.00	-13.46
767.20	Peak	38.94	-1.14	37.80	46.00	-8.20
905.91	Peak	35.55	0.94	36.49	46.00	-9.51

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Report Number :ER/2020/70083
Operation Mode :NFC
Test Frequency :13.56 MHz
Test Mode :TX
EUT Pol :E1 Plane

Test Site :SAC I Chamber
Test Date :2020-08-13
Temp./Humi. :25.0/66
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
199.75	Peak	47.02	-12.30	34.72	43.50	-8.78
245.34	Peak	47.26	-9.72	37.54	46.00	-8.46
330.70	Peak	48.13	-7.68	40.45	46.00	-5.55
459.71	Peak	42.95	-5.46	37.49	46.00	-8.51
721.61	Peak	38.27	-2.67	35.60	46.00	-10.40
900.09	Peak	37.16	1.12	38.28	46.00	-7.72

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6.5.2 接收機

A. 其他不必要之訊號 (一般規定之 3.6 節)

Report Number :ER/2020/70083

Operation Mode :NFC

Test Frequency :13.56 MHz

Test Mode :RX

EUT Pol :E1 Plane

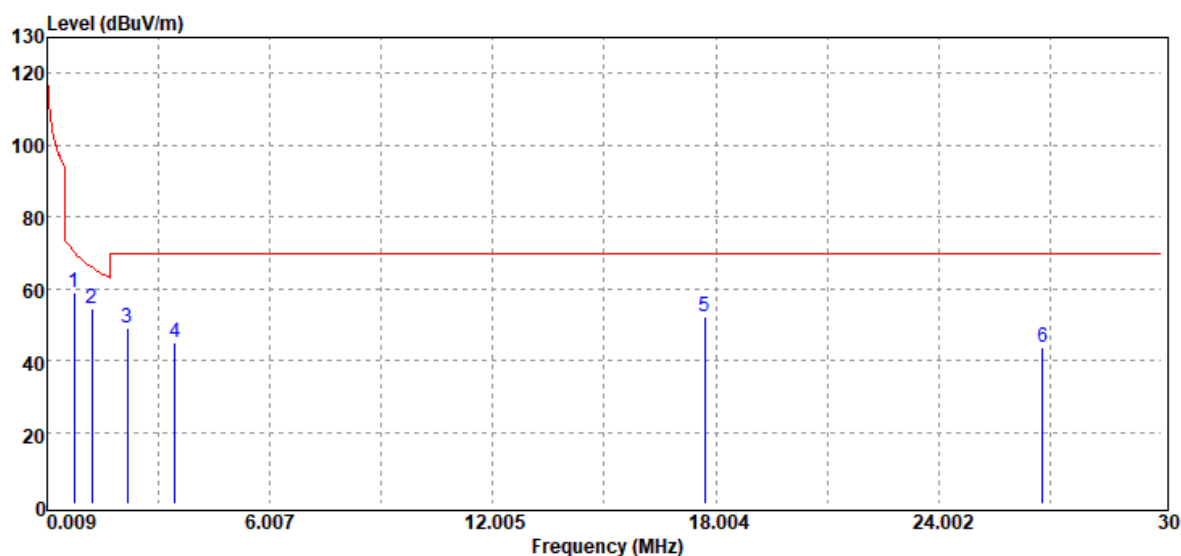
Test Site :SAC I Chamber

Test Date :2020-08-13

Temp./Humi. :25.0/66

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
0.73	Peak	47.89	11.16	59.05	70.35	-11.30
1.21	Peak	43.32	11.31	54.63	65.96	-11.33
2.17	Peak	37.64	11.29	48.93	69.54	-20.61
3.46	Peak	33.71	11.26	44.97	69.54	-24.57
17.70	Peak	41.20	11.10	52.30	69.54	-17.24
26.79	Peak	34.15	9.32	43.47	69.54	-26.07

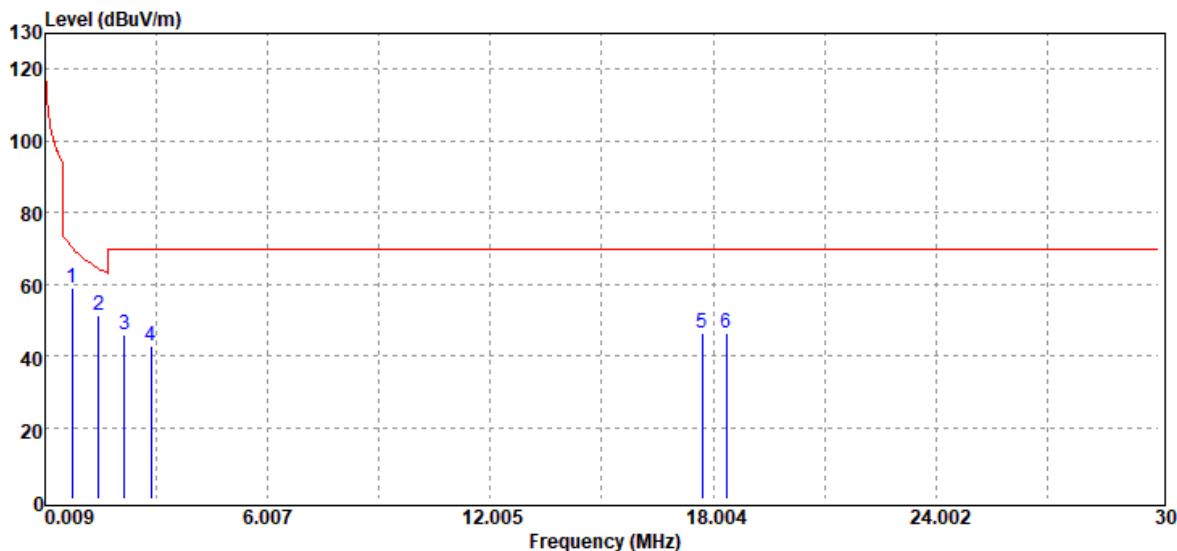
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Report Number :ER/2020/70083
Operation Mode :NFC
Test Frequency :13.56 MHz
Test Mode :RX
EUT Pol :E1 Plane

Test Site :SAC I Chamber
Test Date :2020-08-13
Temp./Humi. :25.0/66
Antenna Pol. :HORIZONTAL
Engineer :Neo



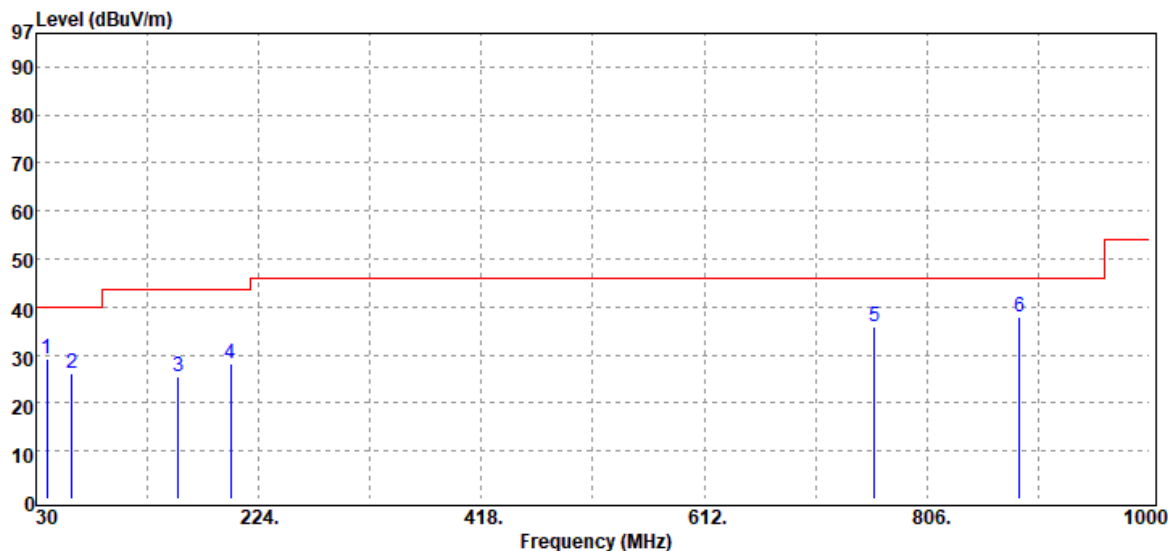
Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
0.73	Peak	47.87	11.16	59.03	70.35	-11.32
1.45	Peak	39.81	11.31	51.12	64.39	-13.27
2.14	Peak	34.80	11.29	46.09	69.54	-23.45
2.86	Peak	31.45	11.28	42.73	69.54	-26.81
17.70	Peak	35.01	11.10	46.11	69.54	-23.43
18.36	Peak	35.14	11.04	46.18	69.54	-23.36

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Report Number :ER/2020/70083
 Operation Mode :NFC
 Test Frequency :13.56 MHz
 Test Mode :RX
 EUT Pol :E1 Plane

Test Site :SAC I Chamber
 Test Date :2020-08-13
 Temp./Humi. :25.0/66
 Antenna Pol. :VERTICAL
 Engineer :Neo



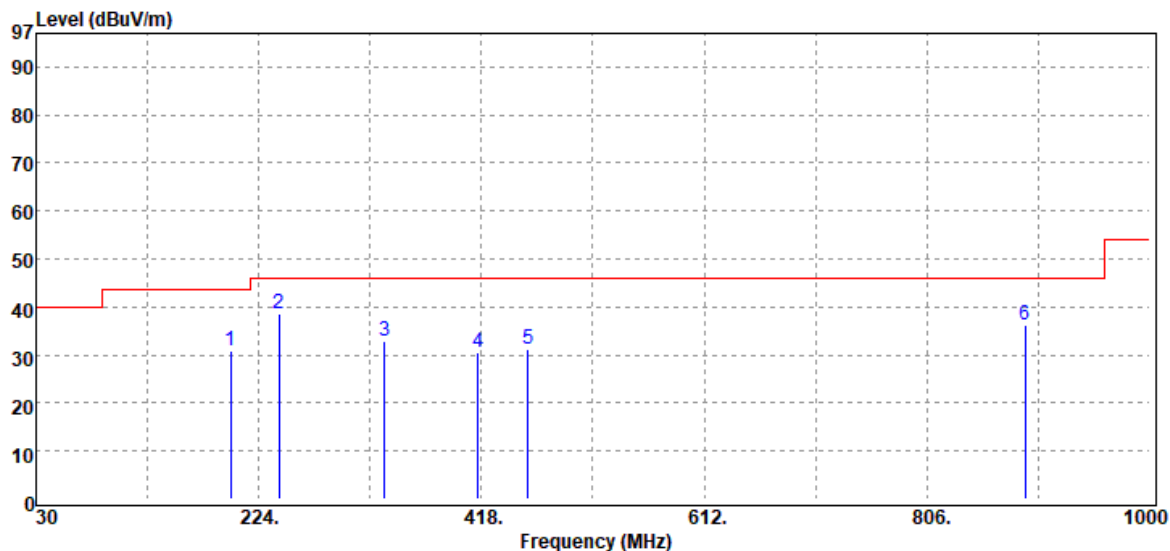
Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBuV	Factor dB	Actual FS dBuV/m	Limit @3m dBuV/m	Margin dB
39.70	Peak	39.00	-9.69	29.31	40.00	-10.69
61.04	Peak	43.24	-17.16	26.08	40.00	-13.92
154.16	Peak	37.84	-12.19	25.65	43.50	-17.85
199.75	Peak	40.63	-12.30	28.33	43.50	-15.17
760.41	Peak	36.90	-1.12	35.78	46.00	-10.22
886.51	Peak	37.05	0.87	37.92	46.00	-8.08

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Report Number :ER/2020/70083
Operation Mode :NFC
Test Frequency :13.56 MHz
Test Mode :RX
EUT Pol :E1 Plane

Test Site :SAC I Chamber
Test Date :2020-08-13
Temp./Humi. :25.0/66
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
199.75	Peak	43.32	-12.30	31.02	43.50	-12.48
241.46	Peak	48.71	-10.05	38.66	46.00	-7.34
333.61	Peak	40.70	-7.68	33.02	46.00	-12.98
415.09	Peak	35.63	-5.18	30.45	46.00	-15.55
458.74	Peak	36.79	-5.52	31.27	46.00	-14.73
891.36	Peak	35.02	1.08	36.10	46.00	-9.90

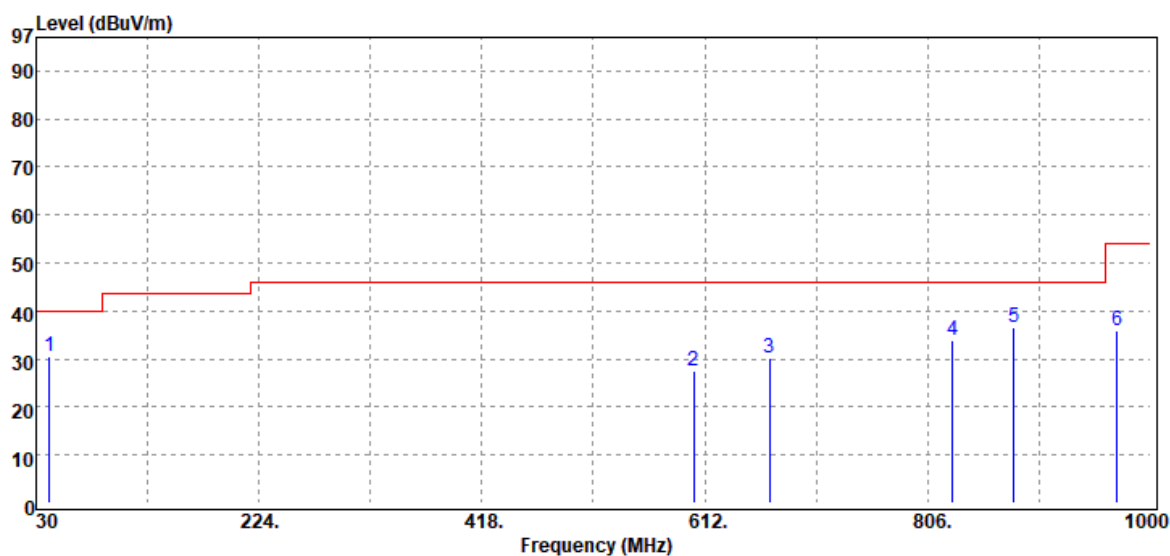
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(Fully System)

Report Number :ER/2020/70081
 Operation Mode :System
 Test Frequency :System
 Test Mode :System
 EUT Pol :H Plane

Test Site :SAC I Chamber
 Test Date :2020-08-13
 Temp./Humi. :25.0/66
 Antenna Pol. :VERTICAL
 Engineer :Neo



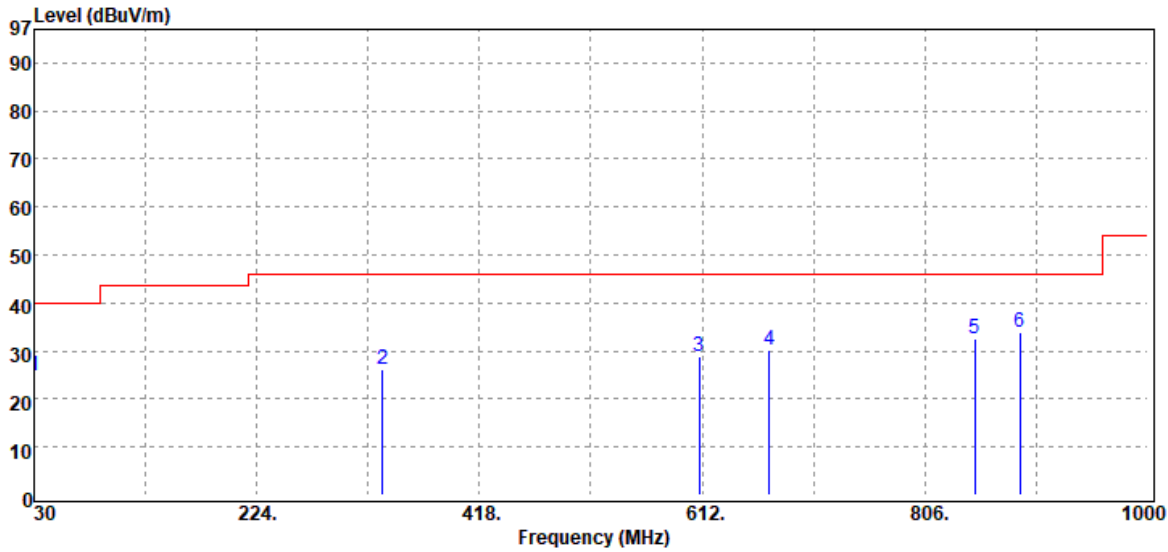
Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
41.64	Peak	41.29	-10.86	30.43	40.00	-9.57
602.30	Peak	30.98	-3.35	27.63	46.00	-18.37
668.26	Peak	32.84	-2.65	30.19	46.00	-15.81
827.34	Peak	34.38	-0.57	33.81	46.00	-12.19
880.69	Peak	36.01	0.64	36.65	46.00	-9.35
970.90	Peak	33.57	2.30	35.87	54.00	-18.13

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Report Number :ER/2020/70081
Operation Mode :System
Test Frequency :System
Test Mode :System
EUT Pol :H Plane

Test Site :SAC I Chamber
Test Date :2020-08-13
Temp./Humi. :25.0/66
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
30.00	Peak	29.56	-4.56	25.00	40.00	-15.00
333.61	Peak	33.79	-7.68	26.11	46.00	-19.89
609.09	Peak	32.31	-3.29	29.02	46.00	-16.98
670.20	Peak	32.84	-2.50	30.34	46.00	-15.66
849.65	Peak	32.36	0.35	32.71	46.00	-13.29
888.45	Peak	32.91	0.96	33.87	46.00	-12.13

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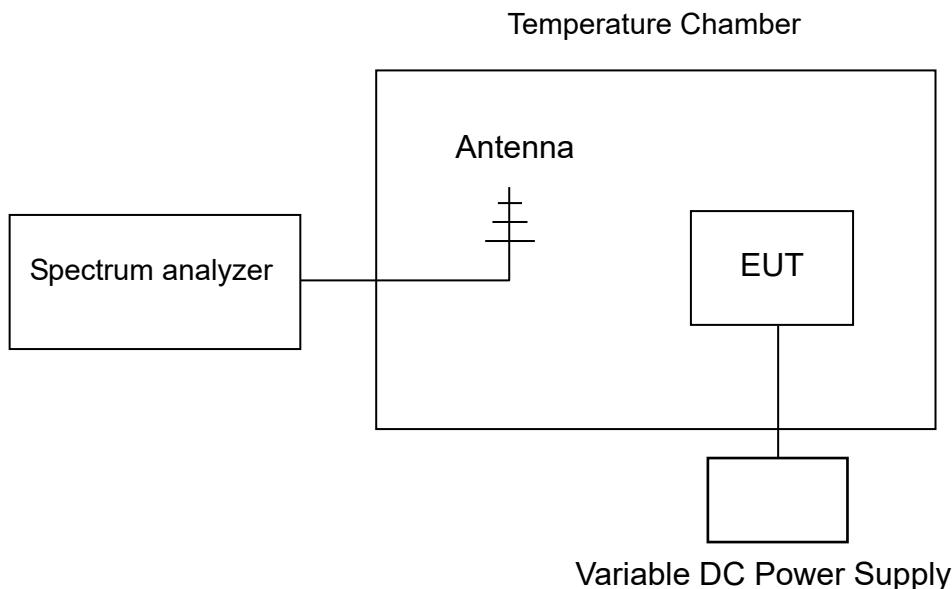
7 頻率容許差度之量測

7.1 適用標準

依據NCC低功率射頻器材技術規範4.2節(3)之要求，應維持在主波頻率之 $\pm 0.01\%$ 以內。在正常供應電壓下，溫度在攝氏零下二十度至攝氏五十度間變化；及在攝氏二十度下，供應電壓在額定值之 $\pm 15\%$ 內變化時。以電池作業者，應以新電池測試。並須符合第5.18節之要求。

NCC低功率射頻器材技術規範6.17節要求，除另有規定外，測試環境溫度應於攝氏 10°C 到 40°C 之範圍內，相對環境濕度應於 10% 到 90% 之範圍內。

7.2 頻率容許差度之測試配置



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7.3 頻率容許差度之之量測結果

Startup

A. 溫度變化

Power Supply	Environment	Frequency	Delta (Hz)	Limit (KHz)
Vdc	Temperature (°C)	(MHz)		
3.85	-20	13.5600089	-11.60	+/- 1.356
3.85	-10	13.5600044	-7.10	+/- 1.356
3.85	0	13.5599996	-2.30	+/- 1.356
3.85	10	13.5600085	-11.20	+/- 1.356
3.85	20	13.5599973	0.00	+/- 1.356
3.85	30	13.5600098	-12.50	+/- 1.356
3.85	40	13.5599977	-0.40	+/- 1.356
3.85	50	13.560003	-5.70	+/- 1.356

B. 電壓變化

Power Supply	Environment	Frequency	Delta (Hz)	Limit (KHz)
Vdc	Temperature (°C)	(MHz)		
4.35	20	13.5599907	6.60	+/- 1.356
3.85	20	13.5599973	0.00	+/- 1.356
3.6	20	13.5599917	5.60	+/- 1.356

2 minutes

A. 溫度變化

Power Supply	Environment	Frequency	Delta (Hz)	Limit (KHz)
Vdc	Temperature (°C)	(MHz)		
3.85	-20	13.5599921	16.80	+/- 1.356
3.85	-10	13.5599911	17.80	+/- 1.356
3.85	0	13.5600019	7.00	+/- 1.356
3.85	10	13.5600099	-1.00	+/- 1.356
3.85	20	13.5600089	0.00	+/- 1.356
3.85	30	13.5600063	2.60	+/- 1.356
3.85	40	13.5599931	15.80	+/- 1.356
3.85	50	13.5600052	3.70	+/- 1.356

B. 電壓變化

Power Supply	Environment	Frequency	Delta (Hz)	Limit (KHz)
Vdc	Temperature (°C)	(MHz)		
4.35	20	13.5600006	-3.30	+/- 1.356
3.85	20	13.5599973	0.00	+/- 1.356
3.6	20	13.5599956	1.70	+/- 1.356

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5 minutes

A. 溫度變化

Power Supply	Environment	Frequency	Delta (Hz)	Limit (KHz)
Vdc	Temperature (°C)	(MHz)		
3.8	-20	13.5600003	-6.70	+/- 1.356
3.8	-10	13.5600041	-10.50	+/- 1.356
3.8	0	13.5600047	-11.10	+/- 1.356
3.8	10	13.5600096	-16.00	+/- 1.356
3.8	20	13.5599936	0.00	+/- 1.356
3.8	30	13.5600023	-8.70	+/- 1.356
3.8	40	13.5599968	-3.20	+/- 1.356
3.8	50	13.5600022	-8.60	+/- 1.356

B. 電壓變化

Power Supply	Environment	Frequency	Delta (Hz)	Limit (KHz)
Vdc	Temperature (°C)	(MHz)		
4.35	20	13.5600076	-10.30	+/- 1.356
3.85	20	13.5599973	0.00	+/- 1.356
3.6	20	13.5600057	-8.40	+/- 1.356

10 minutes

A. 溫度變化

Power Supply	Environment	Frequency	Delta (Hz)	Limit (KHz)
Vdc	Temperature (°C)	(MHz)		
3.85	-20	13.5600068	-11.50	+/- 1.356
3.85	-10	13.5600007	-5.40	+/- 1.356
3.85	0	13.5600081	-12.80	+/- 1.356
3.85	10	13.5599984	-3.10	+/- 1.356
3.85	20	13.5599953	0.00	+/- 1.356
3.85	30	13.5600064	-11.10	+/- 1.356
3.85	40	13.5600085	-13.20	+/- 1.356
3.85	50	13.5599917	3.60	+/- 1.356

B. 電壓變化

Power Supply	Environment	Frequency	Delta (Hz)	Limit (KHz)
Vdc	Temperature (°C)	(MHz)		
4.35	20	13.5599927	4.60	+/- 1.356
3.85	20	13.5599973	0.00	+/- 1.356
3.6	20	13.5599928	4.50	+/- 1.356

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~ End of Report ~

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