

國家通訊傳播委員會
PLMN ALL
LTE 終端設備(PLMN10)
試驗報告

申請者	伯特利電子有限公司
地址	新北市中和區建八路171號13樓
製造廠商	深圳市星標電子科技有限公司
產品名稱	GPS-LTE防盜器
廠牌	FOXeye
主型號	LT01
系列型號	無
發射功率	Band 1 2100MHz: 24.49dBm
工作頻率	LTE FDD: Band 1 2100MHz (上行1920-1980MHz/下行2110-2170MHz)
法規	PLMN ALL (109/9/25)

測試單位：

翔智科技股份有限公司 龍潭實驗室



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報告簽署人 劉承豐簽章

測試標準

行動通信電信終端設備技術規範

民國109年09月25日版本

待測裝置已於翔智科技股份有限公司，依據國家通訊傳播委員會於中華民國109年9月頒佈行動通信電信終端設備技術規範。

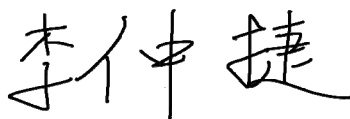
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翔智科技股份有限公司依行動通信電信終端設備技術規範【PLMN ALL】之LTE 終端設備(PLMN10)規定製作測試結果報告,測試結果評判為 合格。

備註：

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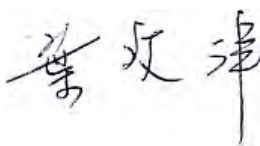
測試人員：



日期： 2022年1月12日

李仲捷 / 高級工程師

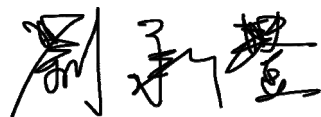
報告製作：



日期： 2022年1月12日

葉政津 / 認證工程師

報告審核：



日期： 2022年1月12日

劉承豐 / 副理

Version

Version No.	Date	Description
00	January 12, 2022	Initial creation of document

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 K=2)
有效輻射功率 (ERP輻射方式)	水平極化	2.412 GHz	4.21 dB
		5.805 GHz	4.62 dB
	垂直極化	2.412 GHz	4.42 dB
		5.805 GHz	4.74 dB
輸出功率 (傳導方式)			1.44 dB
相鄰頻道洩漏功率比 (ACLR)			4.22dB
頻譜波罩			1.44 dB
傳導輻射 (150K-40GHz)			±1.75dB
DC電壓			0.03V
溫度			0.826 °C
頻率			921.20 Hz

量測不確定度是參考 ETSI TR 102 028-1/ ETSI TR 102 028-2, 95 %信賴區間擴充不確定度以 $k = 2$ 表示。

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1. 一般資料

1.1 產品描述

產品名稱	GPS-LTE 防盜器
廠 牌	FOXeye
型 號	LT01
Power Supply	12V
Product HW Version	P222920
Product SW Version	VERSION 1.2.89
Product FW Version	5.1
RF Power Setting:	Customer define cmd

LTE	
發射頻帶	行1805-1865MHz) 2100MHz頻段 (上行1920-1980MHz/下行2110-2170MHz)
輸出功率	24.49 dBm
調變方式	Uplink: QPSK, 16QAM ,64QAM Downlink: QPSK, 16QAM ,64QAM ,256QAM
頻寬	1.4MHz/ 3MHz/ 5MHz/ 10MHz/ 15MHz/ 20MHz max.

Antenna Type	廠牌	型號	Peak Antenna Gain	Application	Connector Type
FPC antenna	深圳市創 科華科技 有限公司	LT01-P22	1dBi	UMTS / LTE FDD (Band 1)	-----

產品不支援語音通信

本報告針對此裝置 LTE FDD 2100MHz頻段進行所有測試項目評估。

1.2 LTE 終端設備檢測紀錄表

項次	檢驗項目/合格標準	檢驗數據	結果判定
1	LTE FDD: Band 1 2100MHz (上行1920-1980MHz/下行2110-2170MHz)	參考 4.5 節之量測結果	合格
2	有效輻射功率(ERP): 攜帶式終端設備限制為1W(30dBm) 移動式終端設備限制為2W(33dBm) 傳導輸出功率限制值: 採FDD者: 23 dBm +2.7/-3.2 dB。 採TDD者: 23 dBm +2.7/-2.7 dB, 但設備屬高功率用戶終端設備(HPUE)者, 其傳導輸出功率限制值為26 dBm +2.7/-2.7 dB。 符合PLMN ALL, 7.3節	參考 5.5 節之量測結果	合格
3	發射頻譜波罩 符合附表47	參考 6.5 節之量測結果	合格
4	傳導帶外輻射發射限制 符合附表48	參考 7.5 節之量測結果	合格
5	相鄰頻道洩漏功率比(ACLR)應 符合附表53	參考 8.5 節之量測結果	合格
6	頻率穩定度	參考 9.5 節之量測結果	合格
7	電波功率密度最大值(MPE)	參考 11.3 節之量測結果	合格
8	電磁相容(EMC) 符合CNS13438或3GPP TS34.124標準規範	參考 CNS13438 測試報告	合格
9	電氣安全(Safety) 符合CNS14336-1 或 CNS15598-1標準規範	參考CNS14336-1 測試報告 參考CNS15598-1 測試報告	合格
10	手機端連接介面	參考 CNS15285測試報告	N/A
11	充電器端連接介面	參考 CNS15285測試報告	N/A
12	充電線	參考 CNS15285測試報告	N/A
13	充電器電性	參考 CNS15285測試報告	N/A
14	SAR 測試	參考 CNS14958-1測試報告	N/A
15	公眾告警廣播簡訊功能(Public Warning System , PWS)	參考公眾告警廣播簡訊測試報告	N/A

2. 受測裝置之系統說明

2.1 待測物與測試設備系統圖



2.2 輔助測試週邊設備名稱描述

Item	Equipment	Mrf/Brand	Model Name	Series No	Data Cable	Power Cable
1	CMW 500	R&S	CMW 500	NA	NA	180cm

2.3 周邊配件與線材

無

3. 測試環境條件

3.1 測試之溫度與濕度條件

常態環境溫度範圍為+15℃至+35℃，濕度範圍為25%至75%。

極端環境溫度範圍為-10℃至+55℃，其他規定應符合IEC 60068-2-1與IEC 60068-2-2。

在極端環境溫度，終端設備若可通電開機，則不得無效使用PLMN ALL第3點規定之頻段。

3.2 電壓條件

終端設備之電源電壓應於低極端電壓與高極端電壓之間。終端設備審驗申請者應宣告其標稱電壓(nominal)、低極端電壓、高極端電壓與關機電壓。若終端設備可操作在一種或多種電源，其低極端電壓不得高於下表限制值，高極端電壓不得低於下表限制值。

電源 (Power source)	低極端電壓 (Lower extreme Voltage)	高極端電壓 (Higher extreme Voltage)	常態電壓 (Normal conditions Voltage)
交流電源 (AC mains)	$0.9 \times \text{nominal}$	$1.1 \times \text{nominal}$	nominal
調節式鉛酸電池 (Regulated lead acid battery)	$0.9 \times \text{nominal}$	$1.3 \times \text{nominal}$	$1.1 \times \text{nominal}$
非調節式電池 (Non regulated batteries)： 勒克朗社電池 (Leclanché) 鋰電池 (Lithium) 水銀電池/鎳鎘電池 (Mercury/nickel & cadmium)	$0.85 \times \text{nominal}$ $0.95 \times \text{nominal}$ $0.90 \times \text{nominal}$	nominal $1.1 \times \text{nominal}$ $1.1 \times \text{nominal}$	nominal $1.1 \times \text{nominal}$ nominal

電源電壓低於上表之低極端電壓或高於上表之高極端電壓，終端設備若可通電開機時，不得無效使用PLMN ALL第3點規定之頻段。

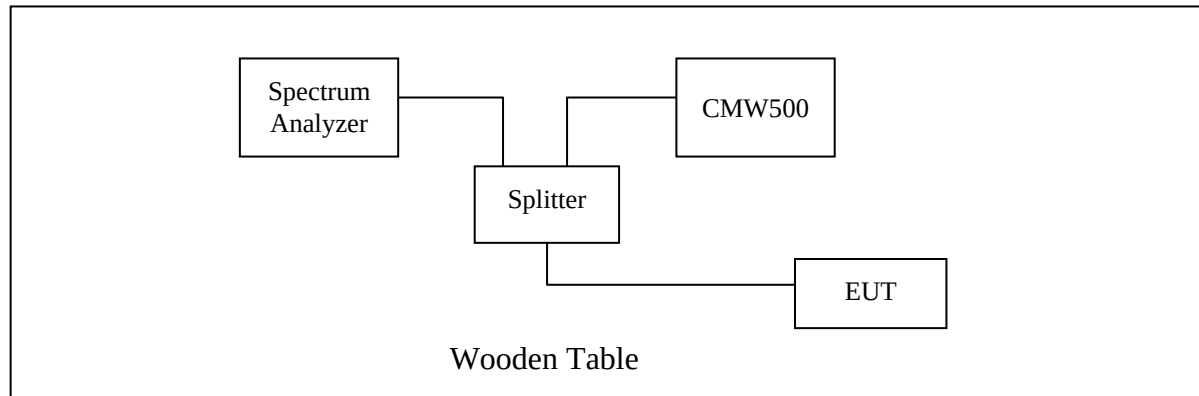
檢測終端設備之電源電壓低於關機電壓時，終端設備不得發射。

4. 工作頻帶之量測

4.1 適用標準

參考PLMN ALL, 3.3節規定。

4.2 測試配置



4.3 量測儀器設備

Location Conducted	Equipment Name	Brand	Model	S/N	Last Cal. Date	Next Cal. Date
Conducted	Power Meter	Anritsu	ML2495A	1116010	09/30/2021	09/30/2022
Conducted	Power Sensor	Anritsu	MA2411B	34NKF50	09/30/2021	09/30/2022
Conducted	Power Sensor	DARE	RPR3006W	13I00030SNO33	01/04/2022	01/04/2023
Conducted	Power Sensor	DARE	RPR3006W	13I00030SNO34	01/04/2022	01/04/2023
Conducted	Power Sensor	DARE	RPR3006W	14I00889SNO35	06/23/2021	06/23/2022
Conducted	Power Sensor	DARE	RPR3006W	14I00889SNO36	06/23/2021	06/23/2022
Conducted	Temperature Chamber	KSON	THS-B4H100	2287	04/26/2021	04/26/2022
Conducted	DC Power supply	ABM	8185D	N/A	01/05/2022	01/05/2023
Conducted	AC Power supply	EXTECH	CFC105W	NA	N/A	N/A
Conducted	Spectrum analyzer	Keysight	N9010A	MY56070257	09/28/2021	09/28/2022
Conducted	Test Software	DARE	Radiation Ver:2013.1.23	NA	NA	NA
Conducted	Test Software	R&S	CMUGO Ver:2.0.0	N/A	N/A	N/A
Conducted	Universal Digital Radio Communication Tester	R&S	CMU200	111968	11/18/2021	11/18/2022
Conducted	Wideband Radio Communication Tester	R&S	CMW500	1201.002K501087 93-JG	10/26/2021	10/26/2022
Conducted	BT Simulator	Agilent	N4010A	MY48100200	NA	NA
Conducted	GPS Simulator	Welnavigate	GS-50	701523	NA	NA
Conducted (TS8997)	Wideband Radio Communication Tester	R&S	CMW500	168811	09/09/2021	09/09/2022

Conducted (TS8997)	Signal Generator	R&S	SMB100B	101085	09/09/2021	09/09/2022
Conducted (TS8997)	Vector Signal Generator	R&S	SMBV100A	263246	09/09/2021	09/09/2022
Conducted (TS8997)	Signal analyzer 40GHz	R&S	FSV40	101884	09/07/2021	09/07/2022
Conducted (TS8997)	OSP150 extension unit CAM-BUS	R&S	OSP150	101107	09/10/2021	09/10/2022
Conducted (TS8997)	Test Software	R&S	EMC32	NA	NA	NA

4.4 測試方法

參考PLMN ALL, 7.3 節規定。

4.5 量測結果

2100MHz頻段: 頻段 限制值 (FDD)	量測值
上行1920-1980MHz 下行2110-2170MHz	上行1920-1980MHz 下行2110-2170MHz

5. 傳導輸出功率/發射輸出功率(ERP)量測

5.1 適用標準

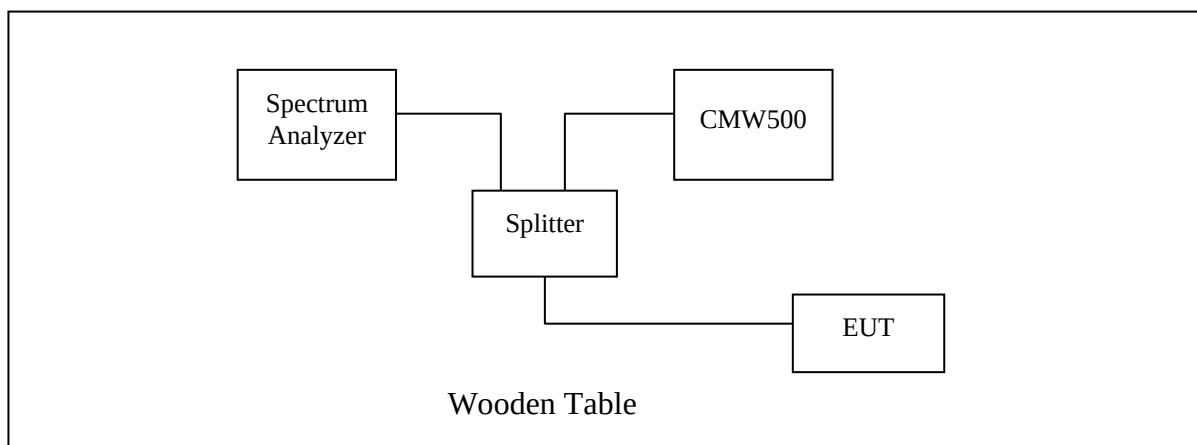
參考PLMN ALL,6.3.1 節規定。

附表1、LTE終端設備發射功率之測試參數

預設條件				
測試環境		常態環境常態電壓		
測試頻道		低、中、高		
測試頻道頻寬		最低、5 MHz及最高		
測試參數				
	下行結構	上行結構		
頻道頻寬	行動臺設備最大發射功率測試不適用	調變方式	資源區塊分配	
			FDD	TDD
1.4MHz		QPSK	1	1
1.4MHz		QPSK	5	5
3MHz		QPSK	1	1
3MHz		QPSK	4	4
5MHz		QPSK	1	1
5MHz		QPSK	8	8
10MHz		QPSK	1	1
10MHz		QPSK	12	12
15MHz		QPSK	1	1
15MHz		QPSK	16	16
20MHz		QPSK	1	1
20MHz		QPSK	18	18

註：RB offset 設定值及應檢項目之測試方法，依 3GPP TS 36.521 技術標準規定。

5.2 測試配置



5.3 量測儀器設備

參考本報告4.3節。

5.4 測試方法

參考PLMN ALL, 7.3 節規定。

發射功率限制
有效輻射功率(ERP): 攜帶式終端設備限制為1W(30dBm) 移動式終端設備限制為2W(33dBm) 傳導輸出功率限制值: 採FDD 者：23 dBm +2.7/-3.2 分貝（dB）。 採TDD 者：23 dBm +2.7/-2.7 dB，但設備屬高功率用戶終端設備(HPUE)者，其傳導輸出功率限制值為26 dBm +2.7/-2.7 dB。

5.5 量測結果

Basic Standard			PLMN10 Conduct Output Power & ERP					Date	
EUT Model Name			GPS-LTE防盜器					2021-12-23	
Temperature			21°C					Engineer	
Humidity			75%					Barry Lee	
1.ERP(dBm) = conducted power (dBm) + antenna gain(dBd)									
2.Antenna Gain(dBd) = Antenna Gain(dBi) - 1									
Max antenna gain for Band 1 2100MHz: 1 dBi						最大傳導發射輸出功率for Band 1 2100MHz: 24.49dBm			
頻帶	調變	頻寬	測試頻道	RB	RB	傳導發射輸出功率	ERP	容許度	結果
					Offset	(dBm)	(dBm)		
Band 1 2100MHz	QPSK	5MHz	低頻道	1	low	23.95	24.95	Conducted Power: FDD 23dBm (20.5-25.7dBm)	Pass
	QPSK	5MHz	中頻道	1	low	24.12	25.12		Pass
	QPSK	5MHz	高頻道	1	low	23.65	24.65		Pass
	QPSK	5MHz	低頻道	1	mid	23.79	24.79	TDD 23dBm (19.8-25.7dBm)	Pass
	QPSK	5MHz	中頻道	1	mid	23.58	24.58		Pass
	QPSK	5MHz	高頻道	1	mid	23.8	24.8		Pass
	QPSK	5MHz	低頻道	1	high	24.33	25.33	ERP: <2W(33dBm) or <1W(30dBm)	Pass
	QPSK	5MHz	中頻道	1	high	24.35	25.35		Pass
	QPSK	5MHz	高頻道	1	high	23.9	24.9		Pass
	QPSK	5MHz	低頻道	8	low	23.81	24.81		Pass
	QPSK	5MHz	中頻道	8	low	23.53	24.53		Pass
	QPSK	5MHz	高頻道	8	low	24.28	25.28		Pass
	QPSK	5MHz	低頻道	8	high	23.72	24.72		Pass
	QPSK	5MHz	中頻道	8	high	24.4	25.4		Pass
	QPSK	5MHz	高頻道	8	high	24.49	25.49		Pass
	QPSK	20MHz	低頻道	1	low	24.04	25.04		Pass
	QPSK	20MHz	中頻道	1	low	24.15	25.15		Pass
	QPSK	20MHz	高頻道	1	low	24.22	25.22		Pass
	QPSK	20MHz	低頻道	1	mid	23.67	24.67		Pass
	QPSK	20MHz	中頻道	1	mid	24.37	25.37		Pass
	QPSK	20MHz	高頻道	1	mid	24.3	25.3		Pass
	QPSK	20MHz	低頻道	1	high	24.38	25.38		Pass
	QPSK	20MHz	中頻道	1	high	24.15	25.15		Pass
	QPSK	20MHz	高頻道	1	high	24.2	25.2		Pass
	QPSK	20MHz	低頻道	18	low	23.71	24.71		Pass
	QPSK	20MHz	中頻道	18	low	23.63	24.63		Pass
	QPSK	20MHz	高頻道	18	low	23.74	24.74		Pass
	QPSK	20MHz	低頻道	18	high	24.2	25.2		Pass
	QPSK	20MHz	中頻道	18	high	24.05	25.05		Pass
	QPSK	20MHz	高頻道	18	high	23.56	24.56		Pass

6. 發射頻譜波罩量測

6.1 適用標準

參考PLMN ALL, 6.3.2 節規定。

附表2、LTE終端設備頻譜波罩規範值

發射限制值 (dB)							解析 頻寬
頻道 頻寬 Δf_{OOB} (MHz)	1.4MHz	3MHz	5MHz	10MHz	15MHz	20MHz	
± 0 to 1	-8.5	-11.5	-13.5	-16.5	-18.5	-19.5	30kHz
± 1 to 2.5	-8.5	-8.5	-8.5	-8.5	-8.5	-8.5	1MHz
± 2.5 to 2.8	-23.5	-8.5	-8.5	-8.5	-8.5	-8.5	1MHz
± 2.8 to 5		-8.5	-8.5	-8.5	-8.5	-8.5	1MHz
± 5 to 6		-23.5	-11.5	-11.5	-11.5	-11.5	1MHz
± 6 to 10			-23.5	-11.5	-11.5	-11.5	1MHz
± 10 to 15				-23.5	-11.5	-11.5	1MHz
± 15 to 20					-23.5	-11.5	1MHz
± 20 to 25						-23.5	1MHz

註： Δf_{OOB} 是發射頻帶外之頻率偏移量（ Δ Frequency of Out-of-band emission）

附表3、LTE終端設備頻譜波罩之測試參數

預設條件				
測試環境		常態環境常態電壓		
測試頻道		低、中、高		
測試頻道頻寬		最低、5 MHz、10 MHz及最高		
測試參數				
	下行結構	上行結構		
頻道頻寬	頻譜波罩測試不適用	調變方式	資源區塊分配	
			FDD	TDD
1.4MHz		QPSK	6	6
1.4MHz		QPSK	5	5
1.4MHz		16QAM	5	5
1.4MHz		16QAM	6	6
3MHz		QPSK	15	15
3MHz		QPSK	4	4
3MHz		16QAM	4	4
3MHz		16QAM	15	15
5MHz		QPSK	25	25
5MHz		QPSK	8	8
5MHz		16QAM	8	8
5MHz		16QAM	25	25
10MHz		QPSK	50	50
10MHz		QPSK	12	12
10MHz		16QAM	12	12
10MHz		16QAM	50（註1）	50（註1）
15MHz		QPSK	75	75
15MHz		QPSK	16	16
15MHz		16QAM	16	16
15MHz	16QAM	75（註1）	75（註1）	

20MHz		QPSK	100	100
20MHz		QPSK	18	18
20MHz		16QAM	18	18
20MHz		16QAM	100 (註1)	100 (註1)

註：

- 1、僅適用於用戶設備類別（UE-Categories） ≥ 2 。
- 2、RB offset設定值及應檢項目之測試方法，依3GPP TS 36.521技術標準規定。

6.2 測試配置

參考本報告4.2節配置方法。

6.3 量測儀器設備

參考本報告4.3節。

6.4 測試方法

參考PLMN10 5.2.2 節規定。

6.5 量測結果

環境溫度: 21°C

環境濕度: 75%

頻帶	調變	測試頻道	頻譜波罩	量測結果
Band 1 2100MHz	QPSK / 16QAM	低頻道	參考測試圖	Pass
		中頻道	參考測試圖	Pass
		高頻道	參考測試圖	Pass

參考附件三測試圖

7. 傳導帶外輻射發射量測

7.1 適用標準

參考PLMN ALL, 6.3.3 節規定。

附表4、LTE終端設備帶外輻射規範值

頻率範圍	最大位準	解析頻寬
$9\text{kHz} \leq f < 150\text{kHz}$	-36 dBm	1kHz
$150\text{kHz} \leq f < 30\text{MHz}$	-36 dBm	10kHz
$30\text{MHz} \leq f < 1\text{GHz}$	-36 dBm	100kHz
$1\text{GHz} \leq f < 12.75\text{GHz}$	-30 dBm	1MHz

附表5、LTE終端設備帶外輻射之測試參數

預設條件						
測試環境		常態環境常態電壓				
測試頻道		低、中、高				
測試頻道頻寬		最低、5 MHz及最高				
測試參數						
	下行結構			上行結構		
頻道頻寬	調變方式	資源區塊分配		調變方式	資源區塊分配	
		FDD	TDD		FDD	TDD
1.4MHz	帶外輻射測試不適用			QPSK	6	6
1.4MHz				QPSK	1	1
3MHz				QPSK	15	15
3MHz				QPSK	1	1
5MHz				QPSK	25	25
5MHz				QPSK	1	1
10MHz				QPSK	50	50
10MHz				QPSK	1	1
15MHz				QPSK	75	75
15MHz				QPSK	1	1
20MHz				QPSK	100	100
20MHz				QPSK	1	1

註：RB offset設定值及應檢項目之測試方法，依3GPP TS 36.521技術標準規定。

7.2 測試配置

參考本報告4.2節配置方法。

7.3 量測儀器設備

參考本報告4.3節。

7.4 測試方法

參考PLMN ALL, 7.3 節規定。

7.5 量測結果

環境溫度: 21°C

環境濕度: 75%

頻帶	測試頻道	傳導帶外輻射發射量測	量測結果
Band 1 2100MHz	低頻道	參考測試圖	Pass
	中頻道	參考測試圖	Pass
	高頻道	參考測試圖	Pass

參考附件四測試圖

8. 相鄰頻道洩漏功率比量測

8.1 適用標準

參考PLMN ALL, 6.3.4 節規定。

附表6、LTE終端設備ACLR規範值

	頻道頻寬					
	1.4MHz	3MHz	5MHz	10MHz	15MHz	20MHz
相鄰頻道偏移	±1.4MHz	±3MHz	±5MHz	±10MHz	±15MHz	±20MHz
頻道量測頻寬	1.08 MHz	2.7 MHz	4.5 MHz	9.0 MHz	13.5 MHz	18 MHz
相鄰頻道洩漏功率限制值	29.2dB					

附表7、LTE終端設備ACLR規範值（HPUE適用）

	頻道頻寬					
	1.4MHz	3MHz	5MHz	10MHz	15MHz	20MHz
相鄰頻道偏移	N/A	N/A	±5MHz	±10MHz	±15MHz	±20MHz
頻道量測頻寬	N/A	N/A	4.5 MHz	9.0 MHz	13.5 MHz	18 MHz
相鄰頻道洩漏功率限制值	N/A	N/A	30.2 dB			

附表8、LTE終端設備ACLR之測試參數

預設條件						
測試環境		常態環境常態電壓				
測試頻道		低、中、高				
測試頻道頻寬		最低、5 MHz、10MHz及最高				
測試參數						
	下行結構			上行結構		
頻道頻寬	調變方式	資源區塊分配		調變方式	資源區塊分配	
		FDD	TDD		FDD	TDD
1.4MHz	ACLR測試不適用			QPSK	6	6
1.4MHz				QPSK	5	5
1.4MHz				16QAM	6	6
1.4MHz				16QAM	5	5
3MHz				QPSK	15	15
3MHz				QPSK	4	4
3MHz				16QAM	15	15
3MHz				16QAM	4	4
5MHz				QPSK	25	25
5MHz				QPSK	8	8
5MHz				16QAM	25	25
5MHz				16QAM	8	8
10MHz				QPSK	50	50
10MHz				QPSK	12	12
10MHz				16QAM	50（註1）	50（註1）
10MHz				16QAM	12	12
15MHz				QPSK	75	75
15MHz				QPSK	16	16
15MHz				16QAM	75（註1）	75（註1）
15MHz				16QAM	16	16
20MHz				OPSK	100	100

20MHz		QPSK	18	18
20MHz		16QAM	100 (註1)	100 (註1)
20MHz		16QAM	18	18

註：

- 1、僅適用於用戶設備類別（UE-Categories）為2~5。
- 2、RB offset設定值及應檢項目之測試方法，依3GPP TS 36.521技術標準規定。

8.2 測試配置

參考本報告4.2節配置方法。

8.3 量測儀器設備

參考本報告4.3節。

8.4 測試方法

參考PLMN ALL, 7.3 節規定。

8.5 量測結果

環境溫度: 21°C

環境濕度: 75%

頻帶	調變	測試頻道	相鄰頻道洩漏功率比	量測結果
Band 1 2100MHz	QPSK / 16QAM	低頻道	參考測試圖	Pass
		中頻道	參考測試圖	Pass
		高頻道	參考測試圖	Pass

參考附件五測試圖

9. 頻率穩定度

9.1 適用標準

參考PLMN ALL, 6.3.5節規定。

9.2 測試配置

參考本報告4.2節配置方法。

9.3 量測儀器設備

參考本報告4.3節。

9.4 測試方法

參考PLMN ALL, 6.3.5 節規定。

9.5 量測結果

Basic Standard		PLMN10 Frequency Error		Date			
EUT Model Name		GPS-LTE防盜器		2021-12-23			
Temperature		21℃		Engineer			
Humidity		75%		Barry Lee			
1.在正常供應電壓下，溫度在攝氏-20℃～50℃間，以10℃為單位，進行不同溫度下之頻率量測，經0/2/5/10分鐘量測結果，頻率應維持在頻道之主波頻率±0.1百萬分之一（PPM）以內。							
2.溫度在20℃，供應電壓在額定值之±15 %時，經0/2/5/10分鐘量測結果，頻率應維持在頻道之主波頻率±0.1 PPM以內。如操作電壓可容許值無法達到額定值之±15 %時，得以廠商自我宣告之電壓值檢測。							
Band 1 2100MHz ,主波頻率: 2100MHz							
正常供應電壓下				供應電壓在額定值之±15 %時			
Power Supply (Vdc)	Environment Temperature (℃)	Result (Hz)	Limit (Hz)	Power Supply (Vdc)	Environment Temperature (℃)	Result (Hz)	Limit (Hz)
12.00	-20	-2.1	±210	10.20	20	-2.1	±210
12.00	-10	-2.2	±210	12.00	20	-2.5	±210
12.00	0	-2.2	±210	13.80	20	-2.2	±210
12.00	10	-2.2	±210				
12.00	20	-1.9	±210				
12.00	30	-2.0	±210				
12.00	40	-2.2	±210				
12.00	50	-2.1	±210				

10. 電磁波能量比吸收率(Specific Absorption Rate , SAR)量測

10.1 適用標準

參考PLMN ALL, 6.6.1.1 節規定。

10.2 測試配置

N/A

10.3 量測儀器設備

N/A

10.4 測試方法

N/A

10.5 量測結果

N/A, 本產品不支援 語音通話。

11. 電磁波功率密度

11.1 適用標準

參考PLMN ALL, 6.6.2 節規定。

電波功率密度最大值：

2100MHz頻段為1.0mW/cm²。

量測距離為20公分，或以設備廠商宣告設備天線與附近人體可活動範圍之距離。

11.2 計算測試方法

The worst case of Average power:

Prediction of MPE limit at a given distance

$$S = PG / 4 \pi R^2$$

Where: S = Power density

P = Power input to antenna

G = Power gain of the antenna in the direction of interest relative to an isotropic radiator

R = Distance to the center of radiation of the antenna

11.3 評估結果

Band 1: 2100MHz mode

Maximum Average output power at antenna input	24.49	(dBm)
Power Tolerance	2	dB
Maximum peak output power at antenna input terminal:	445.6562484	(mW)
Duty cycle:	99	(%)
Maximum Pav :	441.1996859	(mW)
Antenna gain (typical):	1	(dBi)
Maximum antenna gain:	1.258925412	(numeric)
Prediction distance:	20	(cm)
MPE limit for uncontrolled exposure at prediction	0.45	(mW/cm ²)
Power density at predication frequency at 20 (cm)	0.1105568	(mW/cm ²)

The Max. predicted power density level at 20 cm is 0.1105568mW/cm². This is below the uncontrolled exposure limit of .1.0 mW/cm².

12. IMEI碼量測

12.1 測試配置

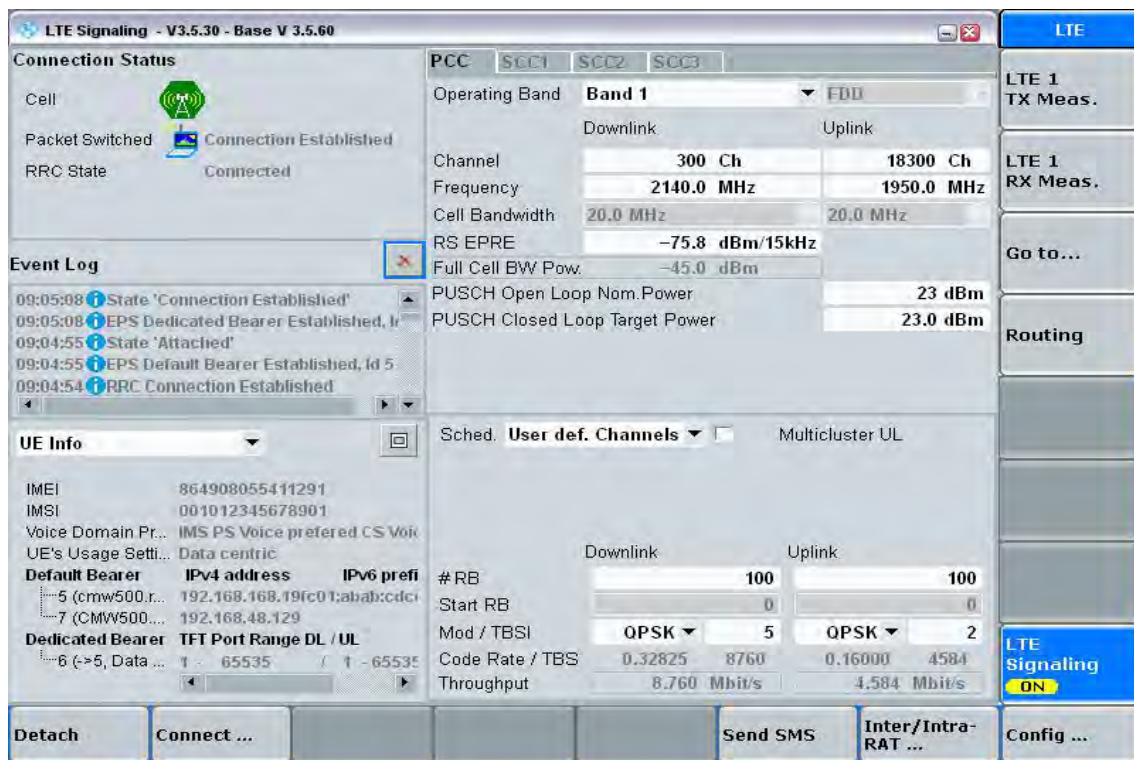
參考本報告3.2節配置方法。

12.2 量測儀器設備

參考本報告3.3節配置方法。

12.3 量測結果

IMEI碼: 864908055411291

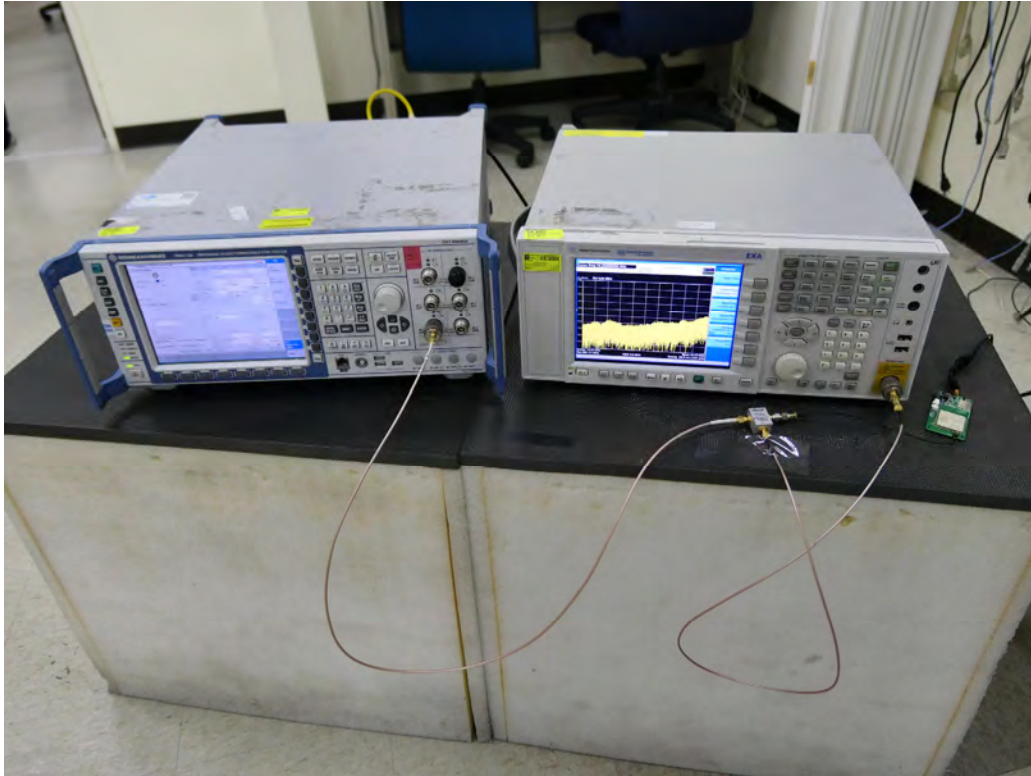


The screenshot displays the LTE Signaling software interface, version V3.5.30 - Base V 3.5.60. The interface is divided into several sections:

- Connection Status:** Shows the connection state as 'Connected' with a green signal icon. It indicates 'Packet Switched' and 'RRC State Connected'.
- Event Log:** A list of events including 'State 'Connection Established'', 'EPS Dedicated Bearer Established, Id 5', 'State 'Attached'', 'EPS Default Bearer Established, Id 5', and 'RRC Connection Established'.
- UE Info:** Displays the IMEI (864908055411291), IMSI (001012345678901), Voice Domain Preference (IMS PS Voice preferred CS Voice), and UE's Usage Setting (Data centric).
- Default Bearer:** Shows the IPv4 address (192.168.168.19) and IPv6 prefix (2001:0000:0000:0000:0000:0000:0000:0000).
- Dedicated Bearer:** Shows the TFTP Port Range DL / UL (65535 / 65535).
- Operating Band:** Set to Band 1, FDD.
- Channel:** 300 Ch.
- Frequency:** 2140.0 MHz.
- Cell Bandwidth:** 20.0 MHz.
- RS EPRE:** -75.8 dBm/15kHz.
- Full Cell BW Pow.:** -45.0 dBm.
- PUSCH Open Loop Nom. Power:** 23 dBm.
- PUSCH Closed Loop Target Power:** 23.0 dBm.
- Sched. User def. Channels:** Multicenter UL.
- # RB:** 100.
- Start RB:** 0.
- Mod / TBSI:** QPSK / 5.
- Code Rate / TBS:** 0.32825 / 8760.
- Throughput:** 8.760 Mbit/s.
- Uplink:** 100.
- Start RB:** 0.
- Mod / TBSI:** QPSK / 2.
- Code Rate / TBS:** 0.16000 / 4584.
- Throughput:** 4.584 Mbit/s.
- Buttons:** Detach, Connect ..., Send SMS, Inter/Intra-RAT ..., Config ...

13. 附件一：測試擺設之相片

直接量測之配置照片



14. 附件二：產品之相片

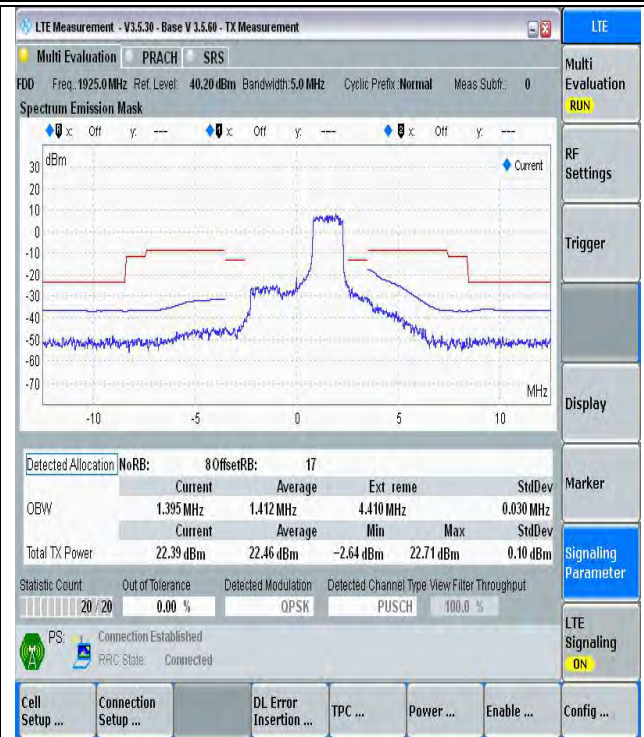
此附件相片請見檔案 **ISL-21LR305P**

15. 附件三: 發射頻譜波罩量測結果

B1 5M QPSK RB8 Low CH_Low



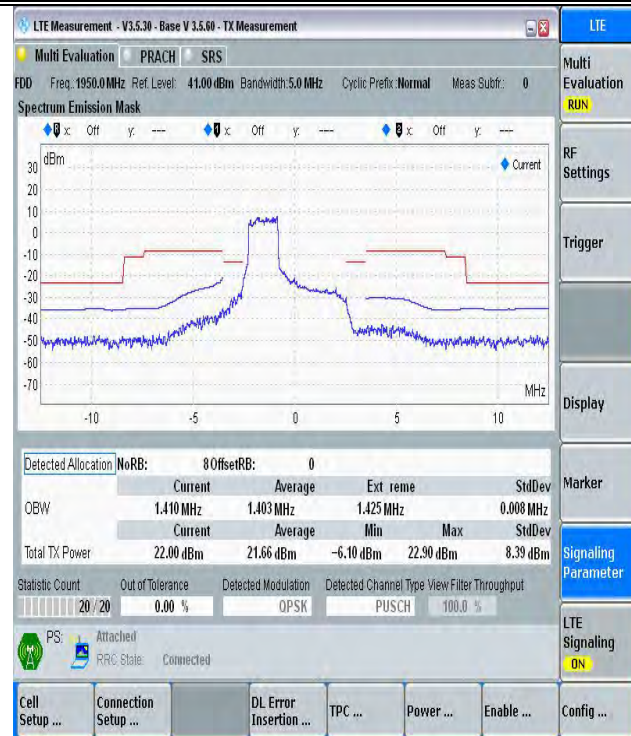
B1 5M QPSK RB8 Low CH_High



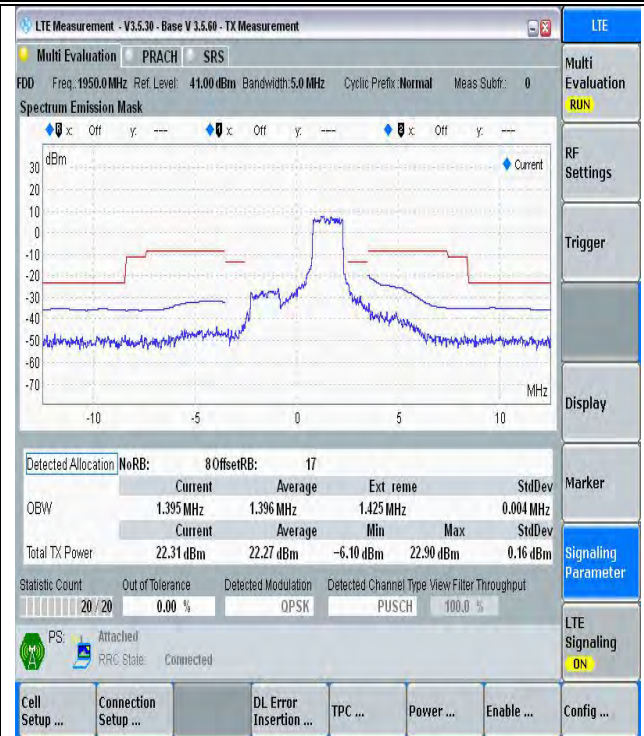
B1 5M QPSK RB25 Low CH



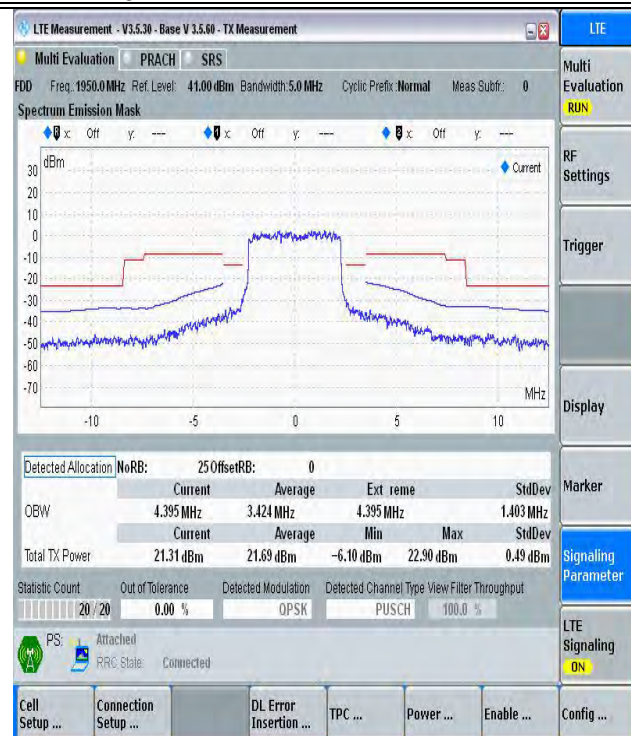
B1 5M QPSK RB8 Mid CH_Low



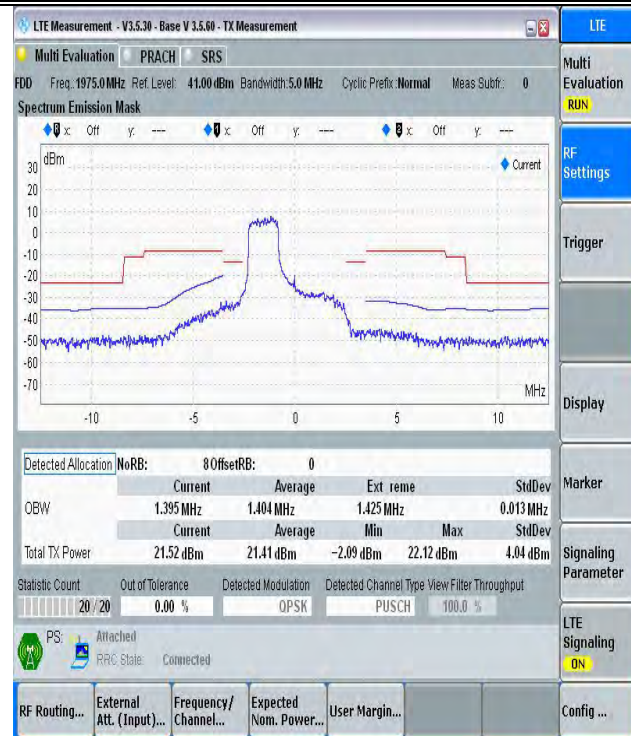
B1 5M QPSK RB8 Mid CH_High



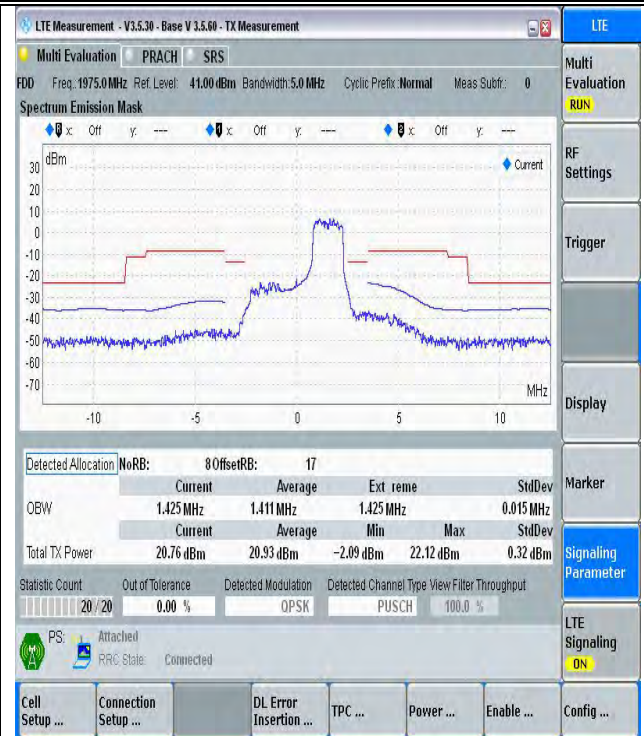
B1 5M QPSK RB25 Mid CH



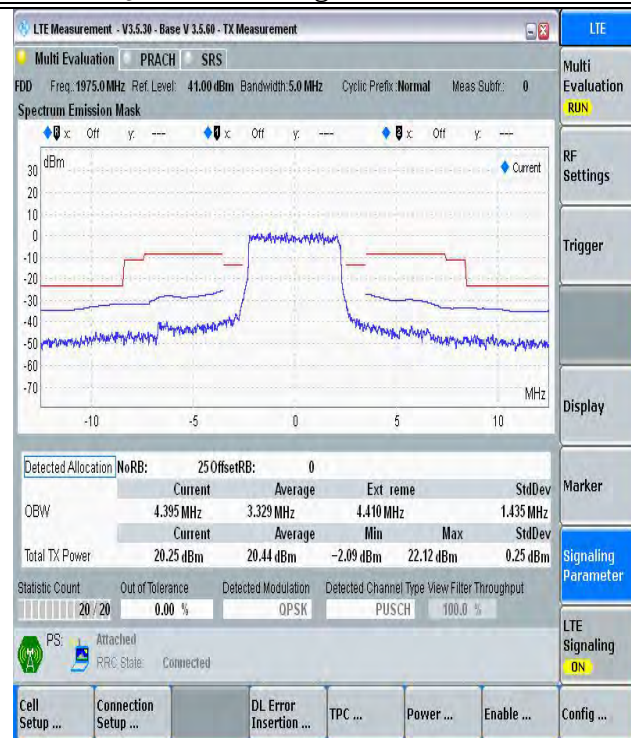
B1 5M QPSK RB8 High CH_Low



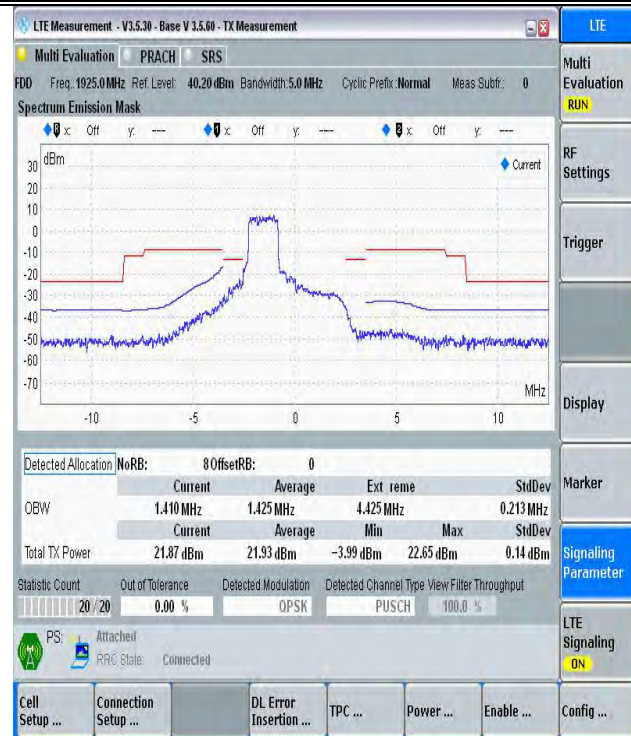
B1 5M QPSK RB8 High CH_High



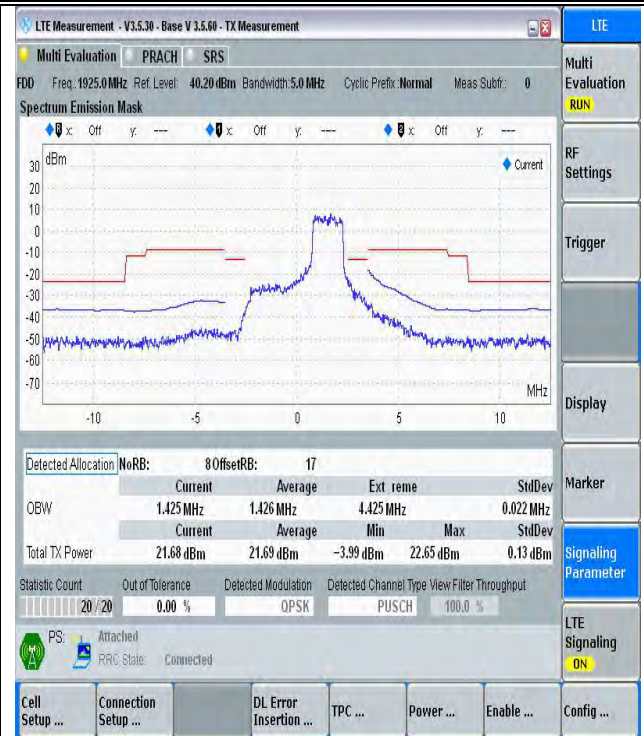
B1 5M QPSK RB25 High CH



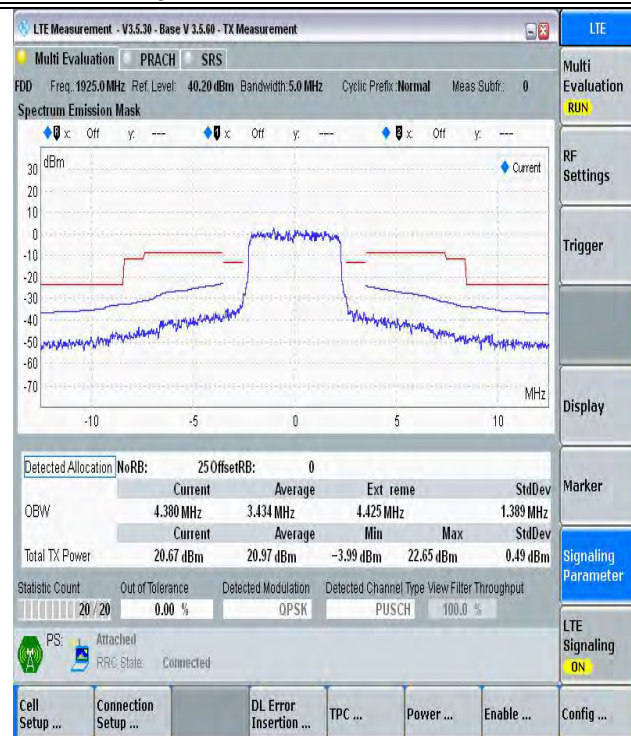
B1 5M 16QAM RB8 Low CH_Low



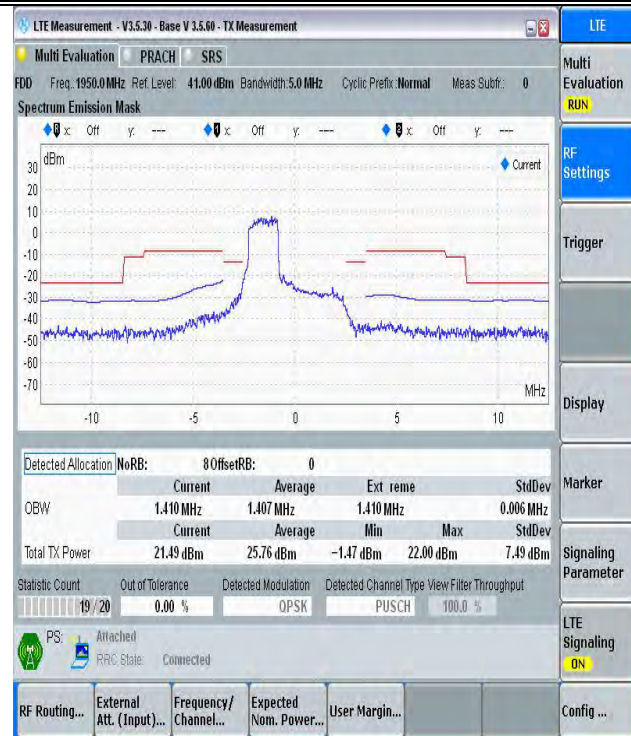
B1 5M 16QAM RB8 Low CH_High



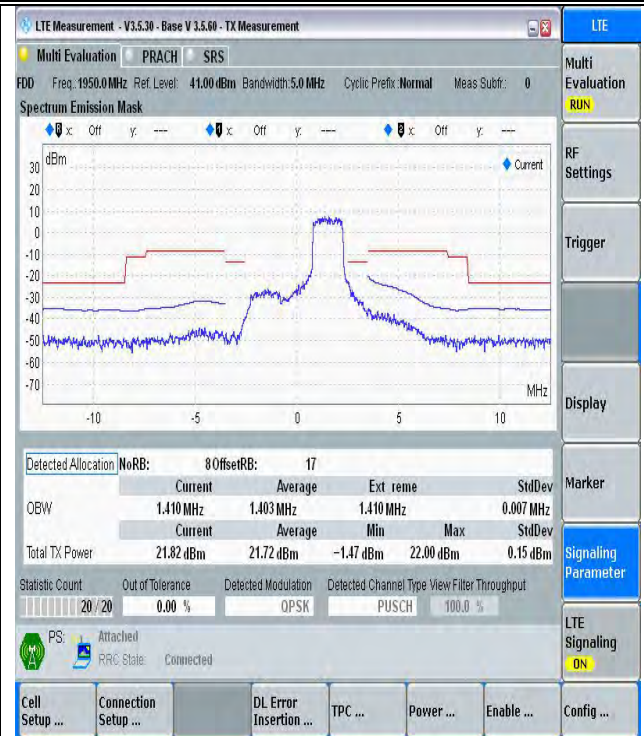
B1 5M 16QAM RB25 Low CH



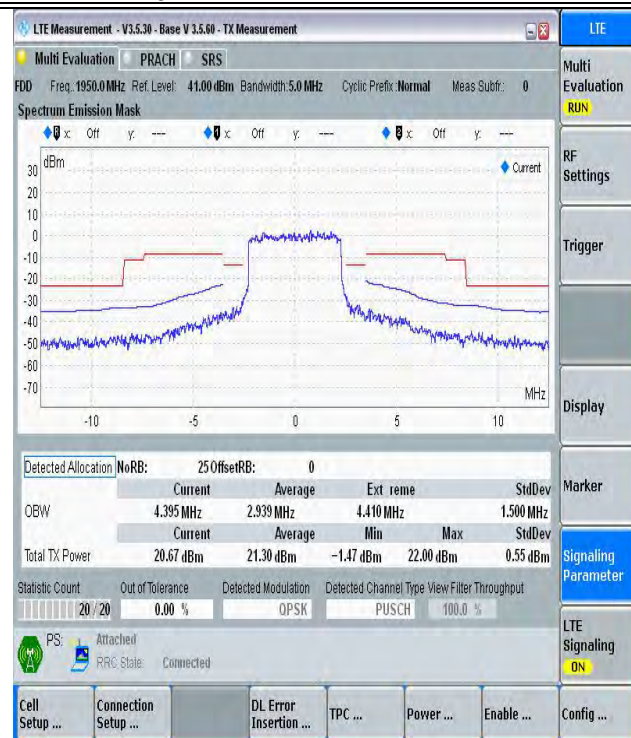
B1 5M 16QAM RB8 Mid CH_Low



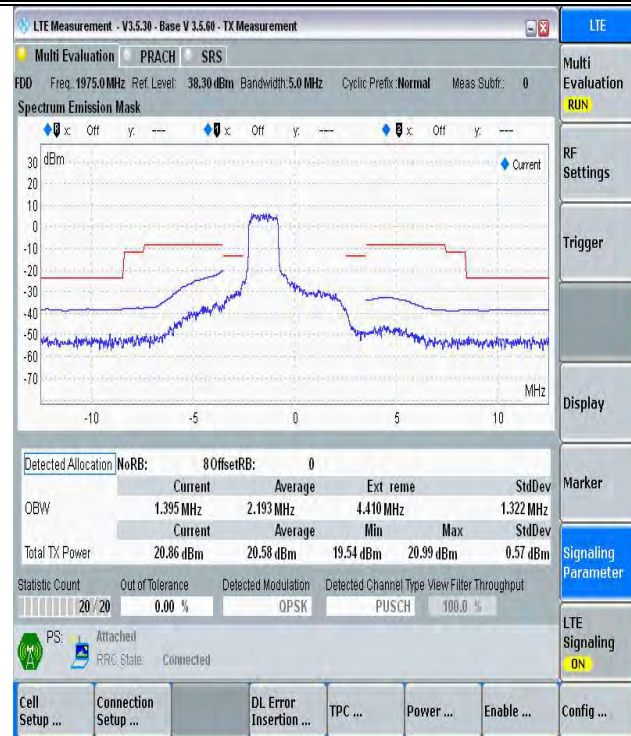
B1 5M 16QAM RB8 Mid CH_High



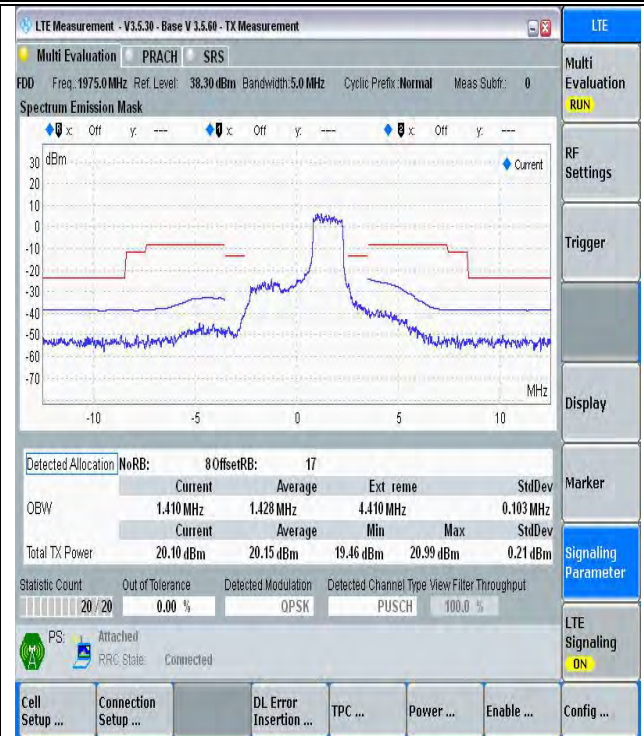
B1 5M 16QAM RB25 Mid CH



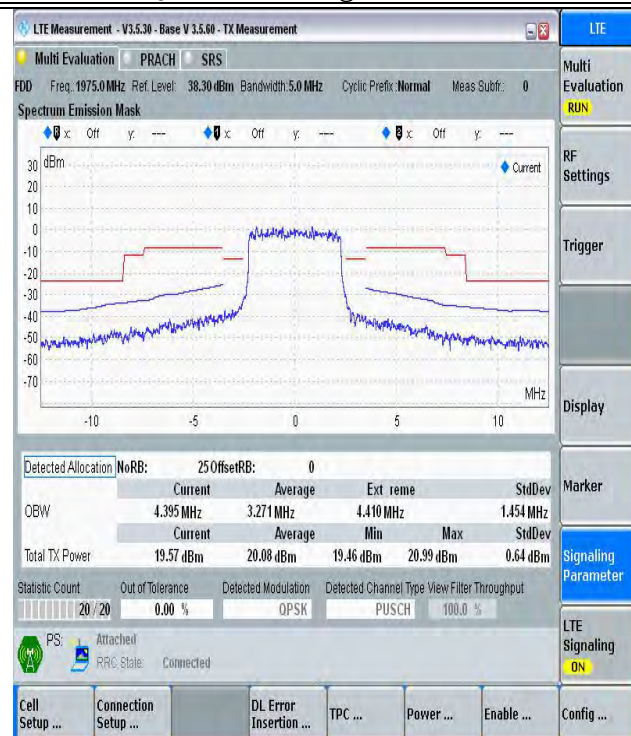
B1 5M 16QAM RB8 High CH_Low



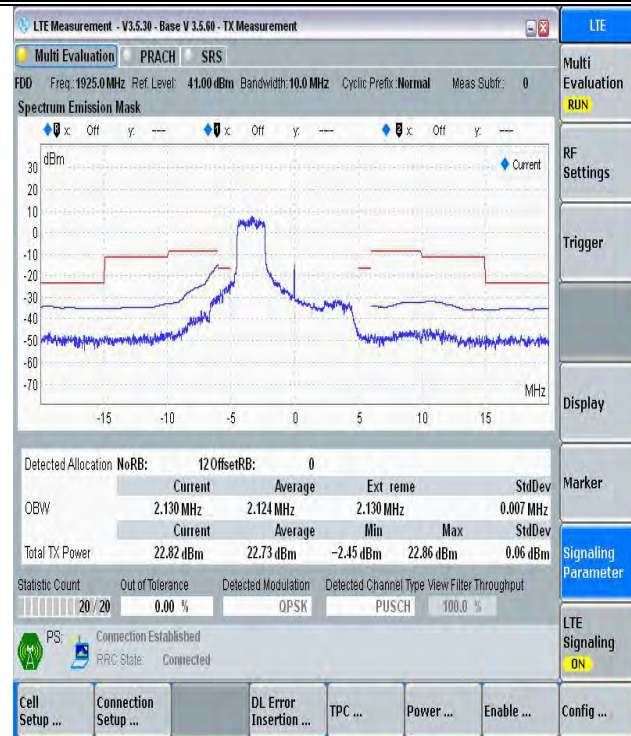
B1 5M 16QAM RB8 High CH_High



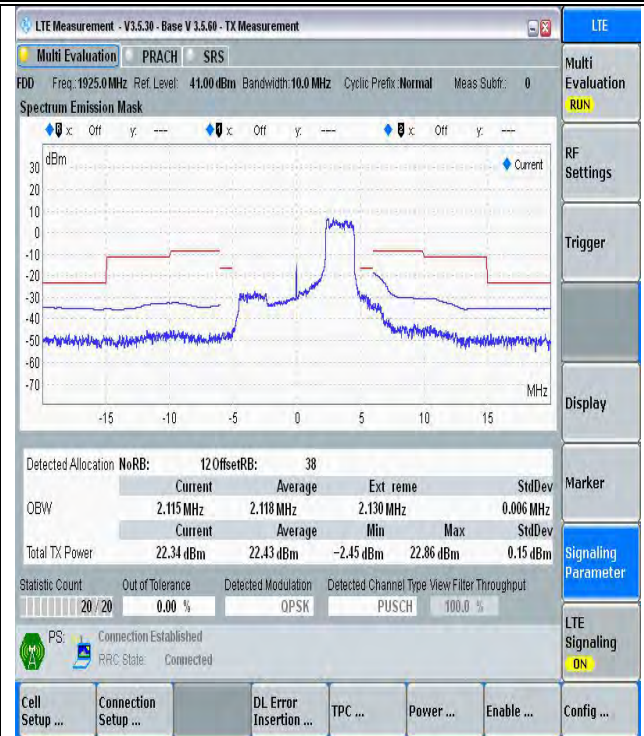
B1 5M 16QAM RB25 High CH



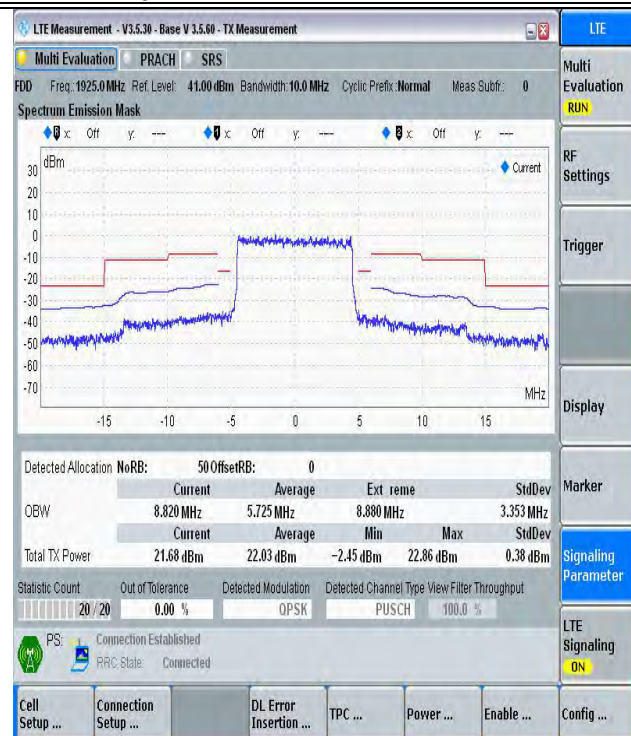
B1 10M QPSK RB12 Low CH_Low



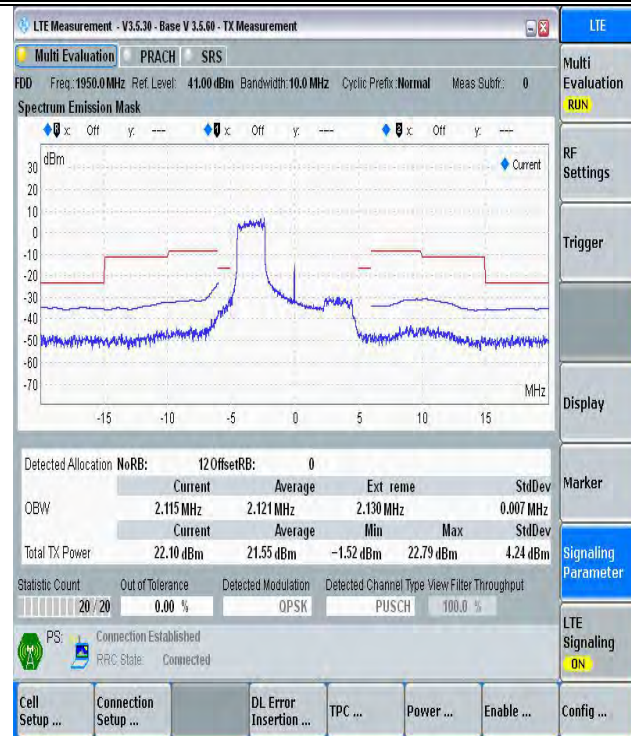
B1 10M QPSK RB12 Low CH_High



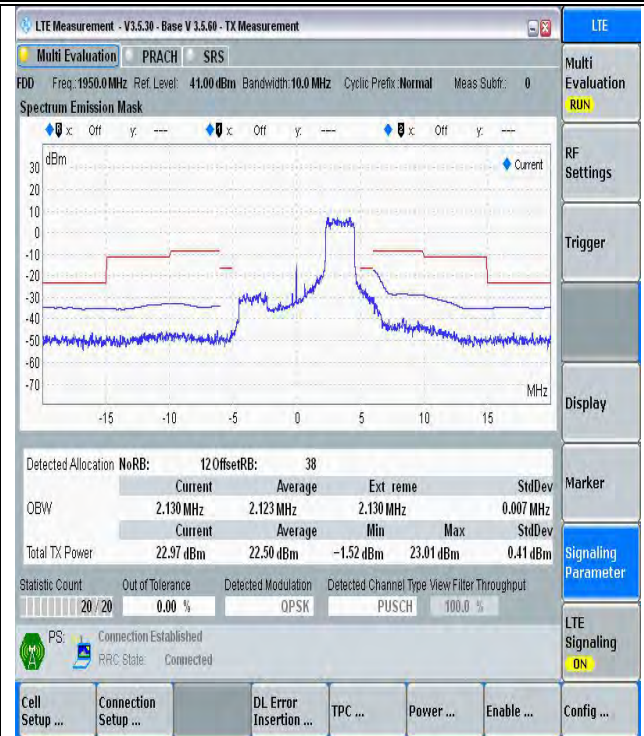
B1 10M QPSK RB50 Low CH



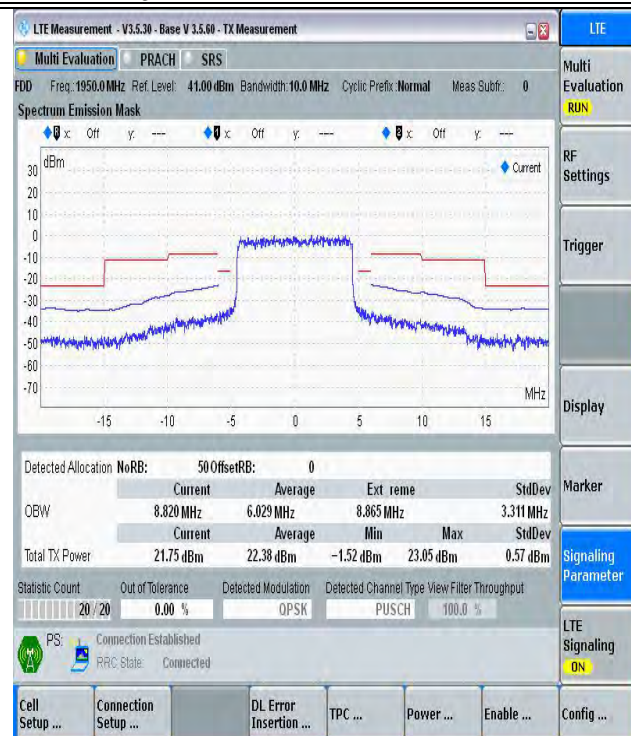
B1 10M QPSK RB12 Mid CH_Low



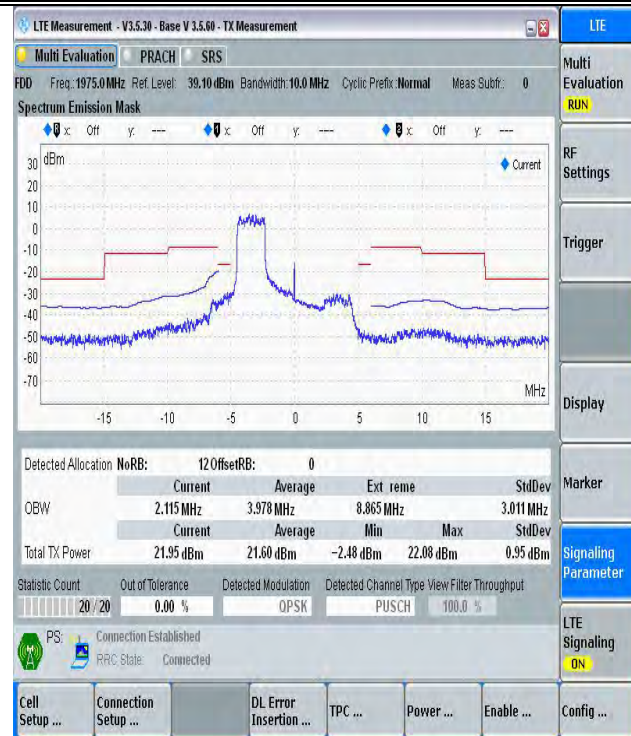
B1 10M QPSK RB12 Mid CH_High



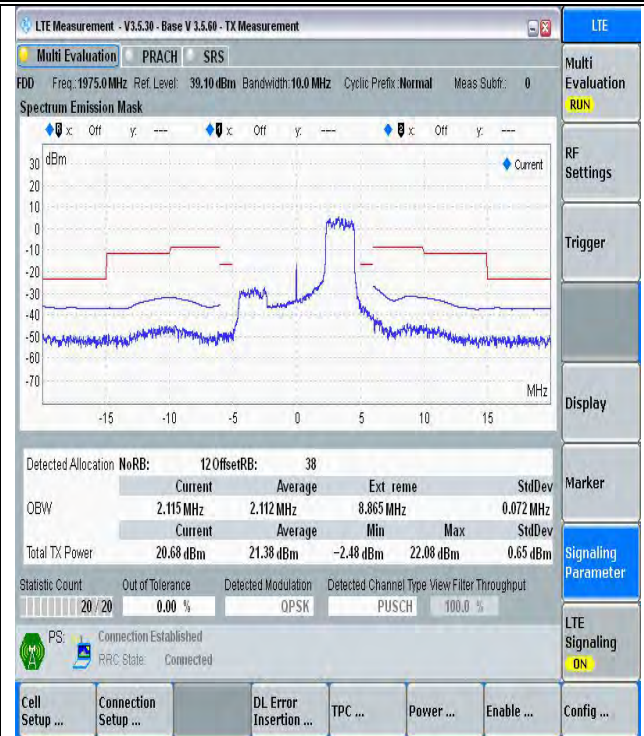
B1 10M QPSK RB50 Mid CH



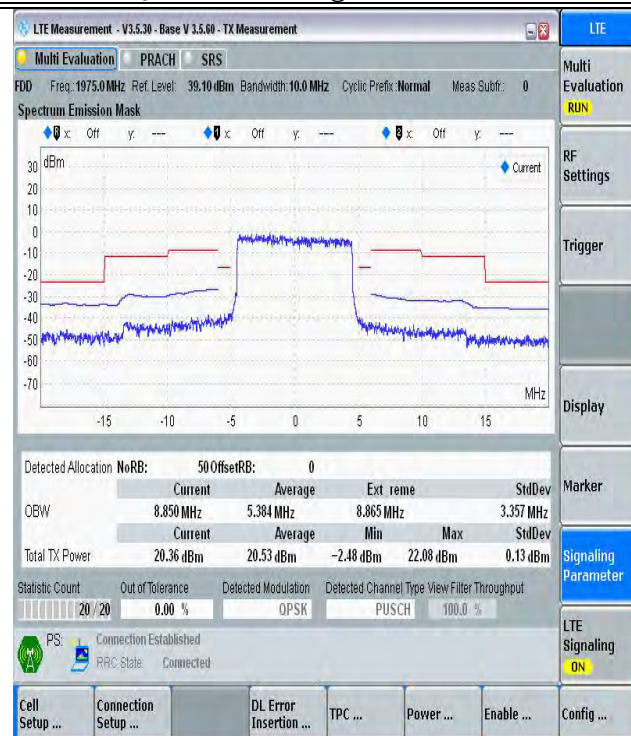
B1 10M QPSK RB12 High CH_Low



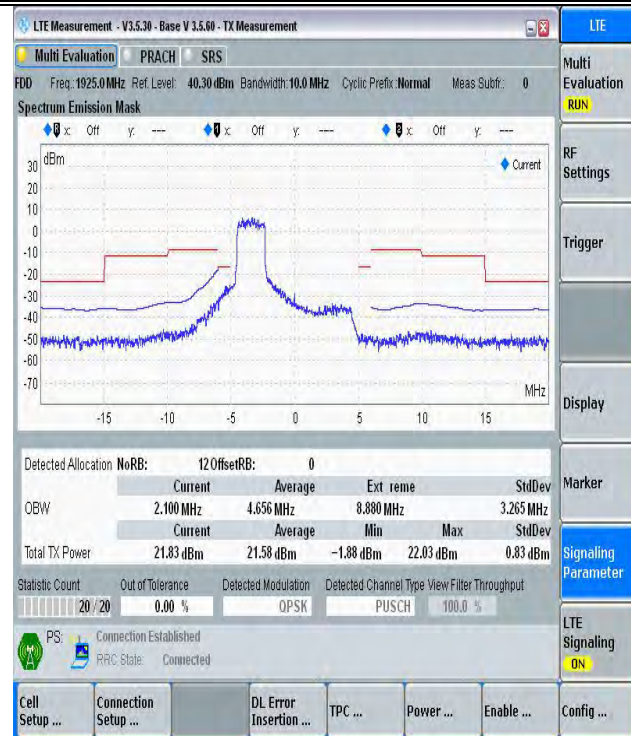
B1 10M QPSK RB12 High CH_High



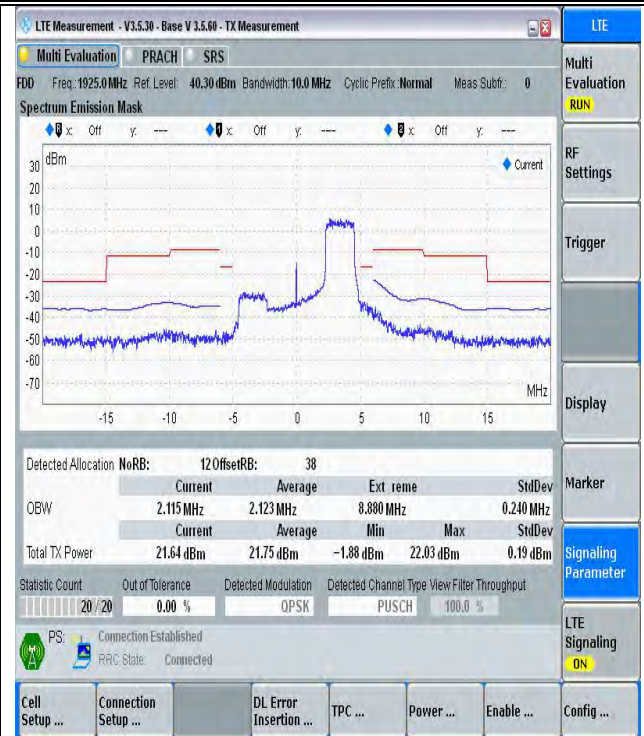
B1 10M QPSK RB50 High CH



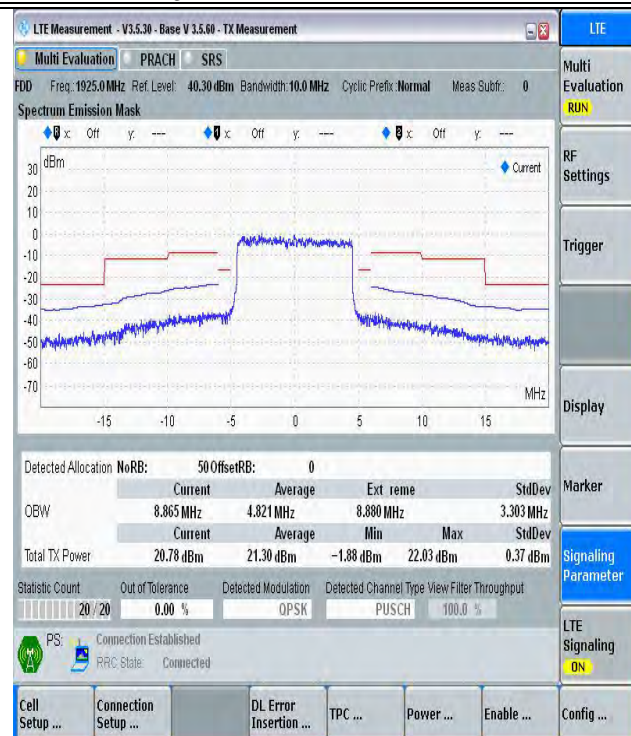
B1 10M 16QAM RB12 Low CH_Low



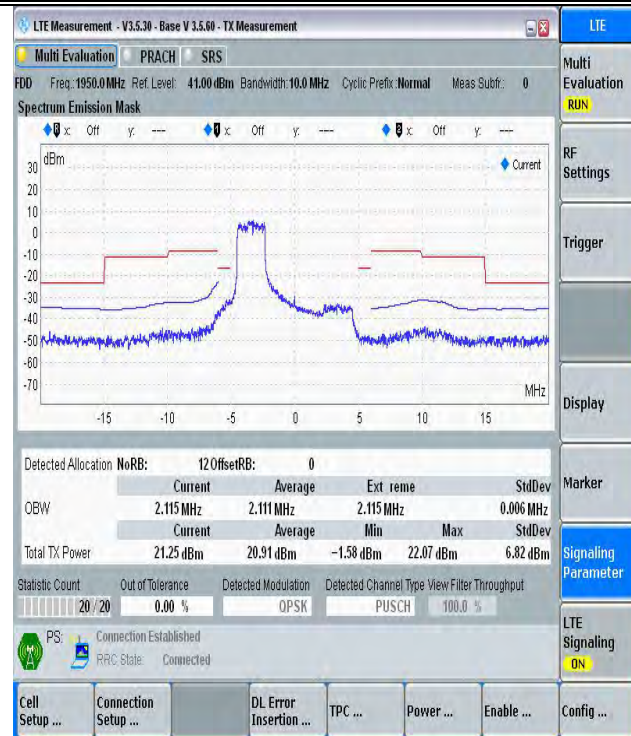
B1 10M 16QAM RB12 Low CH_High



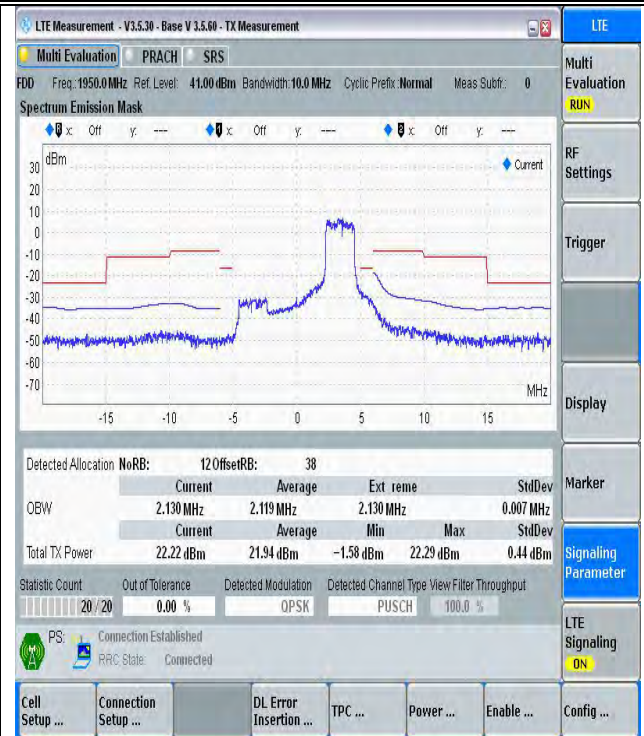
B1 10M 16QAM RB50 Low CH



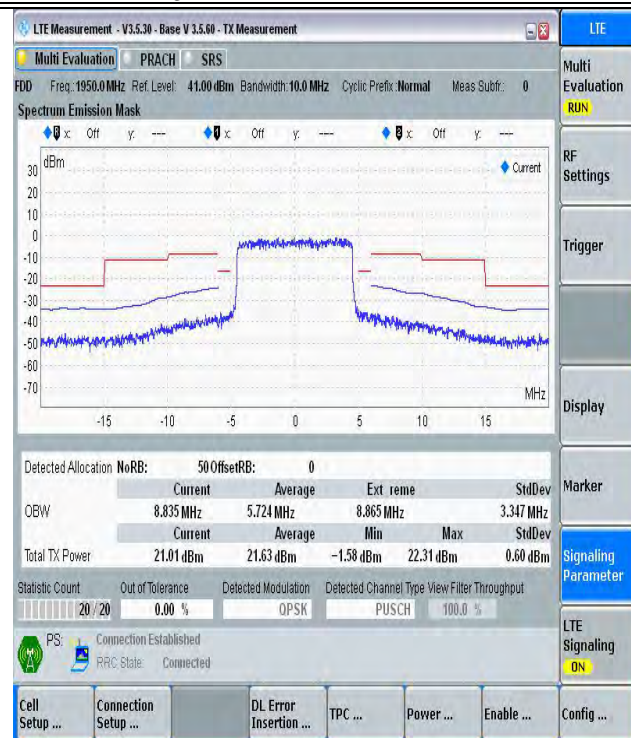
B1 10M 16QAM RB12 Mid CH_Low



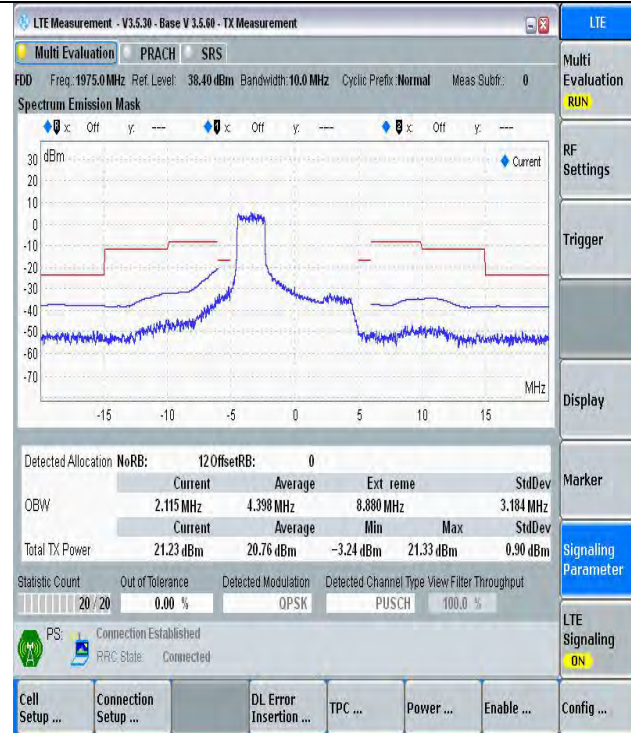
B1 10M 16QAM RB12 Mid CH_High



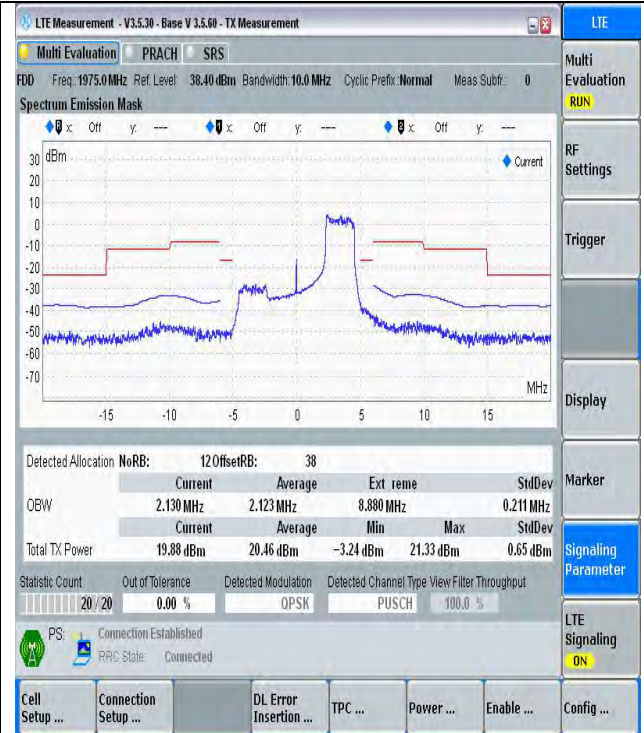
B1 10M 16QAM RB50 Mid CH



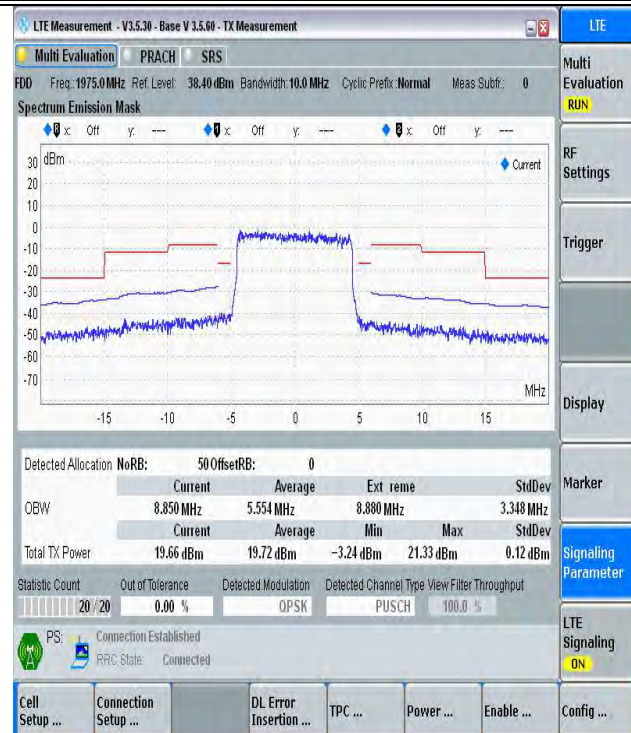
B1 10M 16QAM RB12 High CH_Low



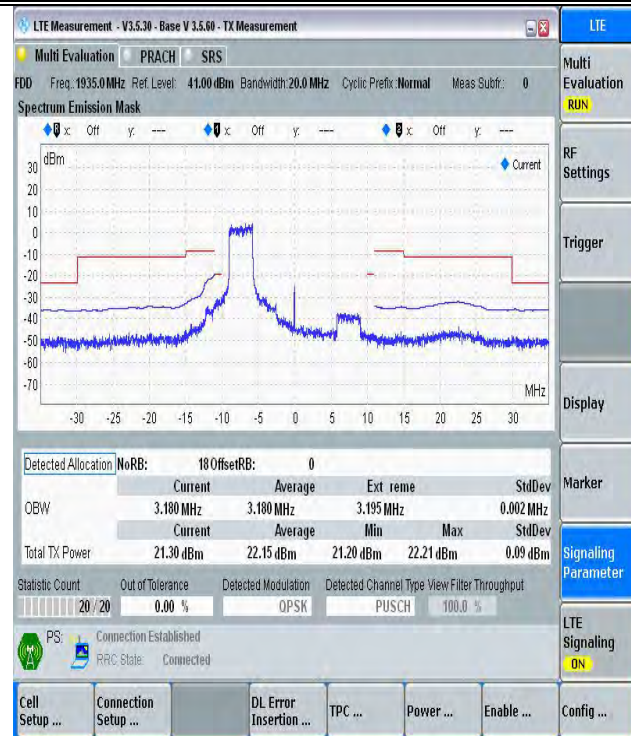
B1 10M 16QAM RB12 High CH_High



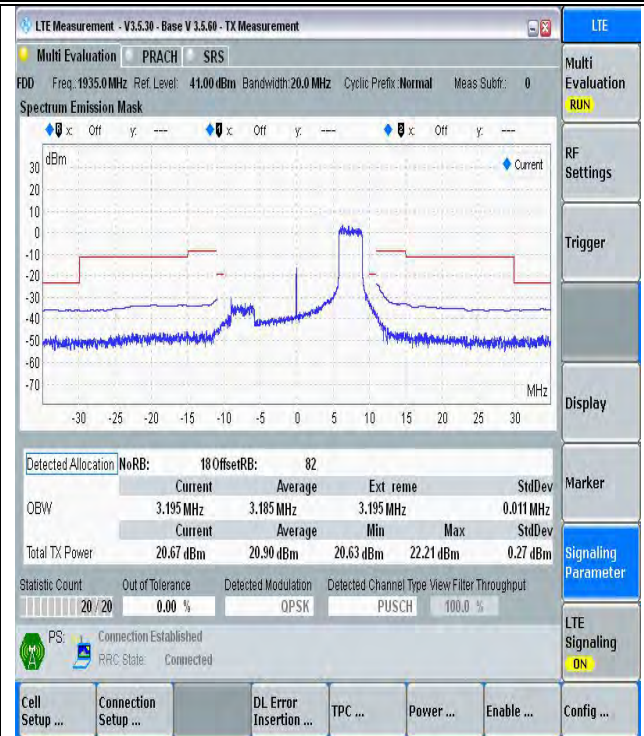
B1 10M 16QAM RB50 High CH



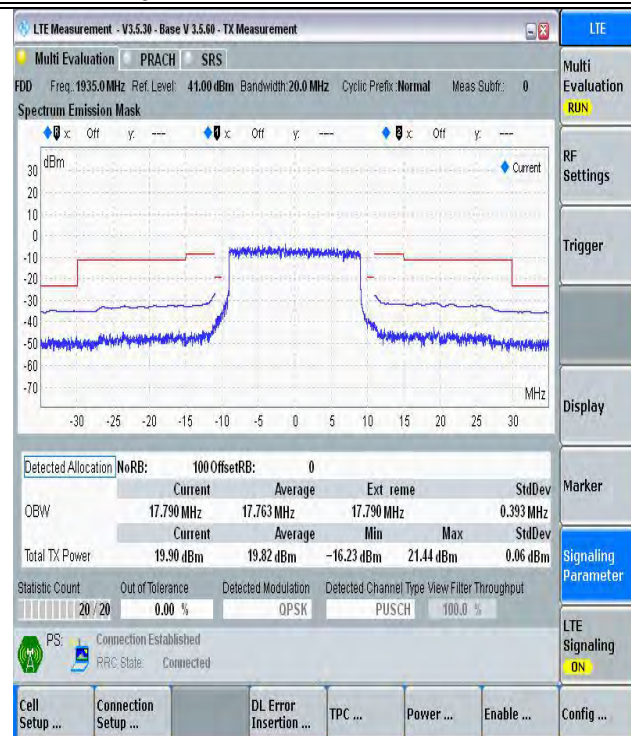
B1 20M QPSK RB18 Low CH_Low



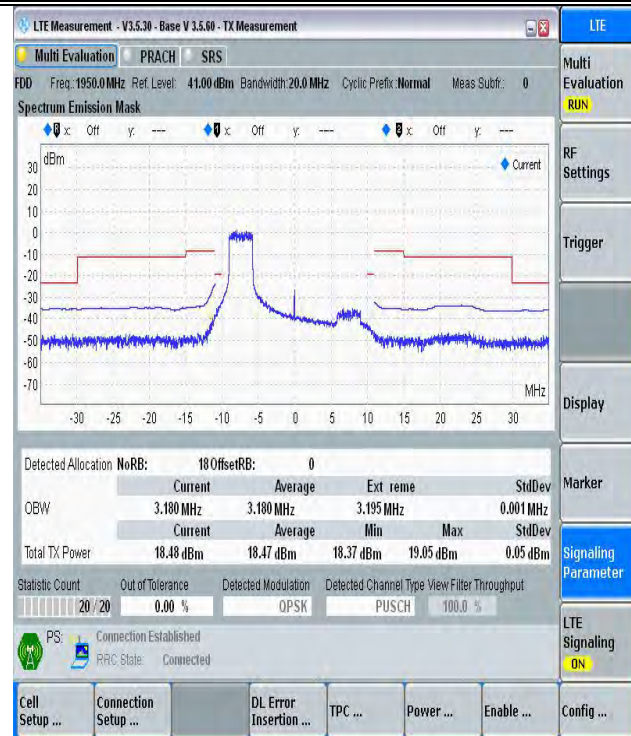
B1 20M QPSK RB18 Low CH_High



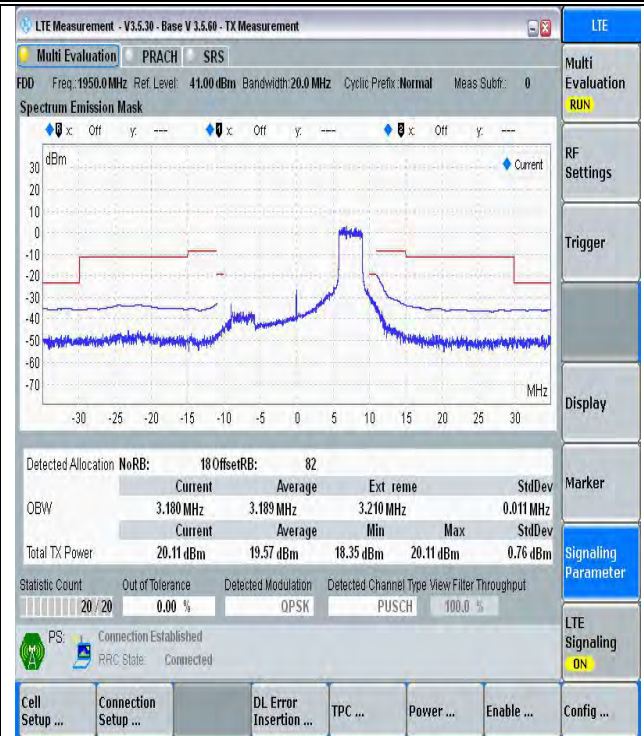
B1 20M QPSK RB100 Low CH



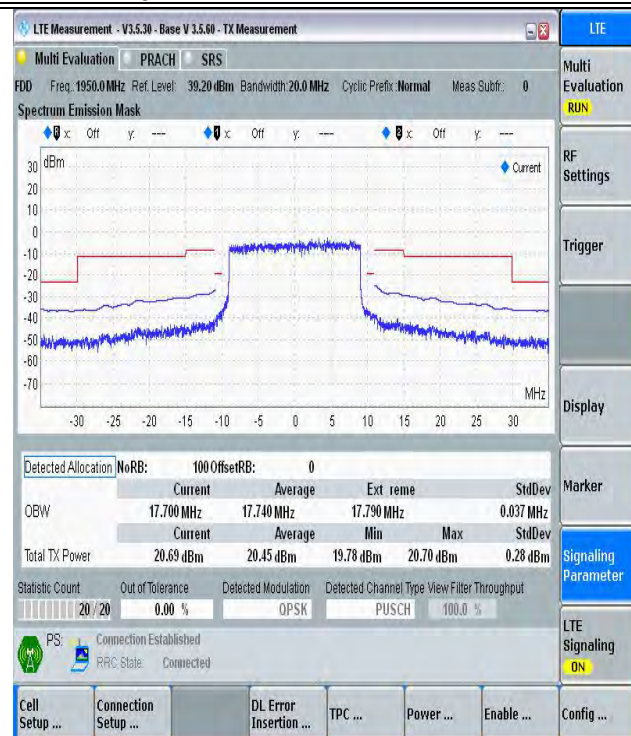
B1 20M QPSK RB18 Mid CH_Low



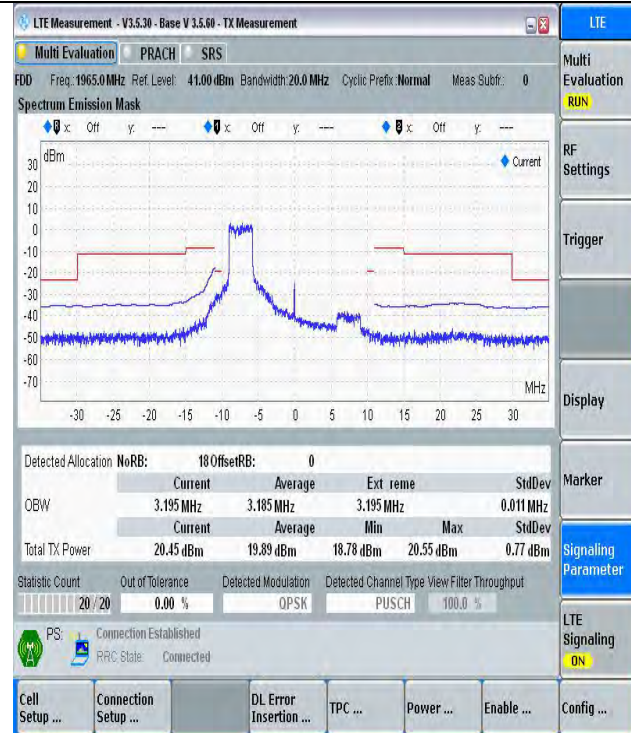
B1 20M QPSK RB18 Mid CH_High



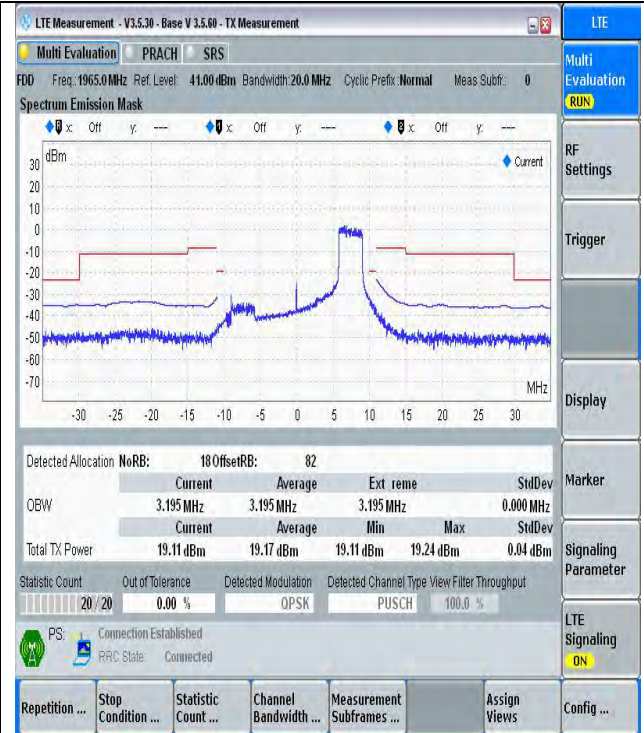
B1 20M QPSK RB100 Mid CH



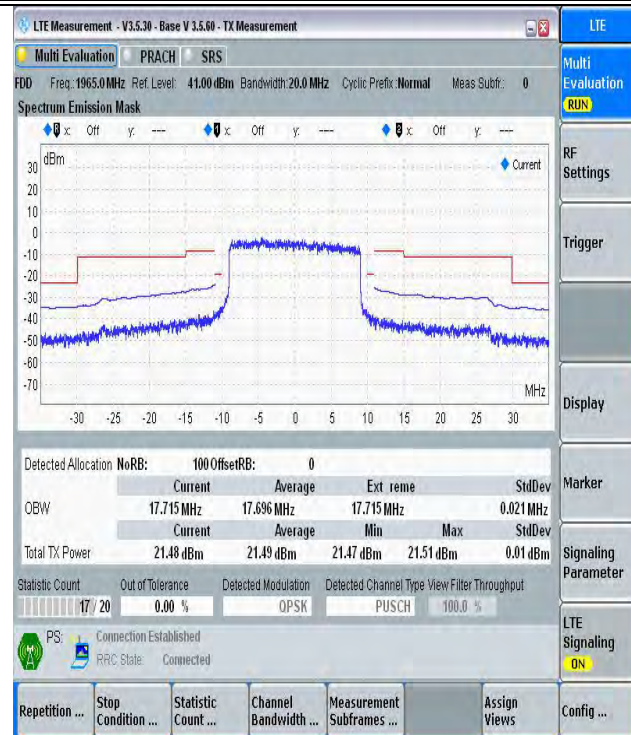
B1 20M QPSK RB18 High CH_Low



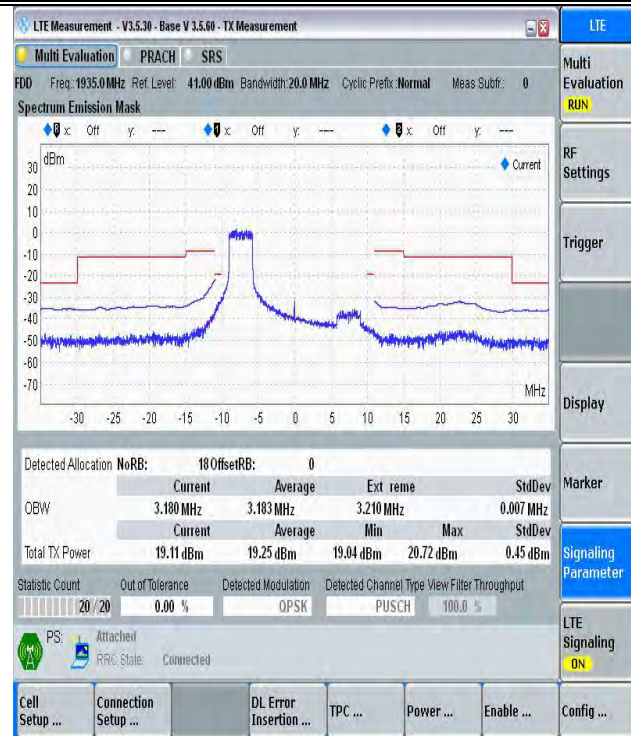
B1 20M QPSK RB18 High CH_High



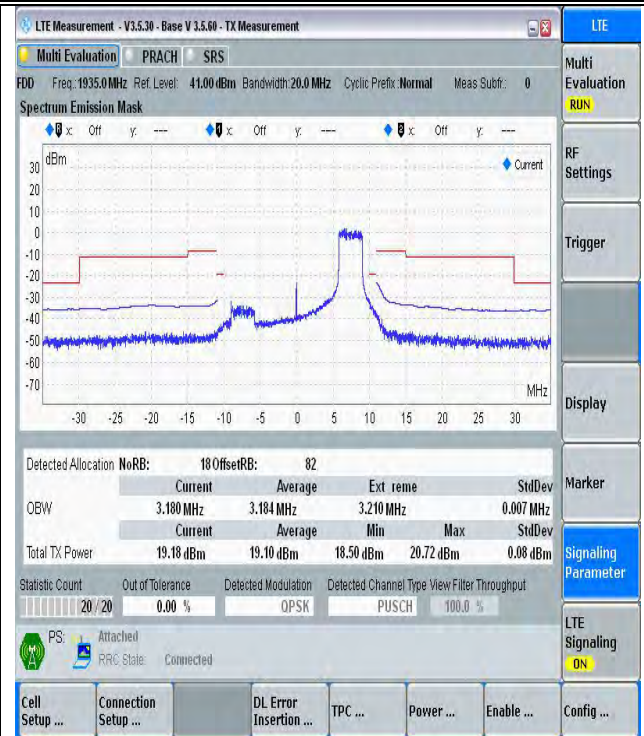
B1 20M QPSK RB100 High CH



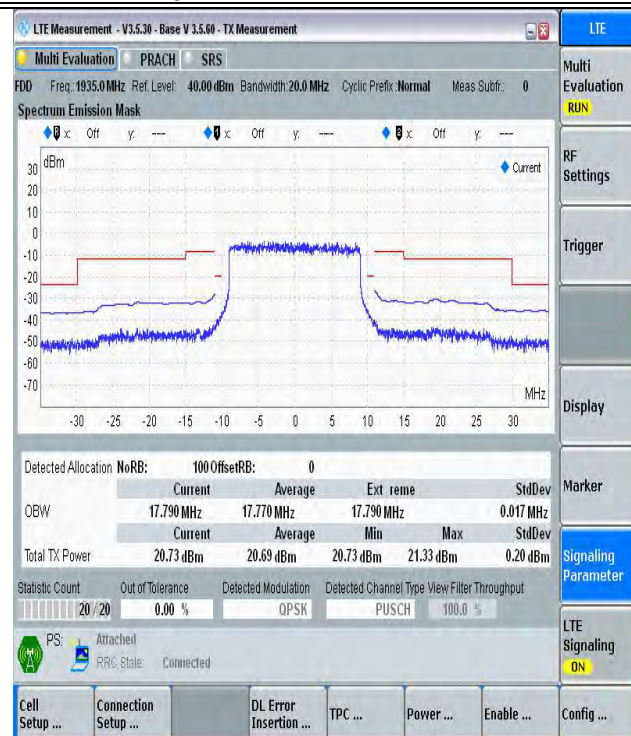
B1 20M 16QAM RB18 Low CH_Low



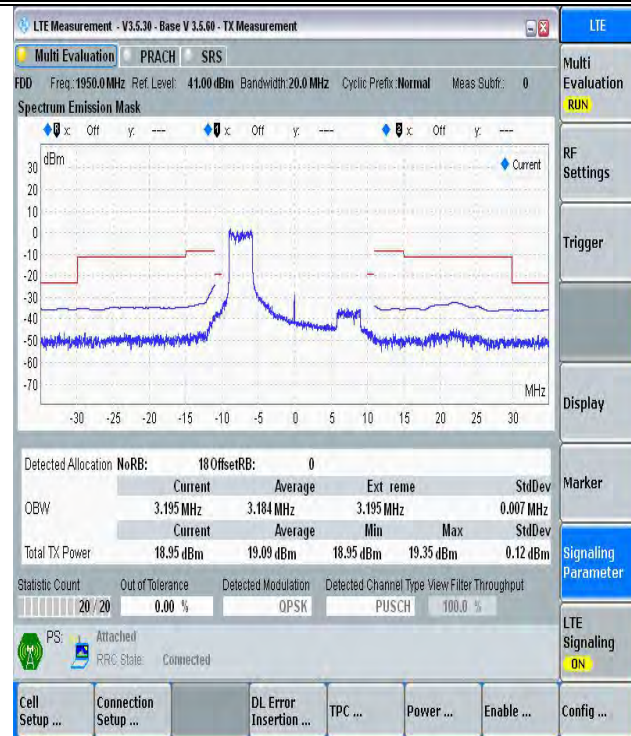
B1 20M 16QAM RB18 Low CH_High



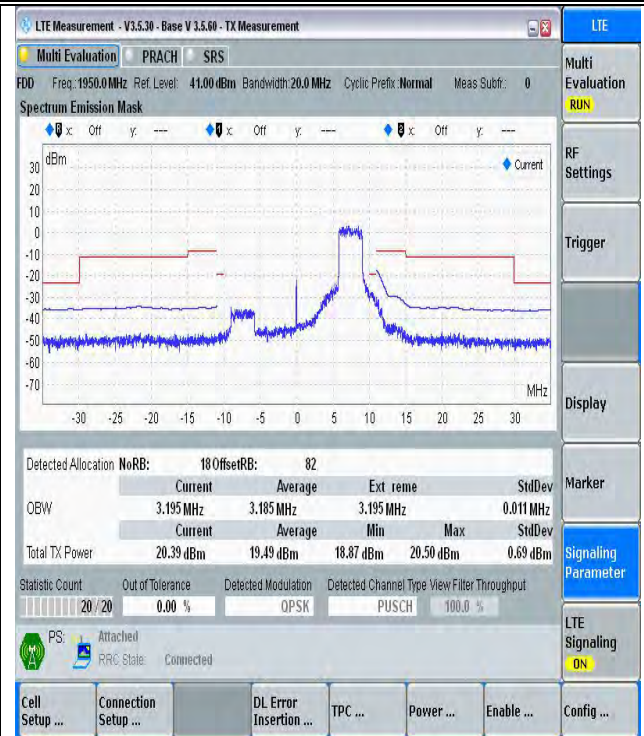
B1 20M 16QAM RB100 Low CH



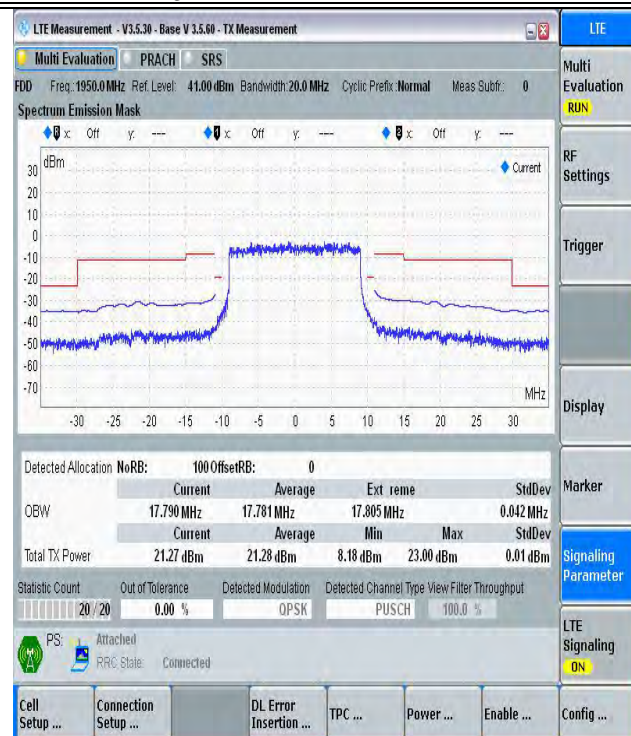
B1 20M 16QAM RB18 Mid CH_Low



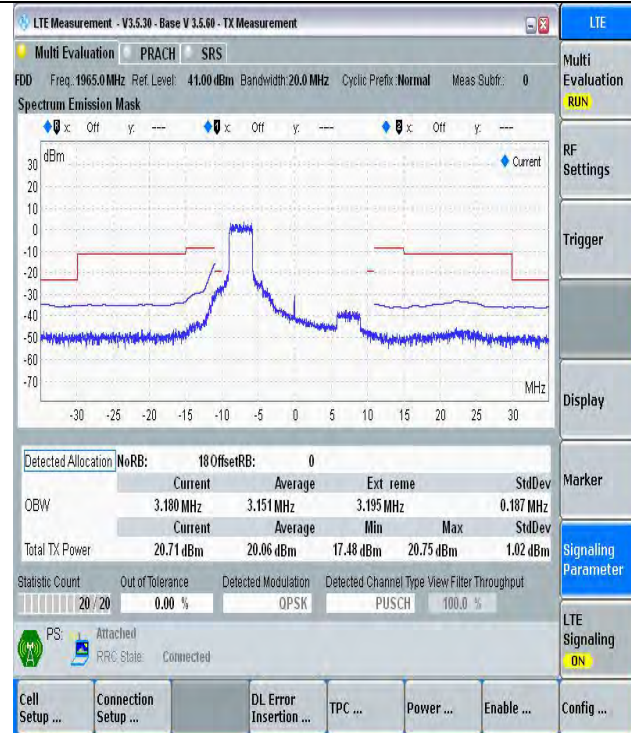
B1 20M 16QAM RB18 Mid CH_High



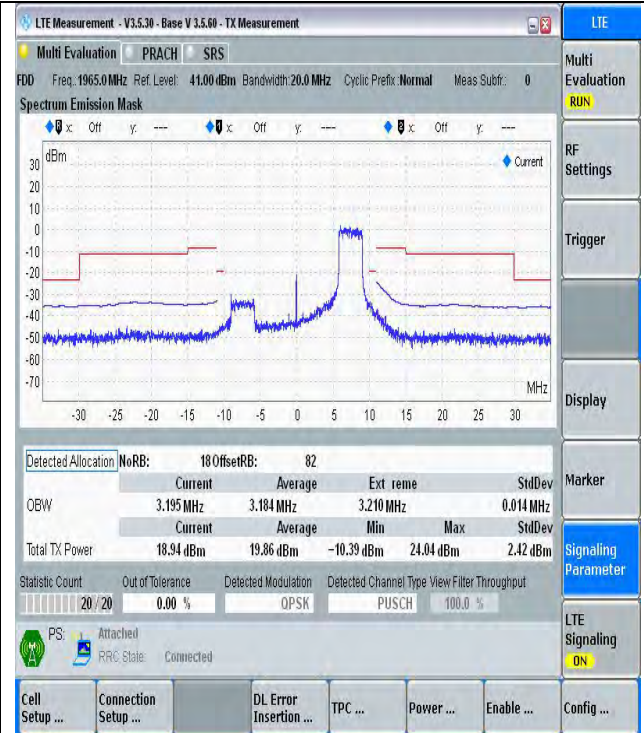
B1 20M 16QAM RB100 Mid CH



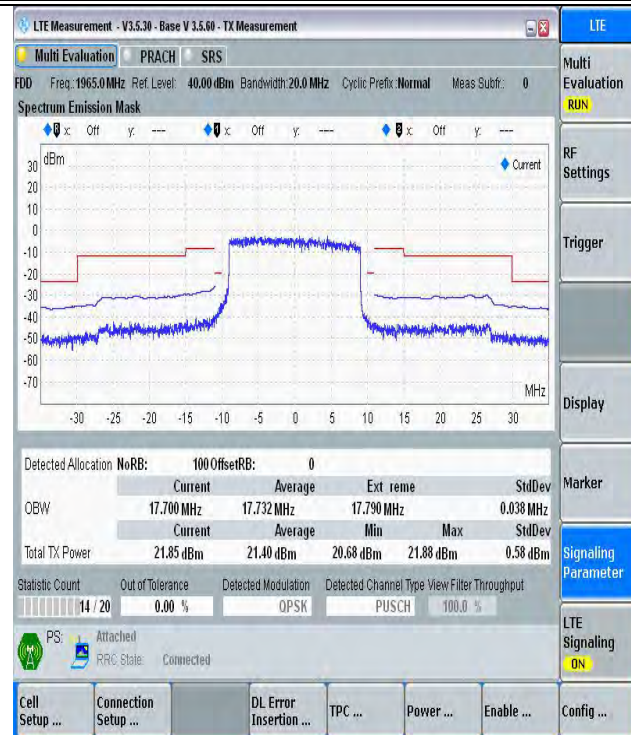
B1 20M 16QAM RB18 High CH_Low



B1 20M 16QAM RB18 High CH_High



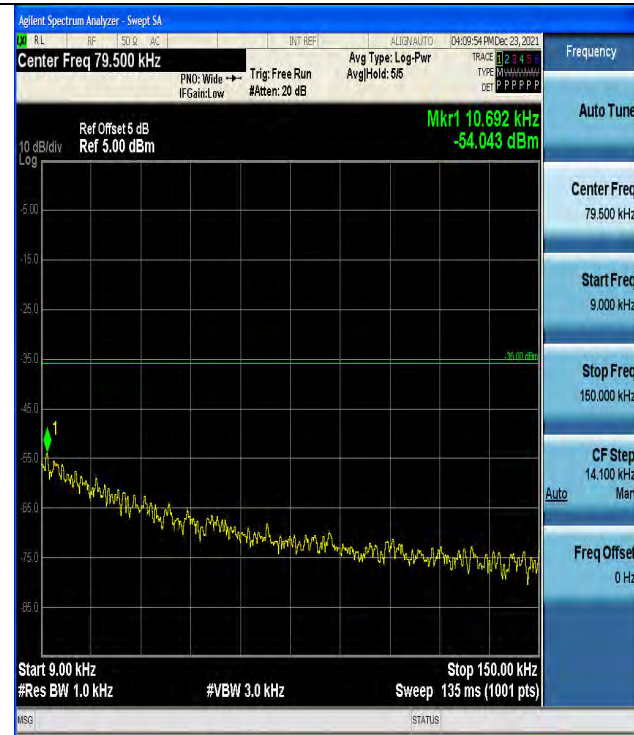
B1 20M 16QAM RB100 High CH



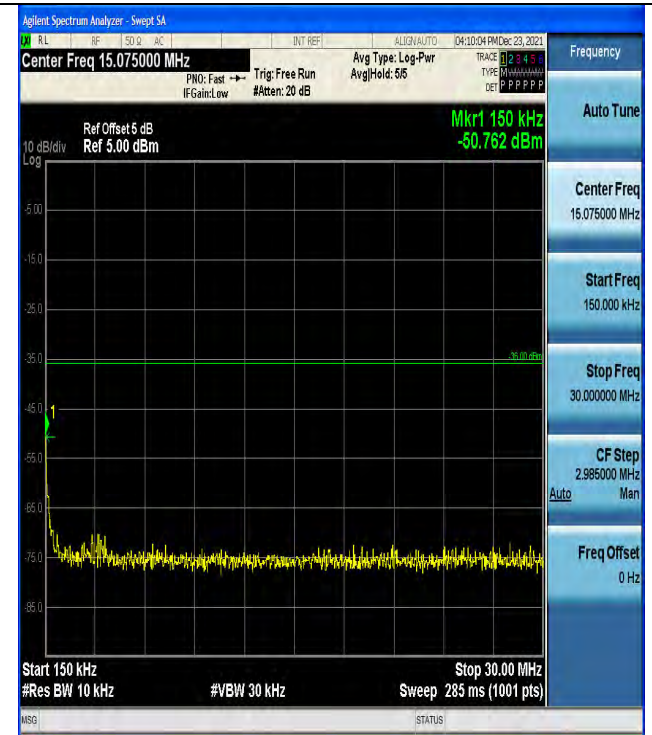
16. 附件四：傳導帶外輻射發射量測結果

B1 5M RB1 Low CH_Low

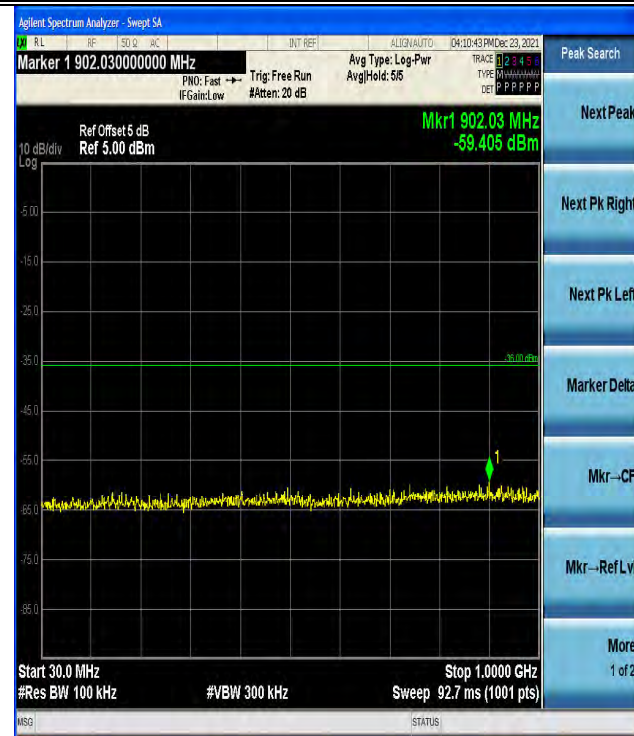
9kHz ≤ f < 150kHz



150kHz ≤ f < 30MHz



30MHz ≤ f < 1GHz

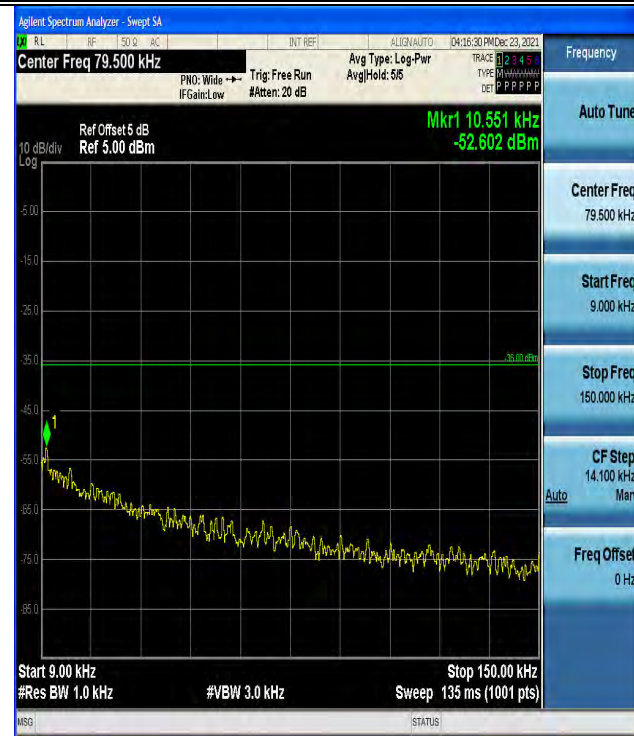


1GHz ≤ f < 12.75GHz

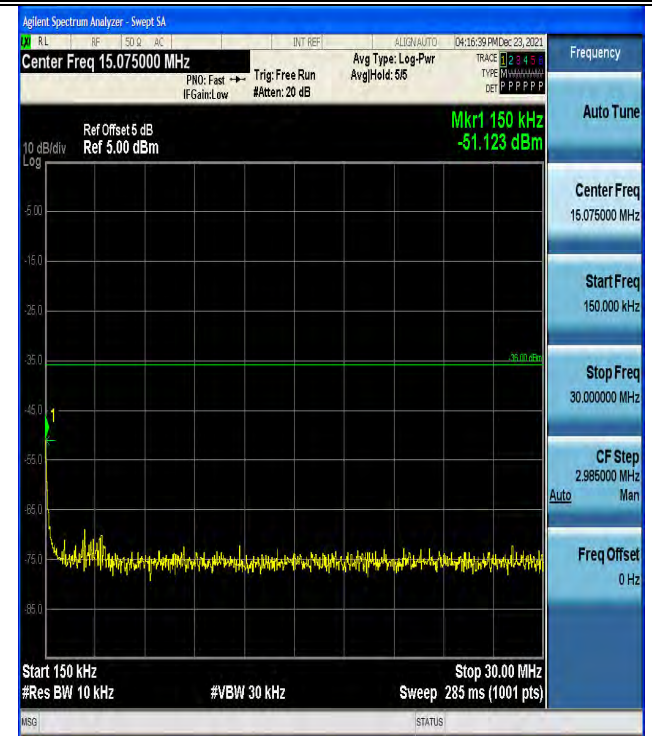


B1 5M RB1 Low CH_Mid

9kHz ≤ f < 150kHz



150kHz ≤ f < 30MHz



30MHz ≤ f < 1GHz

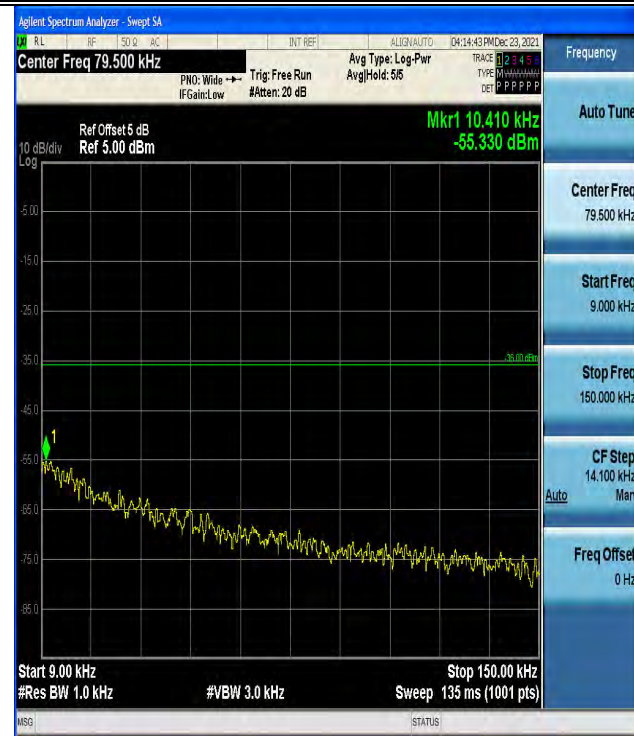


1GHz ≤ f < 12.75GHz

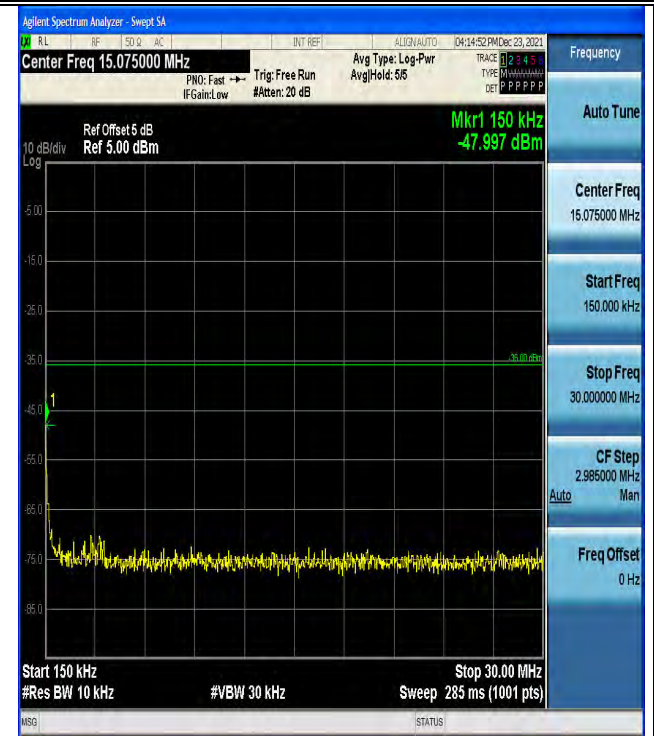


B1 5M RB1 Low CH_High

9kHz ≤ f < 150kHz



150kHz ≤ f < 30MHz



30MHz ≤ f < 1GHz

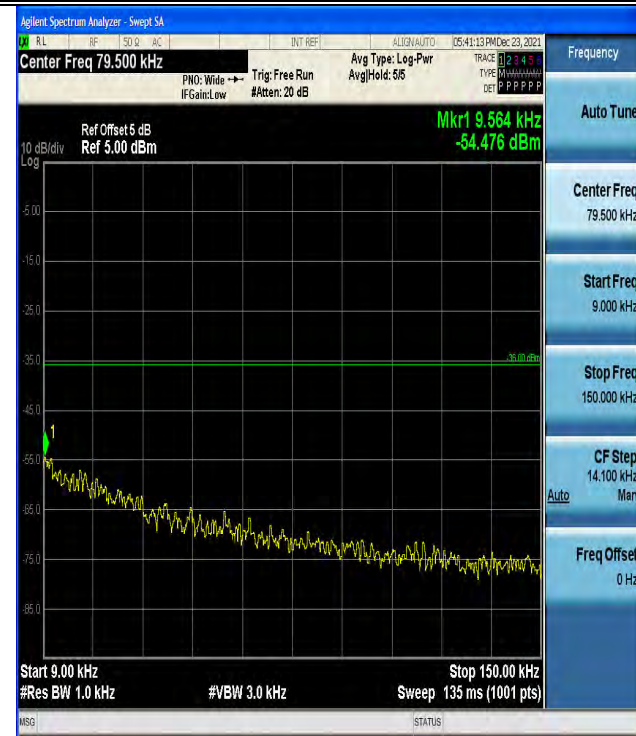


1GHz ≤ f < 12.75GHz

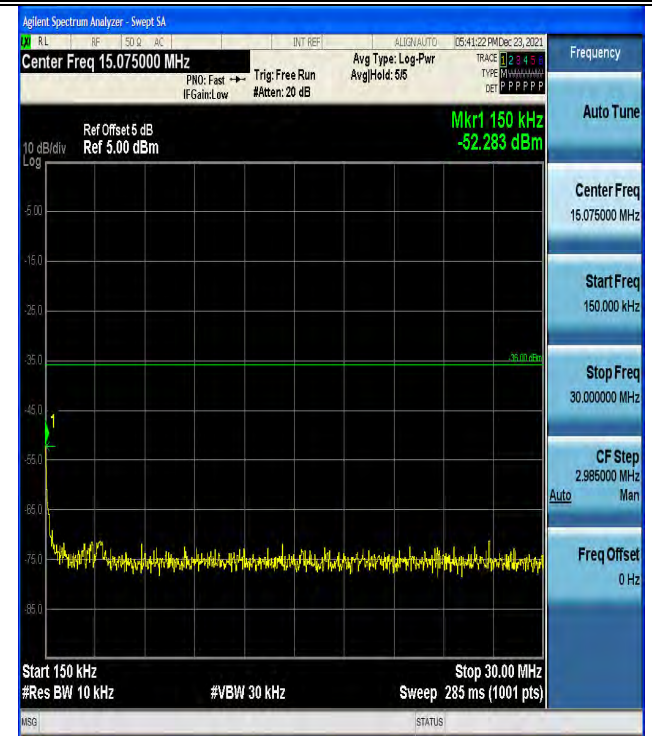


B1 5M RB1 Mid CH_Low

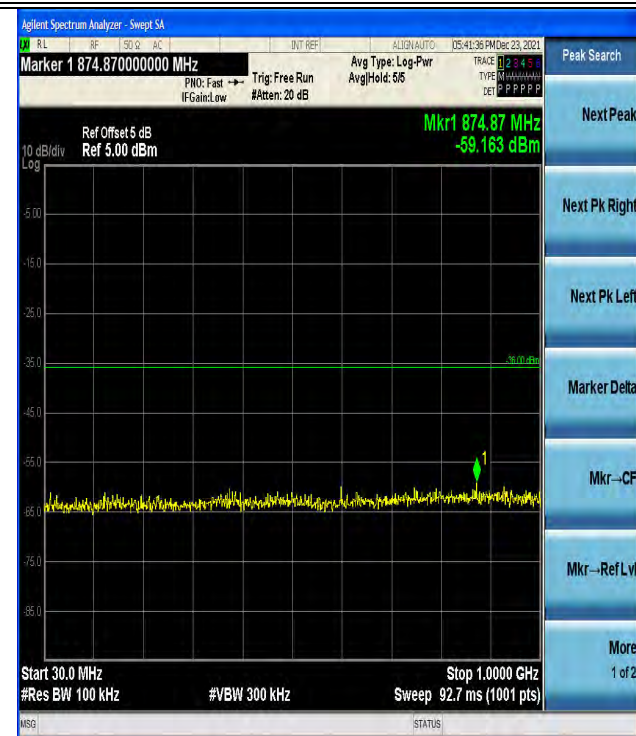
9kHz ≤ f < 150kHz



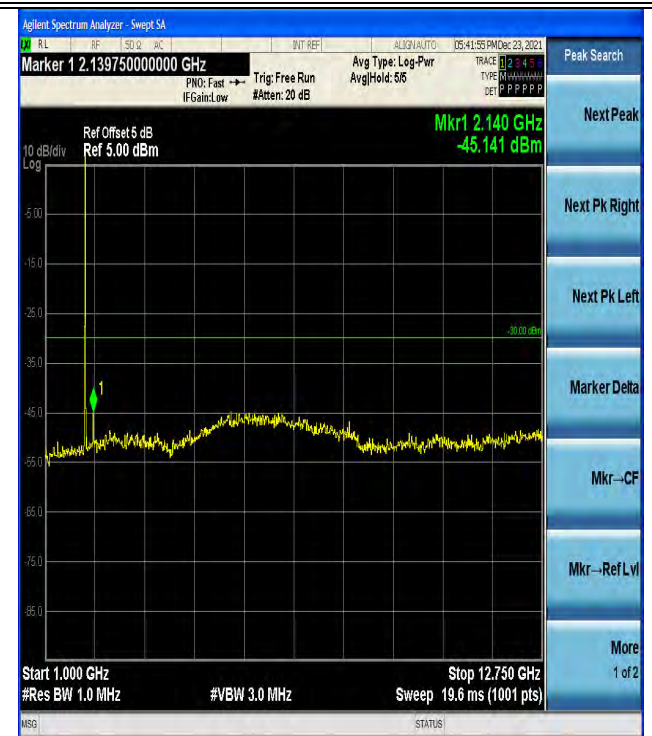
150kHz ≤ f < 30MHz



30MHz ≤ f < 1GHz

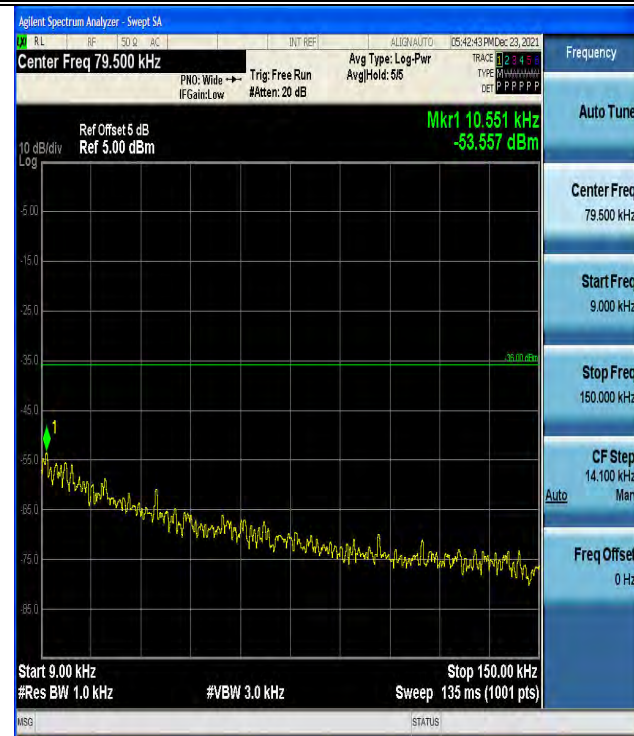


1GHz ≤ f < 12.75GHz

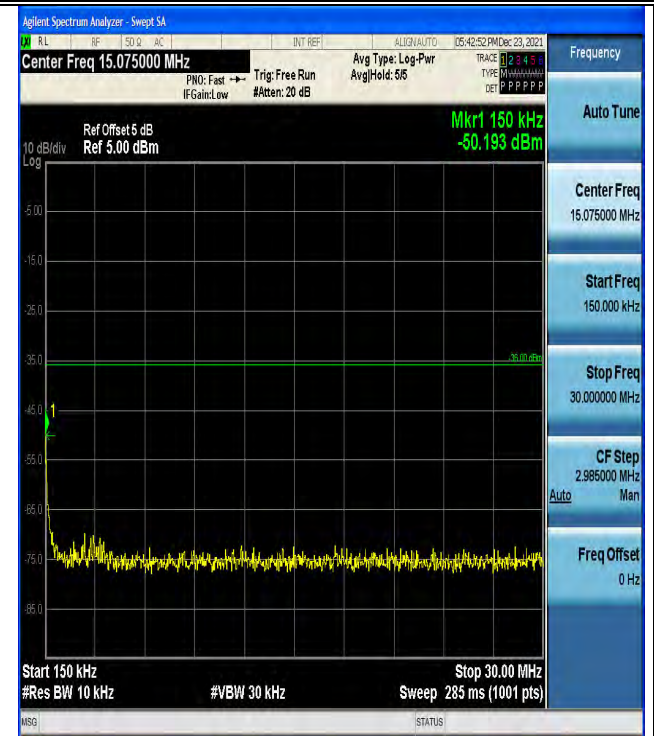


B1 5M RB1 Mid CH_Mid

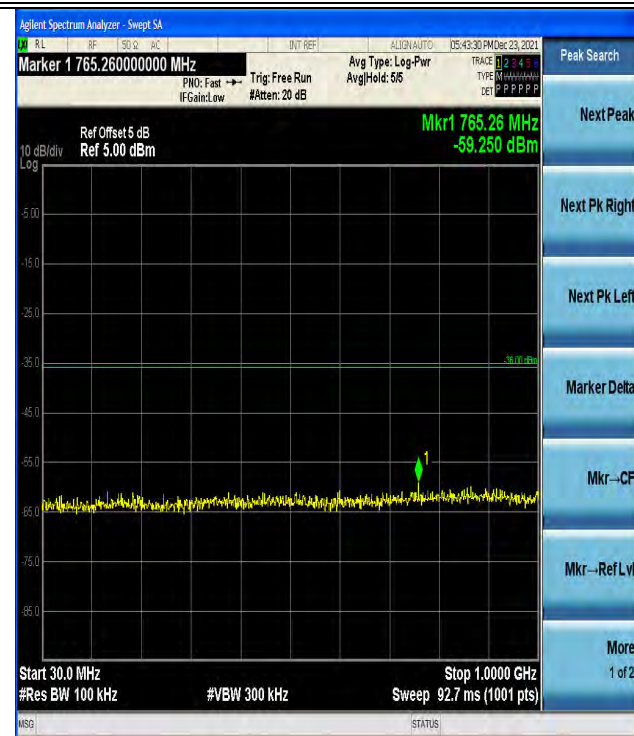
9kHz ≤ f < 150kHz



150kHz ≤ f < 30MHz



30MHz ≤ f < 1GHz

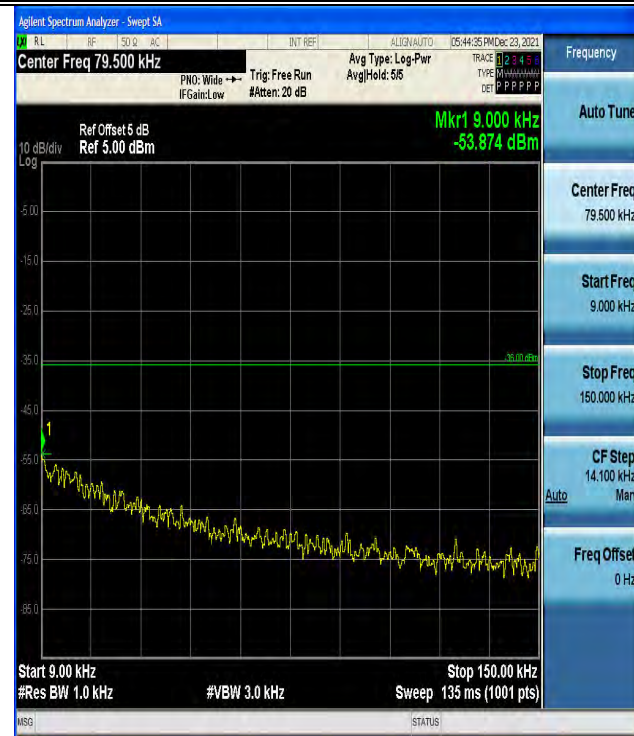


1GHz ≤ f < 12.75GHz

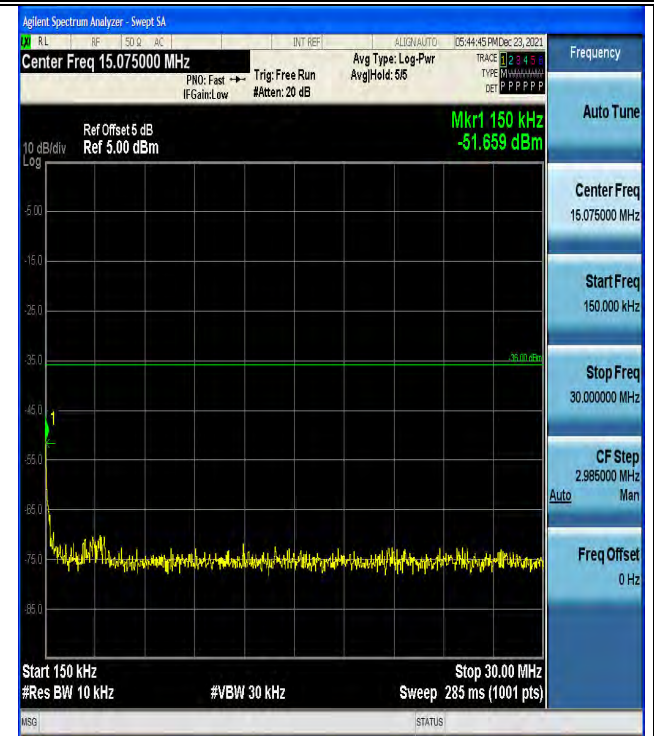


B1 5M RB1 Mid CH_High

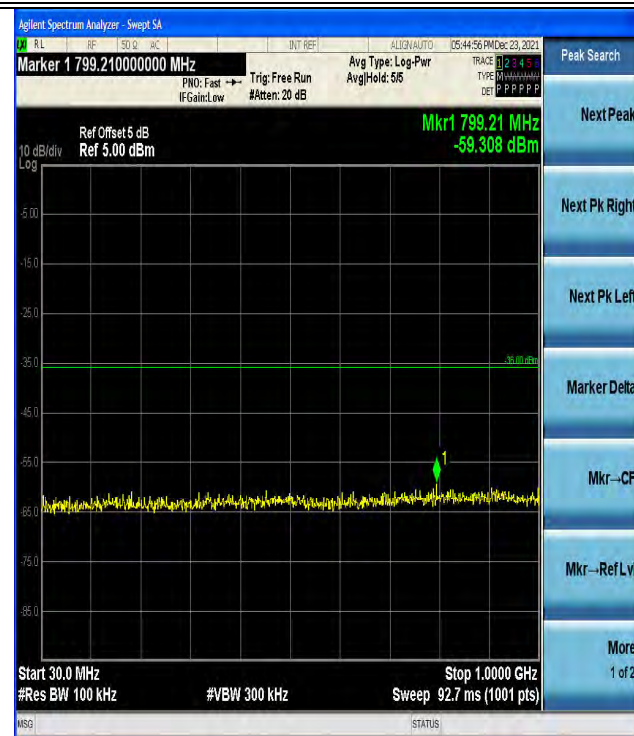
9kHz ≤ f < 150kHz



150kHz ≤ f < 30MHz



30MHz ≤ f < 1GHz

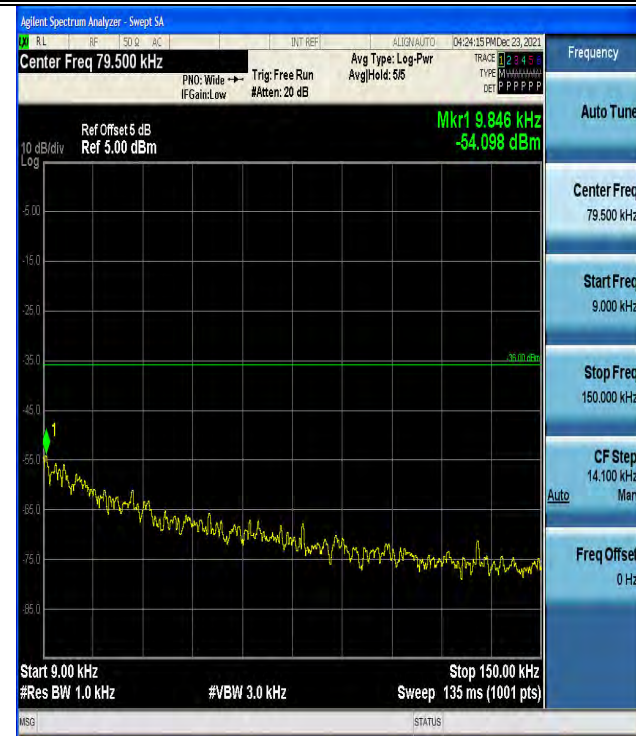


1GHz ≤ f < 12.75GHz

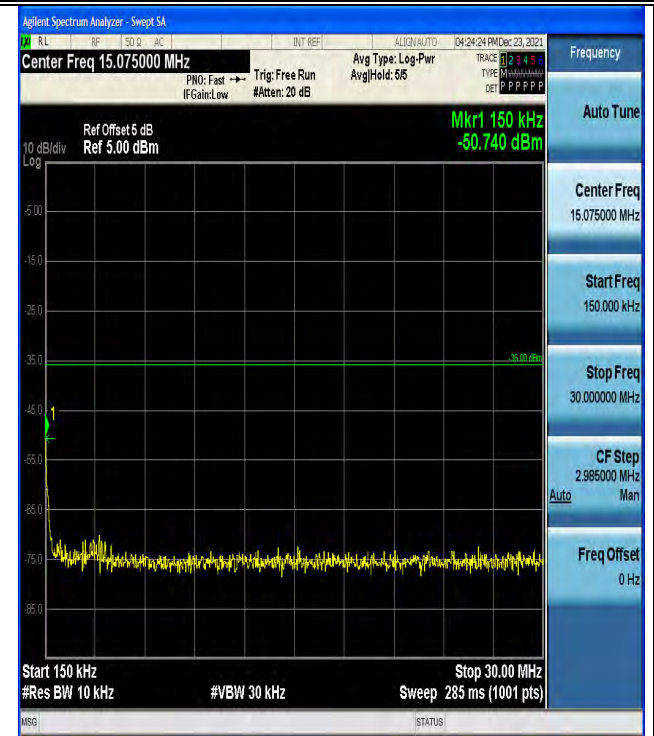


B1 5M RB1 High CH_Low

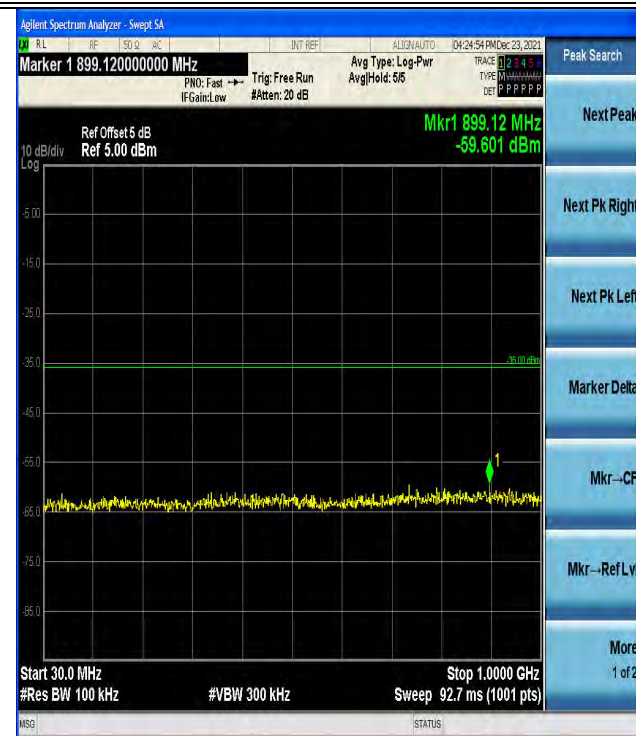
9kHz ≤ f < 150kHz



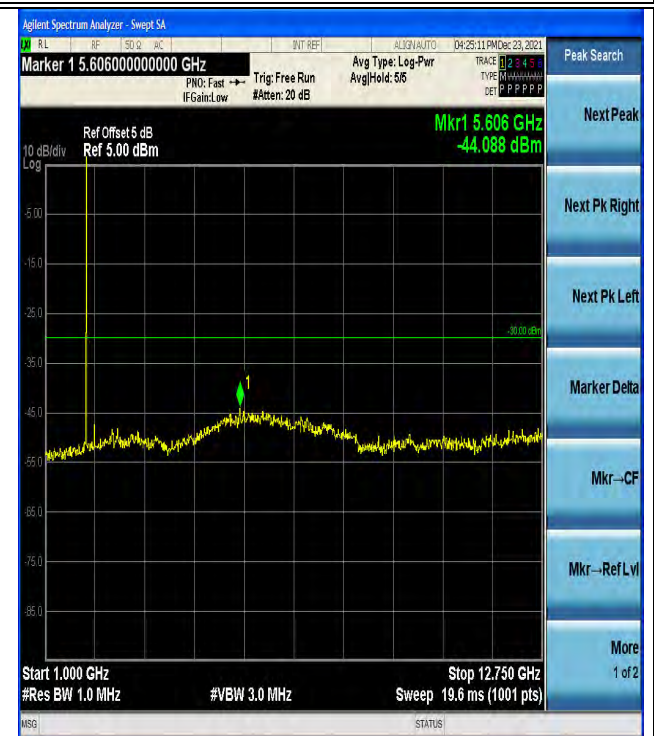
150kHz ≤ f < 30MHz



30MHz ≤ f < 1GHz

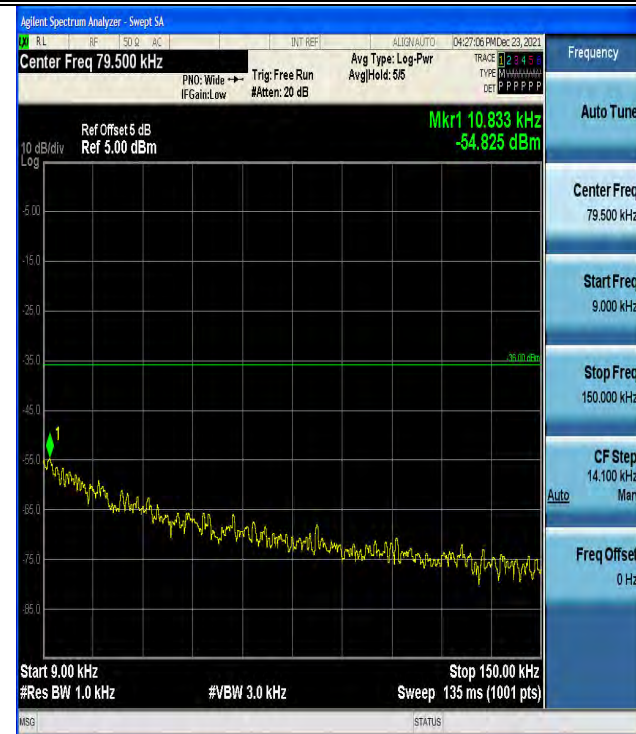


1GHz ≤ f < 12.75GHz

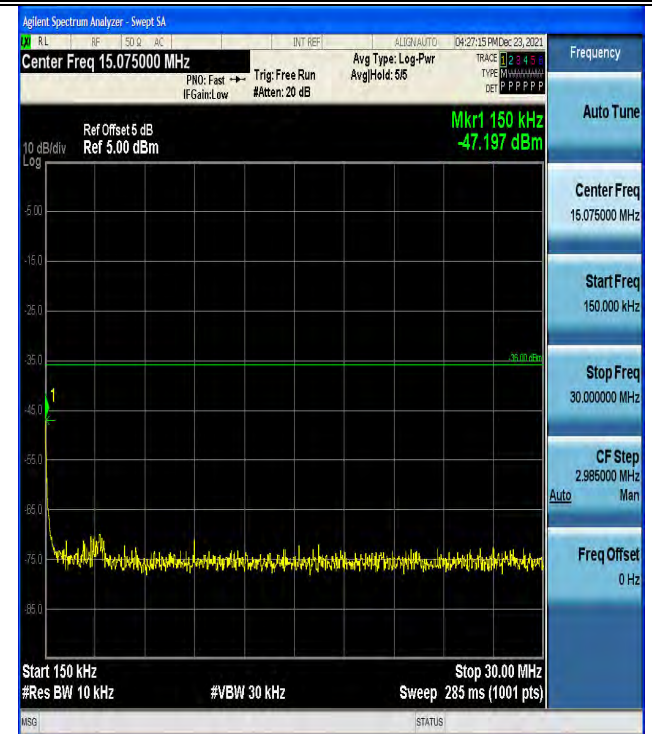


B1 5M RB1 High CH_Mid

9kHz ≤ f < 150kHz



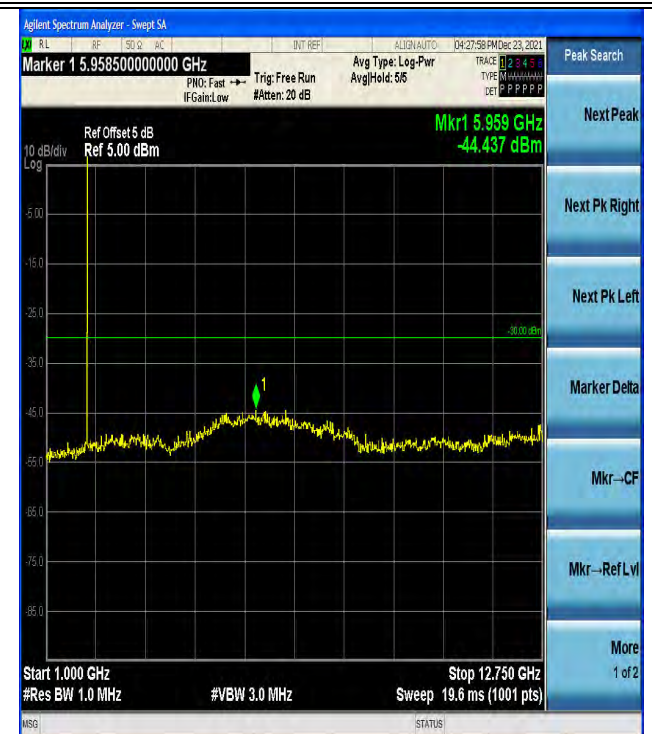
150kHz ≤ f < 30MHz



30MHz ≤ f < 1GHz

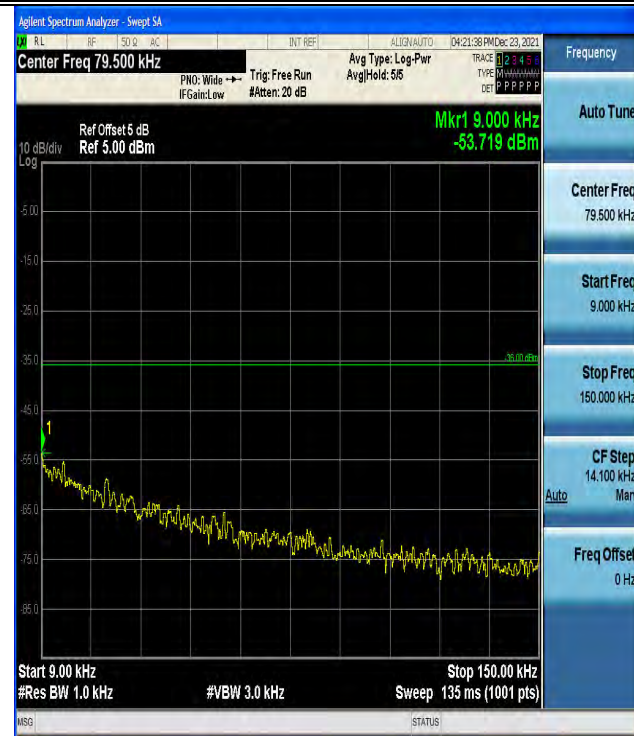


1GHz ≤ f < 12.75GHz

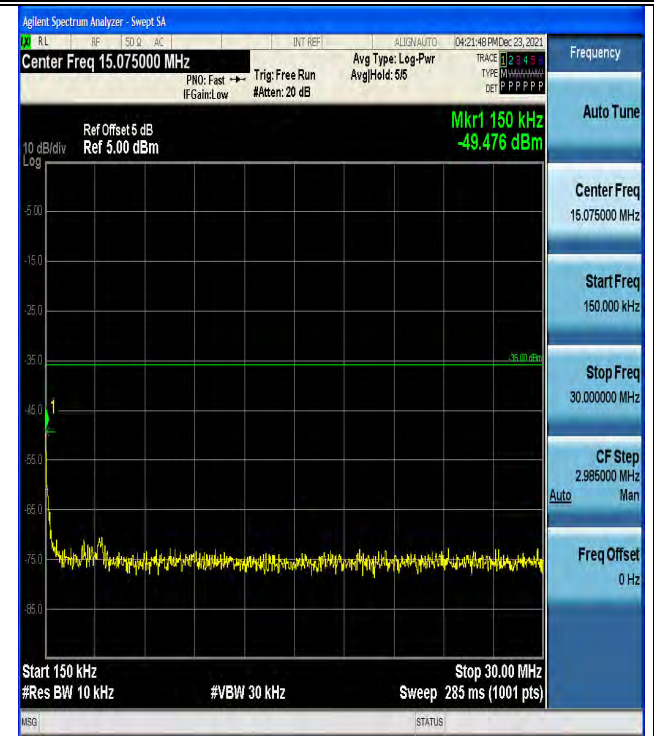


B1 5M RB1 High CH_High

9kHz ≤ f < 150kHz



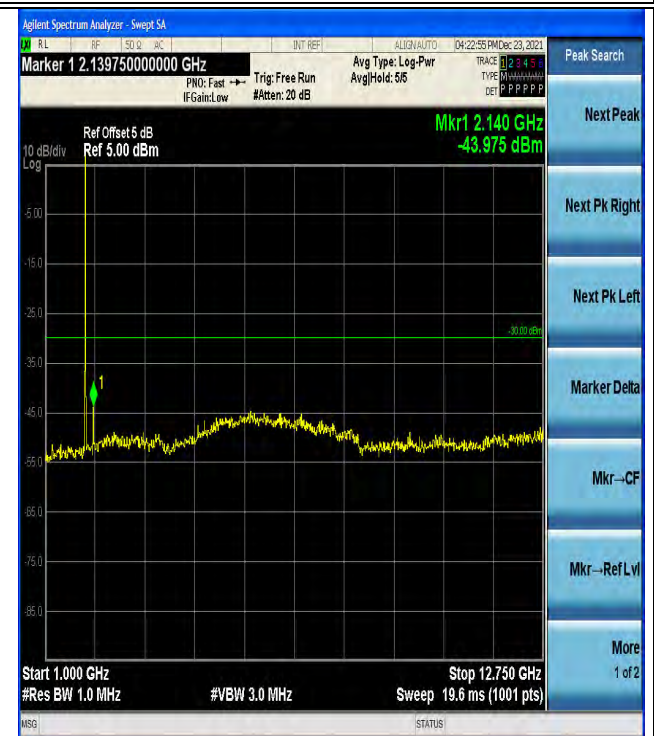
150kHz ≤ f < 30MHz



30MHz ≤ f < 1GHz

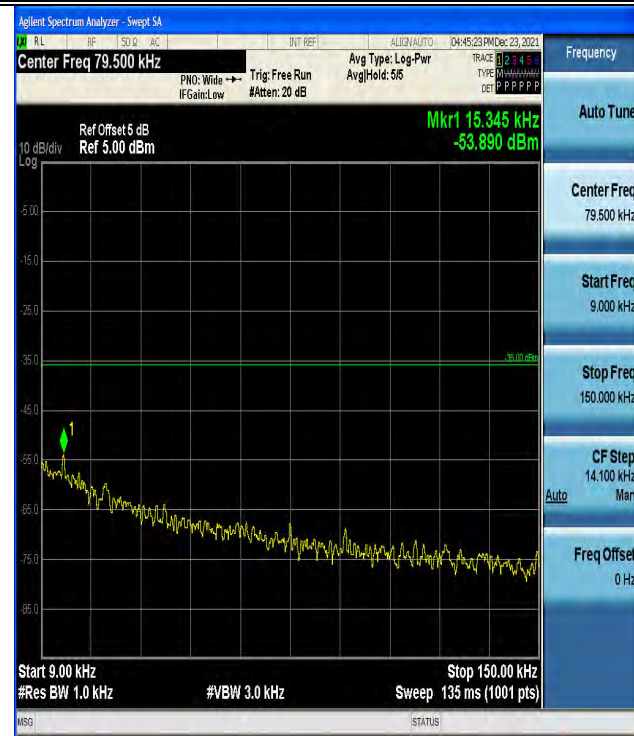


1GHz ≤ f < 12.75GHz

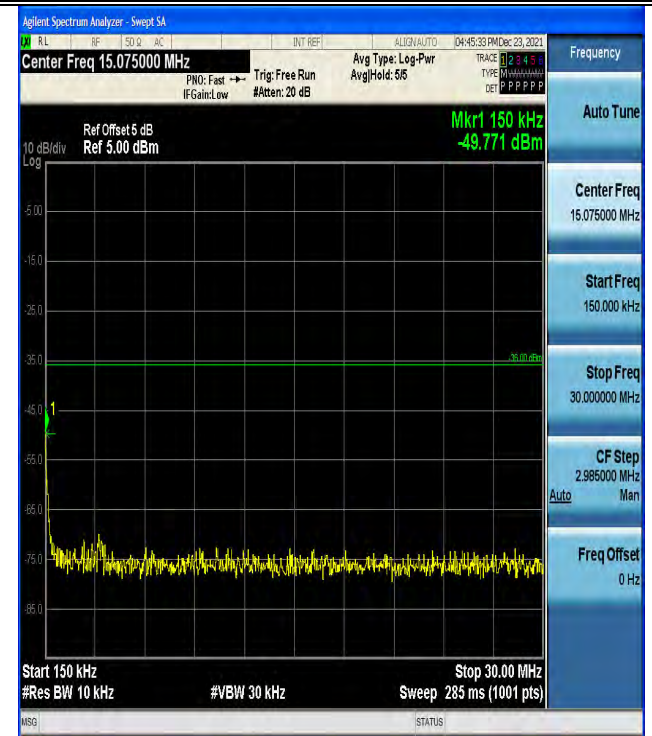


B1 5M RB25 Low CH_Low

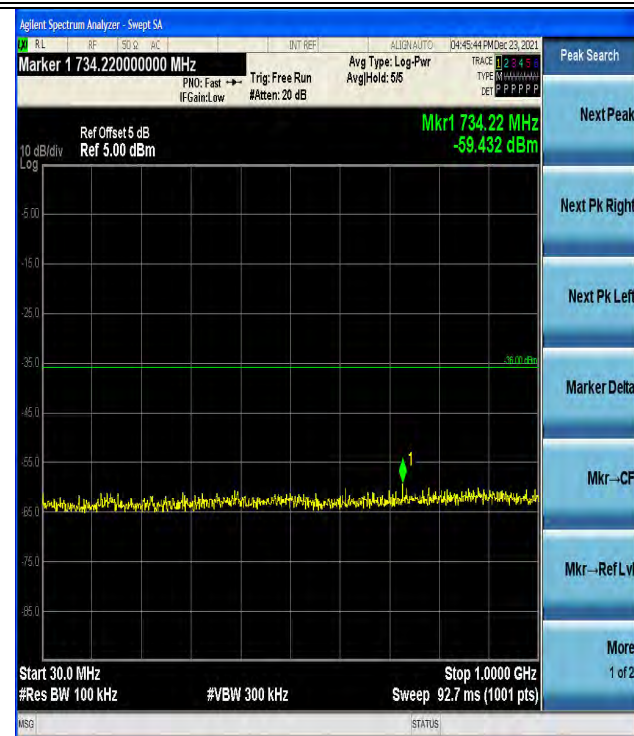
9kHz ≤ f < 150kHz



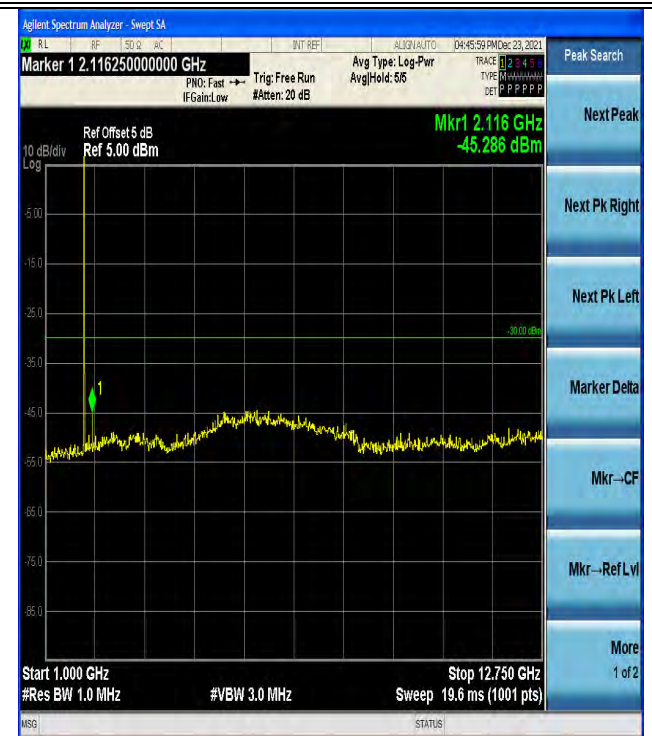
150kHz ≤ f < 30MHz



30MHz ≤ f < 1GHz

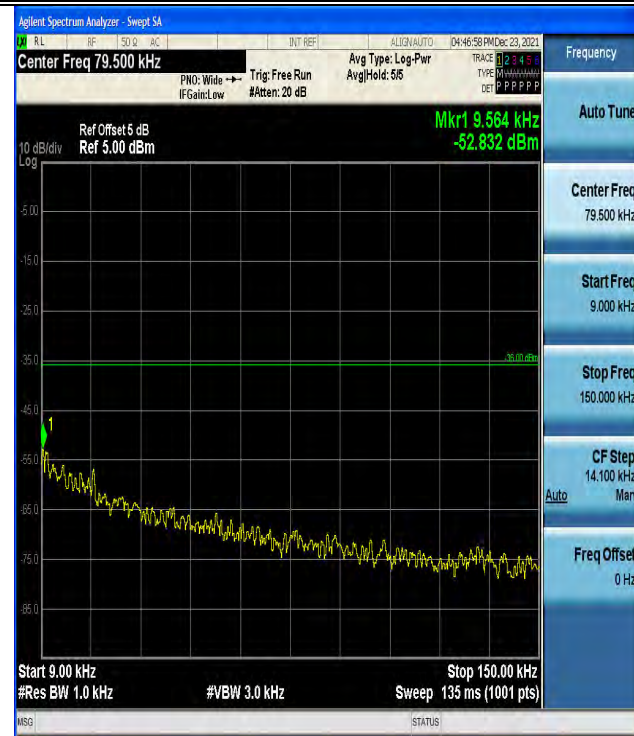


1GHz ≤ f < 12.75GHz

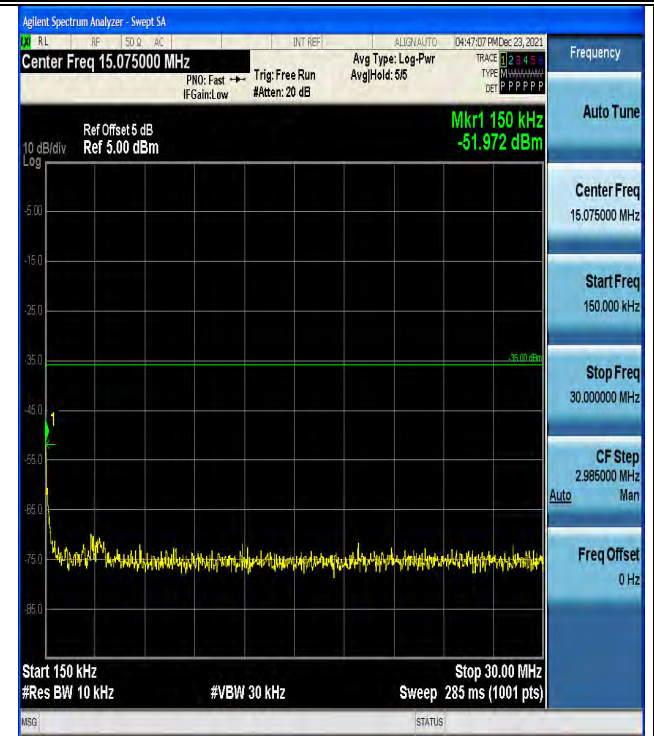


B1 5M RB25 Low CH_High

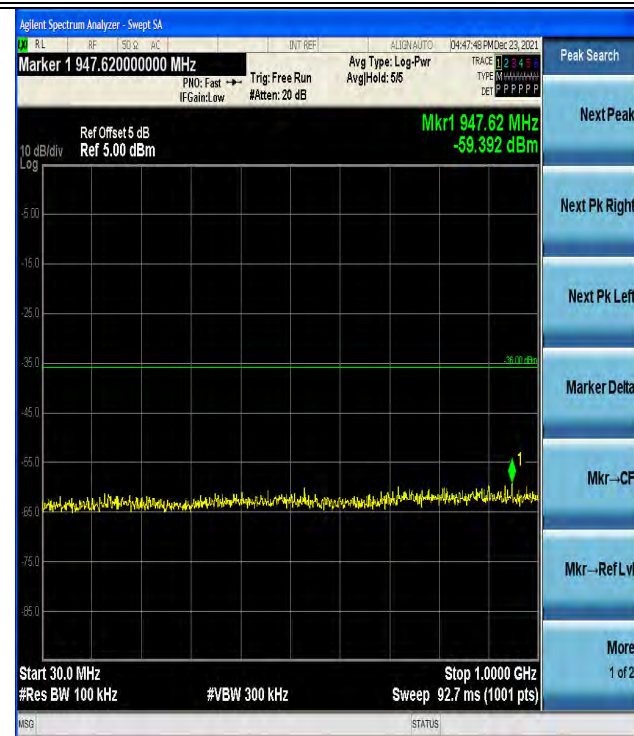
9kHz ≤ f < 150kHz



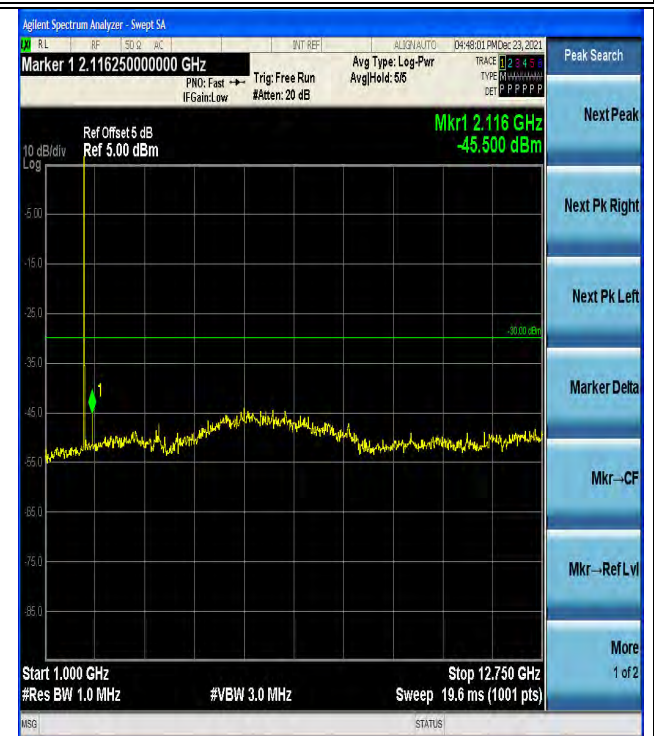
150kHz ≤ f < 30MHz



30MHz ≤ f < 1GHz

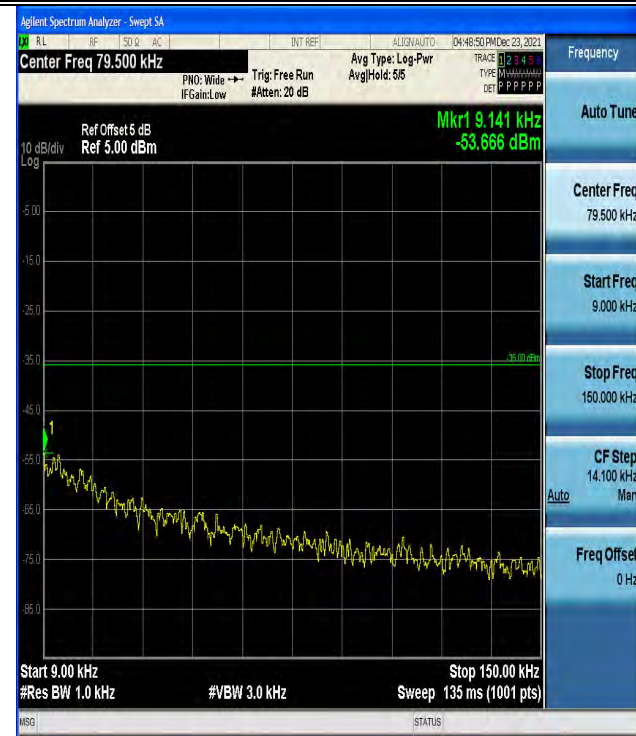


1GHz ≤ f < 12.75GHz

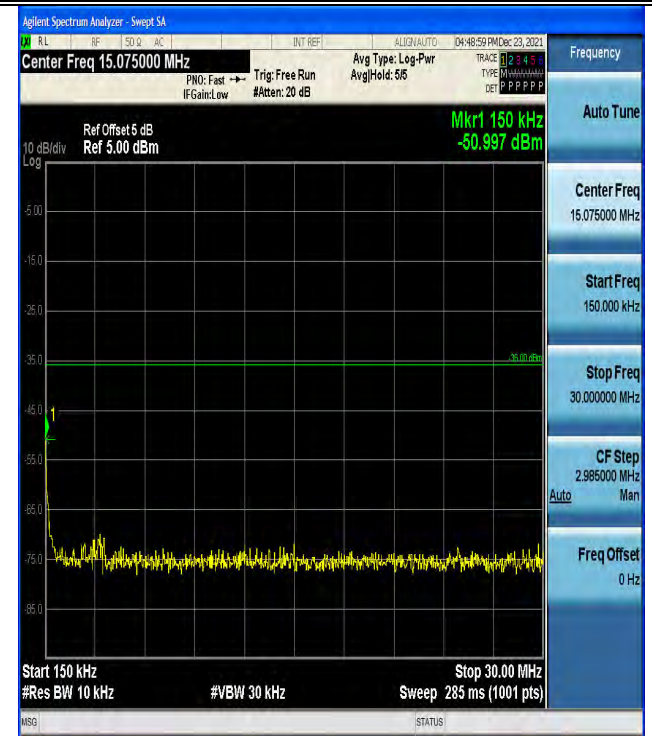


B1 5M RB25 Mid CH_Low

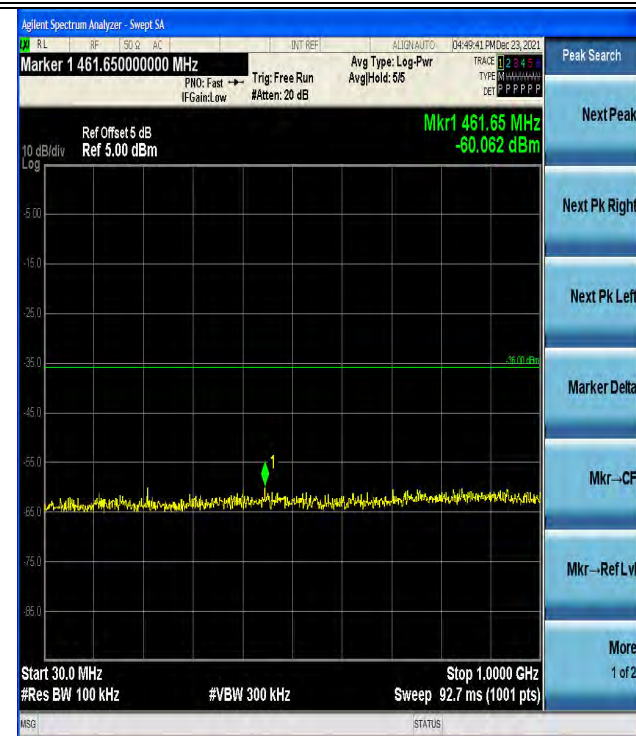
9kHz ≤ f < 150kHz



150kHz ≤ f < 30MHz



30MHz ≤ f < 1GHz

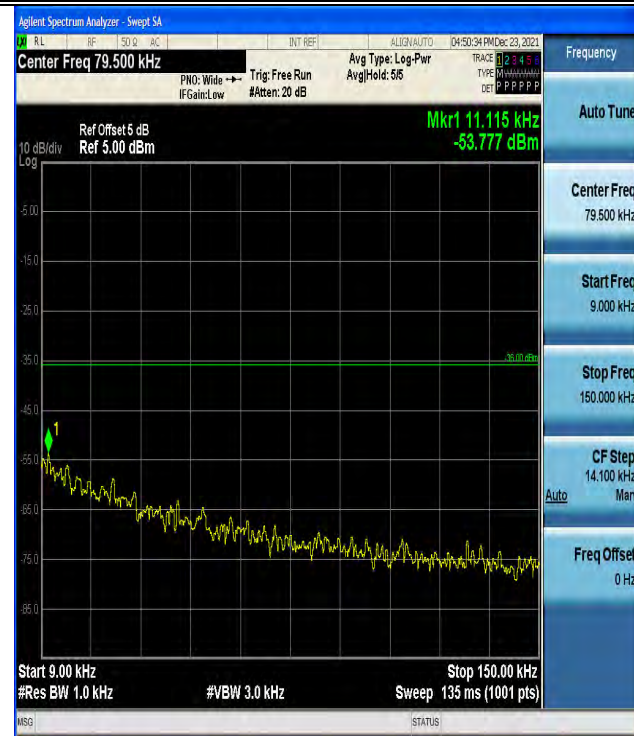


1GHz ≤ f < 12.75GHz

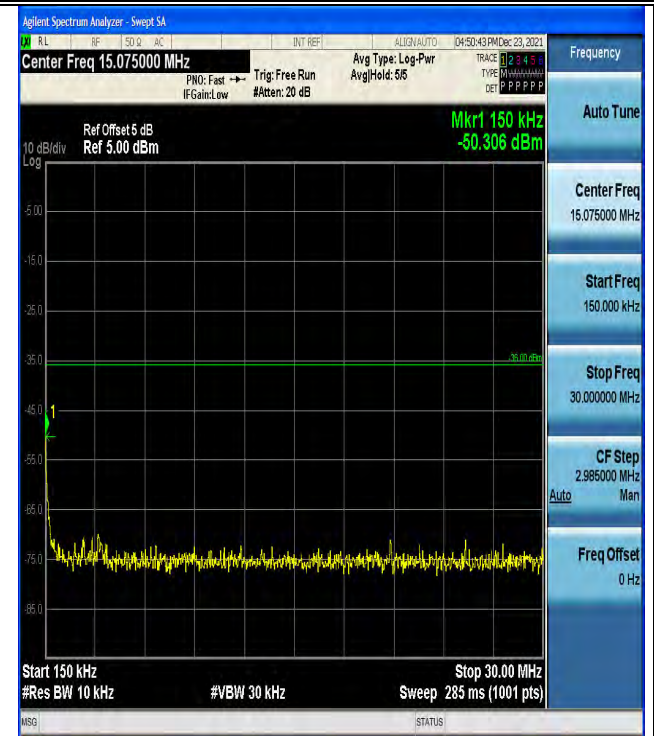


B1 5M RB25 Mid CH_High

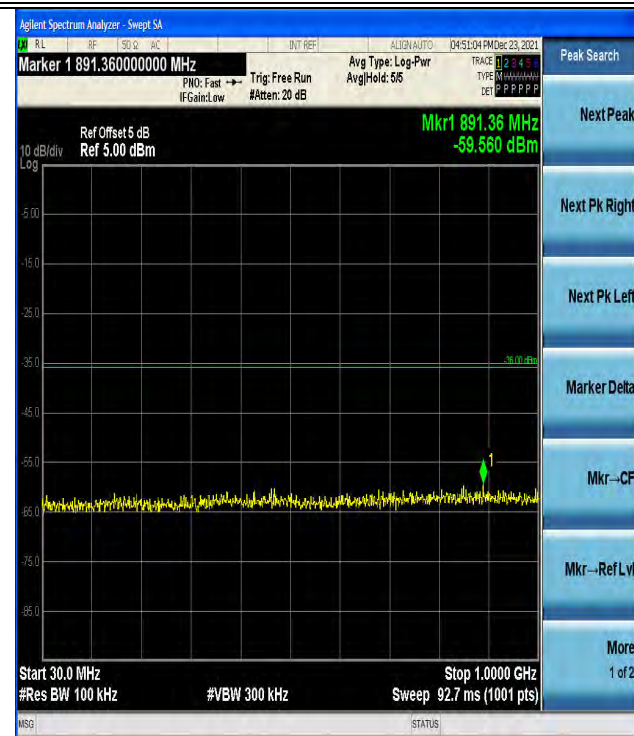
9kHz ≤ f < 150kHz



150kHz ≤ f < 30MHz



30MHz ≤ f < 1GHz

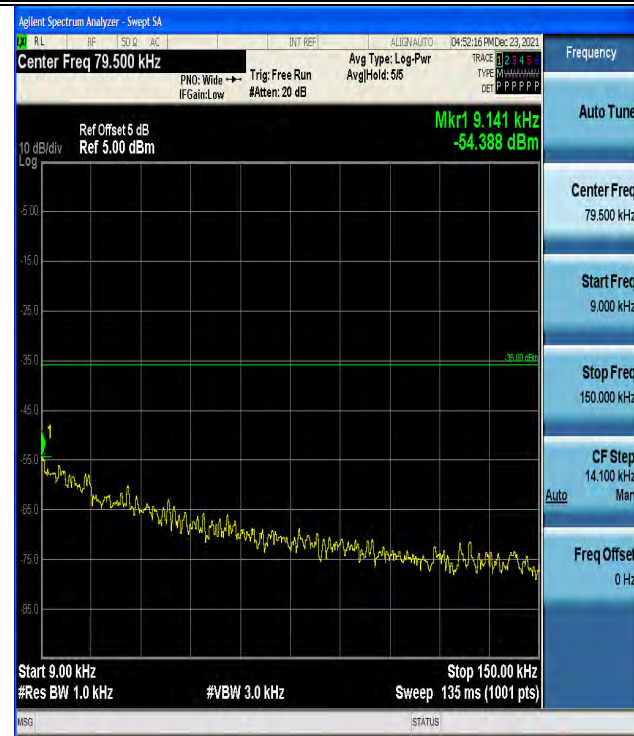


1GHz ≤ f < 12.75GHz

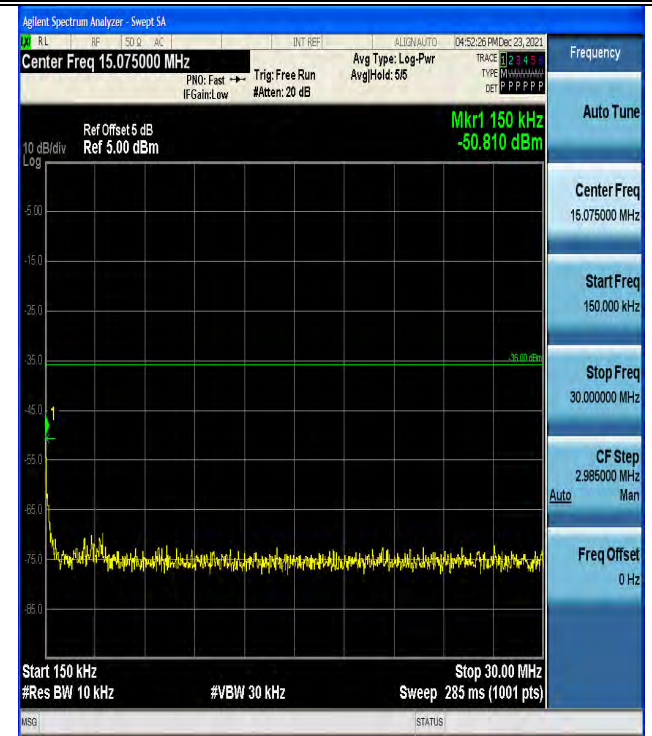


B1 5M RB25 High CH_Low

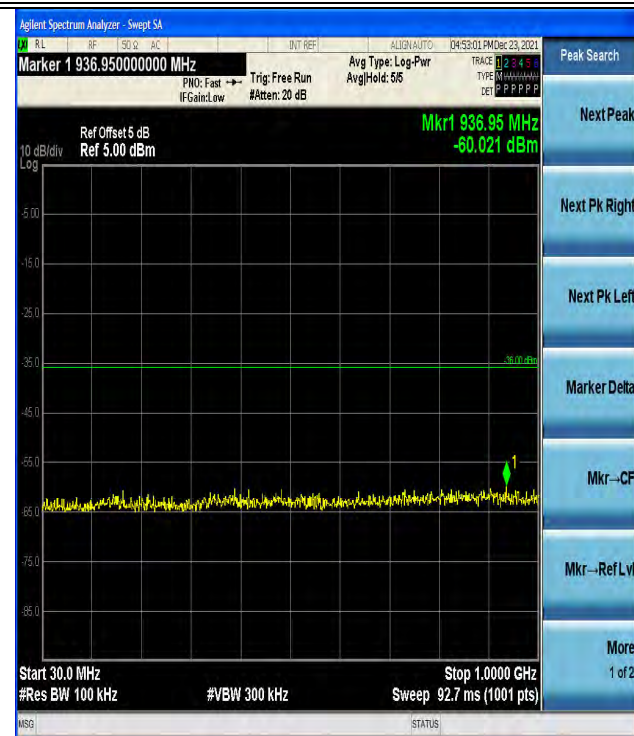
9kHz ≤ f < 150kHz



150kHz ≤ f < 30MHz



30MHz ≤ f < 1GHz

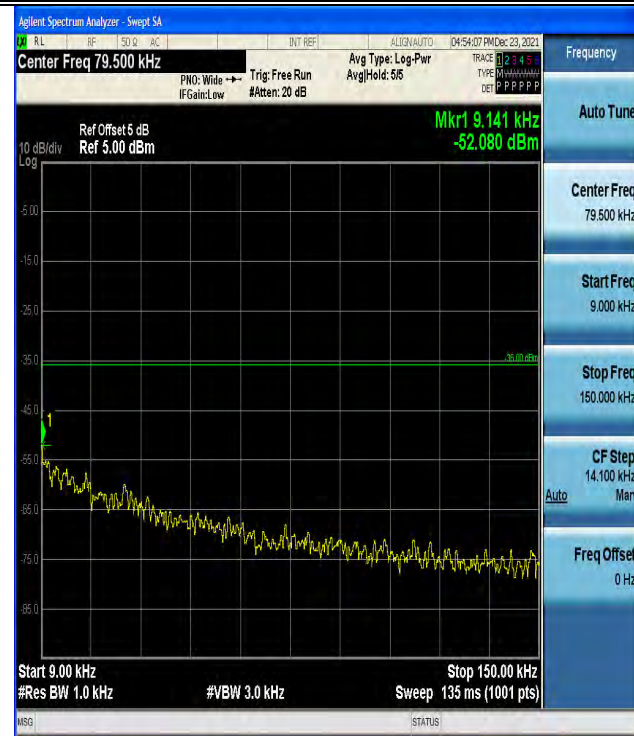


1GHz ≤ f < 12.75GHz

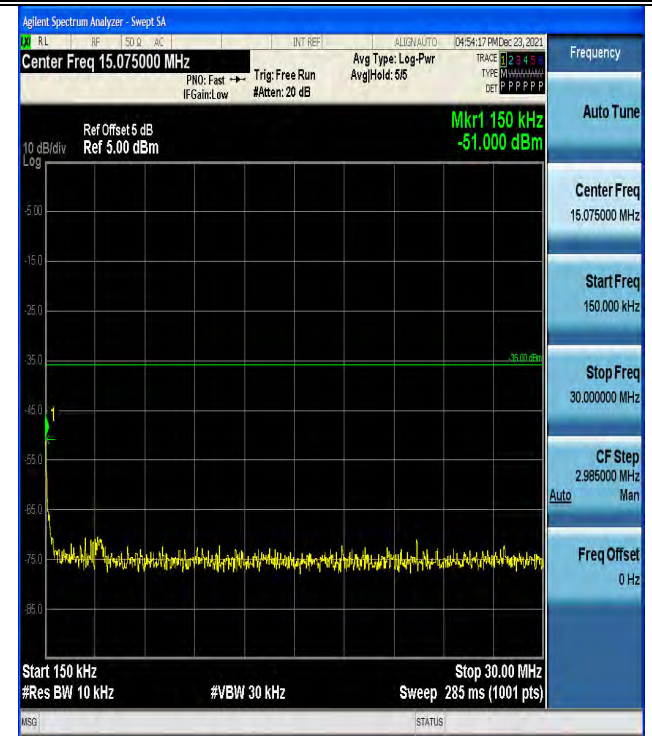


B1 5M RB25 High CH_High

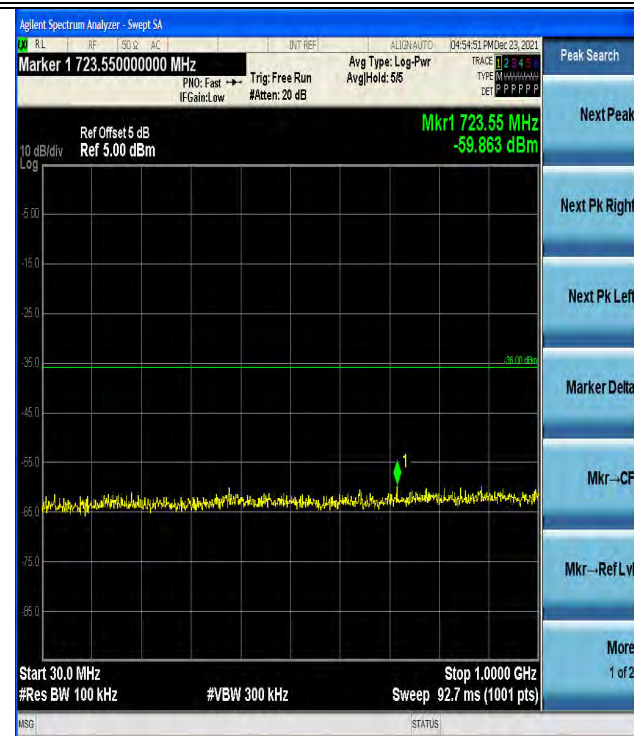
9kHz ≤ f < 150kHz



150kHz ≤ f < 30MHz



30MHz ≤ f < 1GHz

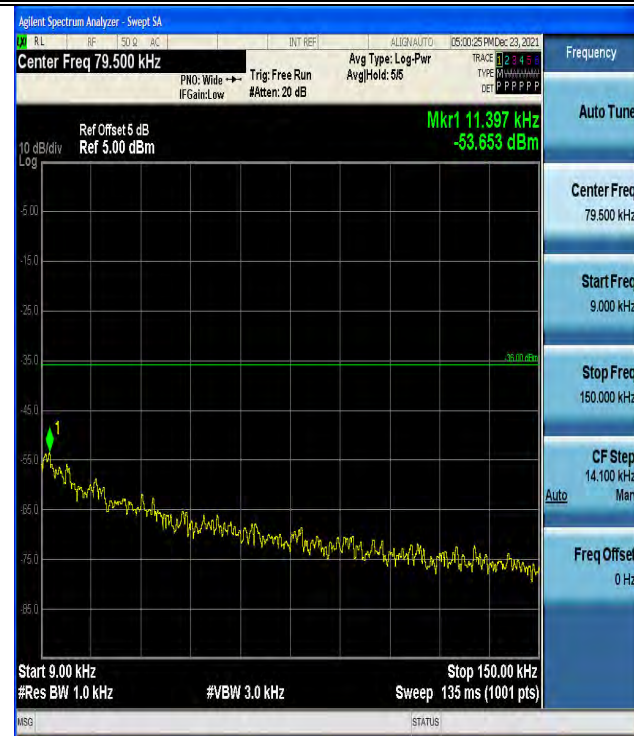


1GHz ≤ f < 12.75GHz

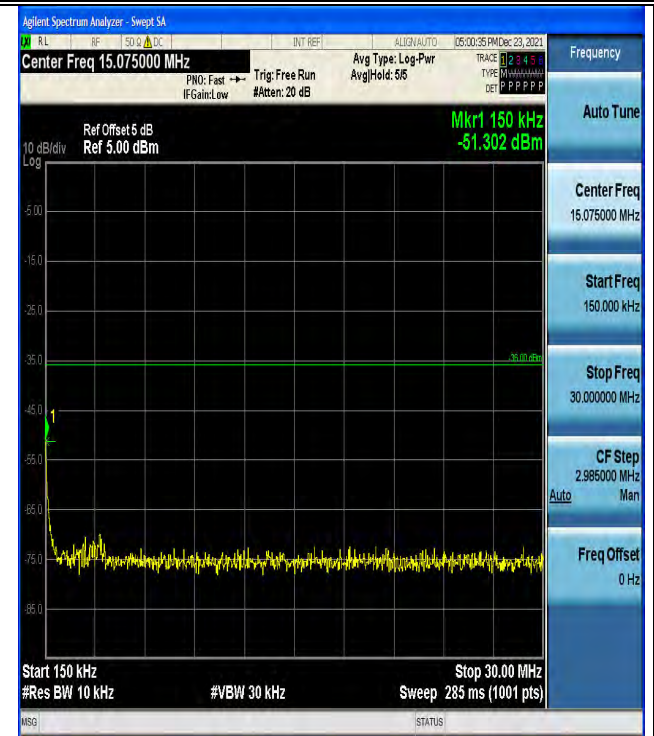


B1 20M RB1 Low CH _Low

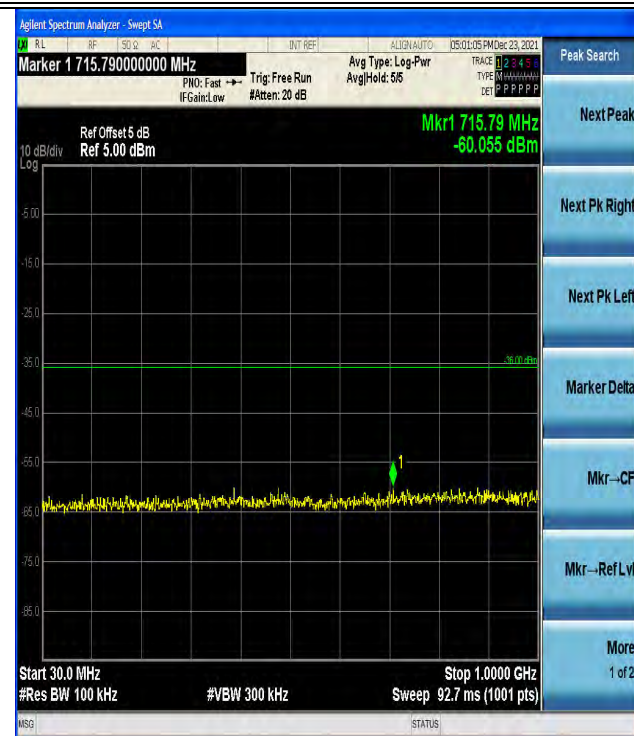
9kHz ≤ f < 150kHz



150kHz ≤ f < 30MHz



30MHz ≤ f < 1GHz

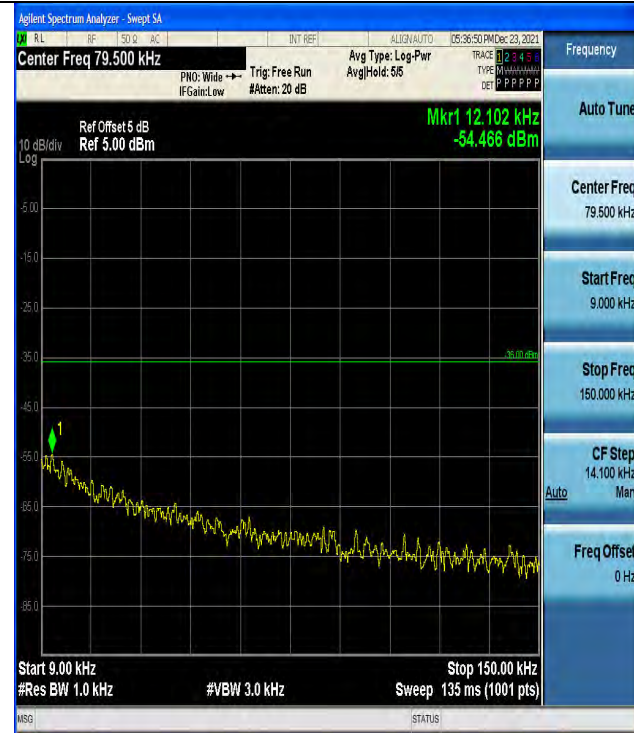


1GHz ≤ f < 12.75GHz

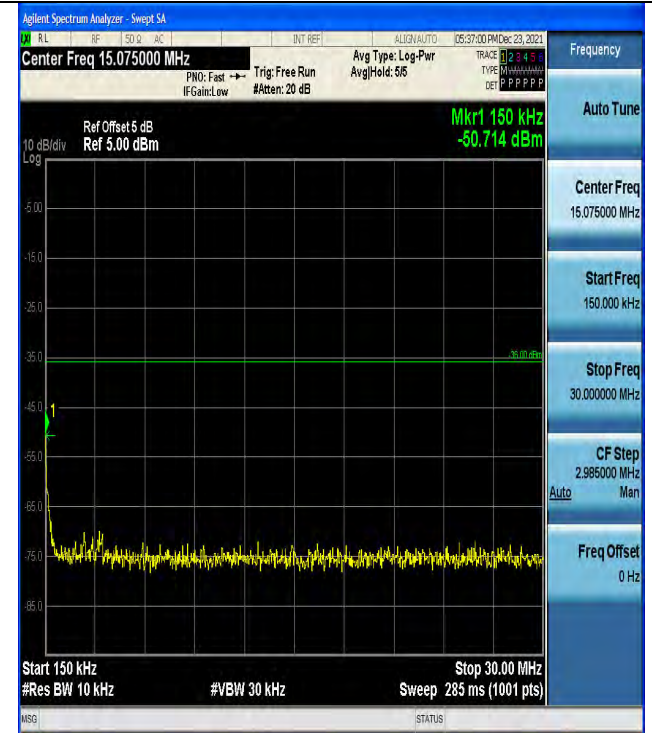


B1 20M RB1 Low CH_Mid

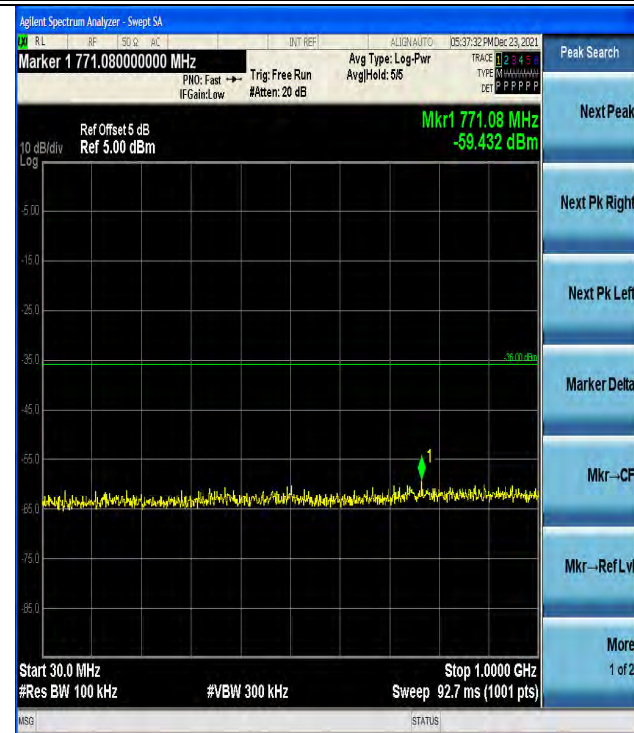
9kHz ≤ f < 150kHz



150kHz ≤ f < 30MHz



30MHz ≤ f < 1GHz

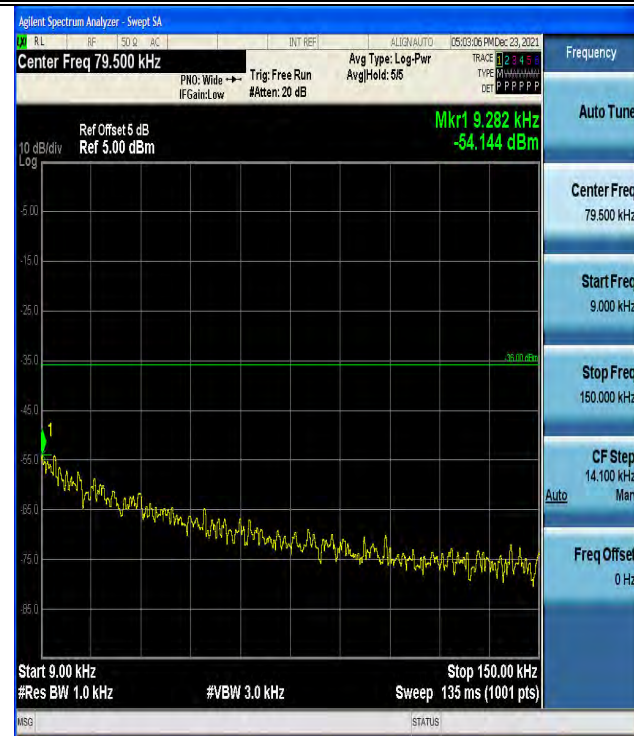


1GHz ≤ f < 12.75GHz

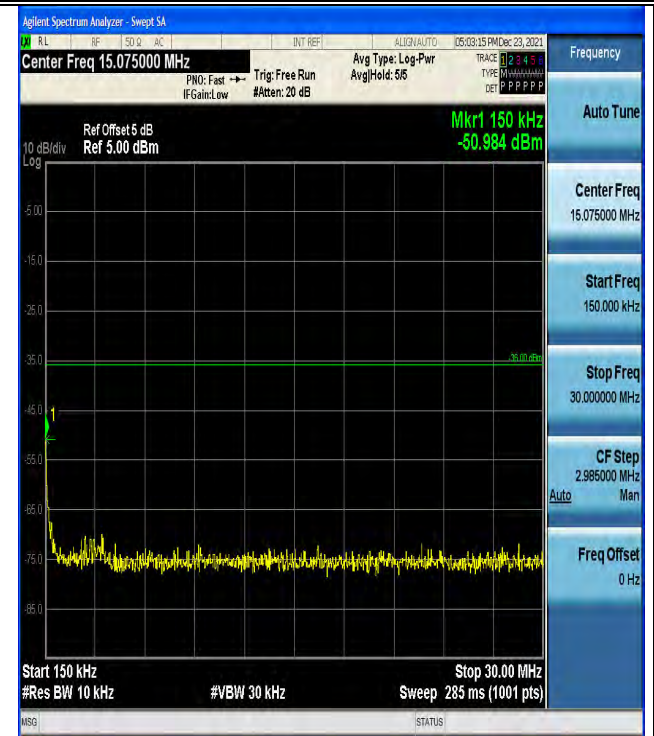


B1 20M RB1 Low CH_High

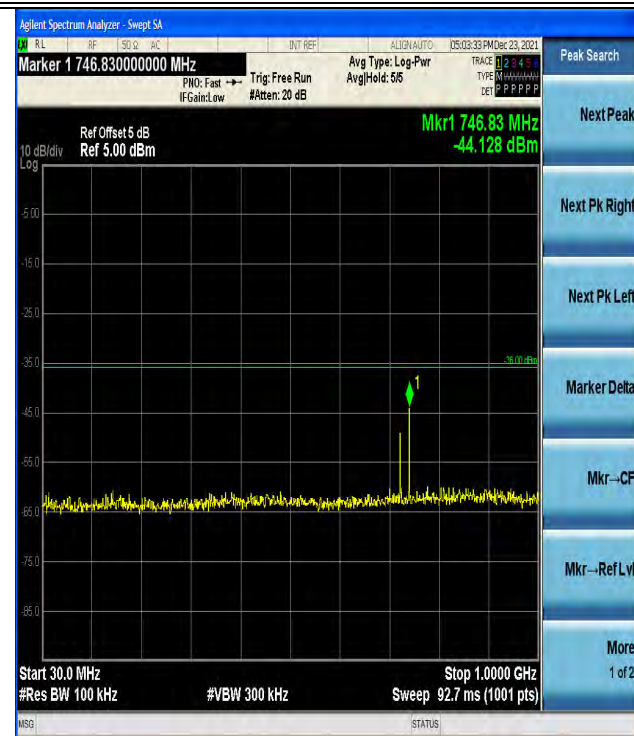
9kHz ≤ f < 150kHz



150kHz ≤ f < 30MHz



30MHz ≤ f < 1GHz

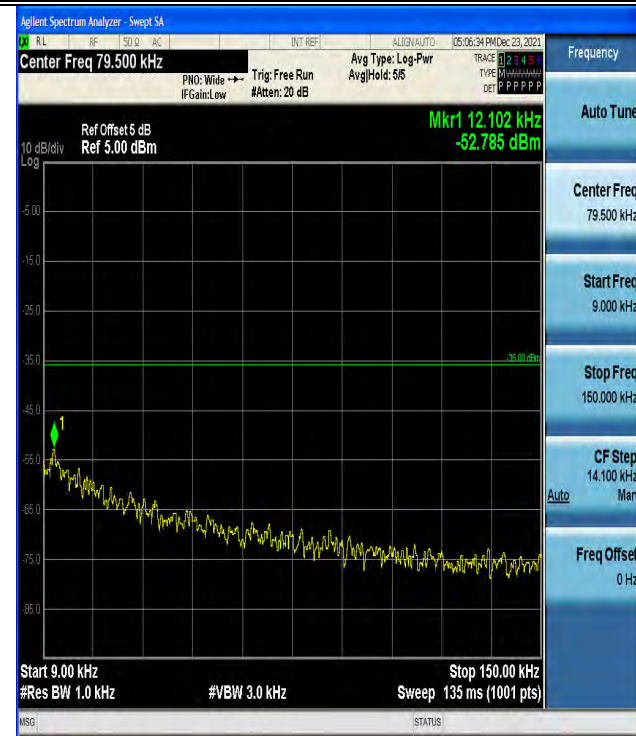


1GHz ≤ f < 12.75GHz

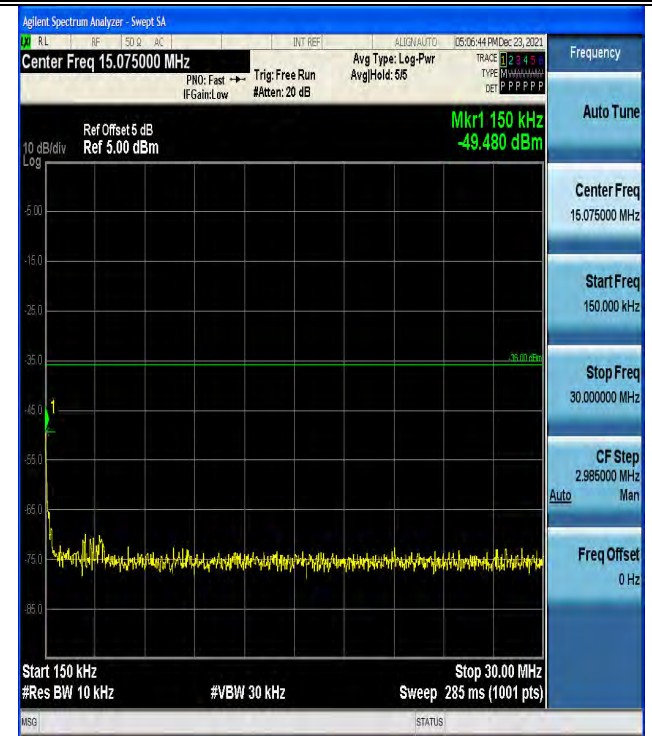


B1 20M RB1 Mid CH _Low

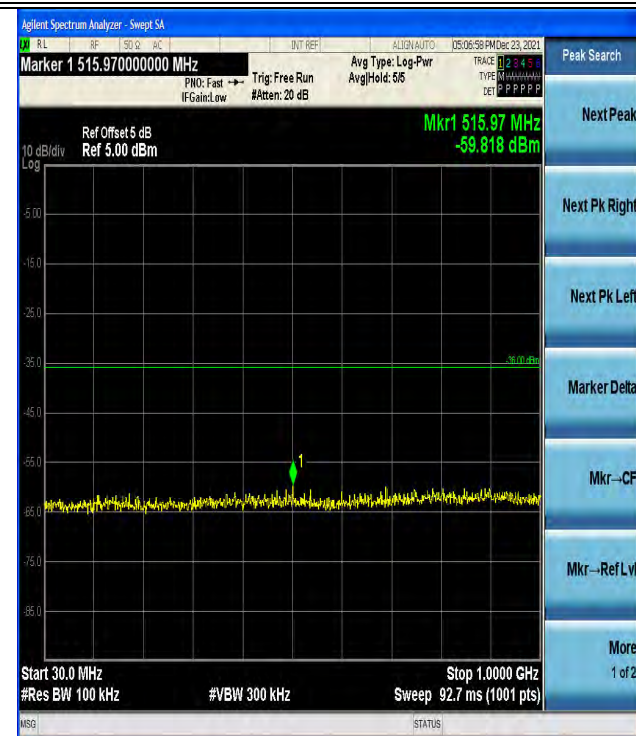
9kHz ≤ f < 150kHz



150kHz ≤ f < 30MHz



30MHz ≤ f < 1GHz

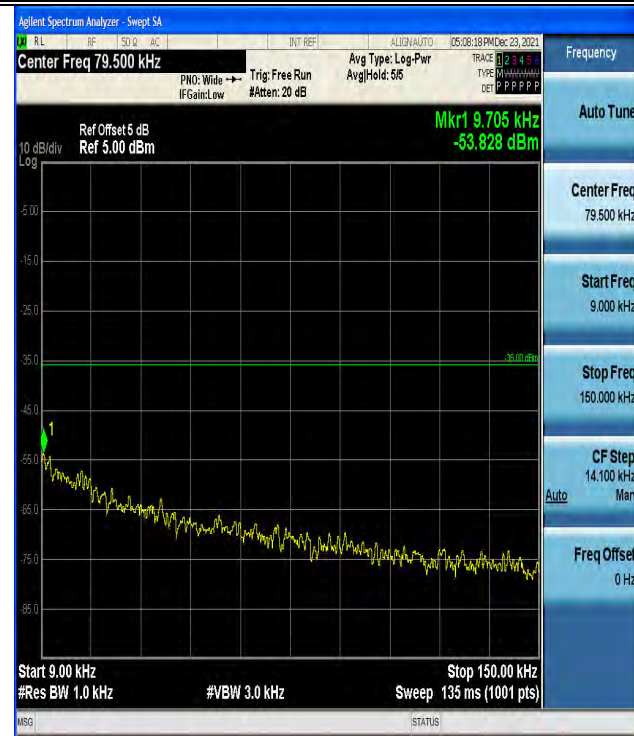


1GHz ≤ f < 12.75GHz

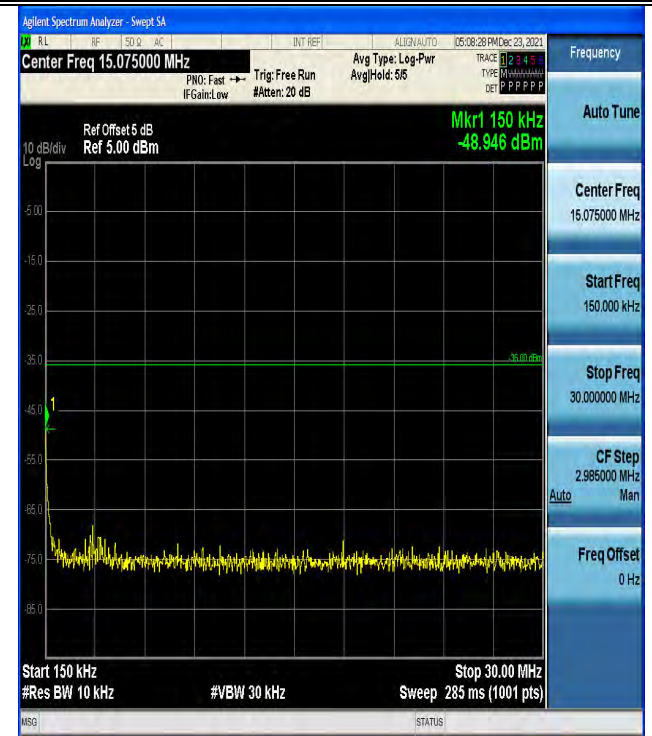


B1 20M RB1 Mid CH_Mid

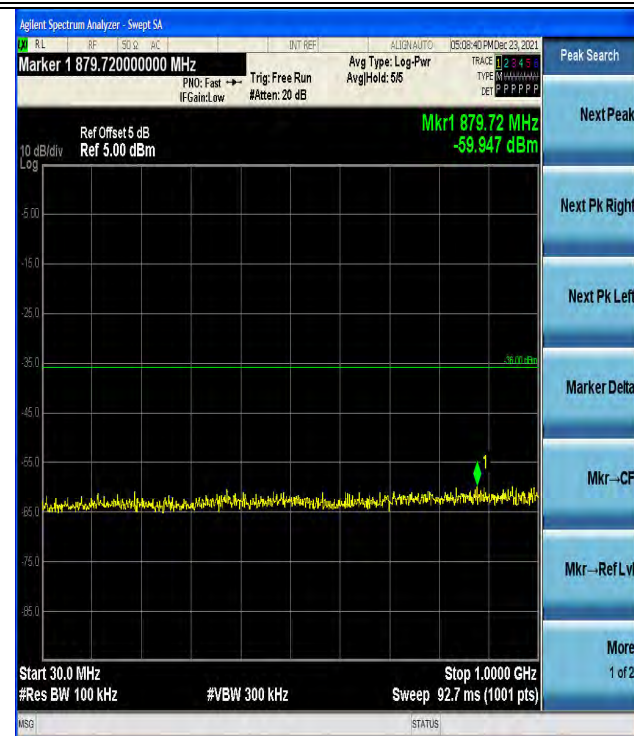
9kHz ≤ f < 150kHz



150kHz ≤ f < 30MHz



30MHz ≤ f < 1GHz

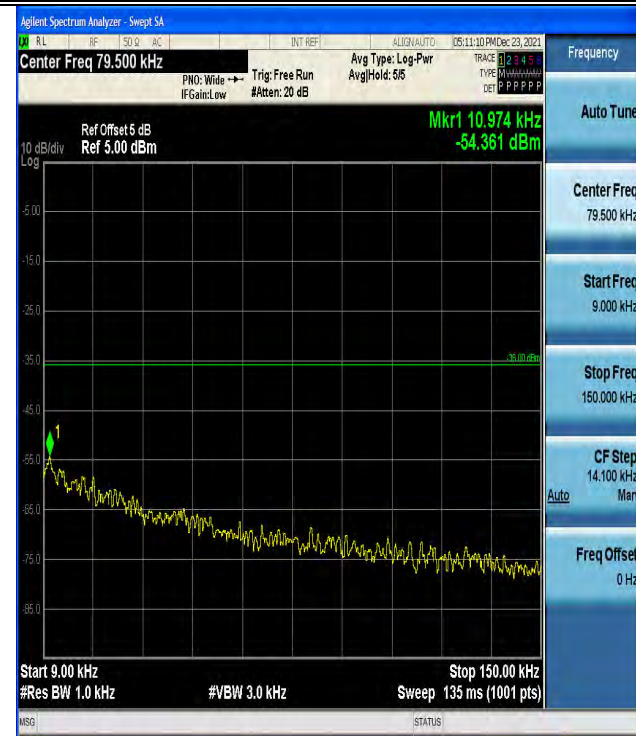


1GHz ≤ f < 12.75GHz

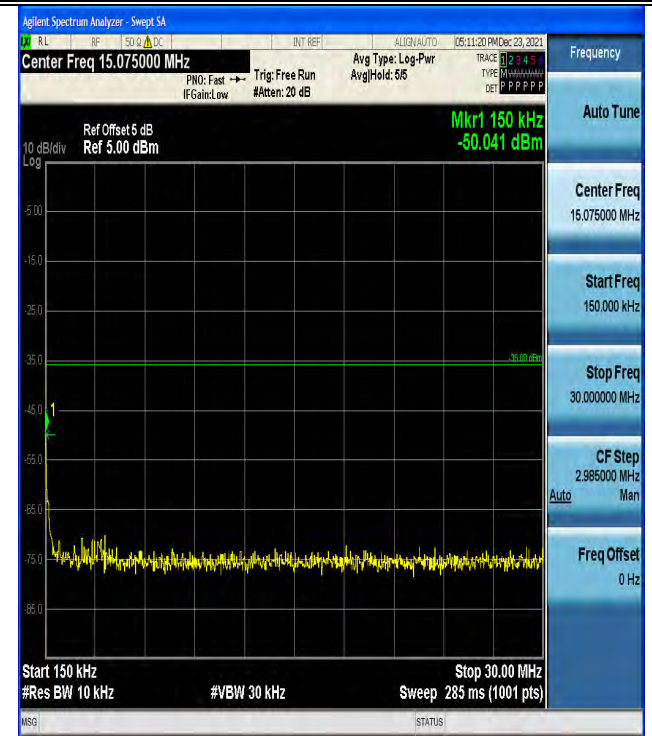


B1 20M RB1 Mid CH_High

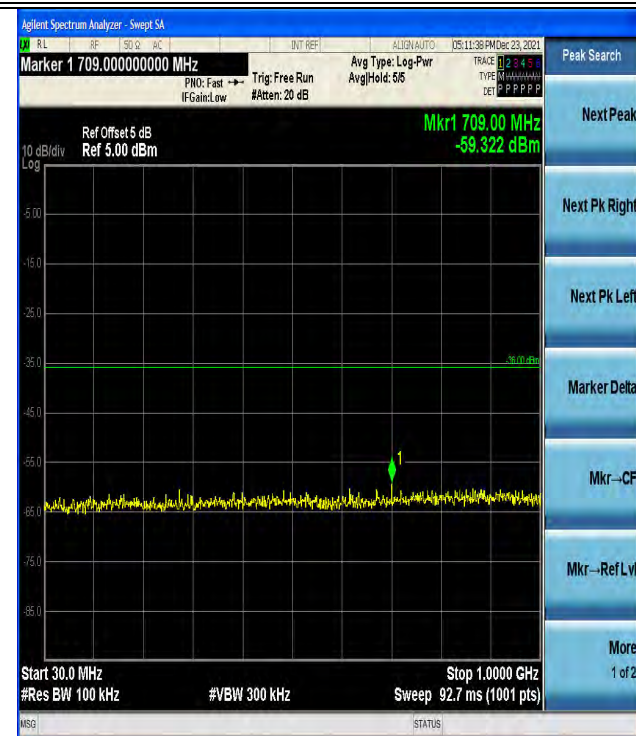
9kHz ≤ f < 150kHz



150kHz ≤ f < 30MHz



30MHz ≤ f < 1GHz

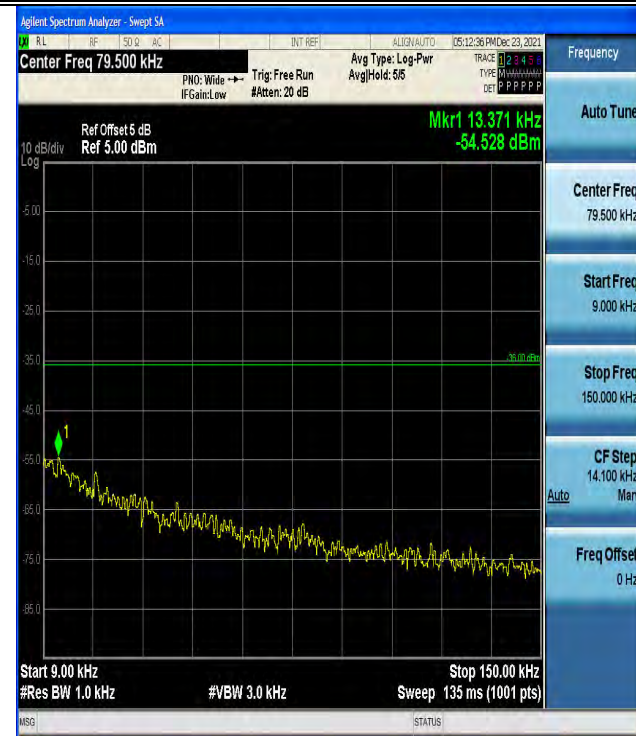


1GHz ≤ f < 12.75GHz

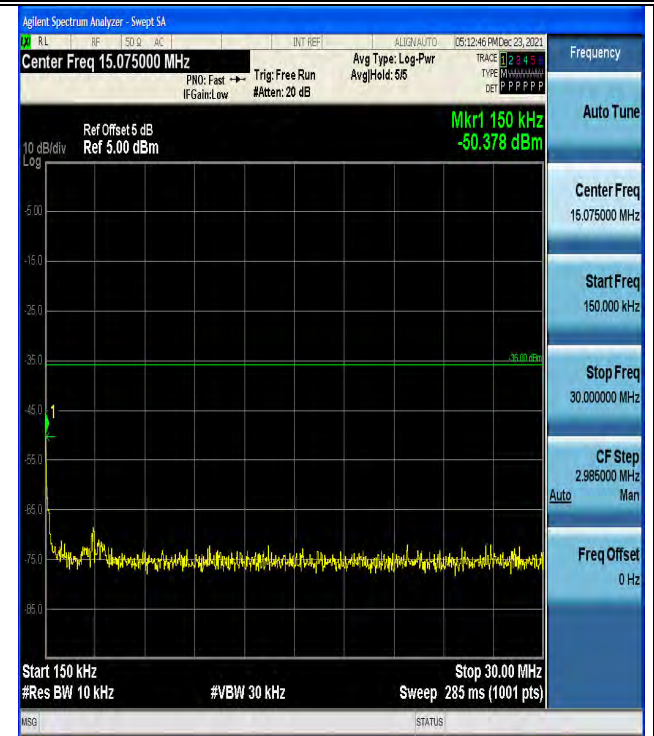


B1 20M RB1 High CH_Low

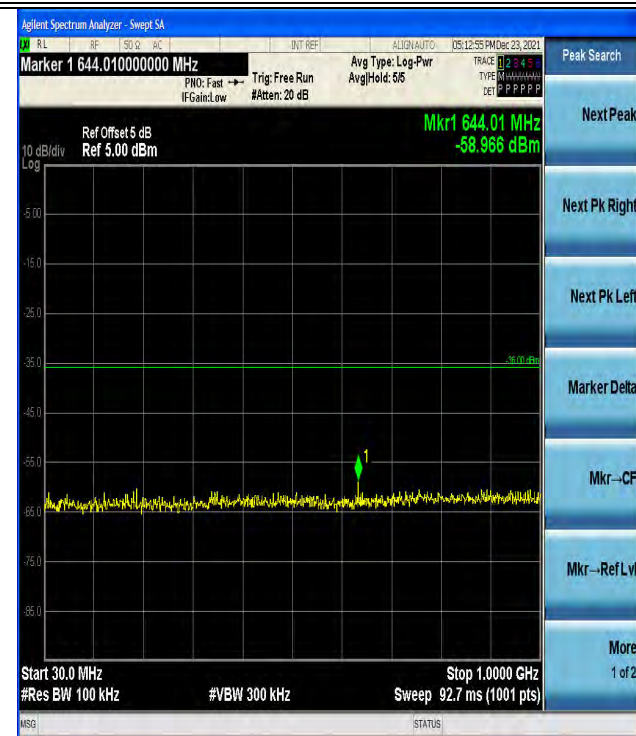
9kHz ≤ f < 150kHz



150kHz ≤ f < 30MHz



30MHz ≤ f < 1GHz

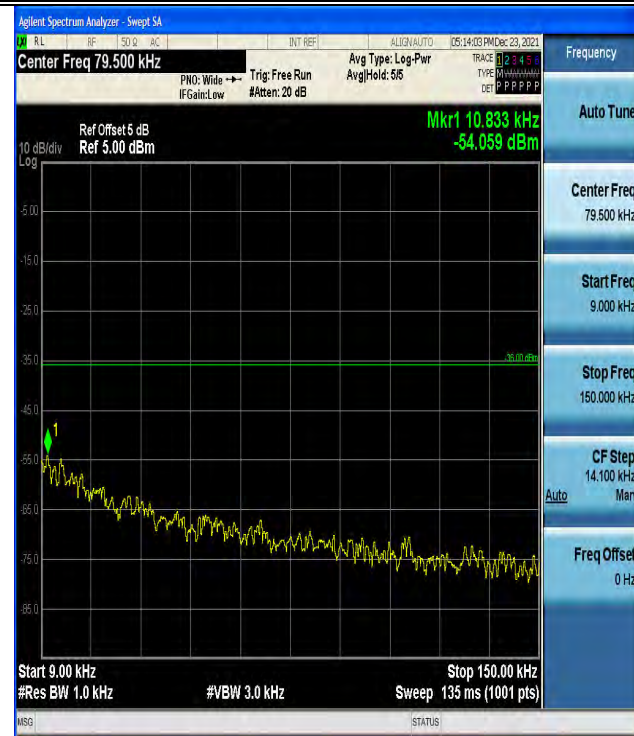


1GHz ≤ f < 12.75GHz

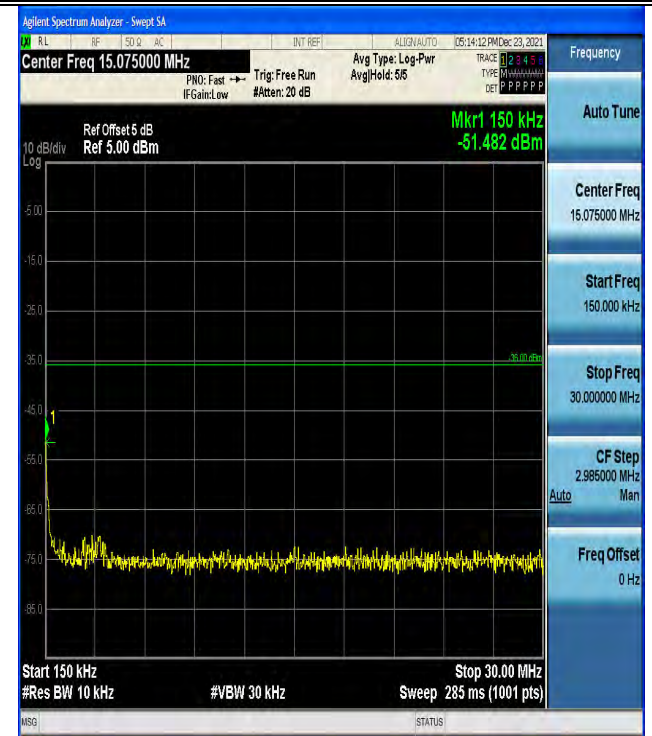


B1 20M RB1 High CH_Mid

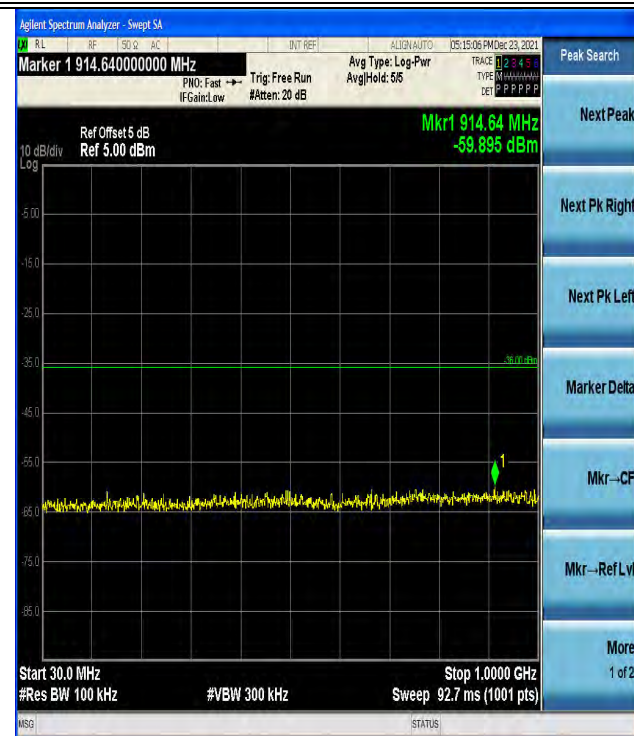
9kHz ≤ f < 150kHz



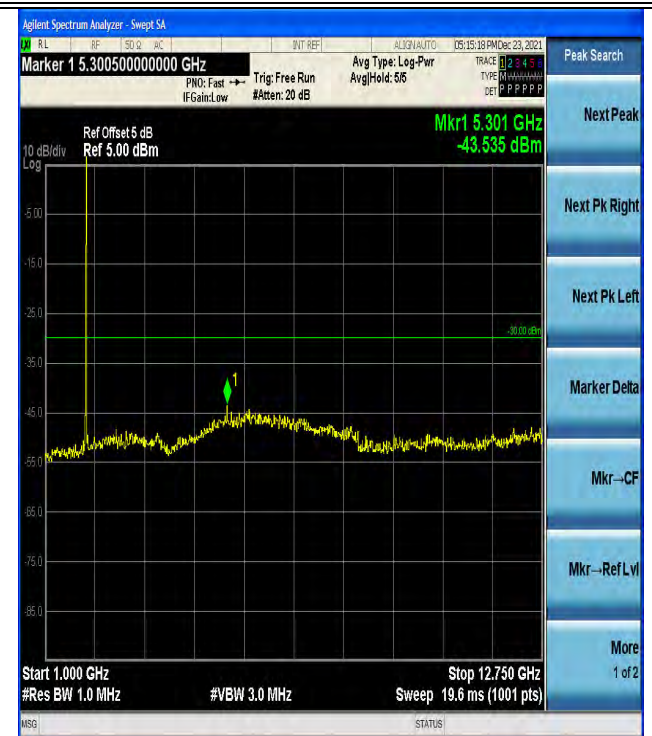
150kHz ≤ f < 30MHz



30MHz ≤ f < 1GHz

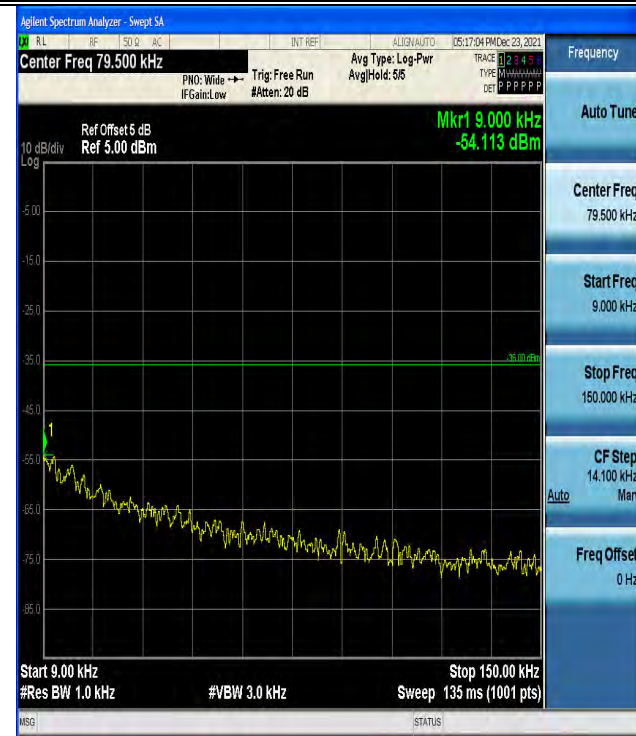


1GHz ≤ f < 12.75GHz

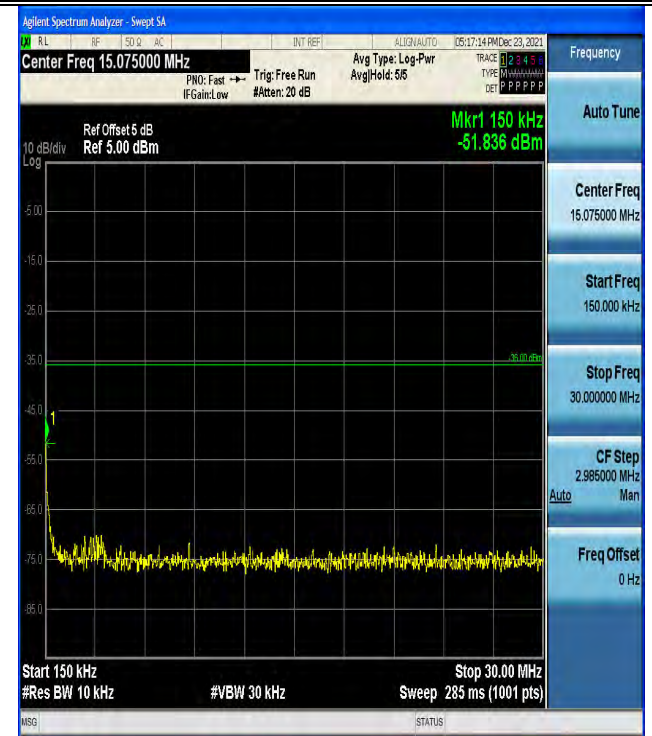


B1 20M RB1 High CH_High

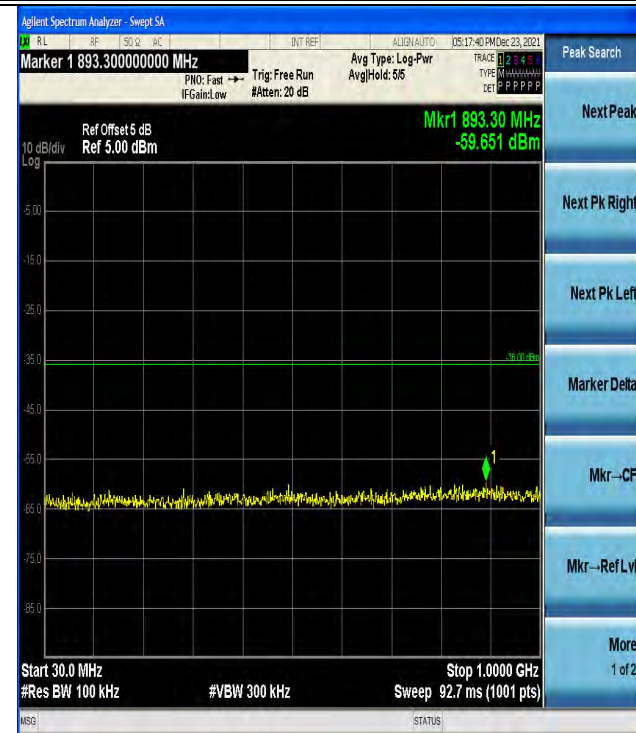
9kHz ≤ f < 150kHz



150kHz ≤ f < 30MHz



30MHz ≤ f < 1GHz

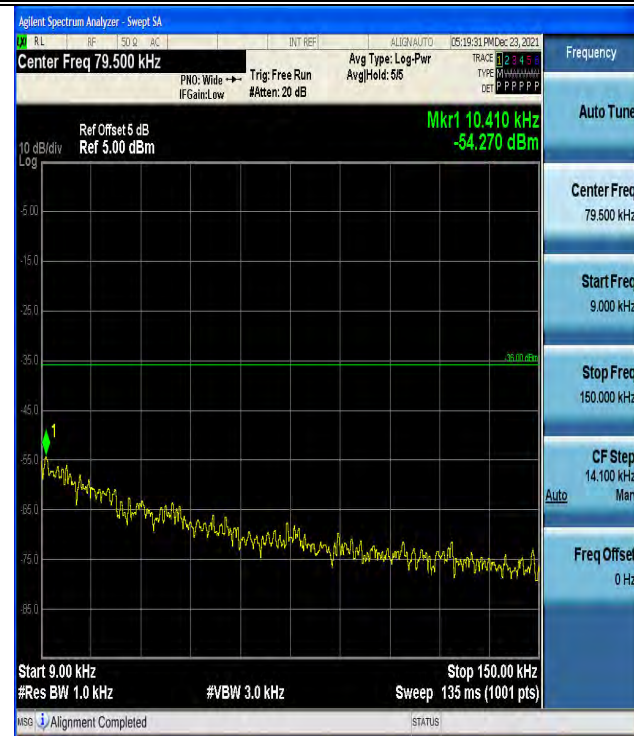


1GHz ≤ f < 12.75GHz

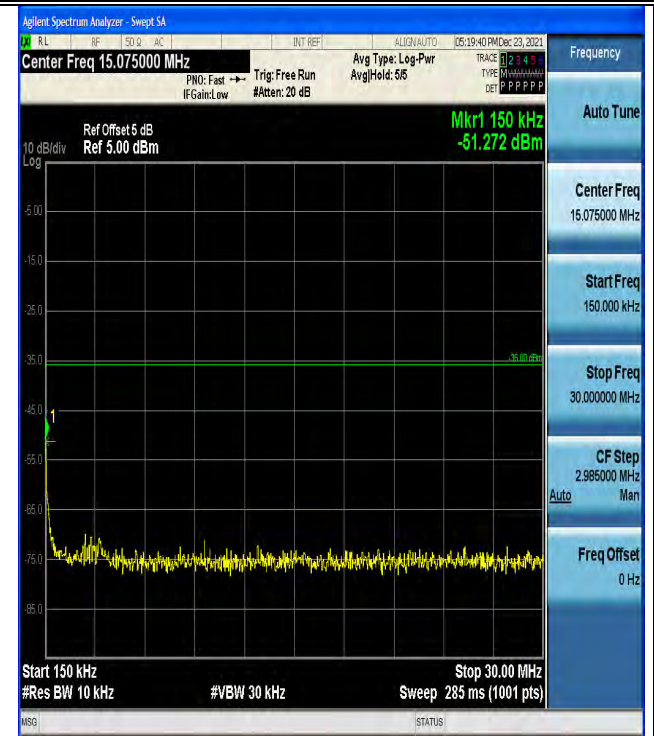


B1 20M RB100 Low CH_Low

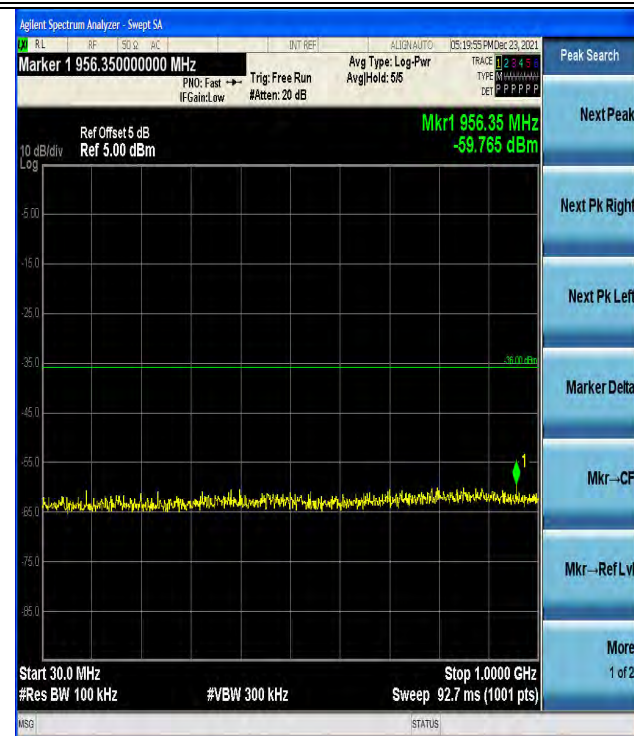
9kHz ≤ f < 150kHz



150kHz ≤ f < 30MHz



30MHz ≤ f < 1GHz

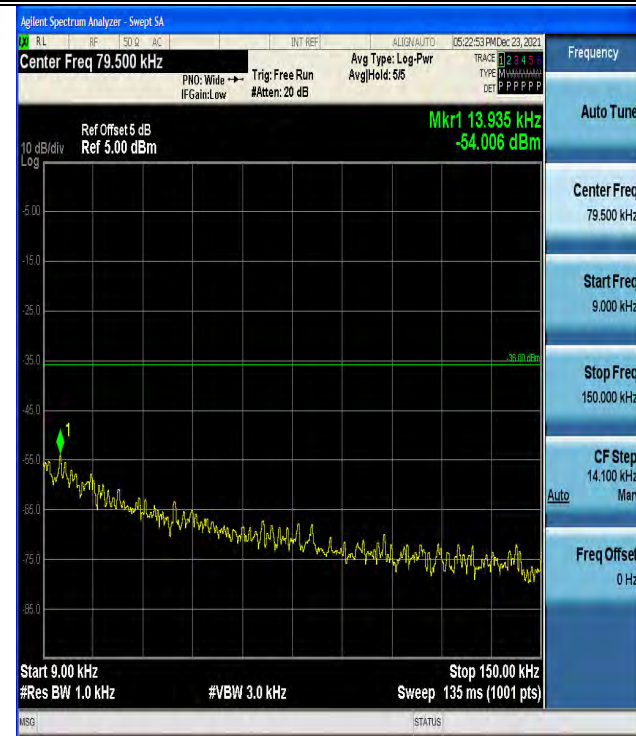


1GHz ≤ f < 12.75GHz

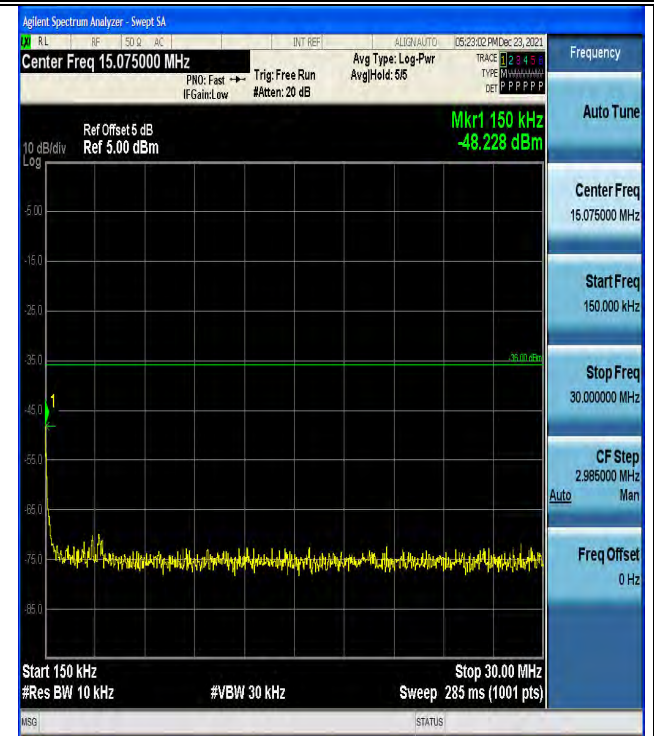


B1 20M RB100 Low CH_High

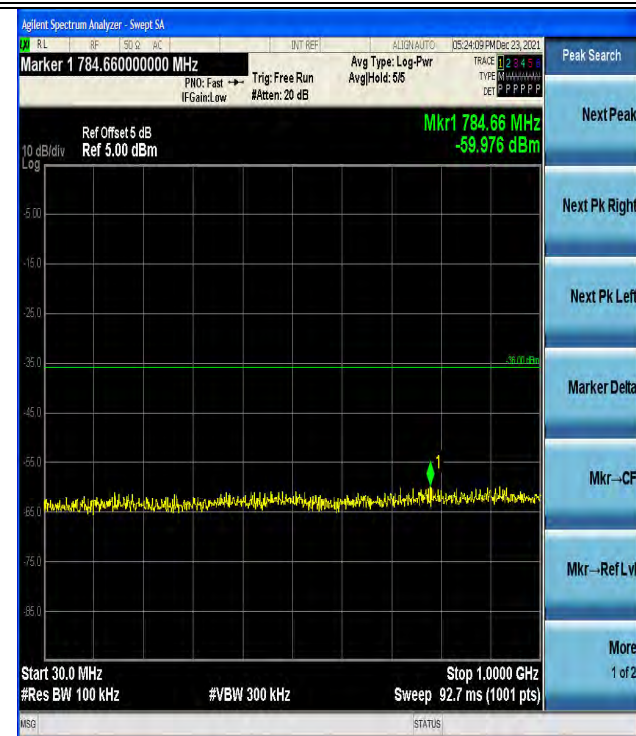
9kHz ≤ f < 150kHz



150kHz ≤ f < 30MHz



30MHz ≤ f < 1GHz

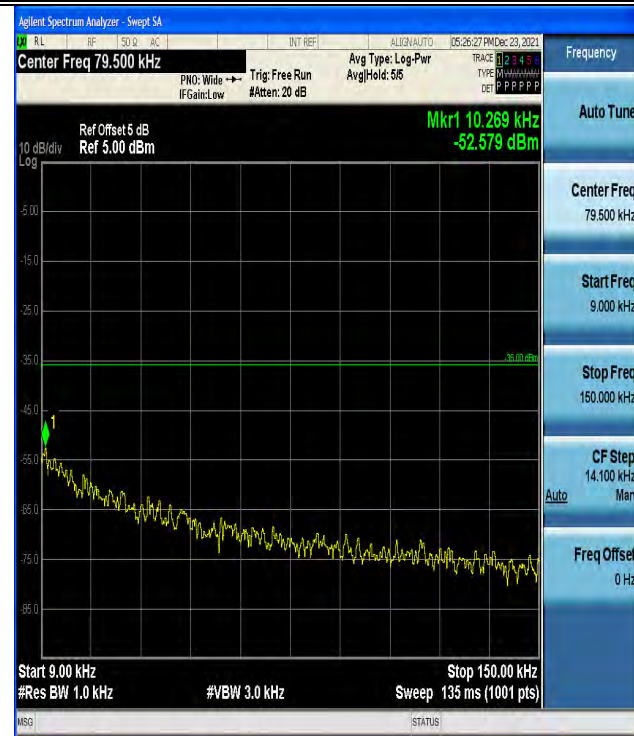


1GHz ≤ f < 12.75GHz

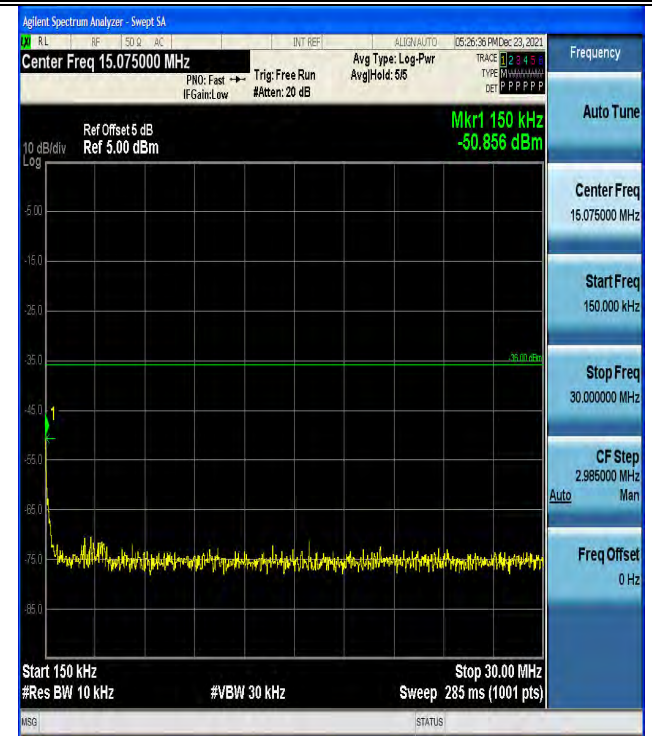


B1 20M RB100 Mid CH_Low

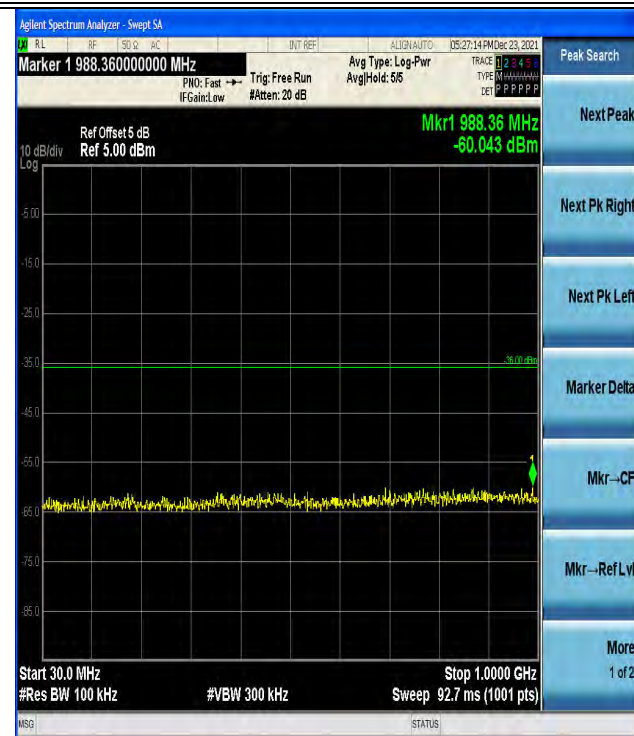
9kHz ≤ f < 150kHz



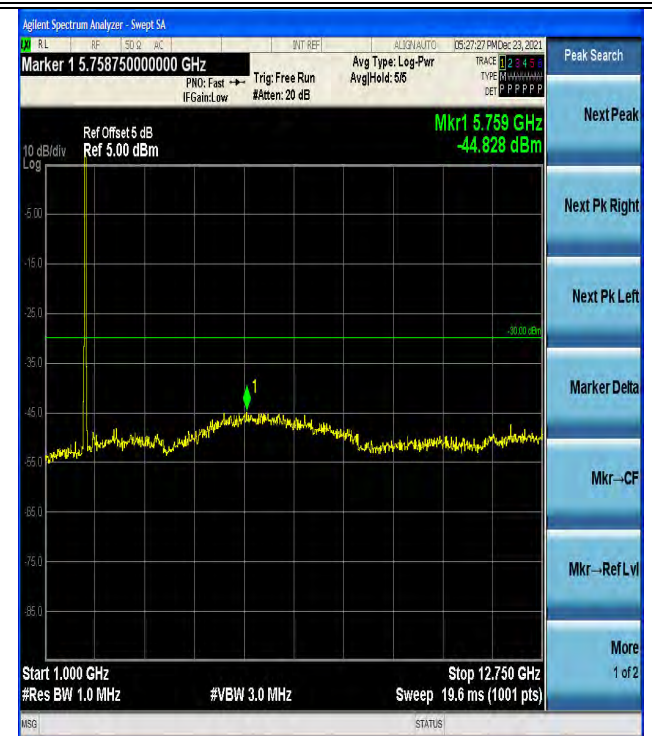
150kHz ≤ f < 30MHz



30MHz ≤ f < 1GHz

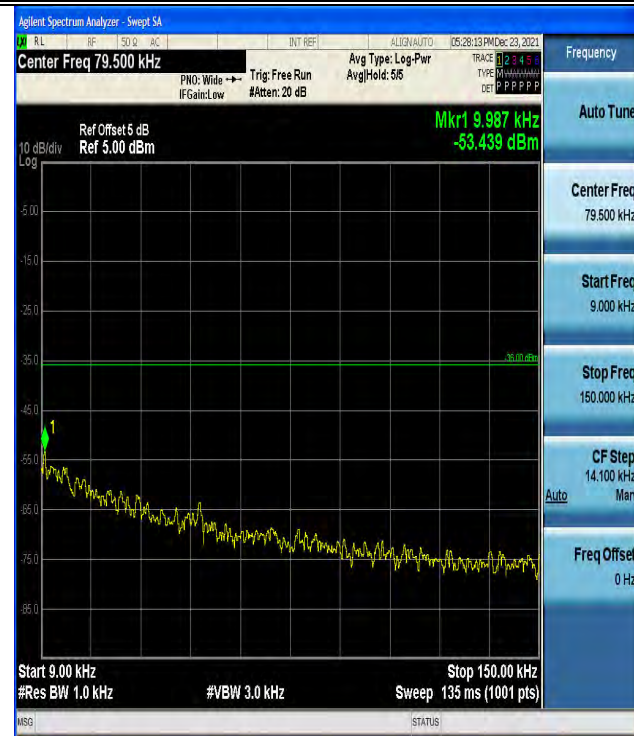


1GHz ≤ f < 12.75GHz

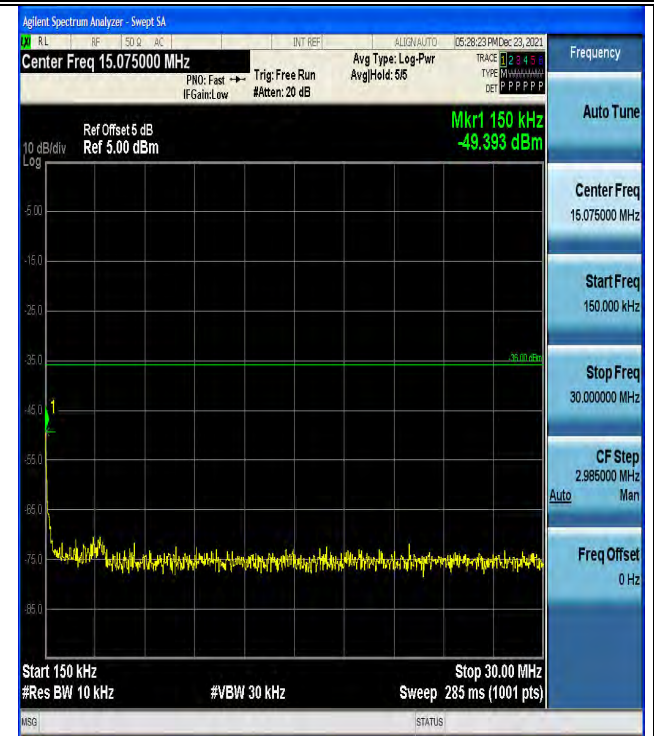


B1 20M RB100 Mid CH_High

9kHz ≤ f < 150kHz



150kHz ≤ f < 30MHz



30MHz ≤ f < 1GHz

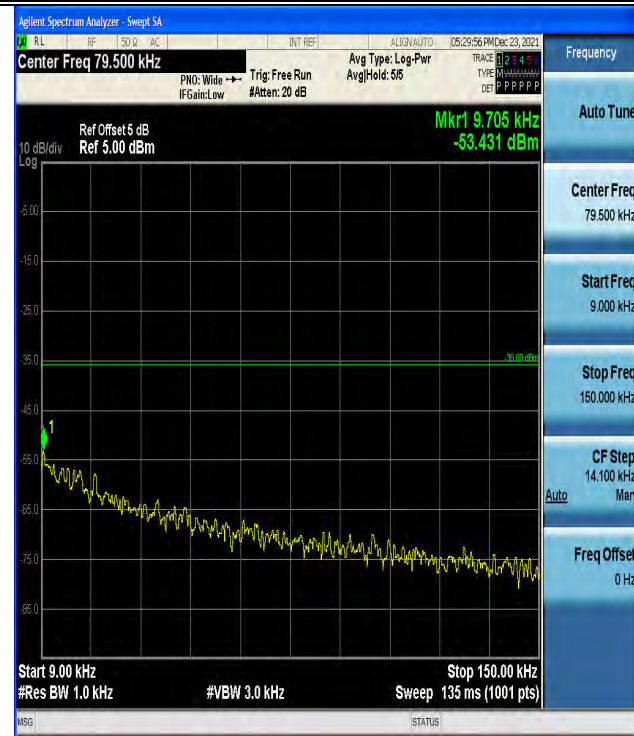


1GHz ≤ f < 12.75GHz

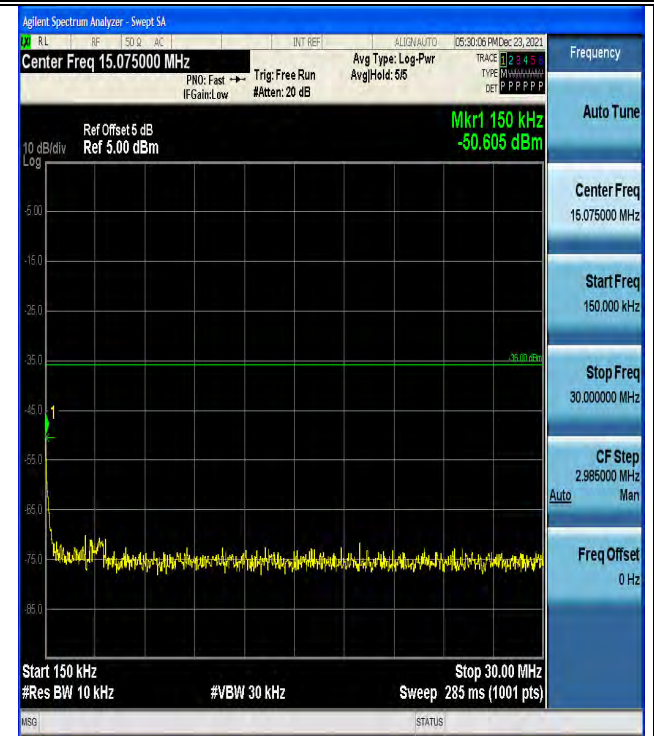


B1 20M RB100 High CH_Low

9kHz ≤ f < 150kHz



150kHz ≤ f < 30MHz



30MHz ≤ f < 1GHz

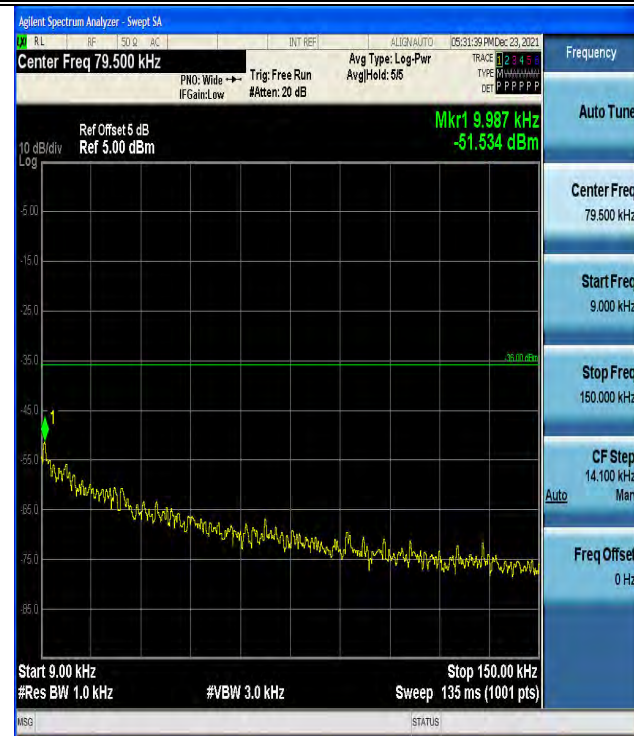


1GHz ≤ f < 12.75GHz

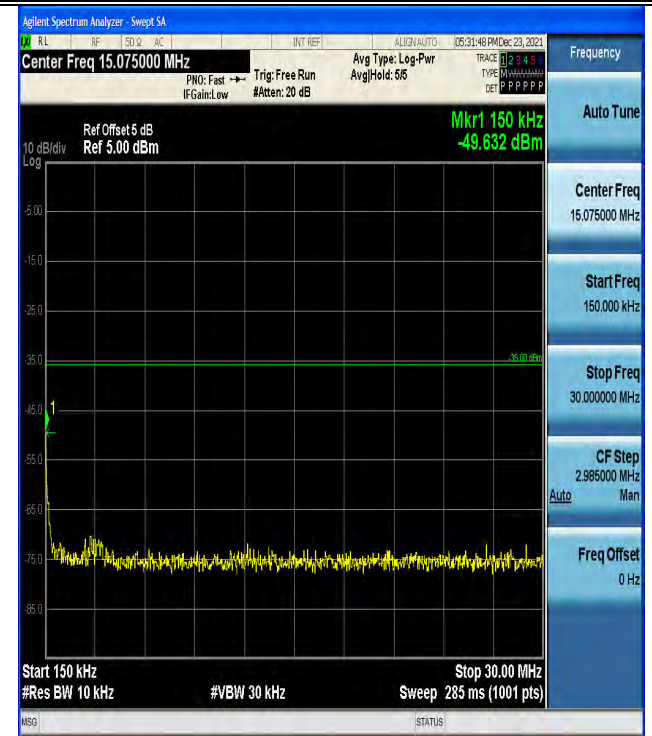


B1 20M RB100 High CH_High

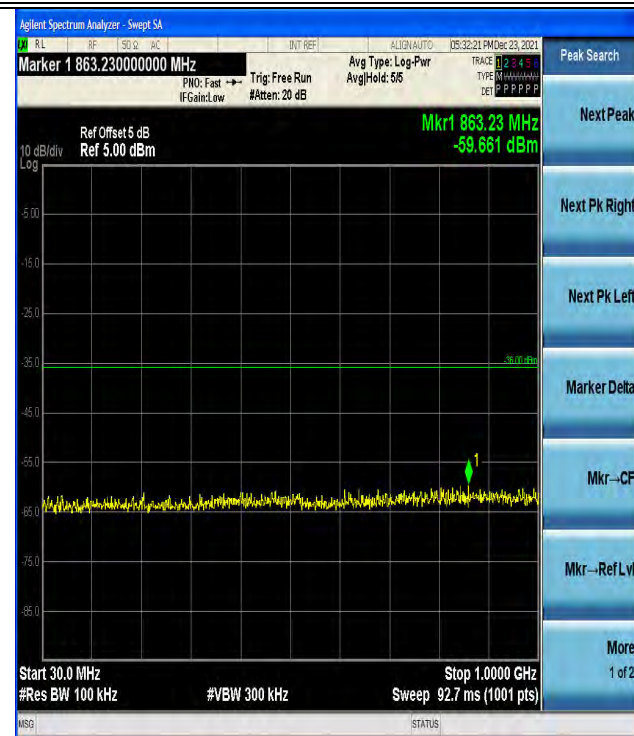
9kHz ≤ f < 150kHz



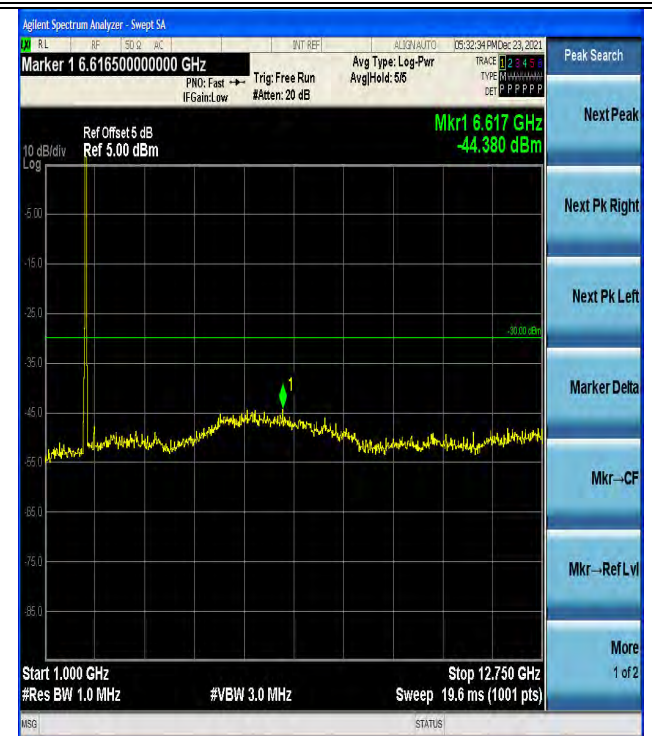
150kHz ≤ f < 30MHz



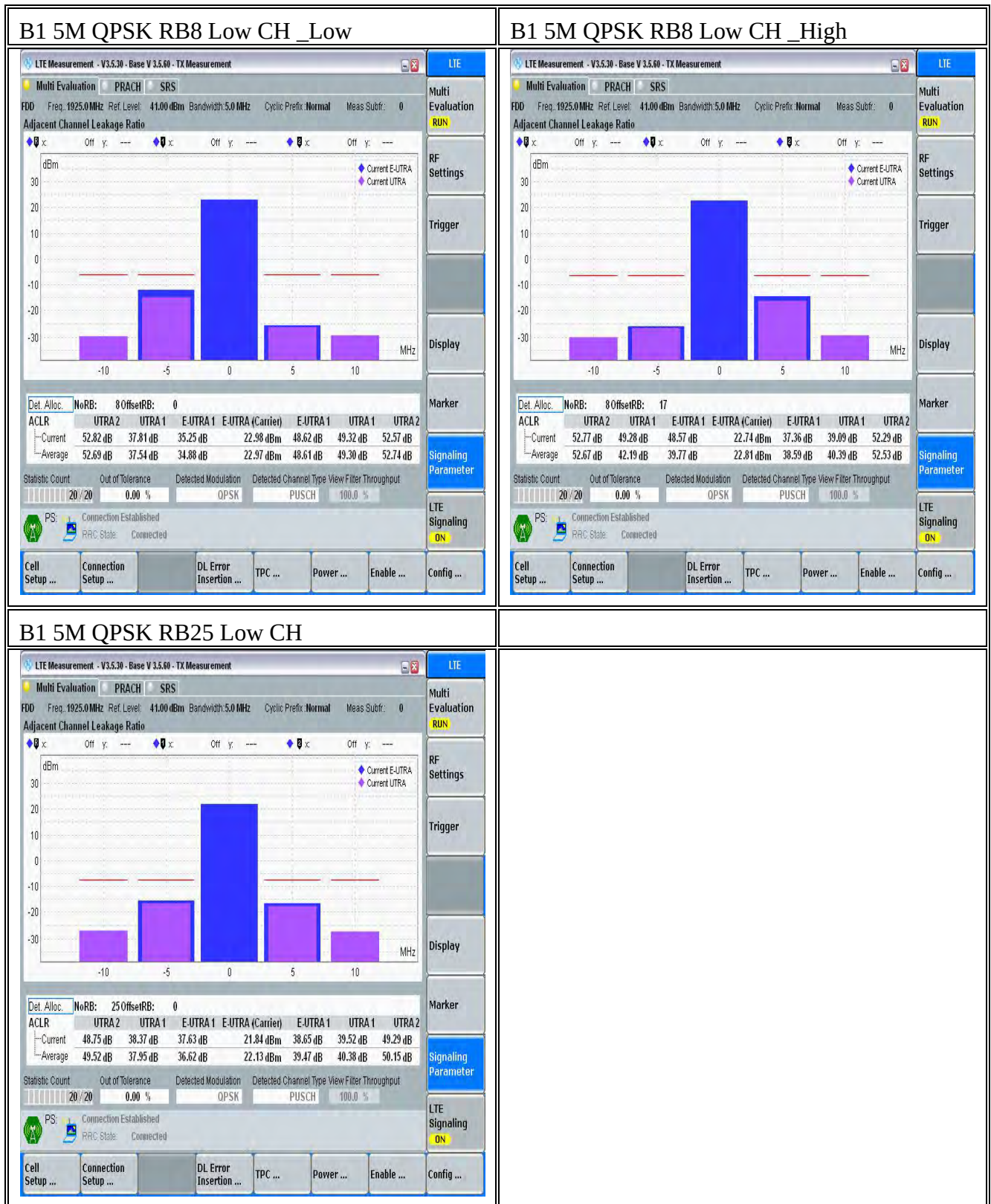
30MHz ≤ f < 1GHz



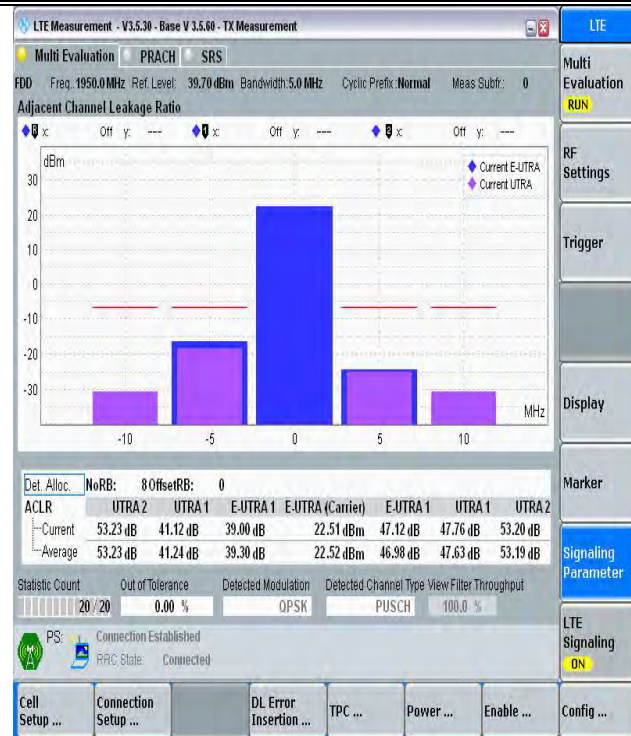
1GHz ≤ f < 12.75GHz



17. 附件五: 相鄰頻道洩漏功率比量測結果



B1 5M QPSK RB8 Mid CH_Low



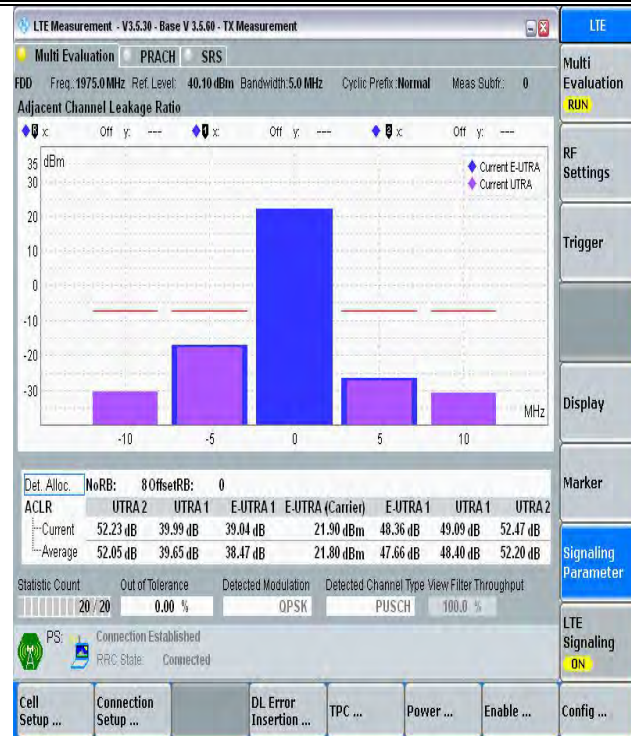
B1 5M QPSK RB8 Mid CH_High



B1 5M QPSK RB25 Mid CH



B1 5M QPSK RB8 High CH_Low



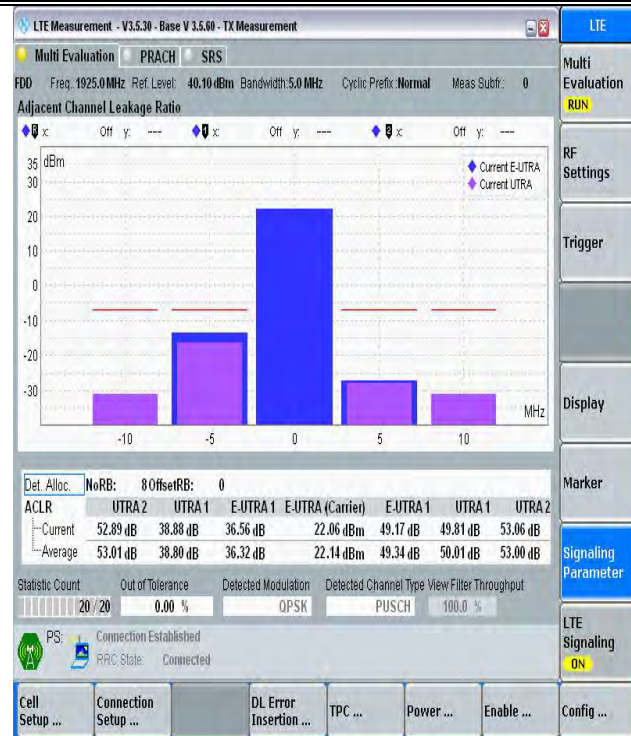
B1 5M QPSK RB8 High CH_High



B1 5M QPSK RB25 High CH



B1 5M 16QAM RB8 Low CH_Low



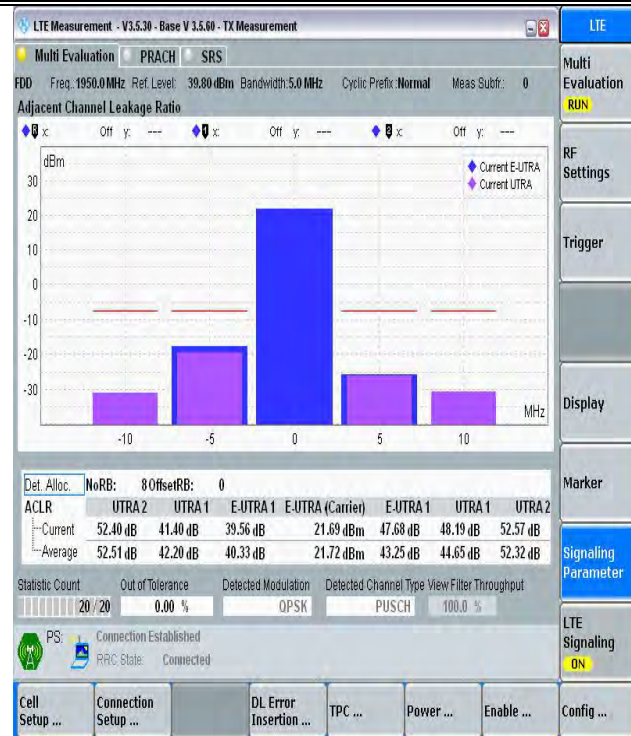
B1 5M 16QAM RB8 Low CH_High



B1 5M 16QAM RB25 Low CH



B1 5M 16QAM RB8 Mid CH_Low



B1 5M 16QAM RB8 Mid CH_High



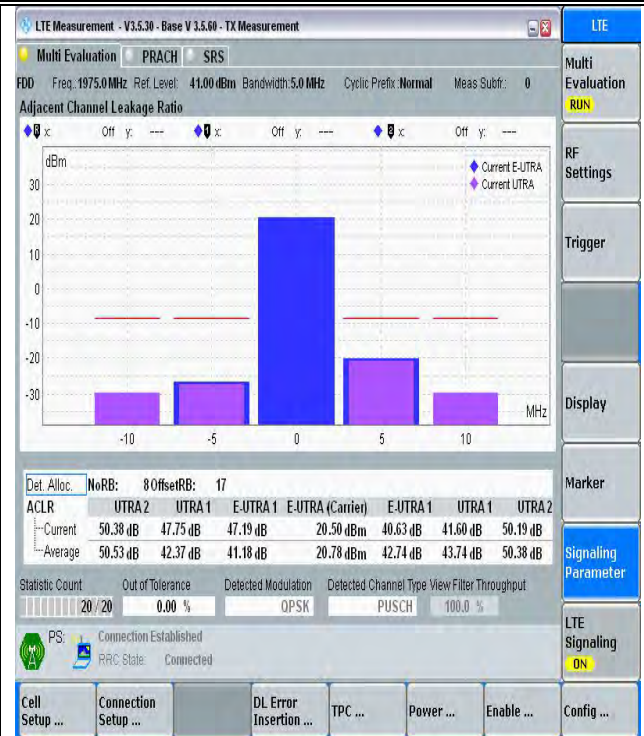
B1 5M 16QAM RB25 Mid CH



B1 5M 16QAM RB8 High CH_Low



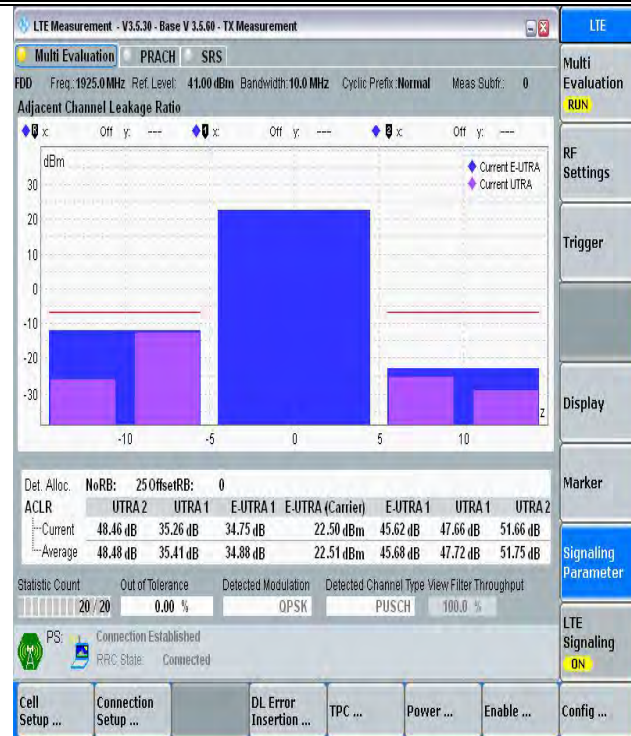
B1 5M 16QAM RB8 High CH_High



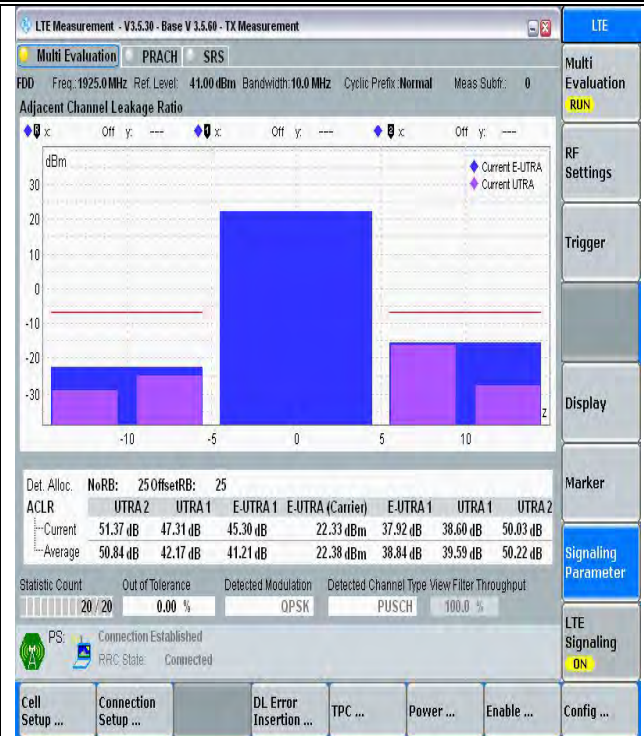
B1 5M 16QAM RB25 High CH



B1 10M QPSK RB12 Low CH_Low



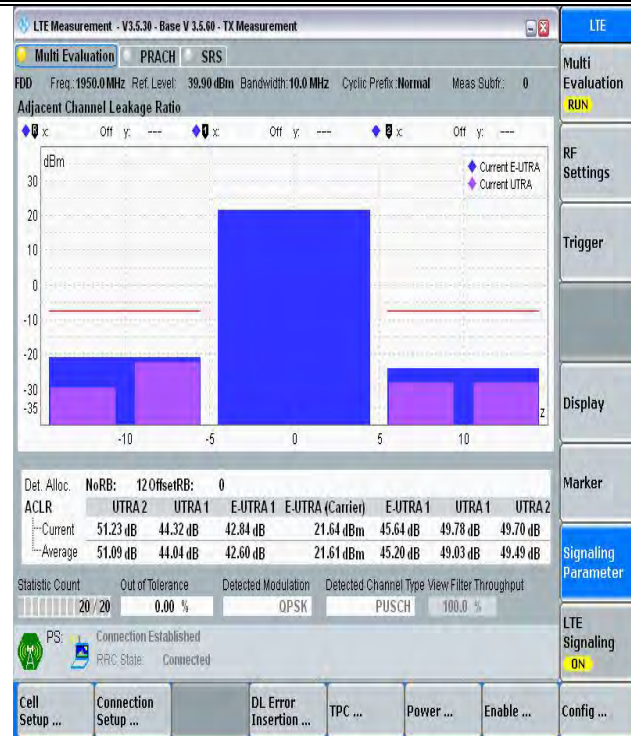
B1 10M QPSK RB12 Low CH_High



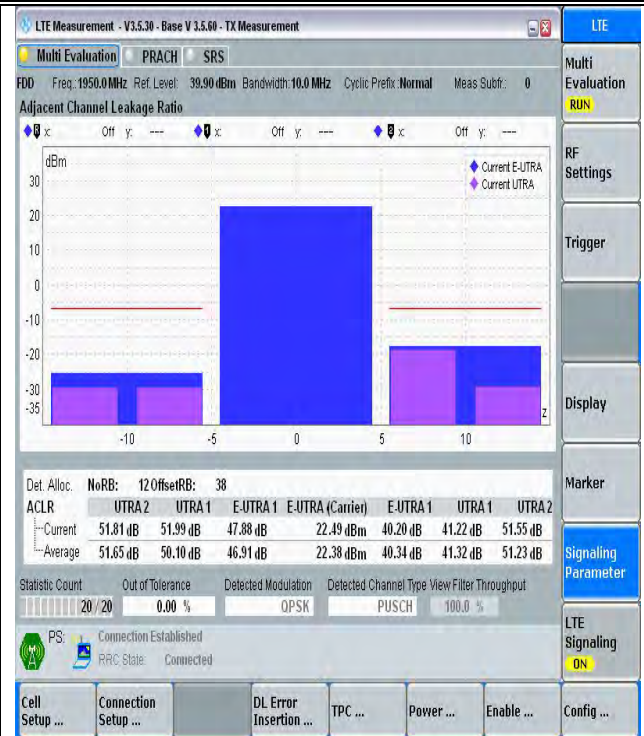
B1 10M QPSK RB50 Low CH



B1 10M QPSK RB12 Mid CH_Low



B1 10M QPSK RB12 Mid CH_High



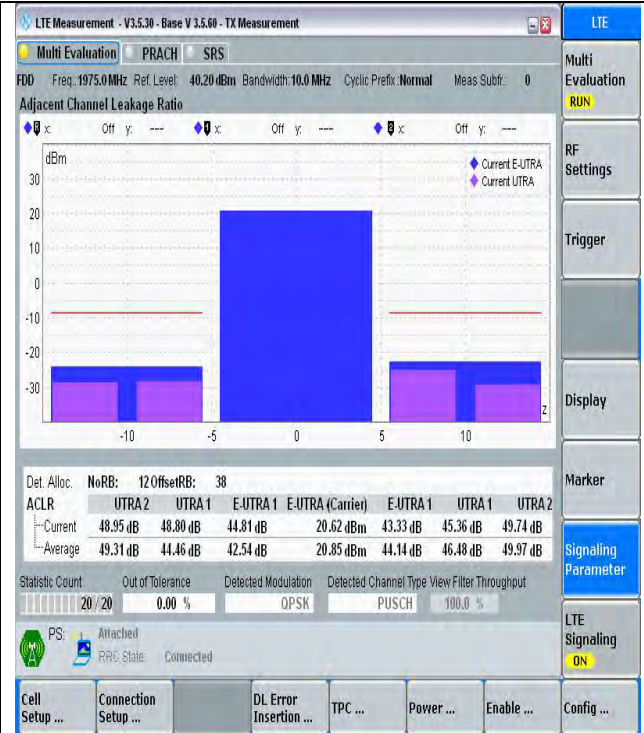
B1 10M QPSK RB50 Mid CH



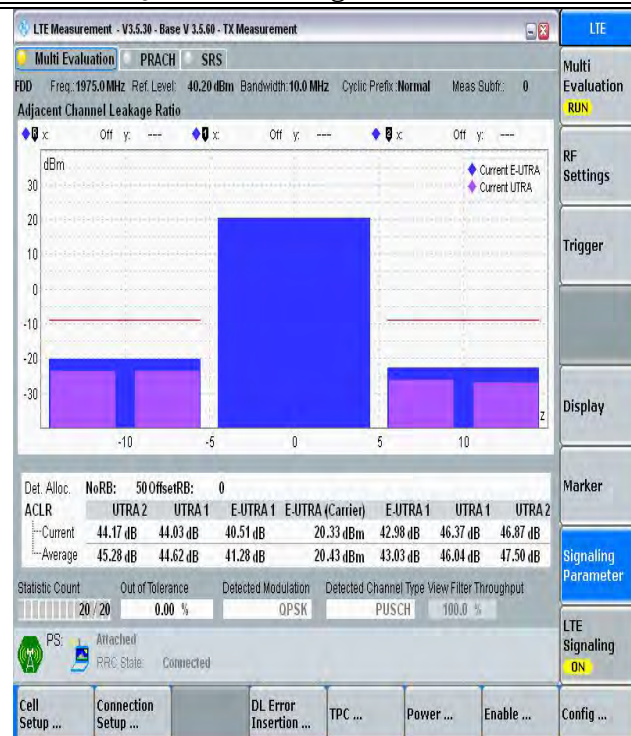
B1 10M QPSK RB12 High CH_Low



B1 10M QPSK RB12 High CH_High



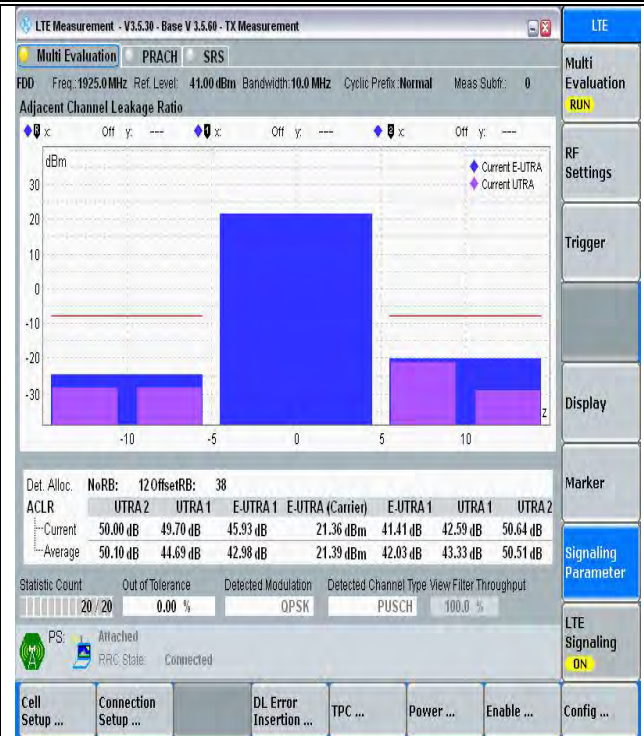
B1 10M QPSK RB50 High CH



B1 10M 16QAM RB12 Low CH_Low



B1 10M 16QAM RB12 Low CH_High



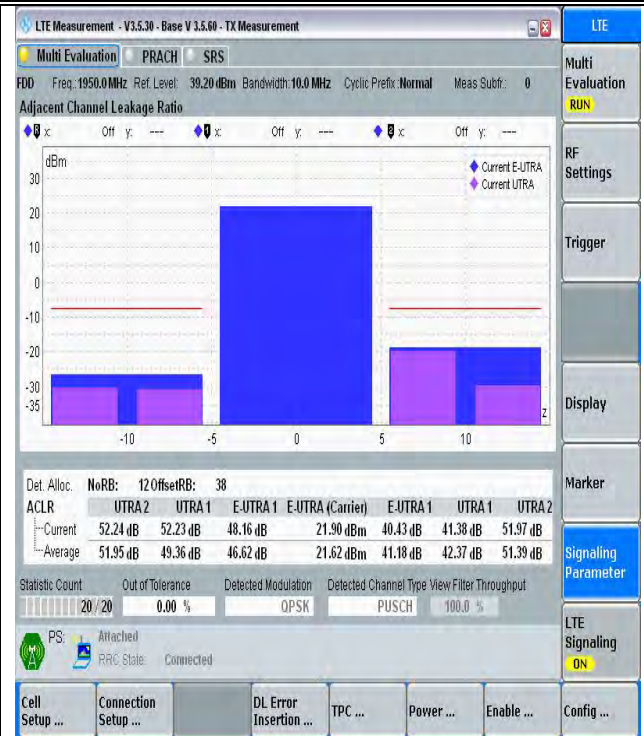
B1 10M 16QAM RB50 Low CH



B1 10M 16QAM RB12 Mid CH_Low



B1 10M 16QAM RB12 Mid CH_High



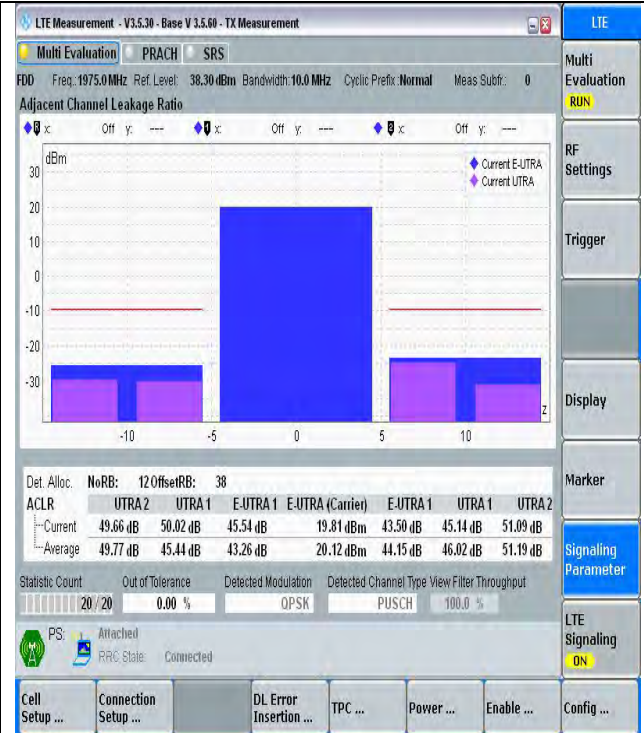
B1 10M 16QAM RB50 Mid CH



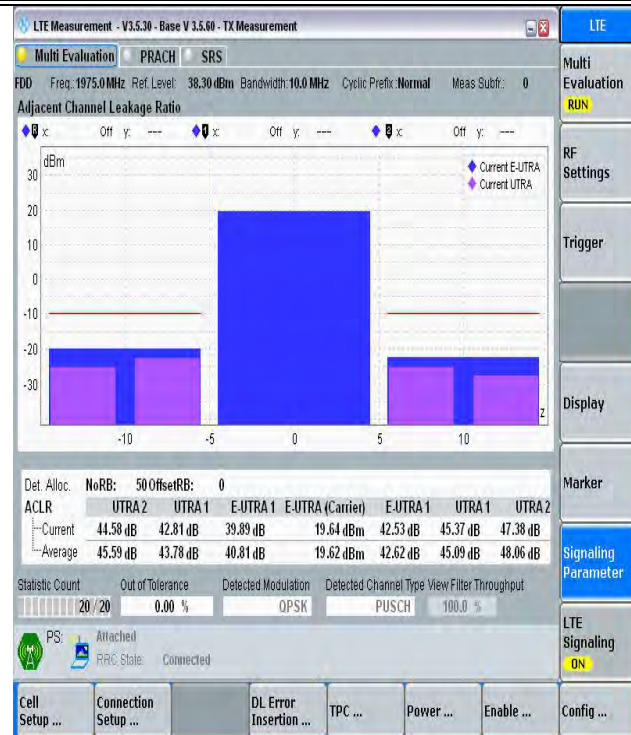
B1 10M 16QAM RB12 High CH_Low



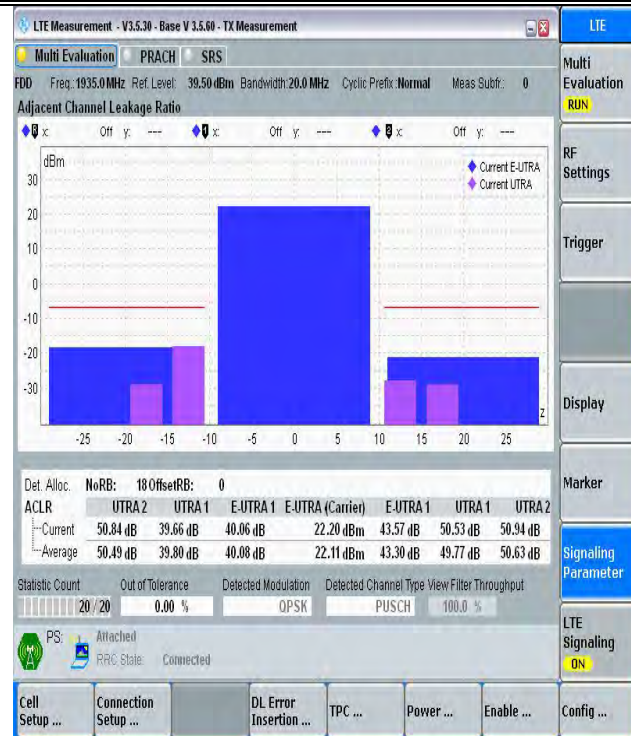
B1 10M 16QAM RB12 High CH_High



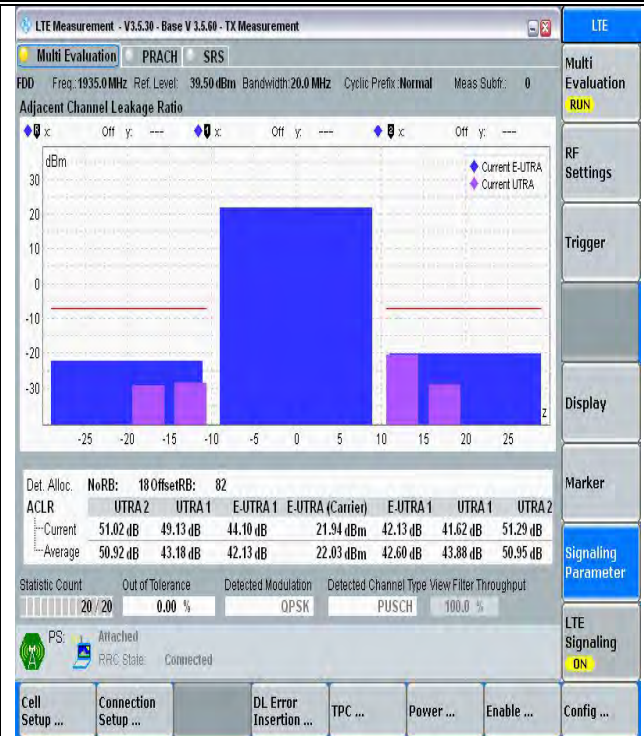
B1 10M 16QAM RB50 High CH



B1 20M QPSK RB18 Low CH_Low



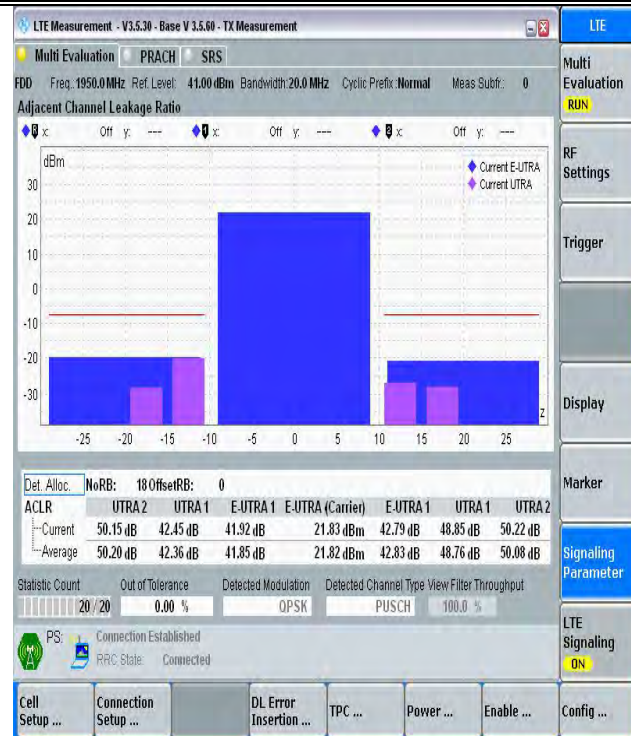
B1 20M QPSK RB18 Low CH_High



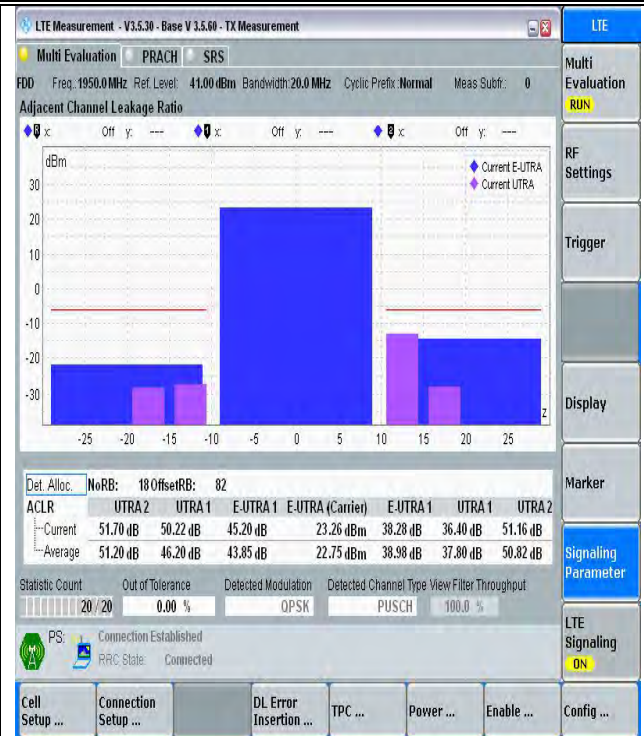
B1 20M QPSK RB100 Low CH



B1 20M QPSK RB18 Mid CH_Low



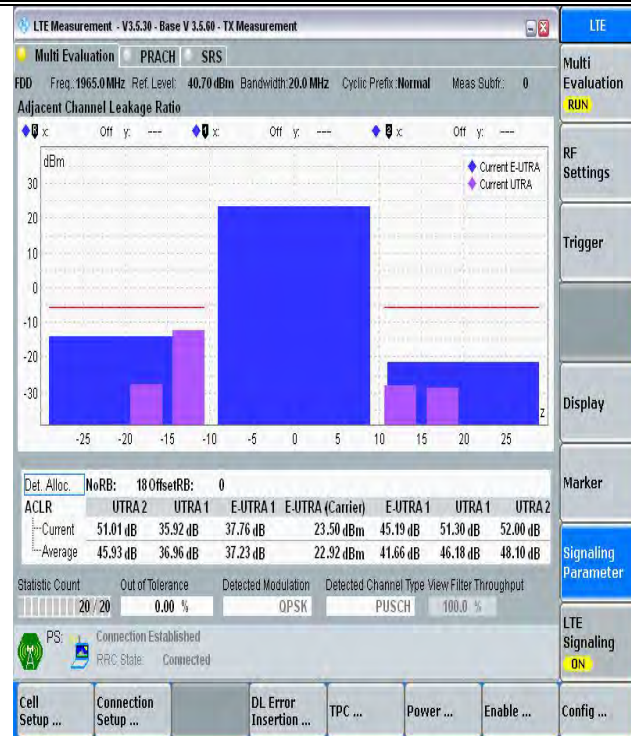
B1 20M QPSK RB18 Mid CH_High



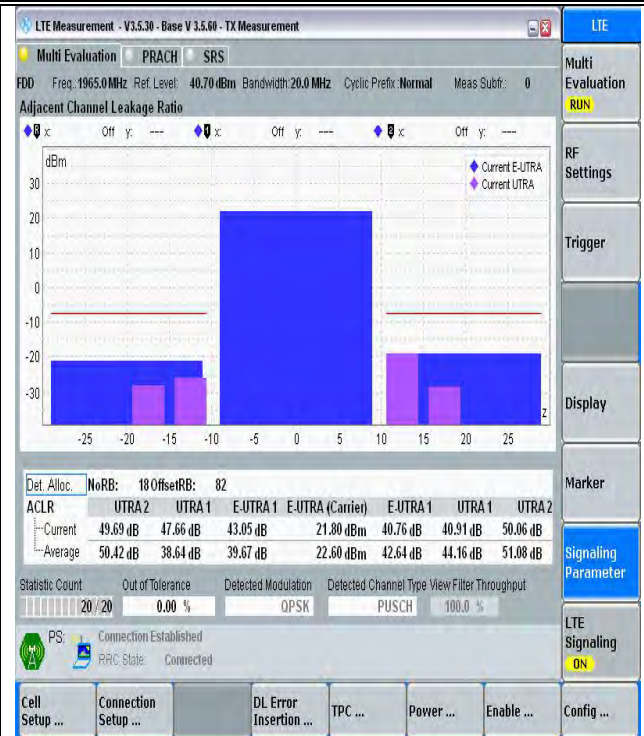
B1 20M QPSK RB100 Mid CH



B1 20M QPSK RB18 High CH_Low



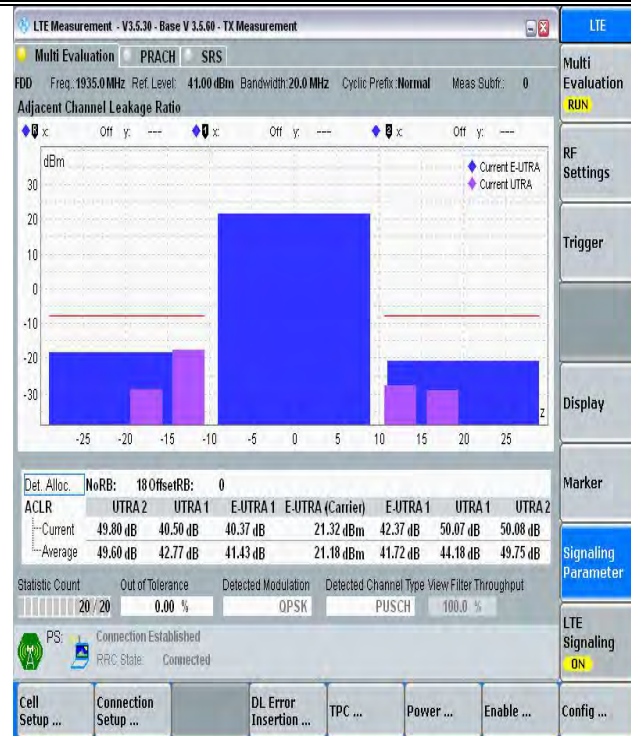
B1 20M QPSK RB18 High CH_High



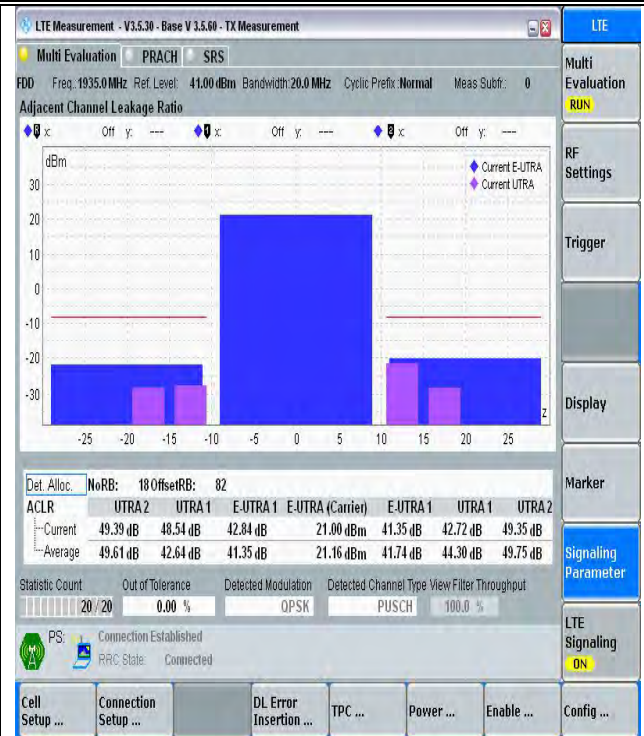
B1 20M QPSK RB100 High CH



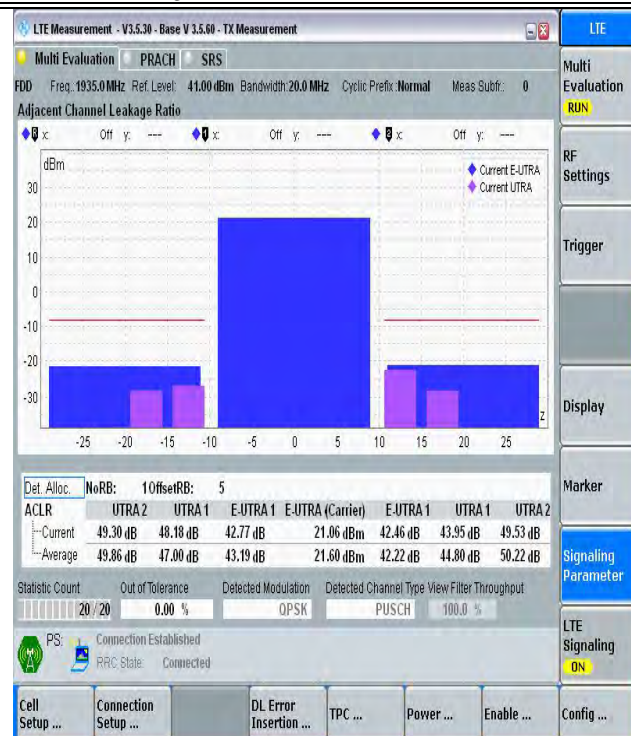
B1 20M 16QAM RB18 Low CH_Low



B1 20M 16QAM RB18 Low CH_High



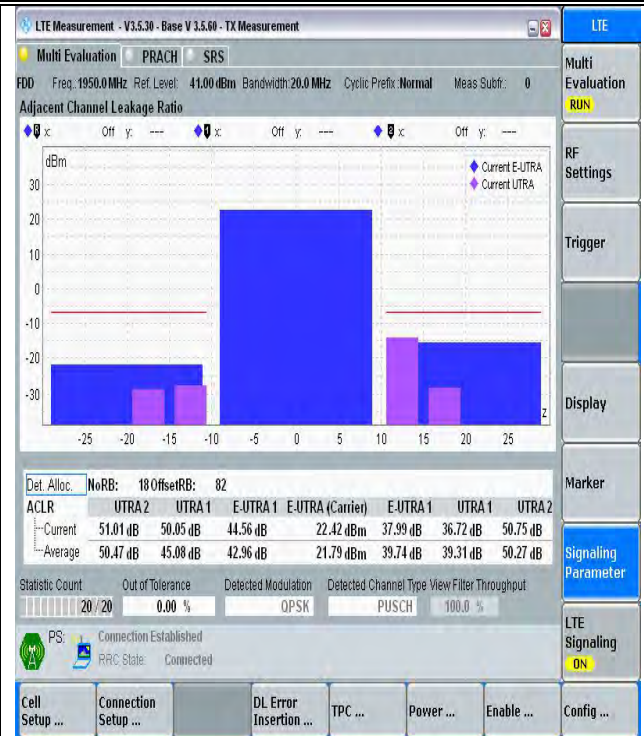
B1 20M 16QAM RB100 Low CH



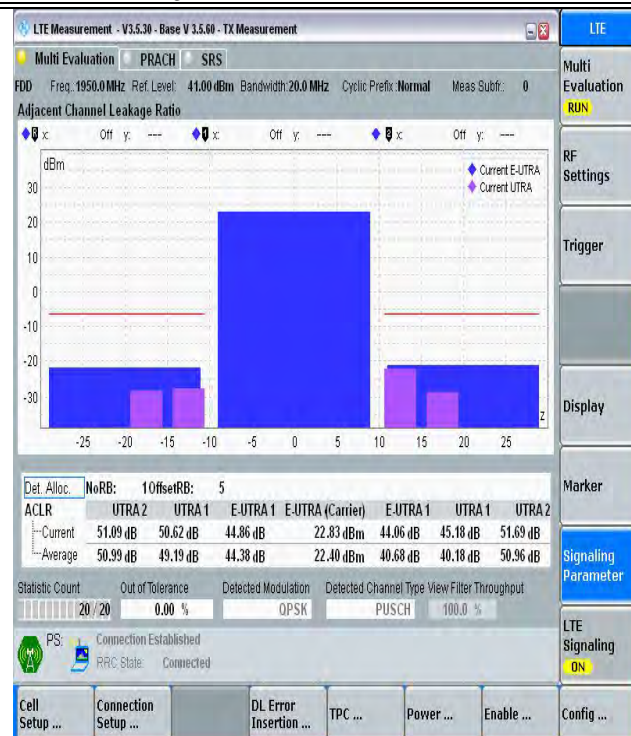
B1 20M 16QAM RB18 Mid CH_Low



B1 20M 16QAM RB18 Mid CH_High



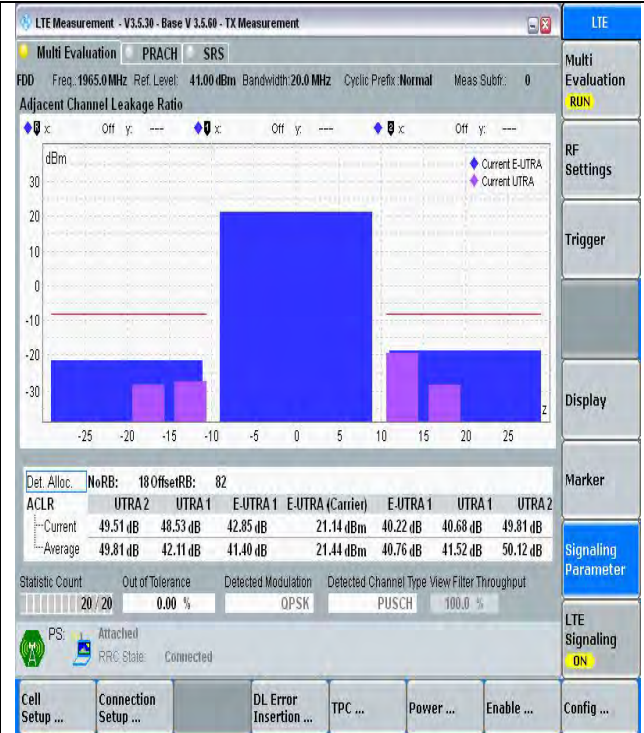
B1 20M 16QAM RB100 Mid CH



B1 20M 16QAM RB18 High CH_Low



B1 20M 16QAM RB18 High CH_High



B1 20M 16QAM RB100 High CH

