

TEST REPORT

FCC Carrier Aggregation Test for SM-T727U
Certification

APPLICANT
SAMSUNG Electronics Co., Ltd.

REPORT NO.
HCT-RF-1906-FC060-R2

DATE OF ISSUE
01 July 2019

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ID

FCC: A3LSMT727U

Applicant

SAMSUNG Electronics Co., Ltd.

129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Rep. of Korea

Eut Type

Tablet

Model Name

SM-T727U

Additional Model(s)

SM-T727P

Date of Receipt

May 22, 2019

FCC Rule Part(s)

§ 27, § 2

FCC Classification

PCS Licensed Transmitter (PCB)

Manufacturer

SAMSUNG Electronics Co., Ltd.

Tested by
Kwon Jeong

Technical Manager
Jong Seok Lee

HCT CO., LTD.

Soo Chan Lee

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/ CEO

REVISION HISTORY

The revision history for this test report is shown in table.

Revision No.	Date of Issue	Description
0	June 25, 2019	Initial Release
1	June 28, 2019	Revised the test setting on page 14 Added the worst case on page 25 Added the test plot on page 65 Revised the worst case of frequency stability Added the entry list on page 94
2	July 01, 2019	Revised the frequency stability Revised the entry List Added the 16QAM, 64QAM of conducted power

The measurements shown in this report were made in accordance with the procedures specified in CFR47 section § 2.947. I assume full responsibility for the accuracy and completeness of these measurements, and for the qualifications of all persons taking them.

HCT CO., LTD. Certifies that no party to this application has subject to a denial of Federal benefits that includes FCC benefits pursuant to section 5301 of the Anti-Drug Abuse Act of 1998, 21 U.S. C. 853(a)

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MEASUREMENT REPORT

1. GENERAL INFORMATION

Applicant Name:	SAMSUNG Electronics Co., Ltd.
Address:	129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Rep. of Korea
FCC ID:	A3LSMT727U
Application Type:	Certification
FCC Classification:	PCS Licensed Transmitter (PCB)
FCC Rule Part(s):	§ 27, § 2
EUT Type:	Tablet
Model(s):	SM-T727U
Additional Model(s)	SM-T727P
Tx Frequency:	2498.5 – 2687.5 : 5 MHz 2501.0 – 2685.0 : 10 MHz 2503.5 – 2682.5 : 15 MHz 2506.0 – 2680.0 : 20 MHz
Date(s) of Tests:	June 04, 2019~ June 27, 2019
LTE CA:	CA 41C(Uplink)

2. INTRODUCTION

2.1. DESCRIPTION OF EUT

The EUT was a Tablet with UMTS and LTE.

It also supports IEEE 802.11 a/b/g/n/ac (HT20/40/80), ANT+, Bluetooth, BT LE.

2.2. MEASURING INSTRUMENT CALIBRATION

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipment, which is traceable to recognized national standards.

2.3. TEST FACILITY

The Fully-anechoic chamber and conducted measurement facility used to collect the radiated data are located at the 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, 17383, Rep. of KOREA.

3. DESCRIPTION OF TESTS

3.1 TEST PROCEDURE

Test Description	Test Procedure Used
Occupied Bandwidth	- KDB 971168 D01 v03r01 – Section 4.3 - ANSI C63.26-2015 – Section 5.4.4
Channel Edge	- KDB 971168 D01 v03r01 – Section 6.0 - ANSI C63.26-2015 – Section 5.7
Spurious and Harmonic Emissions at Antenna Terminal	- KDB 971168 D01 v03r01 – Section 6.0 - ANSI C63.26-2015 – Section 5.7
Conducted Output Power	- N/A (See SAR Report)
Peak- to- Average Ratio	- KDB 971168 D01 v03r01 – Section 5.7 - ANSI C63.26-2015 – Section 5.2.3.4 - ANSI C63.26-2015 – Section 5.2.6(only GSM)
Frequency stability	- ANSI C63.26-2015 – Section 5.6
Effective Isotropic Radiated Power	- KDB 971168 D01 v03r01 – Section 5.2 & 5.8 - ANSI/TIA-603-E-2016 – Section 2.2.17
Radiated Spurious and Harmonic Emissions	- KDB 971168 D01 v03r01 – Section 6.2 - ANSI/TIA-603-E-2016 – Section 2.2.12

3.2 RADIATED POWER

Test Overview

Radiated tests are performed in the Fully-anechoic chamber.

The equipment under test is placed on a non-conductive table 3-meters away from the receive antenna in accordance with ANSI/TIA-603-E-2016 Clause 2.2.17.

Test Settings

1. Radiated power measurements are performed using the signal analyzer's "channel power" measurement capability for signals with continuous operation.
2. RBW = 1 – 5% of the expected OBW, not to exceed 1MHz
3. VBW $\geq 3 \times$ RBW
4. Span = 1.5 times the OBW
5. No. of sweep points $> 2 \times$ span / RBW
6. Detector = RMS
7. Trigger is set to "free run" for signals with continuous operation with the sweep times set to "auto".
8. The integration bandwidth was roughly set equal to the measured OBW of the signal for signals with continuous operation.
9. Trace mode = trace averaging (RMS) over 100 sweeps.
10. The trace was allowed to stabilize.

Test Note

1. The turntable is rotated through 360 degrees, and the receiving antenna scans in order to determine the level of the maximized emission.
2. A half wave dipole is then substituted in place of the EUT. For emissions above 1GHz, a horn antenna is substituted in place of the EUT. The substitute antenna is driven by a signal generator and the previously recorded signal was duplicated.

The power is calculated by the following formula;

$$P_{d(dBm)} = P_{g(dBm)} - \text{cable loss}_{(dB)} + \text{antenna gain}_{(dB)}$$

Where: P_d is the dipole equivalent power and P_g is the generator output power into the substitution

antenna.

3. The maximum value is calculated by adding the forward power to the calibrated source plus its appropriate gain value.

These steps are repeated with the receiving antenna in both vertical and horizontal polarization.

the difference between the gain of the horn and an isotropic antenna are taken into consideration

4. The EUT was tested in three orthogonal planes(X, Y, Z) and in all possible test configurations and positioning.

5. All measurements are performed as RMS average measurements while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies.

3.3 RADIATED SPURIOUS EMISSIONS

Test Overview

Radiated tests are performed in the Fully-anechoic chamber.

Radiated Spurious Emission Measurements at 3 meters by Substitution Method according to ANSI/TIA-603-E-2016.

Test Settings

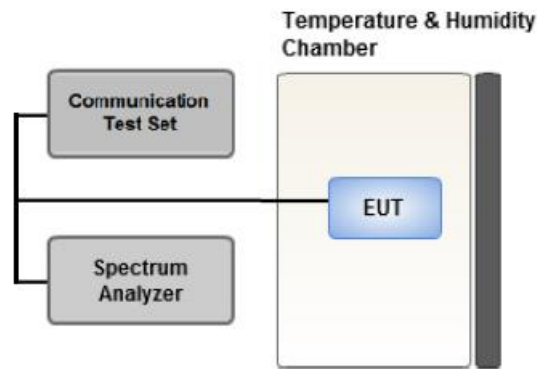
1. RBW = 100kHz for emissions below 1GHz and 1MHz for emissions above 1GHz
2. VBW $\geq 3 \times$ RBW
3. Span = 1.5 times the OBW
4. No. of sweep points $> 2 \times$ span / RBW
5. Detector = Peak
6. Trace mode = Max Hold
7. The trace was allowed to stabilize
8. Test channel : Low/ Middle/ High
9. Frequency range : We are performed all frequency to 10th harmonics from 9 kHz.

Test Note

1. Measurements value show only up to 3 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
2. The EUT was tested in three orthogonal planes(X, Y, Z) and in all possible test configurations and positioning.

The worst case emissions are reported with the EUT positioning, modulations, RB sizes and offsets, and channel bandwidth configurations shown in the test dat

3.4 OCCUPIED BANDWIDTH.



Test setup

The width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5 % of the total mean power of a given emission.

The EUT makes a call to the communication simulator.

The conducted occupied bandwidth used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer.

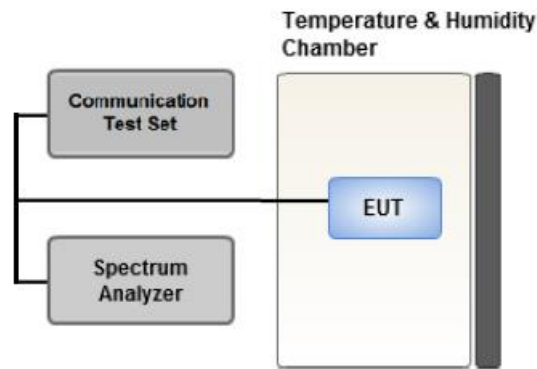
The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency. Use OBW measurement function of Spectrum analyzer to measure 99 % occupied bandwidth

Test Settings

1. The signal analyzer's automatic bandwidth measurement capability was used to perform the 99% occupied bandwidth and the 26dB bandwidth. The bandwidth measurement was not influenced by any intermediate power nulls in the fundamental emission.
2. RBW = 1 – 5% of the expected OBW
3. VBW $\geq 3 \times$ RBW
4. Detector = Peak

5. Trace mode = max hold
6. Sweep = auto couple
7. The trace was allowed to stabilize
8. If necessary, steps 2 – 7 were repeated after changing the RBW such that it would be within
1 – 5% of the 99% occupied bandwidth observed in Step 7

3.5 SPURIOUS AND HARMONIC EMISSIONS AT ANTENNA TERMINAL



Test setup

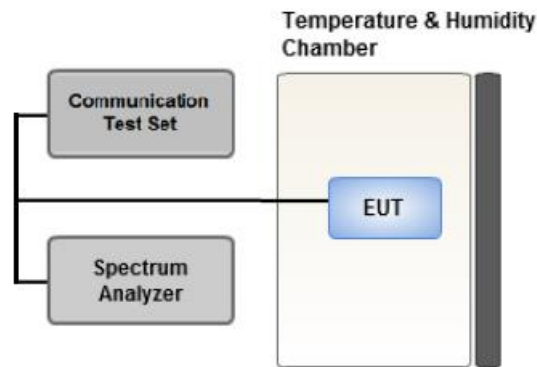
Test Overview

The level of the carrier and the various conducted spurious and harmonic frequencies is measured by means of a calibrated spectrum analyzer. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10th harmonic. All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies. All data rates were investigated to determine the worst case configuration. All modes of operation were investigated and the worst case configuration results are reported in this section.

Test Settings

1. RBW = 1 MHz
2. VBW $\geq$ 3 MHz
3. Detector = Peak
4. Trace Mode = max hold
5. Sweep time = auto
6. Number of points in sweep $\geq 2 * \text{Span} / \text{RBW}$

3.6 CHANNEL EDGE



Test setup

Test Overview

All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies. All data rates were investigated to determine the worst case configuration. All modes of operation were investigated and the worst case configuration results are reported in this section.

Test Settings

1. Start and stop frequency were set such that the band edge would be placed in the center of the plot
2. Span was set large enough so as to capture all out of band emissions near the band edge
3. Within 1MHz of the channel edge the RBW should be 2% of EBW, then 1 MHz after that.
4. VBW > 3 x RBW
5. Detector = RMS
6. Number of sweep points $\geq 2 \times \text{Span/RBW}$
7. Trace mode = trace average
8. Sweep time = auto couple
9. The trace was allowed to stabilize

Test Notes

1. The attenuation factor shall be not less than $40 + 10 \log (P)$ dB on all frequencies between the channel edge and 5 megahertz from the channel edge,
2. $43 + 10 \log (P)$ dB on all frequencies between 5 megahertz and X megahertz from the channel edge.
3. $55 + 10 \log (P)$ dB on all frequencies more than X megahertz from the channel edge.
4. The attenuation factor shall not be less than $43 + 10 \log (P)$ dB on all frequencies between 2490.5 MHz and 2496 MHz.
5. $55 + 10 \log (P)$ dB at or below 2490.5 MHz.
6. X is the greater of 6MHz or the actual emission bandwidth
7. The band edge measurement used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer

4. LIST OF TEST EQUIPMENT

Manufacture	Model/ Equipment	Serial Number	Calibration Date	Calibration Interval	Calibration Due
REOHDE & SCHWARZ	SCU 18 / AMPLIFIER	10094	04/16/2019	Annual	04/16/2020
Wainwright	WHK1.2/15G-10EF/H.P.F	4	04/02/2019	Annual	04/02/2020
Wainwright	WHK3.3/18G-10EF/H.P.F	2	04/02/2019	Annual	04/02/2020
Hewlett Packard	11667B / Power Splitter(DC~26.5 GHz)	11275	05/03/2019	Annual	05/03/2020
Agilent	E3632A/DC Power Supply	MY40004326	07/05/2018	Annual	07/05/2019
Schwarzbeck	UHAP/ Dipole Antenna	557	03/29/2019	Biennial	03/29/2021
Schwarzbeck	UHAP/ Dipole Antenna	558	03/29/2019	Biennial	03/29/2021
ESPEC	SU-642 / Chamber	93000718	08/07/2018	Annual	08/07/2019
Schwarzbeck	BBHA 9120D/ Horn Antenna(1~18GHz)	147	09/14/2018	Annual	09/14/2019
Schwarzbeck	BBHA 9120D/ Horn Antenna(1~18GHz)	9120D-1298	10/04/2018	Annual	10/04/2019
Schwarzbeck	BBHA 9170/ Horn Antenna(15~40GHz)	BBHA9170342	04/29/2019	Biennial	04/29/2021
Schwarzbeck	BBHA 9170/ Horn Antenna(15~40GHz)	BBHA9170124	01/28/2019	Biennial	01/28/2021
Agilent	N9020A/Signal Analyzer(10Hz~26.5GHz)	MY51110063	05/08/2019	Annual	05/08/2020
Hewlett Packard	8493C/ATTENUATOR(20dB)	17280	06/04/2019	Annual	06/04/2020
REOHDE & SCHWARZ	FSV40/Spectrum Analyzer(10Hz~40GHz)	100931	10/22/2018	Annual	10/22/2019
Agilent	8960 (E5515C)/ Base Station	MY48360800	09/27/2018	Annual	09/27/2019
Schwarzbeck	FMZB1513/ Loop Antenna(9kHz~30MHz)	1513-175	08/23/2018	Biennial	08/23/2020
Schwarzbeck	VULB9160/ Bilog Antenna	9160-3368	08/09/2018	Biennial	08/09/2020
Schwarzbeck	VULB9160/ Hybrid Antenna	760	03/22/2019	Biennial	03/22/2021
Anritsu Corp.	MT8821C/Wideband Radio Communication Tester	6201502997	08/13/2018	Annual	08/13/2019
Anritsu Corp.	MT8820C/Wideband Radio Communication Tester	6201026545	01/30/2019	Annual	01/30/2020
REOHDE & SCHWARZ	SMB100A/ SIGNAL GENERATOR (100kHz~40GHz)	177633	07/19/2018	Annual	07/19/2019
REOHDE & SCHWARZ	ESU40 / EMI TEST RECEIVER	100524	07/27/2018	Annual	07/27/2019
HCT CO., LTD.,	FCC LTE Mobile Conducted RF Automation Test Software	-	-	-	-

Note:

- Equipment listed above that has a calibration due date during the testing period, the testing is completed before equipment expiration date.

5. MEASUREMENT UNCERTAINTY

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI C63.4:2014.

All measurement uncertainty values are shown with a coverage factor of $k = 2$ to indicate a 95 % level of confidence. The measurement data shown herein meets or exceeds the U_{CISPR} measurement uncertainty values specified in CISPR 16-4-2 and, thus, can be compared directly to specified limits to determine compliance.

Parameter	Expanded Uncertainty ($\pm$ dB)
Conducted Disturbance (150 kHz ~ 30 MHz)	1.82
Radiated Disturbance (9 kHz ~ 30 MHz)	3.40
Radiated Disturbance (30 MHz ~ 1 GHz)	4.80
Radiated Disturbance (1 GHz ~ 18 GHz)	5.70
Radiated Disturbance (18 GHz ~ 40 GHz)	5.05

6. SUMMARY OF TEST RESULTS

6.1 Test Condition : Conducted Test

Test Description	FCC Part Section(s)	Test Limit	Test Result
Occupied Bandwidth	§ 2.1049	N/A	PASS
Band Edge / Spurious and Harmonic Emissions at Antenna Terminal.	§ 2.1051, § 27.53(m)(4)	■ $< 40 + 10\log_{10} (P[\text{Watts}])$ at Channel edges ■ $< 43 + 10\log_{10} (P[\text{Watts}])$ between 5 and X MHz from Channel edges ■ $< 55 + 10\log_{10} (P[\text{Watts}])$ beyond X MHz beyond from Channel edges ■ $< 43 + 10 \log (P)$ dB on all frequencies between 2490.5 MHz and 2496 MHz	PASS
Conducted Output Power	§ 2.1046	N/A	<u>See Note1</u>
Frequency stability / variation of ambient temperature	§ 2.1055, § 27.54	Emission must remain in band	PASS

Note:

1. See SAR Report
2. The same samples were used for SAR and EMC

6.2 Test Condition : Radiated Test

Test Description	FCC Part Section(s)	Test Limit	Test Result
Equivalent Isotropic Radiated Power	§ 27.50(h)(2)	< 2 Watts max. EIRP	PASS
Radiated Spurious and Harmonic Emissions	§ 2.1053, § 27.53(m)(4)	< 55 + 10log10 (P[Watts])	PASS

7. SAMPLE CALCULATION

7.1 ERP Sample Calculation

Ch./ Freq.		Measured Level(dBm)	Substitute Level(dBm)	Ant. Gain (dBd)	C.L	Pol.	ERP	
channel	Freq.(MHz)						W	dBm
128	824.20	-21.37	38.40	-10.61	0.95	H	0.483	26.84

$$\text{ERP} = \text{Substitute LEVEL(dBm)} + \text{Ant. Gain} - \text{CL(Cable Loss)}$$

- 1) The EUT mounted on a non-conductive turntable is 2.5 meter above test site ground level.
- 2) During the test , the turn table is rotated until the maximum signal is found.
- 3) Record the field strength meter's level.
- 4) Replace the EUT with dipole/Horn antenna that is connected to a calibrated signal generator.
- 5) Increase the signal generator output till the field strength meter's level is equal to the item (3).
- 6) The signal generator output level with Ant. Gain and cable loss are the rating of effective radiated power.

7.2 EIRP Sample Calculation

Ch./ Freq.		Measured Level(dBm)	Substitute Level(dBm)	Ant. Gain (dBi)	C.L	Pol.	EIRP	
channel	Freq.(MHz)						W	dBm
20175	1,732.50	-15.75	18.45	9.90	1.76	H	0.456	26.59

$$\text{EIRP} = \text{Substitute LEVEL(dBm)} + \text{Ant. Gain} - \text{CL(Cable Loss)}$$

- 1) The EUT mounted on a non-conductive turntable is 2.5 meter above test site ground level.
- 2) During the test , the turn table is rotated until the maximum signal is found.
- 3) Record the field strength meter's level.
- 4) Replace the EUT with dipole/Horn antenna that is connected to a calibrated signal generator.
- 5) Increase the signal generator output till the field strength meter's level is equal to the item (3).
- 6) The signal generator output level with Ant. Gain and cable loss are the rating of equivalent isotropic radiated power.

7.3. Emission Designator

GSM Emission Designator

Emission Designator = 249KGXW

GSM BW = 249 kHz

G = Phase Modulation

X = Cases not otherwise covered

W = Combination (Audio/Data)

EDGE Emission Designator

Emission Designator = 249KG7W

GSM BW = 249 kHz

G = Phase Modulation

7 = Quantized/Digital Info

W = Combination (Audio/Data)

WCDMA Emission Designator

Emission Designator = 4M17F9W

WCDMA BW = 4.17 MHz

F = Frequency Modulation

9 = Composite Digital Info

W = Combination (Audio/Data)

QPSK Modulation

Emission Designator = 4M48G7D

LTE BW = 4.48 MHz

G = Phase Modulation

7 = Quantized/Digital Info

D = Data transmission; telemetry; telecommand

16QAM Modulation

Emission Designator = 4M48W7D

LTE BW = 4.48 MHz

W = Amplitude/Angle Modulated

7 = Quantized/Digital Info

D = Data transmission; telemetry; telecommand

64QAM Modulation

Emission Designator = 4M48W7D

LTE BW = 4.48 MHz

W = Amplitude/Angle Modulated

7 = Quantized/Digital Info

D = Data transmission; telemetry; telecommand

8. TEST DATA

Test Overview

The EUT is set up to transmit two contiguous LTE channels. The power level of both carriers and the various conducted spurious and harmonic frequencies is measured by means of a calibrated spectrum analyzer. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10th harmonic. All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies. All data rates were investigated to determine the worst case configuration. All modes of operation were investigated and the worst case configuration results are reported in this section.

Test Note

1. All tests were evaluated for the two contiguous channels using various combinations of RB size, RB offset, modulation, and channel bandwidth.
2. Channel bandwidth is shown in the tables below based only on the channel bandwidths that were supported in this device.

Channel Bandwidth (PCC)	Channel Bandwidth (SCC)	Maximum aggregated bandwidth (MHz)
10	20	40
15	15, 20	40
20	10, 15, 20	40
5, 10	20	40
15	15, 20	40
20	5, 10, 15, 20	40
10	15, 20	40
15	10, 15, 20	40
20	10, 15, 20	40
10	20	40
20	20	40

3. All modes of operation were investigated and the worst case configuration results are reported in this section. Please refer to the table below.

- Worst case(Conducted Spurious Emissions, Channel Edge)

: We have selected higher of the Conduction Output Power.

- Worst case(Radiated Spurious Emissions) : We have selected higher of the EIRP.

- Worst case(OBW, PAR, Frequency stability)

: All modes of operation were investigated and the worst case configuration results are reported.

[Worst case]

Test Description	Mod	Operating frequency	PCC					SCC				
			BW (MHz)	Freq. (MHz)	Ch.	RB	RB Offset	BW (MHz)	Freq. (MHz)	Ch.	RB	RB Offset
Conducted Spurious Emissions	QPSK	Low	20	2506.0	39750	1	99	10	2520.4	39894	1	0
	QPSK	Mid	20	2593.0	40620	1	0	20	2573.2	40422	1	99
	QPSK	High	20	2680.0	41490	1	0	5	2668.3	41373	1	24
	QPSK	Low	20	2506.0	39750	1	0	10	2520.4	39894	1	49
	QPSK	Mid	20	2593.0	40620	1	99	20	2573.2	40422	1	0
	QPSK	High	20	2680.0	41490	1	99	5	2668.3	41373	1	0
	QPSK	Low	20	2506.0	39750	100	0	10	2520.4	39894	50	0
	QPSK	Mid	20	2593.0	40620	100	0	20	2573.2	40422	100	0
	QPSK	High	20	2680.0	41490	100	0	5	2668.3	41373	25	0
Channel Edge	QPSK	Low	20	2506.0	39750	1	99	10	2520.4	39894	1	0
	QPSK	Mid	20	2593.0	40620	1	0	20	2573.2	40422	1	99
	QPSK	High	20	2680.0	41490	1	0	5	2668.3	41373	1	24
	QPSK	Low	20	2506.0	39750	1	0	10	2520.4	39894	1	49
	QPSK	Mid	20	2593.0	40620	1	99	20	2573.2	40422	1	0
	QPSK	High	20	2680.0	41490	1	99	5	2668.3	41373	1	0
	QPSK	Low	20	2506.0	39750	100	0	10	2520.4	39894	50	0
	QPSK	Mid	20	2593.0	40620	100	0	20	2573.2	40422	100	0
	QPSK	High	20	2680.0	41490	100	0	5	2668.3	41373	25	0
Radiated Spurious Emissions	QPSK	Low	20	2506.0	39750	1	99	20	2525.8	39948	1	0
	QPSK	Mid	15	2593.0	40620	1	0	15	2578.0	40470	1	74
	QPSK	High	5	2687.5	41565	1	0	20	2675.8	41448	1	99

[Worst case]

Test Description	Mod	Operating frequency	PCC					SCC				
			BW (MHz)	Freq. (MHz)	Ch.	RB	RB Offset	BW (MHz)	Freq. (MHz)	Ch.	RB	RB Offset
Occupied Bandwidth, PAR	QPSK, 16QAM, 64QAM	Mid	5	2593.0	40620	25	0	20	2581.3	40503	100	0
			10	2593.0	40620	50	0	15	2581.0	40500	75	0
			10	2593.0	40620	50	0	20	2578.6	40476	100	0
			15	2593.0	40620	75	0	10	2581.0	40500	50	0
			15	2593.0	40620	75	0	15	2578.0	40470	75	0
			15	2593.0	40620	75	0	20	2575.9	40449	100	0
			20	2593.0	40620	100	0	5	2581.3	40503	25	0
			20	2593.0	40620	100	0	10	2578.6	40476	50	0
			20	2593.0	40620	100	0	15	2575.9	40449	75	0
			20	2593.0	40620	100	0	20	2573.2	40422	100	0
Frequency stability	QPSK	Low	5	2498.5	39675	25	0	20	2510.2	39792	100	0
			10	2501.0	39700	50	0	20	2515.4	39844	100	0
			15	2503.5	39725	75	0	15	2518.5	39875	75	0
			20	2506.0	39750	100	0	10	2520.4	39894	50	0
		High	5	2687.5	41565	25	0	20	2675.8	41448	100	0
			10	2685.0	41540	50	0	20	2670.6	41396	100	0
			15	2682.5	41515	75	0	15	2667.5	41365	75	0
			20	2680.0	41490	100	0	10	2665.6	41346	50	0

4. Of models SM-T727U and SM-T727P, we tested on SM-T727U model. And SM-T727U result is reported.

5. This report covers the models SM-T727U and SM-T727P.

These models are identical in hardware and the only difference is that the model SM-T727P does not support operations in all frequency bands and the some bands are disabled by software.

8.1 Conducted Power

Operating frequency	PCC					SCC					Conducted. Power [dBm]
	Band width [MHz]	Freq. (MHz)	Channel	RB	RB Offset	Band width [MHz]	Freq. (MHz)	Channel	RB	RB Offset	
Low	5	2498.5	39675	1	24	20	2510.2	39792	1	0	23.79
	10	2501	39700	1	49	15	2513	39820	1	0	23.83
	10	2501	39700	1	49	20	2515.4	39844	1	0	23.78
	15	2503.5	39725	1	74	10	2515.5	39845	1	0	23.91
	15	2503.5	39725	1	74	15	2518.5	39875	1	0	23.92
	15	2503.5	39725	1	74	20	2520.6	39896	1	0	23.84
	20	2506	39750	1	99	5	2517.7	39867	1	0	23.93
	20	2506	39750	1	99	10	2520.	39894	1	0	23.93
	20	2506	39750	1	99	15	2523.1	39921	1	0	23.91
	20	2506	39750	1	99	20	2525.8	39948	1	0	23.92
Mid	5	2593	40620	1	0	20	2581.3	40503	1	99	23.93
	10	2593	40620	1	0	15	2581	40500	1	74	23.95
	10	2593	40620	1	0	20	2578.6	40476	1	99	23.87
	15	2593	40620	1	0	10	2581	40500	1	49	23.89
	15	2593	40620	1	0	15	2578	40470	1	74	23.90
	15	2593	40620	1	0	20	2575.9	40449	1	99	23.90
	20	2593	40620	1	0	5	2581.3	40503	1	24	23.90
	20	2593	40620	1	0	10	2578.6	40476	1	49	23.88
	20	2593	40620	1	0	15	2575.9	40449	1	74	23.93
	20	2593	40620	1	0	20	2573.	40422	1	99	24.08
High	5	2687.5	41565	1	0	20	2675.8	41448	1	99	23.91
	10	2685	41540	1	0	15	2673	41420	1	74	23.99
	10	2685	41540	1	0	20	2670.6	41396	1	99	23.90
	15	2682.5	41515	1	0	10	2670.5	41395	1	49	24.02
	15	2682.5	41515	1	0	15	2667.5	41365	1	74	24.00
	15	2682.5	41515	1	0	20	2665.4	41344	1	99	23.93
	20	2680	41490	1	0	5	2668.	41373	1	24	24.04
	20	2680	41490	1	0	10	2665.6	41346	1	49	24.03
	20	2680	41490	1	0	15	2662.9	41319	1	74	24.01
	20	2680	41490	1	0	20	2660.2	41292	1	99	24.01

Note:

Modulation : QPSK(1RB)

Operating frequency	PCC					SCC					Conducted. Power [dBm]
	Band width [MHz]	Freq. (MHz)	Channel	RB	RB Offset	Band width [MHz]	Freq. (MHz)	Channel	RB	RB Offset	
Low	5	2498.5	39675	25	0	20	2510.2	39792	100	0	22.05
	10	2501	39700	50	0	15	2513	39820	75	0	22.14
	10	2501	39700	50	0	20	2515.4	39844	100	0	22.09
	15	2503.5	39725	75	0	10	2515.5	39845	50	0	22.14
	15	2503.5	39725	75	0	15	2518.5	39875	75	0	22.11
	15	2503.5	39725	75	0	20	2520.6	39896	100	0	22.08
	20	2506	39750	100	0	5	2517.7	39867	25	0	22.18
	20	2506	39750	100	0	10	2520.	39894	50	0	22.19
	20	2506	39750	100	0	15	2523.1	39921	75	0	22.12
	20	2506	39750	100	0	20	2525.8	39948	100	0	22.11
Mid	5	2593	40620	25	0	20	2581.3	40503	100	0	22.19
	10	2593	40620	50	0	15	2581	40500	75	0	22.23
	10	2593	40620	50	0	20	2578.6	40476	100	0	22.19
	15	2593	40620	75	0	10	2581	40500	50	0	22.24
	15	2593	40620	75	0	15	2578	40470	75	0	22.19
	15	2593	40620	75	0	20	2575.9	40449	100	0	22.20
	20	2593	40620	100	0	5	2581.3	40503	25	0	22.23
	20	2593	40620	100	0	10	2578.6	40476	50	0	22.24
	20	2593	40620	100	0	15	2575.9	40449	75	0	22.22
	20	2593	40620	100	0	20	2573.	40422	100	0	22.25
High	5	2687.5	41565	25	0	20	2675.8	41448	100	0	22.00
	10	2685	41540	50	0	15	2673	41420	75	0	22.14
	10	2685	41540	50	0	20	2670.6	41396	100	0	22.06
	15	2682.5	41515	75	0	10	2670.5	41395	50	0	22.18
	15	2682.5	41515	75	0	15	2667.5	41365	75	0	22.10
	15	2682.5	41515	75	0	20	2665.4	41344	100	0	22.05
	20	2680	41490	100	0	5	2668.	41373	25	0	22.20
	20	2680	41490	100	0	10	2665.6	41346	50	0	22.19
	20	2680	41490	100	0	15	2662.9	41319	75	0	22.16
	20	2680	41490	100	0	20	2660.2	41292	100	0	22.13

Note:

Modulation : QPSK(Full RB)

Operating frequency	PCC					SCC					Conducted. Power [dBm]
	Band width [MHz]	Freq. (MHz)	Chann el	RB	RB Offset	Band width [MHz]	Freq. (MHz)	Chann el	RB	RB Offset	
Low	5	2498.5	39675	1	24	20	2510.2	39792	1	0	23.14
	10	2501	39700	1	49	15	2513	39820	1	0	23.20
	10	2501	39700	1	49	20	2515.4	39844	1	0	23.12
	15	2503.5	39725	1	74	10	2515.5	39845	1	0	23.21
	15	2503.5	39725	1	74	15	2518.5	39875	1	0	23.24
	15	2503.5	39725	1	74	20	2520.6	39896	1	0	23.16
	20	2506	39750	1	99	5	2517.7	39867	1	0	23.28
	20	2506	39750	1	99	10	2520.	39894	1	0	23.28
	20	2506	39750	1	99	15	2523.1	39921	1	0	23.27
	20	2506	39750	1	99	20	2525.8	39948	1	0	23.24
Mid	5	2593	40620	1	0	20	2581.3	40503	1	99	23.26
	10	2593	40620	1	0	15	2581	40500	1	74	23.29
	10	2593	40620	1	0	20	2578.6	40476	1	99	23.26
	15	2593	40620	1	0	10	2581	40500	1	49	23.27
	15	2593	40620	1	0	15	2578	40470	1	74	23.24
	15	2593	40620	1	0	20	2575.9	40449	1	99	23.26
	20	2593	40620	1	0	5	2581.3	40503	1	24	23.24
	20	2593	40620	1	0	10	2578.6	40476	1	49	23.26
	20	2593	40620	1	0	15	2575.9	40449	1	74	23.26
	20	2593	40620	1	0	20	2573.	40422	1	99	23.43
High	5	2687.5	41565	1	0	20	2675.8	41448	1	99	23.27
	10	2685	41540	1	0	15	2673	41420	1	74	23.34
	10	2685	41540	1	0	20	2670.6	41396	1	99	23.27
	15	2682.5	41515	1	0	10	2670.5	41395	1	49	23.38
	15	2682.5	41515	1	0	15	2667.5	41365	1	74	23.30
	15	2682.5	41515	1	0	20	2665.4	41344	1	99	23.30
	20	2680	41490	1	0	5	2668.	41373	1	24	23.40
	20	2680	41490	1	0	10	2665.6	41346	1	49	23.34
	20	2680	41490	1	0	15	2662.9	41319	1	74	23.37
	20	2680	41490	1	0	20	2660.2	41292	1	99	23.31

Note:

Modulation : 16QAM(1RB)

Operating frequency	PCC					SCC					Conducted. Power [dBm]
	Band width [MHz]	Freq. (MHz)	Channel	RB	RB Offset	Band width [MHz]	Freq. (MHz)	Channel	RB	RB Offset	
Low	5	2498.5	39675	25	0	20	2510.2	39792	100	0	21.03
	10	2501	39700	50	0	15	2513	39820	75	0	21.10
	10	2501	39700	50	0	20	2515.4	39844	100	0	21.05
	15	2503.5	39725	75	0	10	2515.5	39845	50	0	21.09
	15	2503.5	39725	75	0	15	2518.5	39875	75	0	21.07
	15	2503.5	39725	75	0	20	2520.6	39896	100	0	21.02
	20	2506	39750	100	0	5	2517.7	39867	25	0	21.16
	20	2506	39750	100	0	10	2520.	39894	50	0	21.18
	20	2506	39750	100	0	15	2523.1	39921	75	0	21.04
	20	2506	39750	100	0	20	2525.8	39948	100	0	21.09
Mid	5	2593	40620	25	0	20	2581.3	40503	100	0	21.13
	10	2593	40620	50	0	15	2581	40500	75	0	21.14
	10	2593	40620	50	0	20	2578.6	40476	100	0	21.17
	15	2593	40620	75	0	10	2581	40500	50	0	21.22
	15	2593	40620	75	0	15	2578	40470	75	0	21.14
	15	2593	40620	75	0	20	2575.9	40449	100	0	21.13
	20	2593	40620	100	0	5	2581.3	40503	25	0	21.19
	20	2593	40620	100	0	10	2578.6	40476	50	0	21.21
	20	2593	40620	100	0	15	2575.9	40449	75	0	21.18
	20	2593	40620	100	0	20	2573.	40422	100	0	21.22
High	5	2687.5	41565	25	0	20	2675.8	41448	100	0	21.03
	10	2685	41540	50	0	15	2673	41420	75	0	21.10
	10	2685	41540	50	0	20	2670.6	41396	100	0	21.04
	15	2682.5	41515	75	0	10	2670.5	41395	50	0	21.14
	15	2682.5	41515	75	0	15	2667.5	41365	75	0	21.05
	15	2682.5	41515	75	0	20	2665.4	41344	100	0	21.07
	20	2680	41490	100	0	5	2668.	41373	25	0	21.15
	20	2680	41490	100	0	10	2665.6	41346	50	0	21.14
	20	2680	41490	100	0	15	2662.9	41319	75	0	21.13
	20	2680	41490	100	0	20	2660.2	41292	100	0	21.08

Note:

Modulation : 16QAM(Full RB)

Operating frequency	PCC					SCC					Conducted. Power [dBm]
	Band width [MHz]	Freq. (MHz)	Chann el	RB	RB Offset	Band width [MHz]	Freq. (MHz)	Chann el	RB	RB Offset	
Low	5	2498.5	39675	1	24	20	2510.2	39792	1	0	21.26
	10	2501	39700	1	49	15	2513	39820	1	0	21.33
	10	2501	39700	1	49	20	2515.4	39844	1	0	21.21
	15	2503.5	39725	1	74	10	2515.5	39845	1	0	21.41
	15	2503.5	39725	1	74	15	2518.5	39875	1	0	21.39
	15	2503.5	39725	1	74	20	2520.6	39896	1	0	21.27
	20	2506	39750	1	99	5	2517.7	39867	1	0	21.40
	20	2506	39750	1	99	10	2520.	39894	1	0	21.40
	20	2506	39750	1	99	15	2523.1	39921	1	0	21.35
	20	2506	39750	1	99	20	2525.8	39948	1	0	21.33
Mid	5	2593	40620	1	0	20	2581.3	40503	1	99	21.37
	10	2593	40620	1	0	15	2581	40500	1	74	21.41
	10	2593	40620	1	0	20	2578.6	40476	1	99	21.32
	15	2593	40620	1	0	10	2581	40500	1	49	21.32
	15	2593	40620	1	0	15	2578	40470	1	74	21.38
	15	2593	40620	1	0	20	2575.9	40449	1	99	21.35
	20	2593	40620	1	0	5	2581.3	40503	1	24	21.33
	20	2593	40620	1	0	10	2578.6	40476	1	49	21.37
	20	2593	40620	1	0	15	2575.9	40449	1	74	21.40
	20	2593	40620	1	0	20	2573.	40422	1	99	21.53
High	5	2687.5	41565	1	0	20	2675.8	41448	1	99	21.39
	10	2685	41540	1	0	15	2673	41420	1	74	21.40
	10	2685	41540	1	0	20	2670.6	41396	1	99	21.31
	15	2682.5	41515	1	0	10	2670.5	41395	1	49	21.48
	15	2682.5	41515	1	0	15	2667.5	41365	1	74	21.47
	15	2682.5	41515	1	0	20	2665.4	41344	1	99	21.33
	20	2680	41490	1	0	5	2668.	41373	1	24	21.45
	20	2680	41490	1	0	10	2665.6	41346	1	49	21.42
	20	2680	41490	1	0	15	2662.9	41319	1	74	21.43
	20	2680	41490	1	0	20	2660.2	41292	1	99	21.50

Note:

Modulation : 64QAM(1RB)

Operating frequency	PCC					SCC					Conducted. Power [dBm]
	Band width [MHz]	Freq. (MHz)	Channel	RB	RB Offset	Band width [MHz]	Freq. (MHz)	Channel	RB	RB Offset	
Low	5	2498.5	39675	25	0	20	2510.2	39792	100	0	20.69
	10	2501	39700	50	0	15	2513	39820	75	0	20.76
	10	2501	39700	50	0	20	2515.4	39844	100	0	20.70
	15	2503.5	39725	75	0	10	2515.5	39845	50	0	20.78
	15	2503.5	39725	75	0	15	2518.5	39875	75	0	20.72
	15	2503.5	39725	75	0	20	2520.6	39896	100	0	20.75
	20	2506	39750	100	0	5	2517.7	39867	25	0	20.75
	20	2506	39750	100	0	10	2520.	39894	50	0	20.80
	20	2506	39750	100	0	15	2523.1	39921	75	0	20.73
	20	2506	39750	100	0	20	2525.8	39948	100	0	20.78
Mid	5	2593	40620	25	0	20	2581.3	40503	100	0	20.80
	10	2593	40620	50	0	15	2581	40500	75	0	20.85
	10	2593	40620	50	0	20	2578.6	40476	100	0	20.88
	15	2593	40620	75	0	10	2581	40500	50	0	20.90
	15	2593	40620	75	0	15	2578	40470	75	0	20.81
	15	2593	40620	75	0	20	2575.9	40449	100	0	20.85
	20	2593	40620	100	0	5	2581.3	40503	25	0	20.86
	20	2593	40620	100	0	10	2578.6	40476	50	0	20.86
	20	2593	40620	100	0	15	2575.9	40449	75	0	20.90
	20	2593	40620	100	0	20	2573.	40422	100	0	20.93
High	5	2687.5	41565	25	0	20	2675.8	41448	100	0	20.67
	10	2685	41540	50	0	15	2673	41420	75	0	20.83
	10	2685	41540	50	0	20	2670.6	41396	100	0	20.72
	15	2682.5	41515	75	0	10	2670.5	41395	50	0	20.82
	15	2682.5	41515	75	0	15	2667.5	41365	75	0	20.70
	15	2682.5	41515	75	0	20	2665.4	41344	100	0	20.68
	20	2680	41490	100	0	5	2668.	41373	25	0	20.88
	20	2680	41490	100	0	10	2665.6	41346	50	0	20.87
	20	2680	41490	100	0	15	2662.9	41319	75	0	20.77
	20	2680	41490	100	0	20	2660.2	41292	100	0	20.79

Note:

Modulation : 64QAM(Full RB)

8.2 Equivalent Isotropic Radiated Power

	PCC			SCC			Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain (dBi)	C.L	Pol.	E.I.R.P	
	BW [MHz]	Freq. (MHz)	RB/ Offset	BW [MHz]	Freq. (MHz)	RB/ Offset						W	dBm
Low	5	2498.5	1/24	20	2510.2	1/0	-19.41	15.23	10.98	1.60	H	0.29	24.61
	10	2501	1/49	15	2513	1/0	-19.37	15.27	10.98	1.60	H	0.29	24.65
	10	2501	1/49	20	2515.4	1/0	-19.35	15.29	10.98	1.60	H	0.29	24.67
	15	2503.5	1/74	10	2515.5	1/0	-19.30	15.27	10.98	1.61	H	0.29	24.64
	15	2503.5	1/74	15	2518.5	1/0	-19.29	15.28	10.98	1.61	H	0.29	24.65
	15	2503.5	1/74	20	2520.6	1/0	-19.32	15.25	10.98	1.61	H	0.29	24.62
	20	2506	1/99	5	2517.7	1/0	-19.34	15.23	10.98	1.61	H	0.29	24.60
	20	2506	1/99	10	2520.	1/0	-19.30	15.27	10.98	1.61	H	0.29	24.64
	20	2506	1/99	15	2523.1	1/0	-19.34	15.23	10.98	1.61	H	0.29	24.60
	20	2506	1/99	20	2525.8	1/0	-19.26	15.31	10.98	1.61	H	0.29	24.68
Mid	5	2593	1/0	20	2581.3	1/99	-18.78	15.97	11.06	1.63	H	0.35	25.40
	10	2593	1/0	15	2581	1/74	-18.65	16.10	11.06	1.63	H	0.36	25.53
	10	2593	1/0	20	2578.6	1/99	-18.62	16.13	11.06	1.63	H	0.36	25.56
	15	2593	1/0	10	2581	1/49	-18.54	16.21	11.06	1.63	H	0.37	25.64
	15	2593	1/0	15	2578	1/74	-18.52	16.23	11.06	1.63	H	0.37	25.66
	15	2593	1/0	20	2575.9	1/99	-18.54	16.21	11.06	1.63	H	0.37	25.64
	20	2593	1/0	5	2581.3	1/24	-18.94	15.81	11.06	1.63	H	0.33	25.24
	20	2593	1/0	10	2578.6	1/49	-18.96	15.79	11.06	1.63	H	0.33	25.22
	20	2593	1/0	15	2575.9	1/74	-18.96	15.79	11.06	1.63	H	0.33	25.22
	20	2593	1/0	20	2573.	1/99	-18.91	15.84	11.06	1.63	H	0.34	25.27
High	5	2687.5	1/0	20	2675.8	1/99	-19.71	15.58	11.15	1.65	H	0.32	25.08
	10	2685	1/0	15	2673	1/74	-19.82	15.34	11.15	1.65	H	0.30	24.84
	10	2685	1/0	20	2670.6	1/99	-19.81	15.35	11.15	1.65	H	0.31	24.85
	15	2682.5	1/0	10	2670.5	1/49	-20.34	14.69	11.15	1.64	H	0.26	24.20
	15	2682.5	1/0	15	2667.5	1/74	-20.31	14.72	11.15	1.64	H	0.26	24.23
	15	2682.5	1/0	20	2665.4	1/99	-20.33	14.70	11.15	1.64	H	0.26	24.21
	20	2680	1/0	5	2668.	1/24	-20.31	14.72	11.15	1.64	H	0.26	24.23
	20	2680	1/0	10	2665.6	1/49	-20.31	14.72	11.15	1.64	H	0.26	24.23
	20	2680	1/0	15	2662.9	1/74	-20.30	14.73	11.15	1.64	H	0.27	24.24
	20	2680	1/0	20	2660.2	1/99	-20.33	14.70	11.15	1.64	H	0.26	24.21

Note:

1. Modulation : QPSK
2. Limit : < 2 Watts

	PCC			SCC			Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain (dBi)	C.L	Pol.	E.I.R.P	
	BW [MHz]	Freq. (MHz)	RB/ Offset	BW [MHz]	Freq. (MHz)	RB/ Offset						W	dBm
Low	5	2498.5	1/24	20	2510.2	1/0	-20.03	14.61	10.98	1.60	H	0.25	23.99
	10	2501	1/49	15	2513	1/0	-19.99	14.65	10.98	1.60	H	0.25	24.03
	10	2501	1/49	20	2515.4	1/0	-19.95	14.69	10.98	1.60	H	0.26	24.07
	15	2503.5	1/74	10	2515.5	1/0	-19.92	14.65	10.98	1.61	H	0.25	24.02
	15	2503.5	1/74	15	2518.5	1/0	-19.91	14.66	10.98	1.61	H	0.25	24.03
	15	2503.5	1/74	20	2520.6	1/0	-19.94	14.63	10.98	1.61	H	0.25	24.00
	20	2506	1/99	5	2517.7	1/0	-19.91	14.66	10.98	1.61	H	0.25	24.03
	20	2506	1/99	10	2520.	1/0	-19.94	14.63	10.98	1.61	H	0.25	24.00
	20	2506	1/99	15	2523.1	1/0	-19.91	14.66	10.98	1.61	H	0.25	24.03
	20	2506	1/99	20	2525.8	1/0	-19.92	14.65	10.98	1.61	H	0.25	24.02
Mid	5	2593	1/0	20	2581.3	1/99	-19.45	15.30	11.06	1.63	H	0.30	24.73
	10	2593	1/0	15	2581	1/74	-19.24	15.51	11.06	1.63	H	0.31	24.94
	10	2593	1/0	20	2578.6	1/99	-19.24	15.51	11.06	1.63	H	0.31	24.94
	15	2593	1/0	10	2581	1/49	-19.17	15.58	11.06	1.63	H	0.32	25.01
	15	2593	1/0	15	2578	1/74	-19.13	15.62	11.06	1.63	H	0.32	25.05
	15	2593	1/0	20	2575.9	1/99	-19.18	15.57	11.06	1.63	H	0.32	25.00
	20	2593	1/0	5	2581.3	1/24	-19.57	15.18	11.06	1.63	H	0.29	24.61
	20	2593	1/0	10	2578.6	1/49	-19.58	15.17	11.06	1.63	H	0.29	24.60
	20	2593	1/0	15	2575.9	1/74	-19.57	15.18	11.06	1.63	H	0.29	24.61
	20	2593	1/0	20	2573.	1/99	-19.53	15.22	11.06	1.63	H	0.29	24.65
High	5	2687.5	1/0	20	2675.8	1/99	-20.37	14.92	11.15	1.65	H	0.28	24.42
	10	2685	1/0	15	2673	1/74	-20.53	14.63	11.15	1.65	H	0.26	24.13
	10	2685	1/0	20	2670.6	1/99	-20.51	14.65	11.15	1.65	H	0.26	24.15
	15	2682.5	1/0	10	2670.5	1/49	-21.06	13.97	11.15	1.64	H	0.22	23.48
	15	2682.5	1/0	15	2667.5	1/74	-21.05	13.98	11.15	1.64	H	0.22	23.49
	15	2682.5	1/0	20	2665.4	1/99	-21.01	14.02	11.15	1.64	H	0.23	23.53
	20	2680	1/0	5	2668.	1/24	-20.97	14.06	11.15	1.64	H	0.23	23.57
	20	2680	1/0	10	2665.6	1/49	-20.96	14.07	11.15	1.64	H	0.23	23.58
	20	2680	1/0	15	2662.9	1/74	-20.97	14.06	11.15	1.64	H	0.23	23.57
	20	2680	1/0	20	2660.2	1/99	-20.98	14.05	11.15	1.64	H	0.23	23.56

Note:

1. Modulation : 16QAM

2. Limit : < 2 Watts

	PCC			SCC			Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain (dBi)	C.L	Pol.	E.I.R.P	
	BW [MHz]	Freq. (MHz)	RB/ Offset	BW [MHz]	Freq. (MHz)	RB/ Offset						W	dBm
Low	5	2498.5	1/24	20	2510.2	1/0	-21.15	13.49	10.98	1.60	H	0.19	22.87
	10	2501	1/49	15	2513	1/0	-21.17	13.47	10.98	1.60	H	0.19	22.85
	10	2501	1/49	20	2515.4	1/0	-21.16	13.48	10.98	1.60	H	0.19	22.86
	15	2503.5	1/74	10	2515.5	1/0	-21.08	13.49	10.98	1.61	H	0.19	22.86
	15	2503.5	1/74	15	2518.5	1/0	-21.05	13.52	10.98	1.61	H	0.19	22.89
	15	2503.5	1/74	20	2520.6	1/0	-21.10	13.47	10.98	1.61	H	0.19	22.84
	20	2506	1/99	5	2517.7	1/0	-21.07	13.50	10.98	1.61	H	0.19	22.87
	20	2506	1/99	10	2520.	1/0	-21.13	13.44	10.98	1.61	H	0.19	22.81
	20	2506	1/99	15	2523.1	1/0	-21.07	13.50	10.98	1.61	H	0.19	22.87
	20	2506	1/99	20	2525.8	1/0	-21.12	13.45	10.98	1.61	H	0.19	22.82
Mid	5	2593	1/0	20	2581.3	1/99	-20.55	14.20	11.06	1.63	H	0.23	23.63
	10	2593	1/0	15	2581	1/74	-20.46	14.29	11.06	1.63	H	0.24	23.72
	10	2593	1/0	20	2578.6	1/99	-20.54	14.21	11.06	1.63	H	0.23	23.64
	15	2593	1/0	10	2581	1/49	-20.28	14.47	11.06	1.63	H	0.25	23.90
	15	2593	1/0	15	2578	1/74	-20.30	14.45	11.06	1.63	H	0.24	23.88
	15	2593	1/0	20	2575.9	1/99	-20.33	14.42	11.06	1.63	H	0.24	23.85
	20	2593	1/0	5	2581.3	1/24	-20.70	14.05	11.06	1.63	H	0.22	23.48
	20	2593	1/0	10	2578.6	1/49	-20.73	14.02	11.06	1.63	H	0.22	23.45
	20	2593	1/0	15	2575.9	1/74	-21.72	13.03	11.06	1.63	H	0.18	22.46
	20	2593	1/0	20	2573.	1/99	-20.71	14.04	11.06	1.63	H	0.22	23.47
High	5	2687.5	1/0	20	2675.8	1/99	-21.45	13.84	11.15	1.65	H	0.22	23.34
	10	2685	1/0	15	2673	1/74	-21.62	13.54	11.15	1.65	H	0.20	23.04
	10	2685	1/0	20	2670.6	1/99	-21.62	13.54	11.15	1.65	H	0.20	23.04
	15	2682.5	1/0	10	2670.5	1/49	-22.12	12.91	11.15	1.64	H	0.17	22.42
	15	2682.5	1/0	15	2667.5	1/74	-22.12	12.91	11.15	1.64	H	0.17	22.42
	15	2682.5	1/0	20	2665.4	1/99	-22.10	12.93	11.15	1.64	H	0.18	22.44
	20	2680	1/0	5	2668.	1/24	-22.12	12.91	11.15	1.64	H	0.17	22.42
	20	2680	1/0	10	2665.6	1/49	-22.06	12.97	11.15	1.64	H	0.18	22.48
	20	2680	1/0	15	2662.9	1/74	-22.12	12.91	11.15	1.64	H	0.17	22.42
	20	2680	1/0	20	2660.2	1/99	-22.08	12.95	11.15	1.64	H	0.18	22.46

Note:

1. Modulation : 64QAM

2. Limit : < 2 Watts

8.3 Conducted Spurious Emissions

Operating frequency	PCC				SCC				Measurement Maximum Frequency (GHz)	Factor (dB)	Measurement Maximum Data (dBm)	Result (dBm)
	BW [MHz]	Ch.	Freq. (MHz)	RB/ Offset	BW [MHz]	Ch.	Freq. (MHz)	RB/ Offset				
Low	20	39750	2506	1/99	10	39894	2520.4	1/0	3.1745	27.98	-60.96	-32.98
Mid	20	40620	2593	1/0	20	40422	2573.2	1/99	3.6960	27.98	-60.48	-32.50
High	20	41490	2680	1/0	5	41373	2668.3	1/24	3.6955	27.98	-61.31	-33.33
Low	20	39750	2506	1/0	10	39894	2520.4	1/49	3.1740	28.59	-61.52	-32.93
Mid	20	40620	2593	1/99	20	40422	2573.2	1/0	3.6780	27.98	-61.62	-33.64
High	20	41490	2680	1/99	5	41373	2668.3	1/0	3.6631	27.98	-61.63	-33.65
Low	20	39750	2506	100/0	10	39894	2520.4	1/0	5.4223	28.59	-61.82	-33.23
Mid	20	40620	2593	100/0	20	40422	2573.2	1/0	3.6686	27.98	-61.56	-33.58
High	20	41490	2680	100/0	5	41373	2668.3	1/0	3.6875	27.98	-61.41	-33.44

Note:

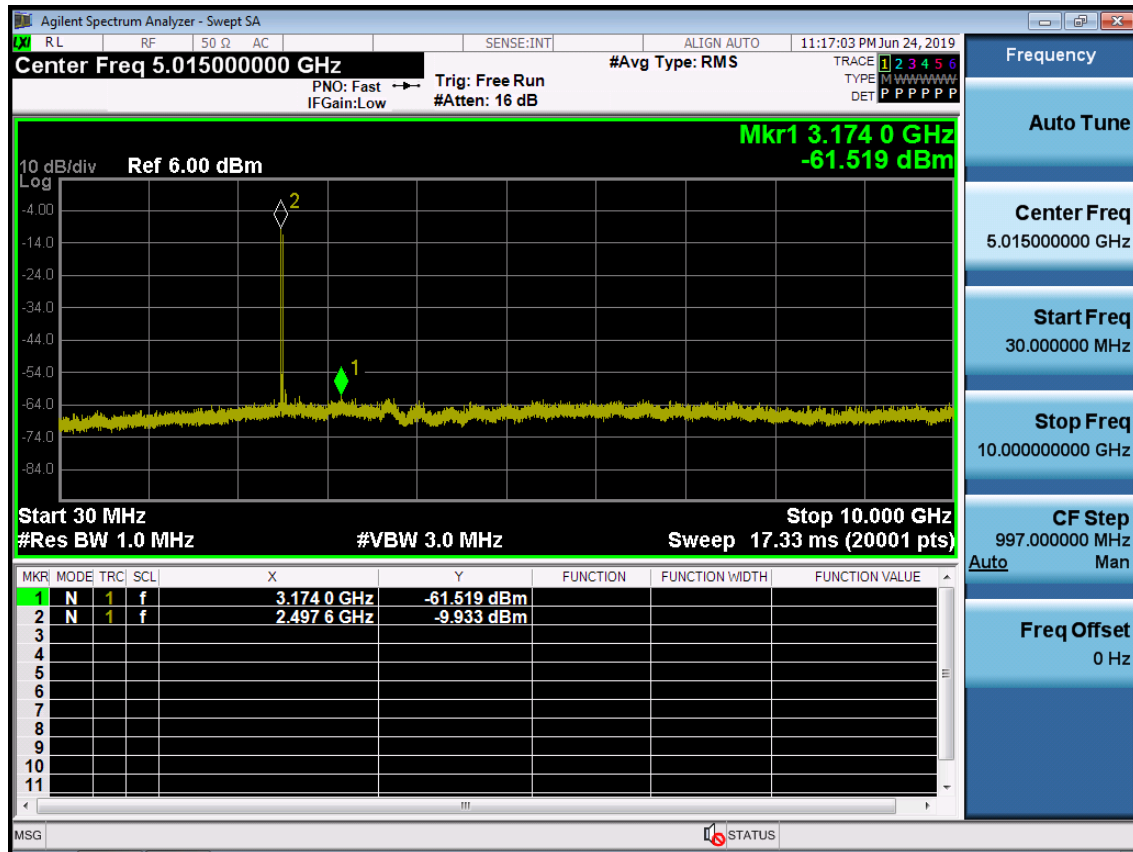
1. Modulation : QPSK
2. Factor(dB) = Cable Loss + Ext. Attenuator + Power Splitter
3. Factors for frequency :

Frequency Range (GHz)	Factor [dB]
0.03 – 1	25.270
1 – 5	27.976
5 – 10	28.591
10 – 15	29.116
15 – 20	29.489
Above 20(26.5)	30.131

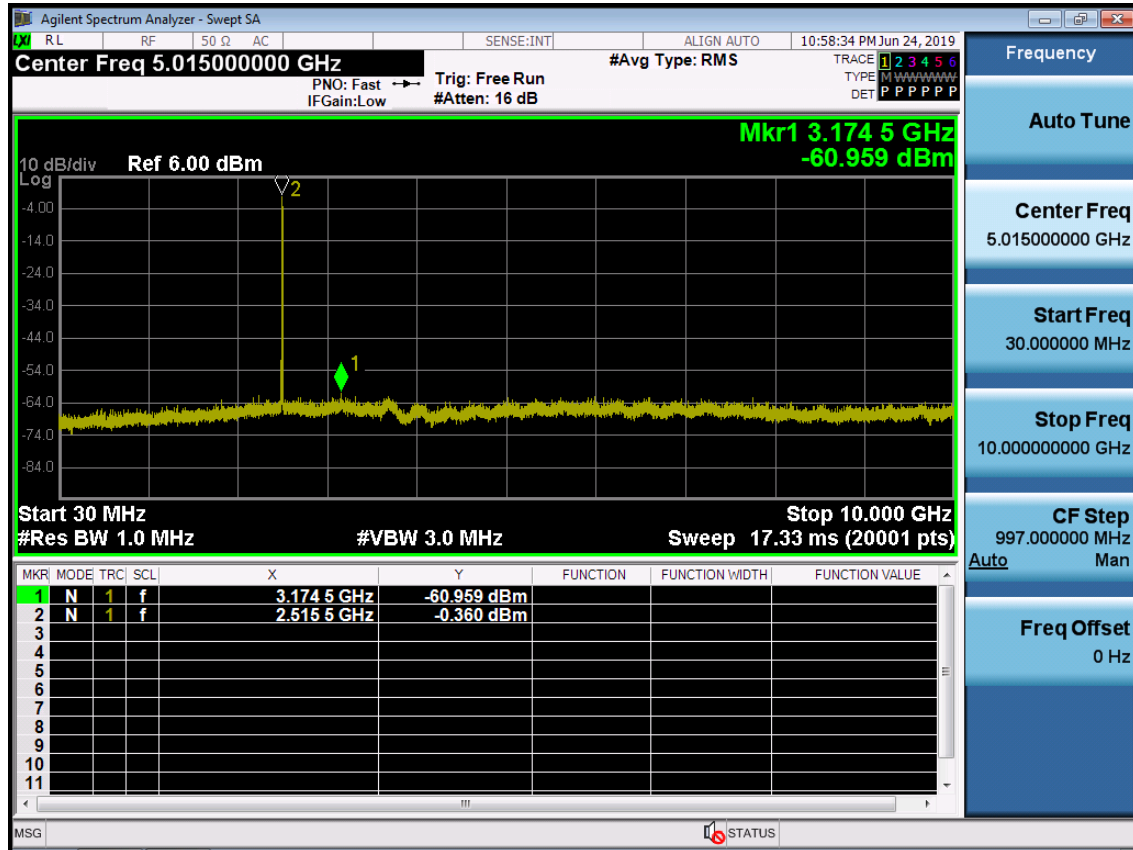
4. Limit : -25.0 dBm

Frequency Range : 30MHz ~ 10GHz

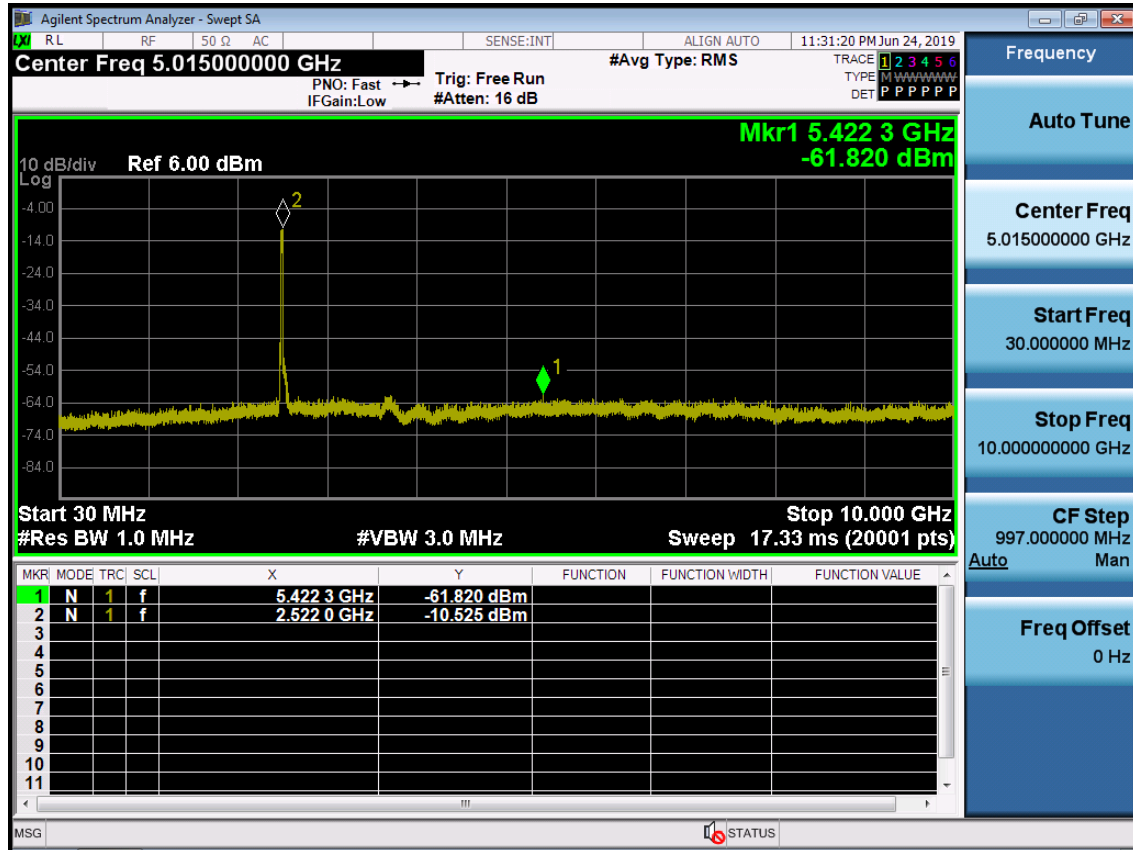
PCC 20MHz Ch39750 RB1 Offset0 SCC 10MHz Ch39894 RB1 Offset49



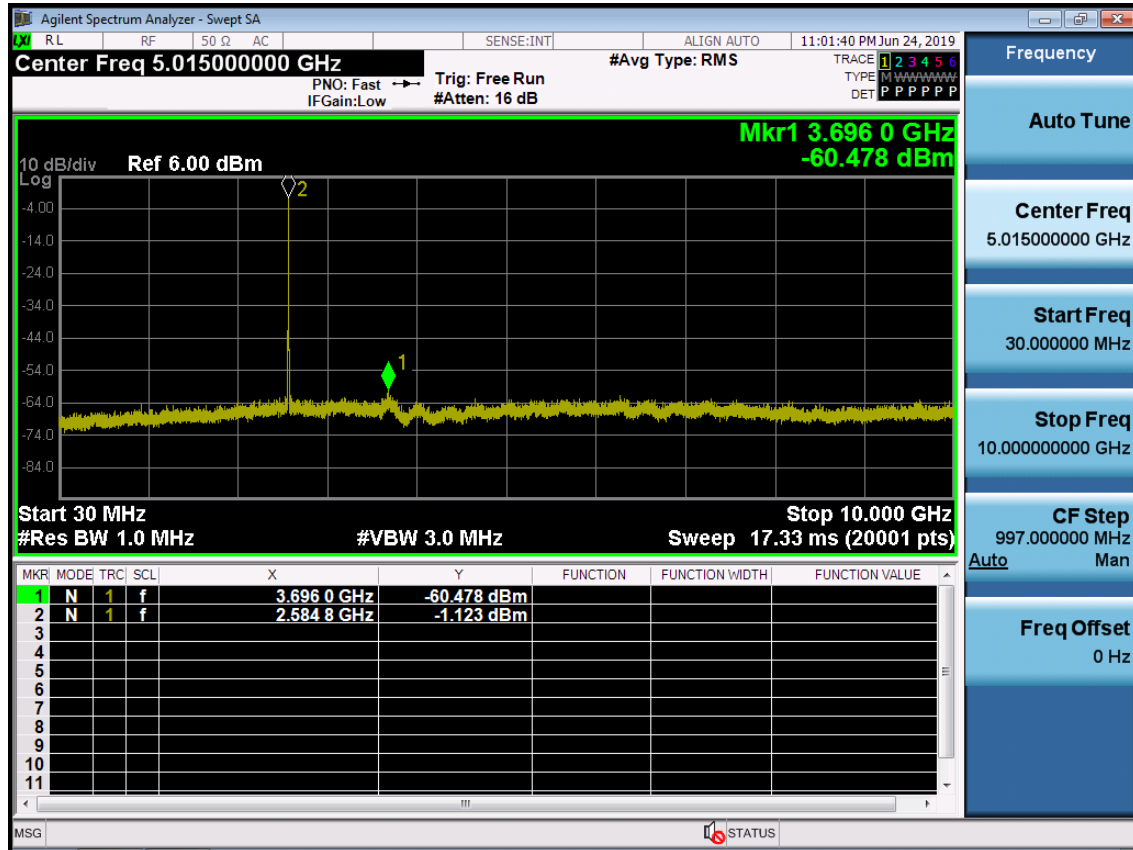
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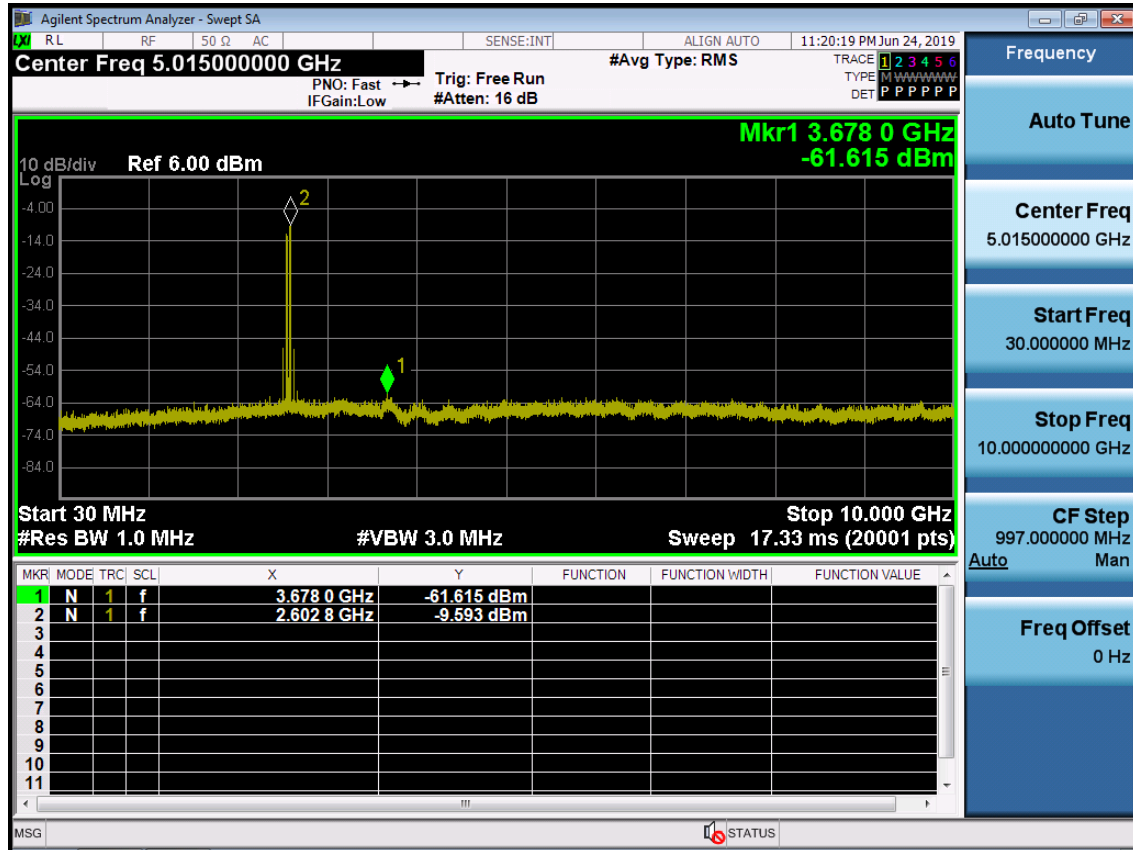
PCC 20MHz Ch39750 RB100 Offset0 SCC 10MHz Ch39894 RB50 Offset0



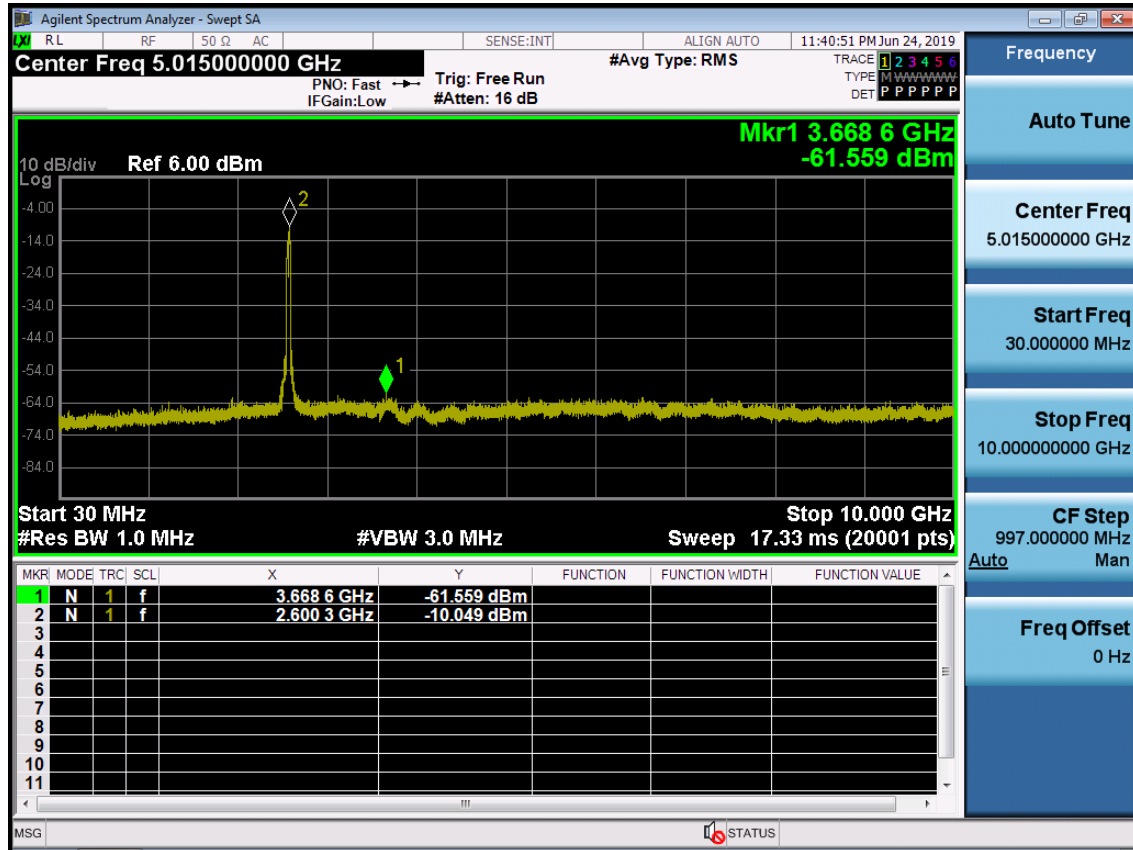
PCC 20MHz Ch40620 RB1 Offset0 SCC 20MHz Ch40422 RB1 Offset99



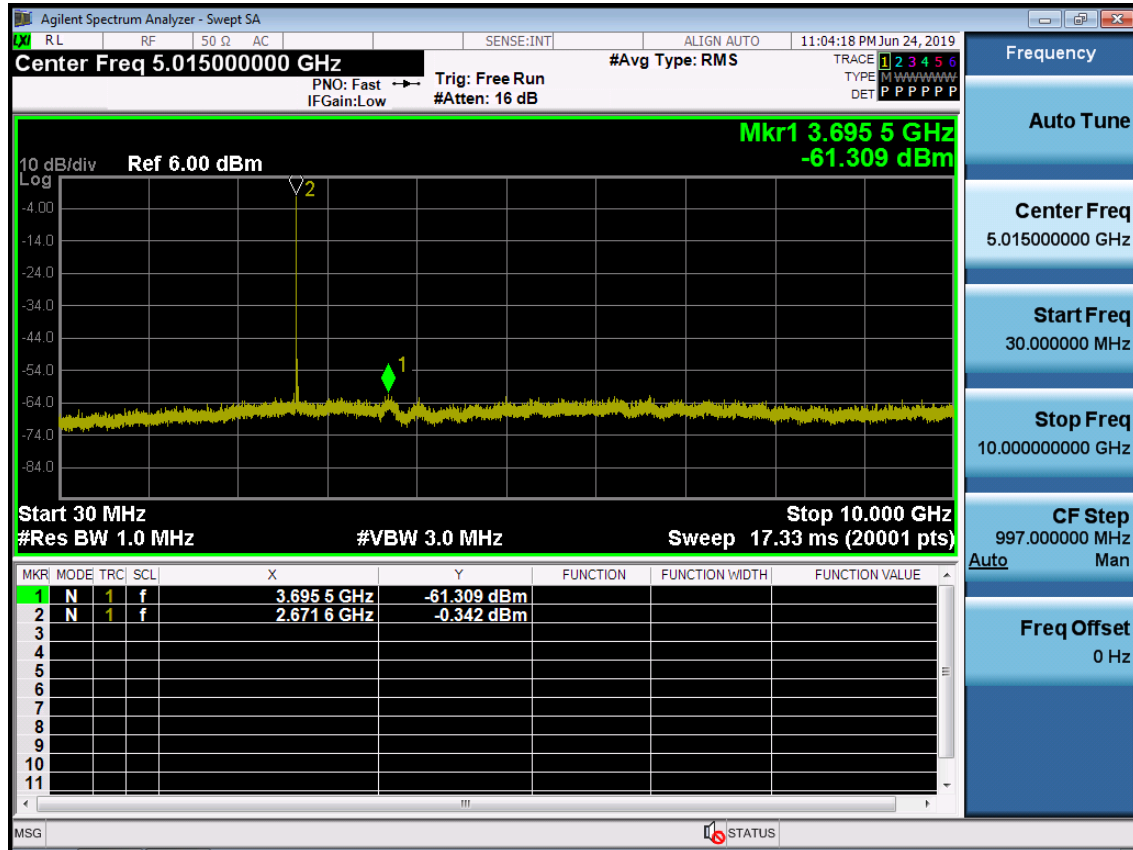
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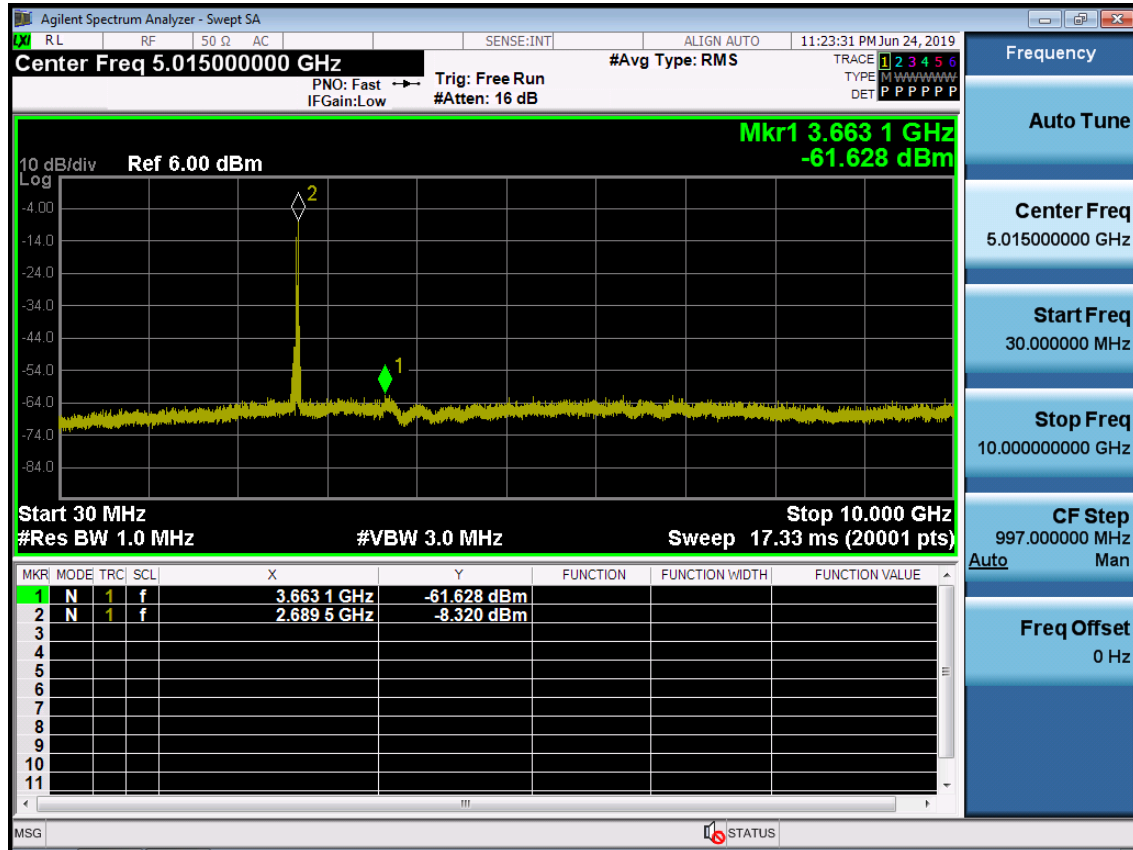
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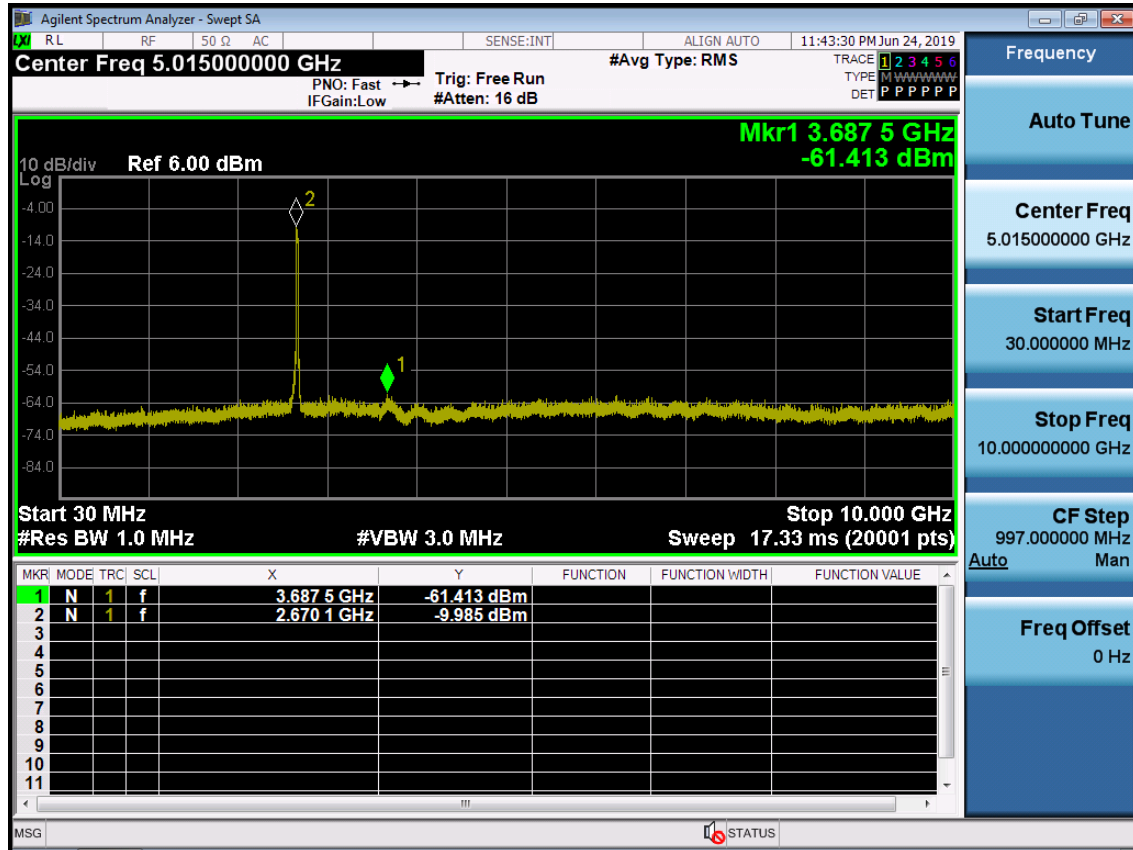
PCC 20MHz Ch41490 RB1 Offset0 SCC 5MHz Ch41373 RB1 Offset24



PCC 20MHz Ch41490 RB1 Offset99 SCC 5MHz Ch41373 RB1 Offset0

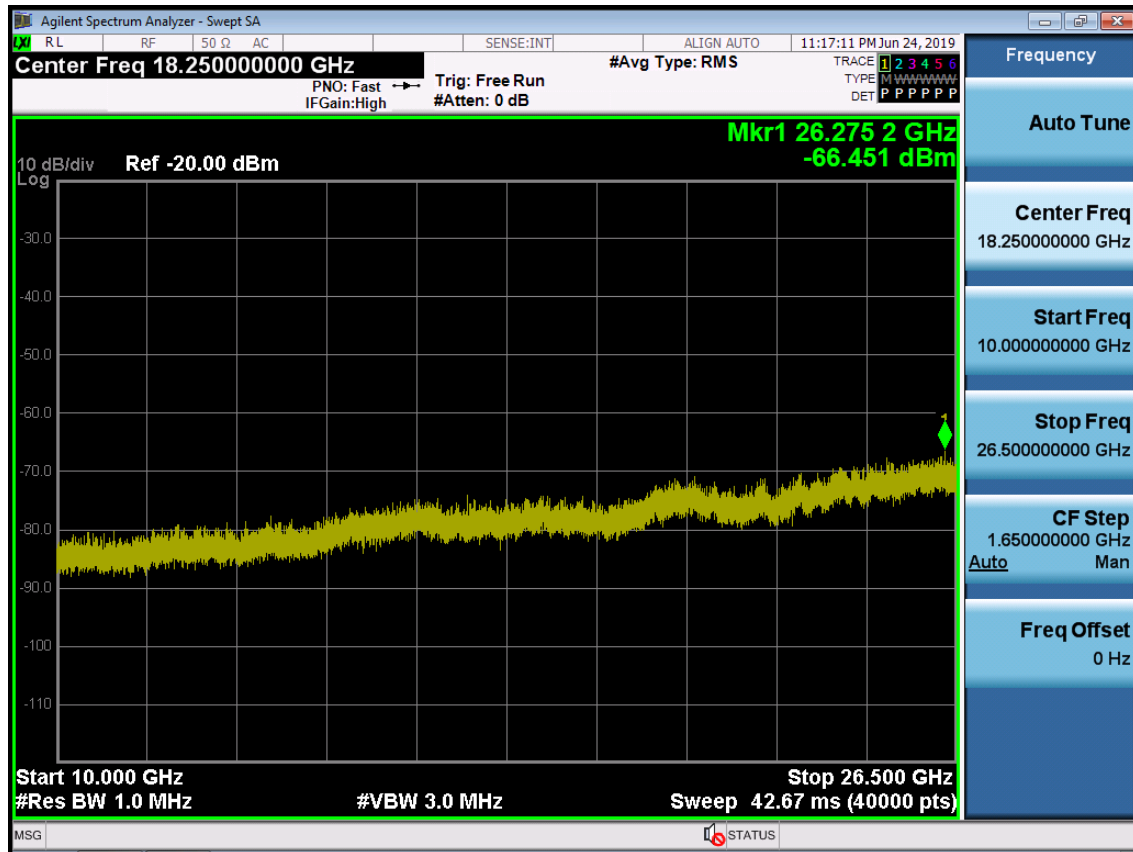


PCC 20MHz Ch41490 RB100 Offset0 SCC 5MHz Ch41373 RB25 Offset0

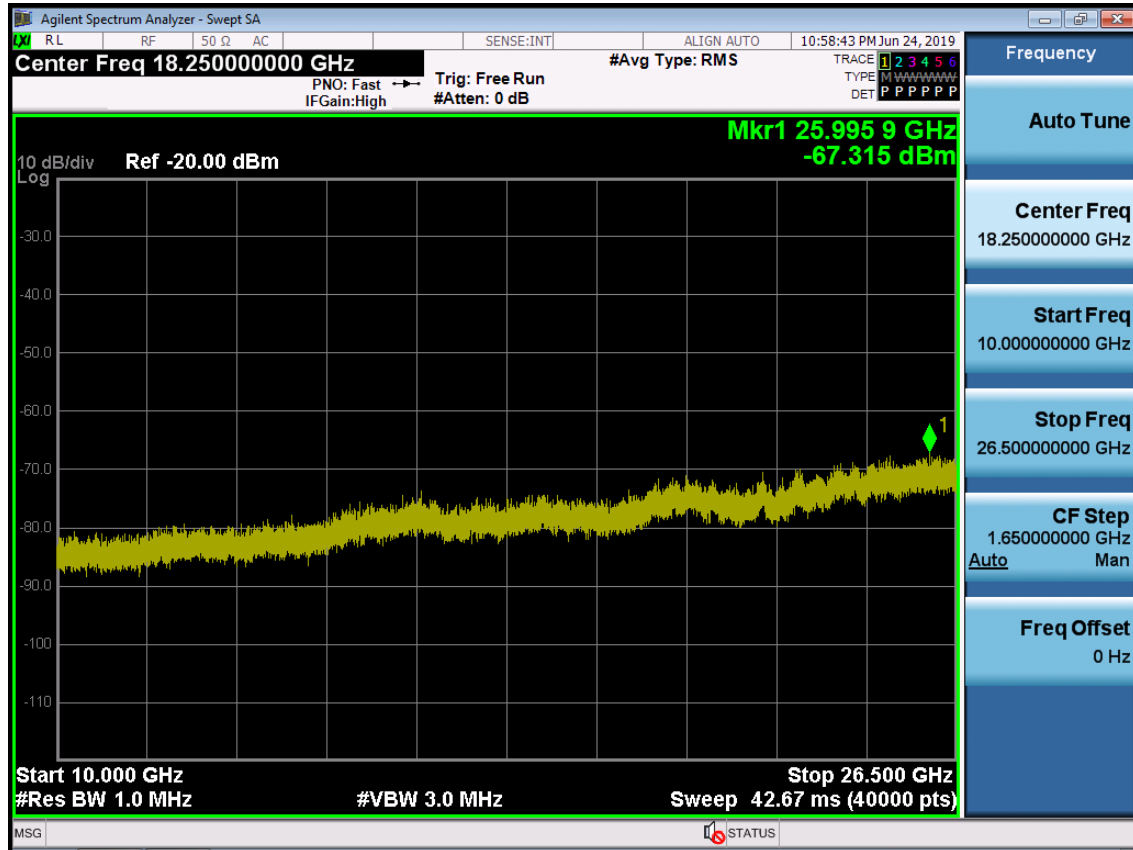


Frequency Range : 10GHz ~ 26.5GHz

PCC 20MHz Ch39750 RB1 Offset0, SCC 10MHz Ch39894 RB1 Offset49



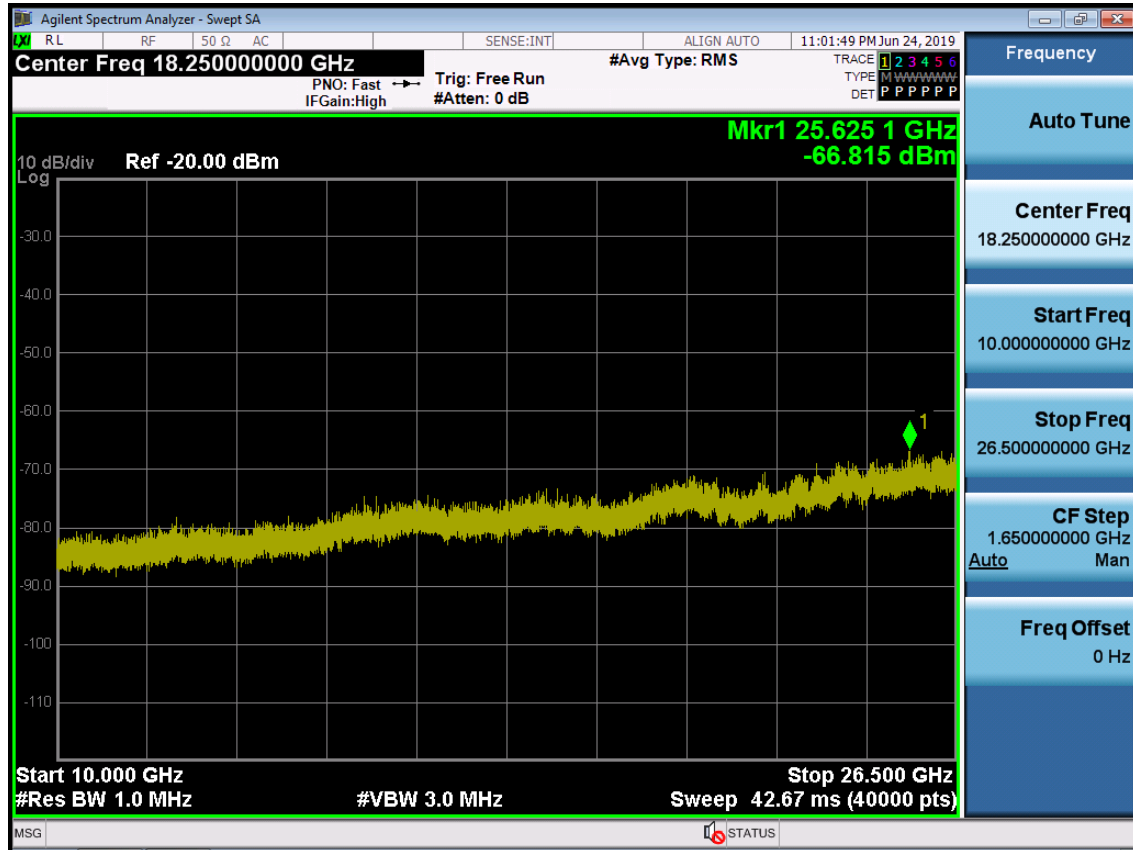
PCC 20MHz Ch39750 RB1 Offset99, SCC 10MHz Ch39894 RB1 Offset0



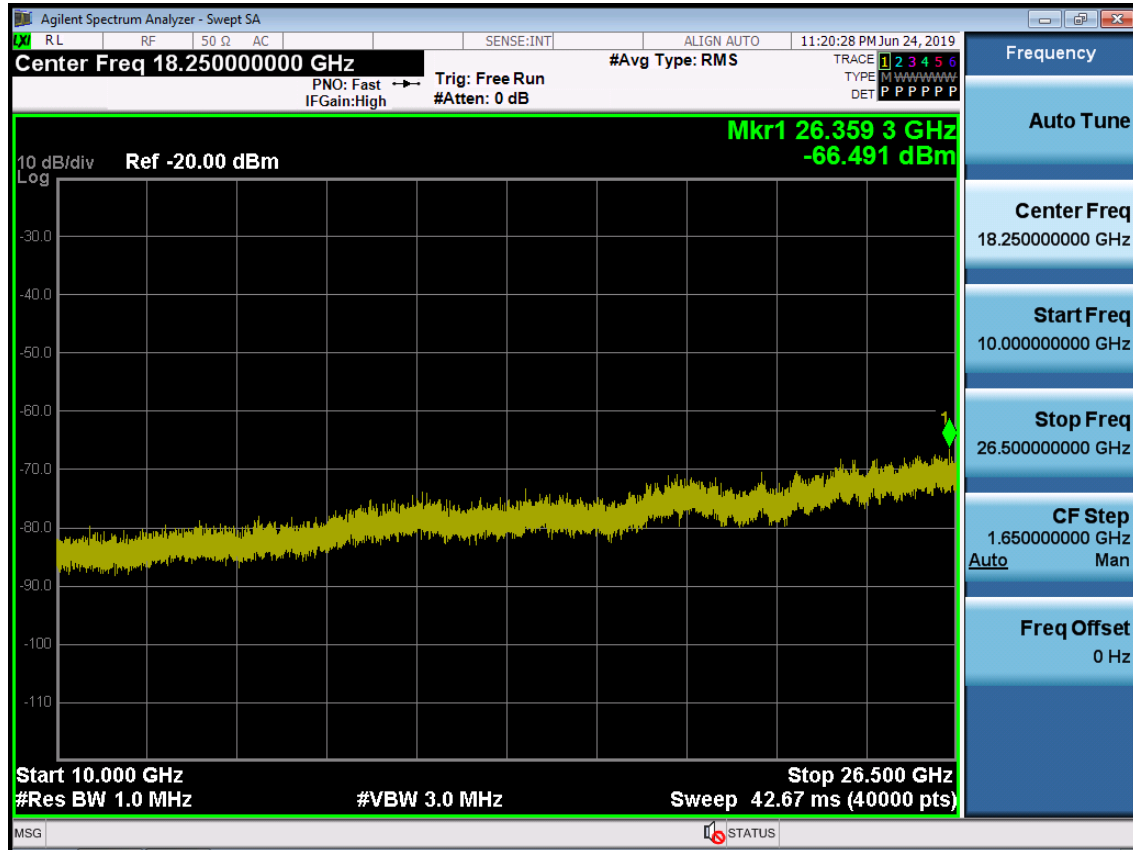
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PCC 20MHz Ch40620 RB1 Offset0, SCC 20MHz Ch40422 RB1 Offset99



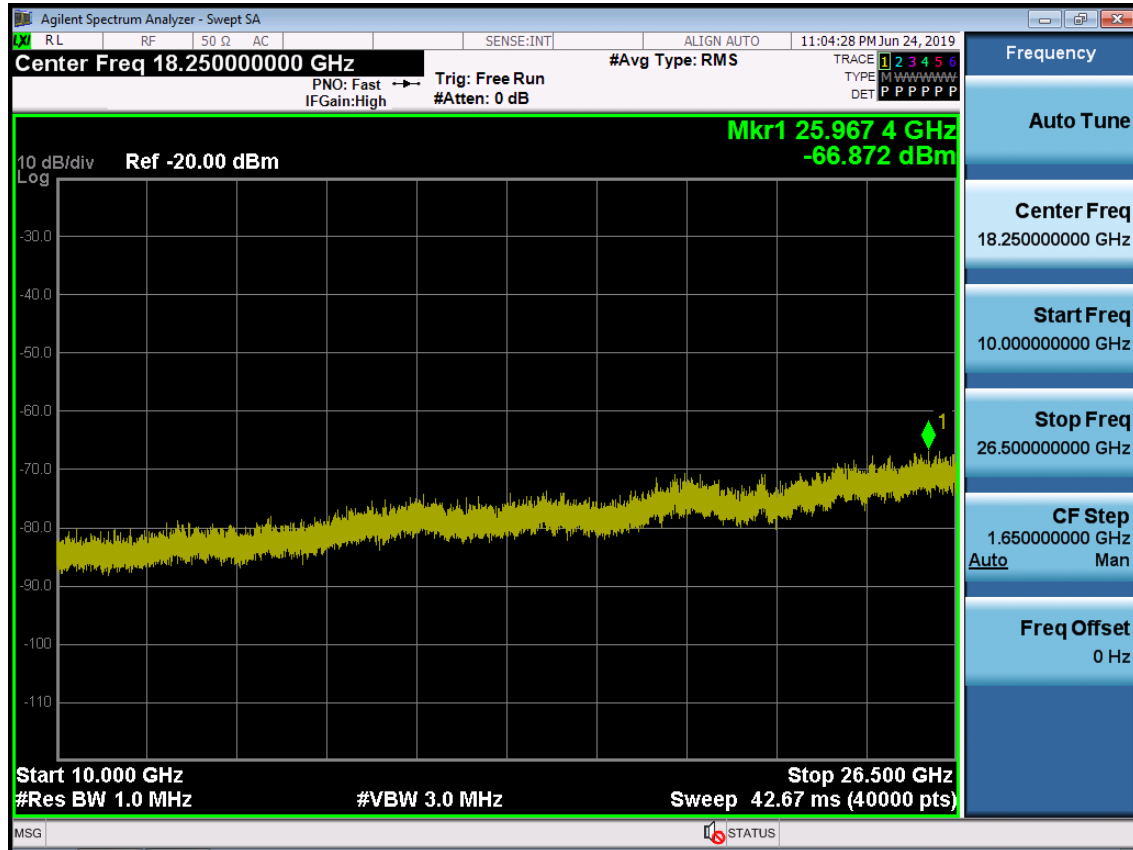
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PCC 20MHz Ch40620 RB100 Offset0, SCC 20MHz Ch40422 RB100 Offset0



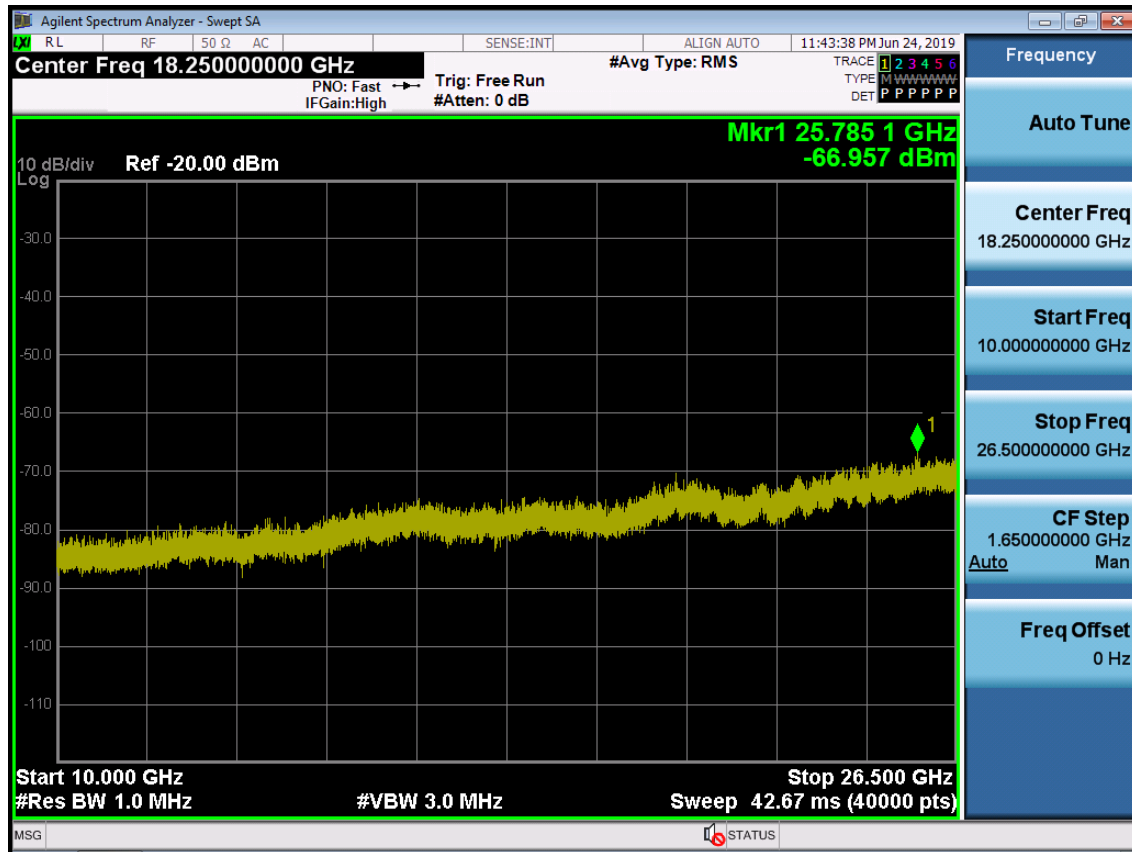
PCC 20MHz Ch41490 RB1 Offset0, SCC 5MHz Ch41373 RB1 Offset24



PCC 20MHz Ch41490 RB1 Offset99, SCC 5MHz Ch41373 RB1 Offset0

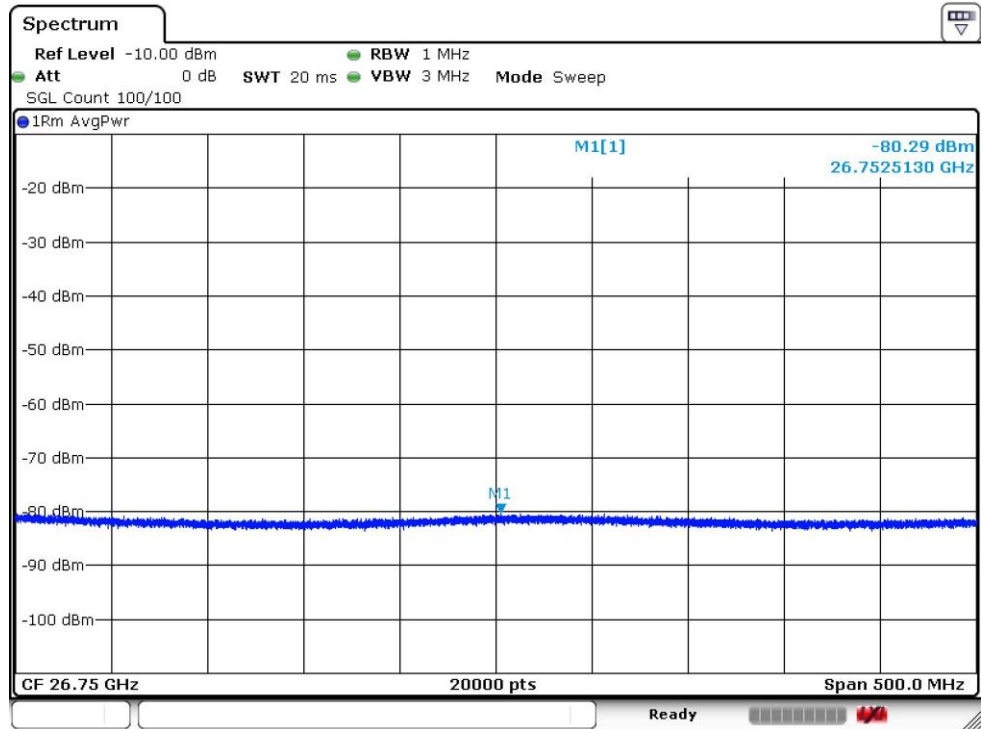


PCC 20MHz Ch41490 RB100 Offset0, SCC 5MHz Ch41373 RB25 Offset0

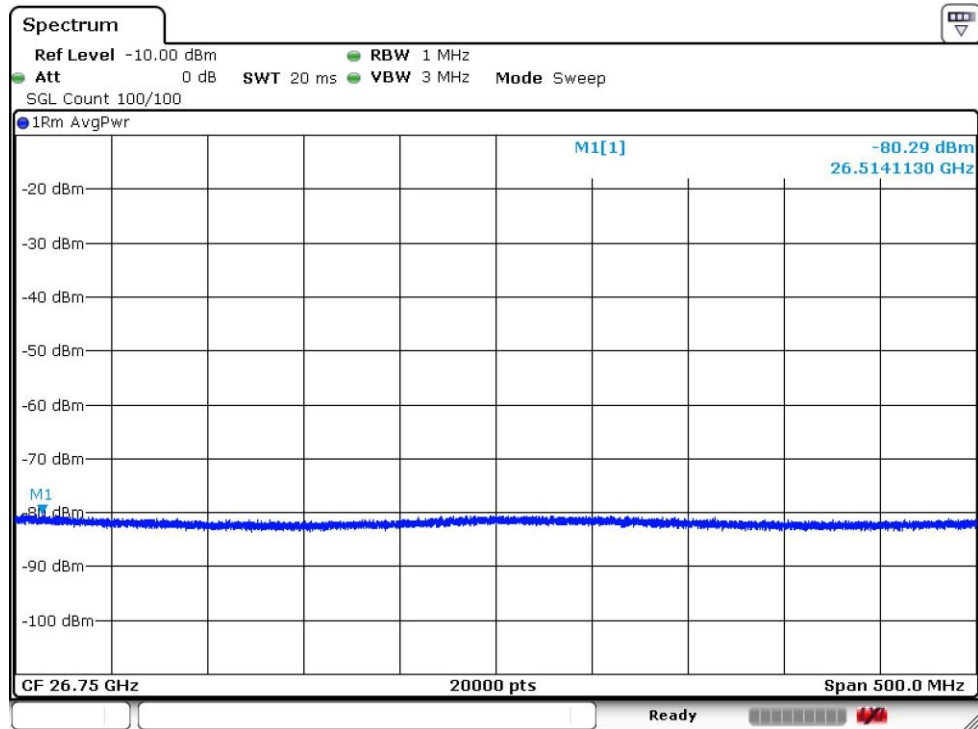


Frequency Range : 26.5GHz ~ 27.0GHz

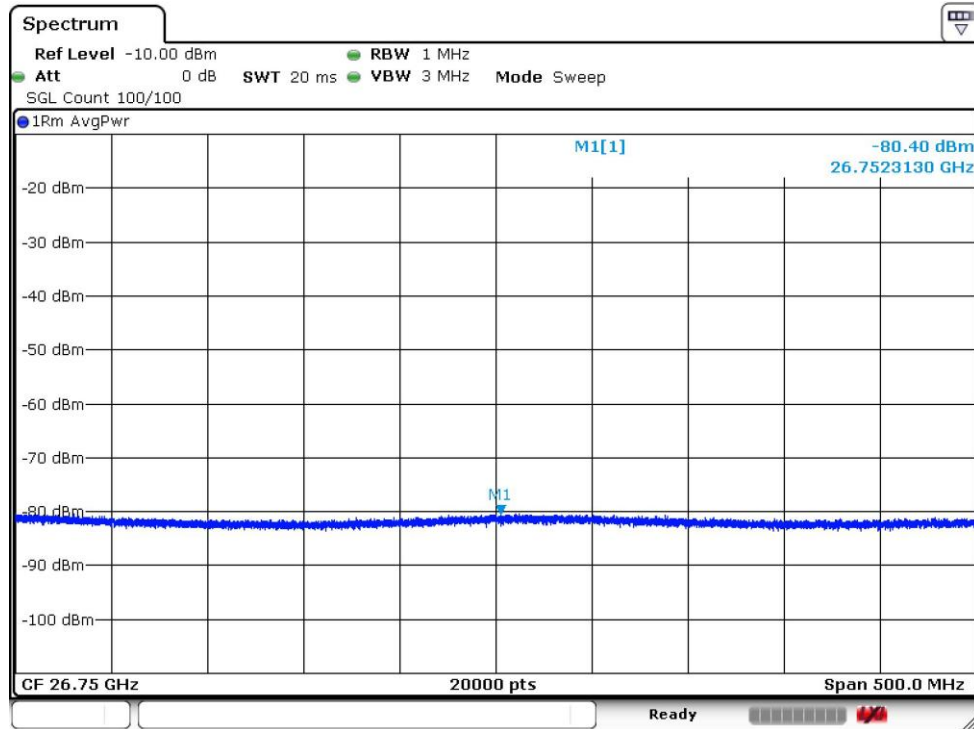
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PCC 20MHz Ch41490 RB1 Offset99 SCC 5MHz Ch41373 RB1 Offset0

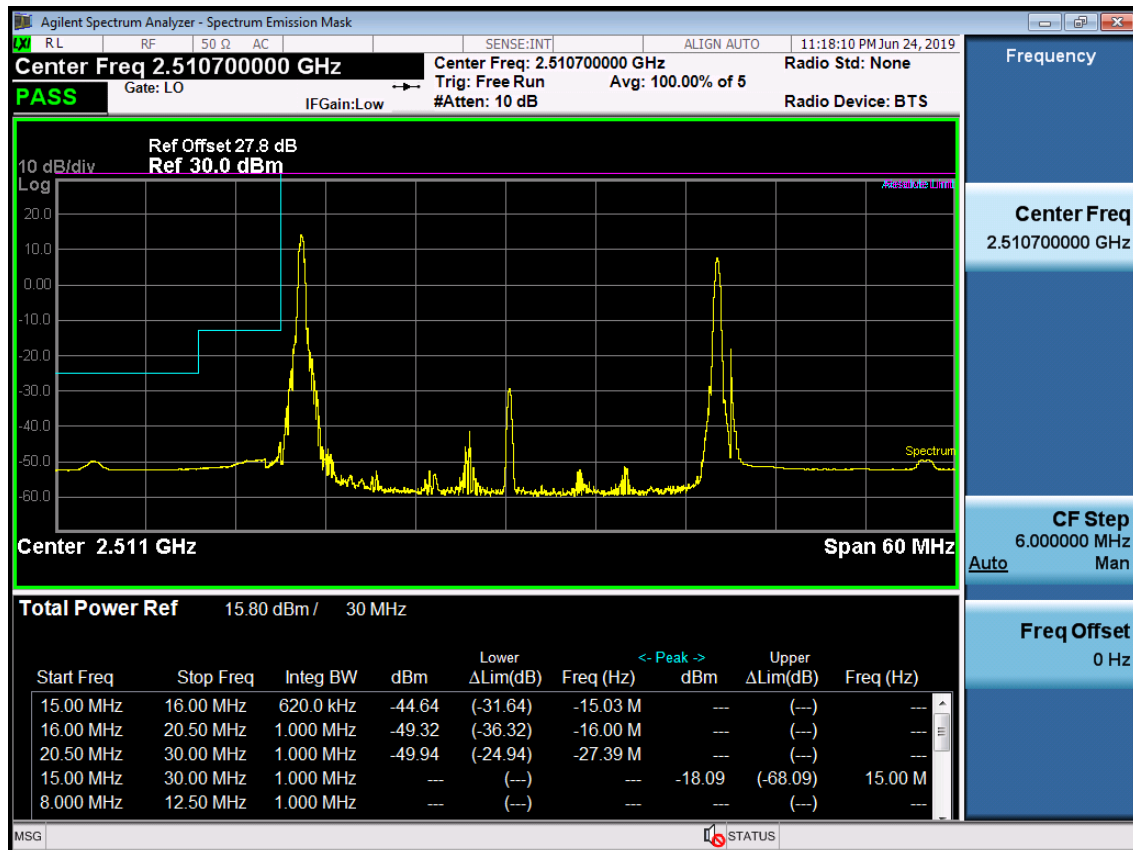


PCC 20MHz Ch41490 RB100 Offset0 SCC 5MHz Ch41373 RB25 Offset0



8.4 Channel Edge

PCC 20MHz Ch39750(2506MHz) RB1 Offset0, SCC 10MHz Ch39894(2520.4MHz) RB1 Offset49-1



PCC 20MHz Ch39750(2506MHz) RB1 Offset0, SCC 10MHz Ch39894(2520.4MHz) RB1 Offset49-2

