

WINNF-TS-0122 Spot Check Report

Applicant	Nokia Shanghai Bell Co., Ltd.
Equipment	FastMile 4G Receiver
Brand Name	Nokia
Model Name	4G01-C
FCC ID	2ADZR4G01C
Reference	WINNF-TS-0122 Version V1.0.1

This is a validation test report. The validation is leveraged conducted value from FCC ID: 2ADZR34003800FM20 SAS report No: FG9N1515B. There is no SW design change between FCC ID: 2ADZR34003800FM20 and FCC ID: 2ADZR4G01C. The difference between these two models is that 4G01-A antenna gain is 15 dBi, but 4G01-C antenna gain is 19 dBi as declared by manufacturer.

The product was received on Nov. 19, 2020 and testing was started from Nov. 23, 2020 and completed on Nov. 23, 2020. We, SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, would like to declare that the tested sample has been evaluated in accordance with the test procedures given in WINNF-TS-0122 Version V1.0.1 and has been in compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.



Approved by: Sam Chen

SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory
No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.)

Table of Contents

Revision History	3
1. Administration Data	4
1.1 Testing Laboratory	4
1.2 Applicant	4
1.3 Manufacturer	4
2. General Information	5
2.1 Description of Equipment Under Test (EUT)	5
2.2 Protocol Test Summary	5
2.3 Support Equipment	5
2.4 Test Equipment List	6
3. Measurement Environment	7
3.1 Test configuration without Domain Proxy	8
3.2 Standards	8
4. Protocol Test Results	9
4.1 [WINNF.PT.C.HBT] UUT RF Transmit Power Measurement	9
Appendix A. Setup Plot	
Appendix B. RF measurement plots	



Revision History

Report No.	Version	Description	Issued Date
FG9N1515-01B	01	Initial issue of report	Dec. 01, 2020

1. Administration Data

1.1 Testing Laboratory

Test Site	SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory
Test Site Location	No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.) TEL: +886-3-327-3456 FAX: +886-3-328-4978
Test Site No.	Sporton Site No. DFS02-HY
Test Engineer	Thomas Chen
Temperature	21 ~ 25 °C
Relative Humidity	50 ~ 56 %

1.2 Applicant

Company Name	Nokia Shanghai Bell Co., Ltd.
Address	388#, Ningqiao Road, China (Shanghai) Pilot Free Trade Zone, Shanghai 201206, China

1.3 Manufacturer

Company Name	Nokia Shanghai Bell Co., Ltd.
Address	388#, Ningqiao Road, China (Shanghai) Pilot Free Trade Zone, Shanghai 201206, China

2. General Information

2.1 Description of Equipment Under Test (EUT)

Product Feature & Specification	
EUT Type	FastMile 4G Receiver
Brand Name	Nokia
Model Name	4G01-C
POE injector	G1344A-530-030 PSE1000
FCC ID	2ADZR4G01C
Professional Installation	☒ Yes ☐ No
UUT Category	☐ Category A ☒ Category B
Unit Under Test in Test ID	☐ UUT with Domain Proxy ☒ UUT without Domain Proxy
UUT HW Version	3TG 01454 AA
UUT SW Version	FASTMILE2_D020107B65T0101M01E0270S
UUT Antenna Gain	19 dBi
Device Power Class	LTE Band 48: Power Class 3

Remark: The above EUT's information was declared by manufacturer. Please refer to Comments and Explanations in report summary.

2.2 Protocol Test Summary

Section	Test Case ID	Test Case Title	Test Result
7.1.4.1.1	WINNF.PT.C.HBT	UUT RF Transmit Power Measurement	PASS

2.3 Support Equipment

Name	Manufacturer	Type/Model	Serial Number	FCC ID
Q710	Ruckus	P01-Q710-US02	991929000175	S9GQ710US02

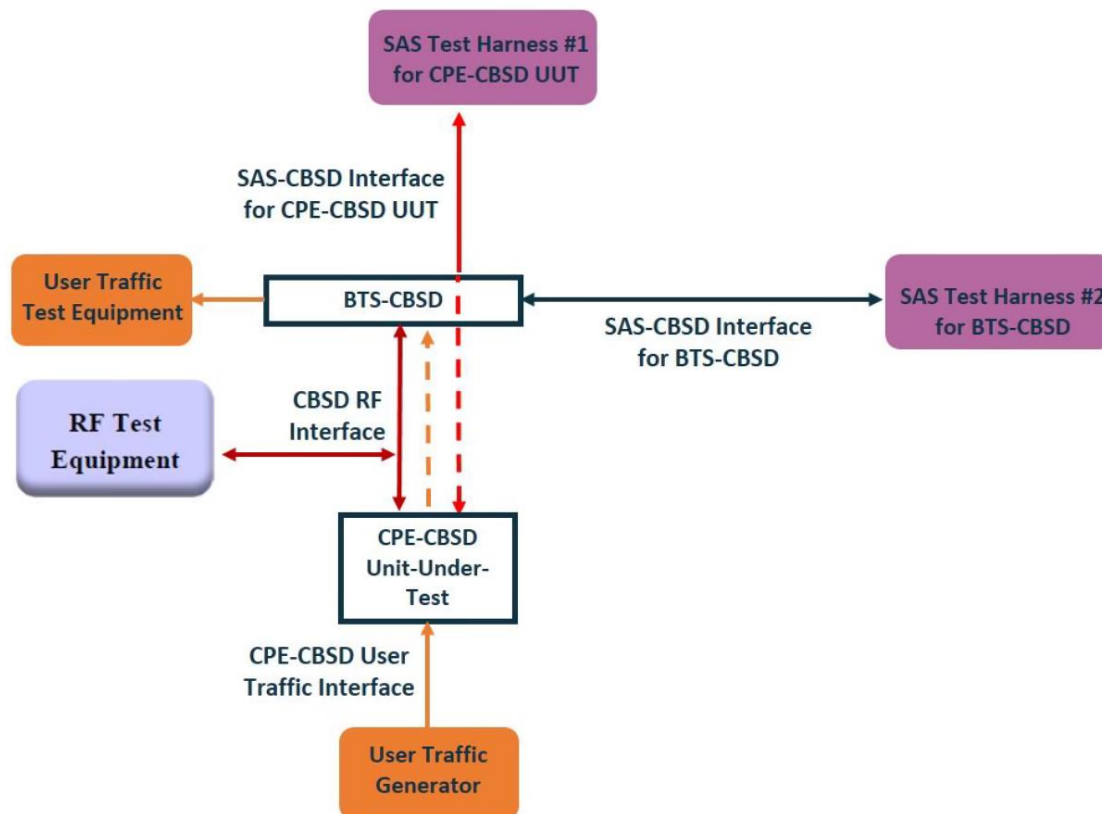
**2.4 Test Equipment List**

Name	Manufacturer	Type/Model	Serial Number	Calibration	
				Last Cal.	Due Date
Spectrum Analyzer	Keysight	N9010A	MY57120184	Nov. 17, 2020	Nov. 16, 2021

3. Measurement Environment

Measurement Environment Information	
SAS Test Harness version	1.0.0.3
Operating System	Windows 10
TLS version	V 1.2
Python version	V 2.7

3.1 Test configuration without Domain Proxy



3.2 Standards

[n.1]. WINNF-TS-0122 Version 1.0.1, "Conformance and Performance Test Technical Specification; CBSD/DP as Unit Under Test (UUT)", 28 September 2018

[n.2]. WINNF-TS-0016 Version 1.2.5, "SAS to CBSD Technical Specification", 18 May 2020

4. Protocol Test Results

4.1 [WINNF.PT.C.HBT] UUT RF Transmit Power Measurement

#	Test Execution Steps	Results
1	Ensure the following conditions are met for test entry: • UUT has successfully completed SAS Discovery and Authentication with the SAS Test Harness • UUT has registered with the SAS, with CBSD ID = C • UUT has a single valid grant G with parameters {lowFrequency = F_L, highFrequency = F_H, maxEirp = P_i}, with grant in AUTHORIZED state, and grantExpireTime set to a value far past the duration of this test case <i>Note: in order for the UUT to request a grant with the parameters {lowFrequency, highFrequency, maxEirp}, the SAS Test Harness may need to provide appropriate guidance in the availableChannel object of the spectrumInquiry response message, and the operationParam object of the grant response message. Alternately, the UUT vendor may provide the ability to set those parameters on the UUT so that the UUT will request a grant with those parameters.</i>	--
2	UUT and SAS Test Harness perform a series of Heartbeat Request/Response cycles, which continues until the other test steps are complete. Messaging for each cycle is as follows: • UUT sends Heartbeat Request, including: ○ cbsdId = C ○ grantId = G • SAS Test Harness responds with Heartbeat Response, including: ○ cbsdId = C ○ grantId = G ○ transmitExpireTime = current UTC time + 200 seconds ○ responseCode = 0	--

#	Test Execution Steps	Results
3	Tester performs power measurement on RF interface(s) of UUT, and verifies it complies with the maxEirp setting, P_i. The RF measurement method is out of scope of this document, but may include additional configuration of the UUT, as required, to fulfil the requirements of the power measurement method. <i>Note: it may be required for the vendor to provide a method or configuration to bring the UUT to a mode which is required by the measurement methodology. Any such mode is vendor-specific and depends upon UUT behavior and the measurement methodology.</i>	PASS

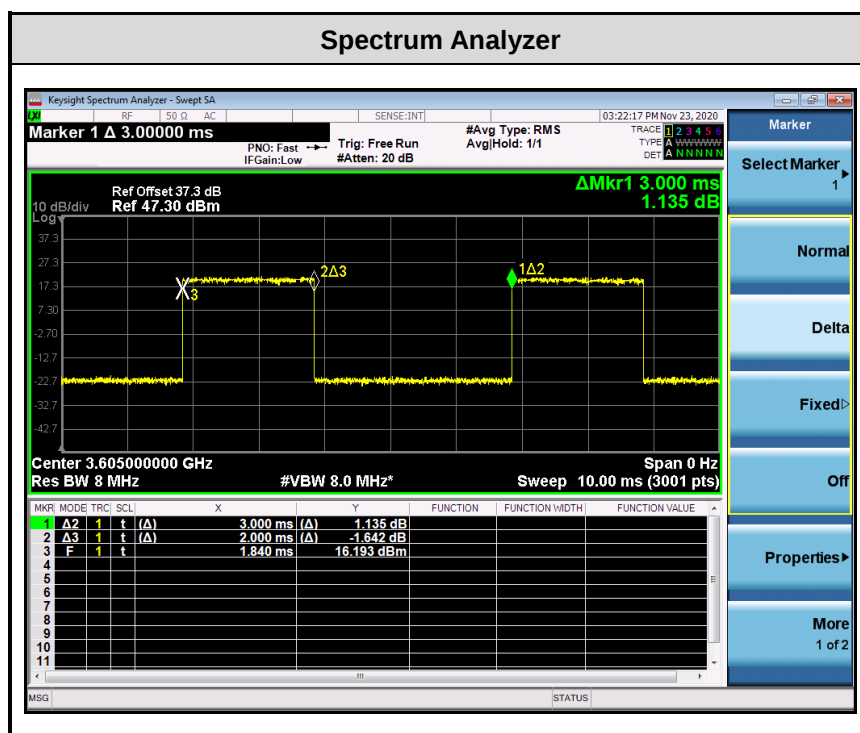
Appendix B. RF measurement plots

Report Clause 4.1 [WINNF.PT.C.HBT] UUT RF Transmit Power Measurement

Center Frequency [MHz]	Bandwidth [MHz]	Granted maxEIRP [dBm/MHz]	Conducted PSD [dBm/MHz]	Antenna Gain [dBi]	UUT MaxEIRP [dBm/MHz]
3605	10	23	3.568	19	22.568 dBm
		25	5.325		24.325 dBm
		27	7.458		26.458 dBm
		29	9.688		28.688 dBm
		31	11.152		30.152 dBm
		33	13.137		32.137 dBm

Note : The Spectrum Analyzer Ref Offset 41.28 dB includes the antenna gain 19 dBi and cable path loss 18.3 dB and duty cycle factor 3.98 dB.

Duty cycle factor:

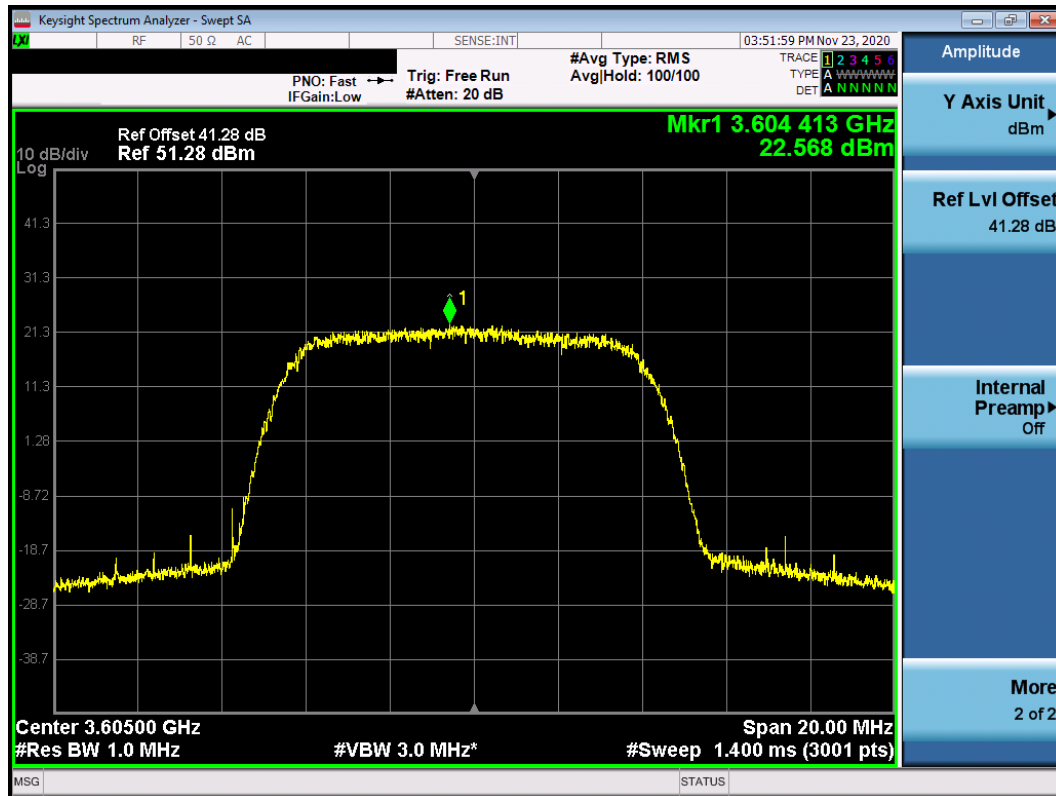


Note : The duty cycle value is 40%, add $10\log(1/\text{duty cycle})$ to the measured power level to compute the average power during continuous transmission.



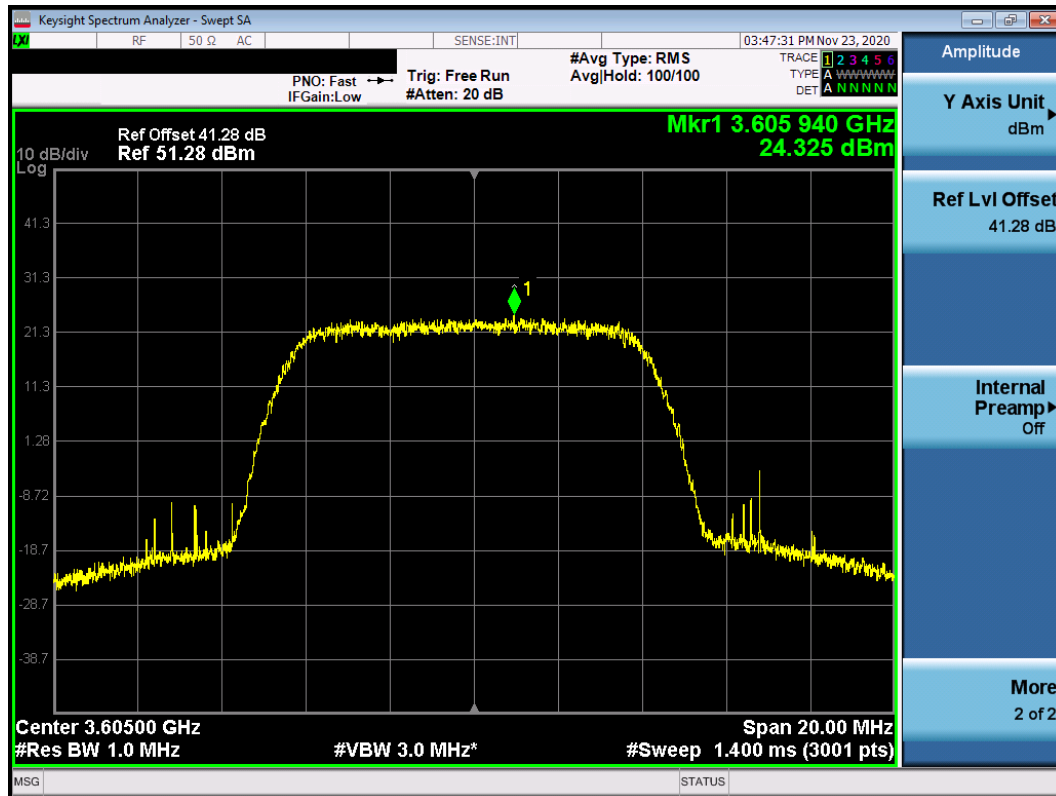
SAS Granted MaxEIRP 23 [dBm/MHz]

UUT MaxEIRP 22.568 [dBm/MHz]



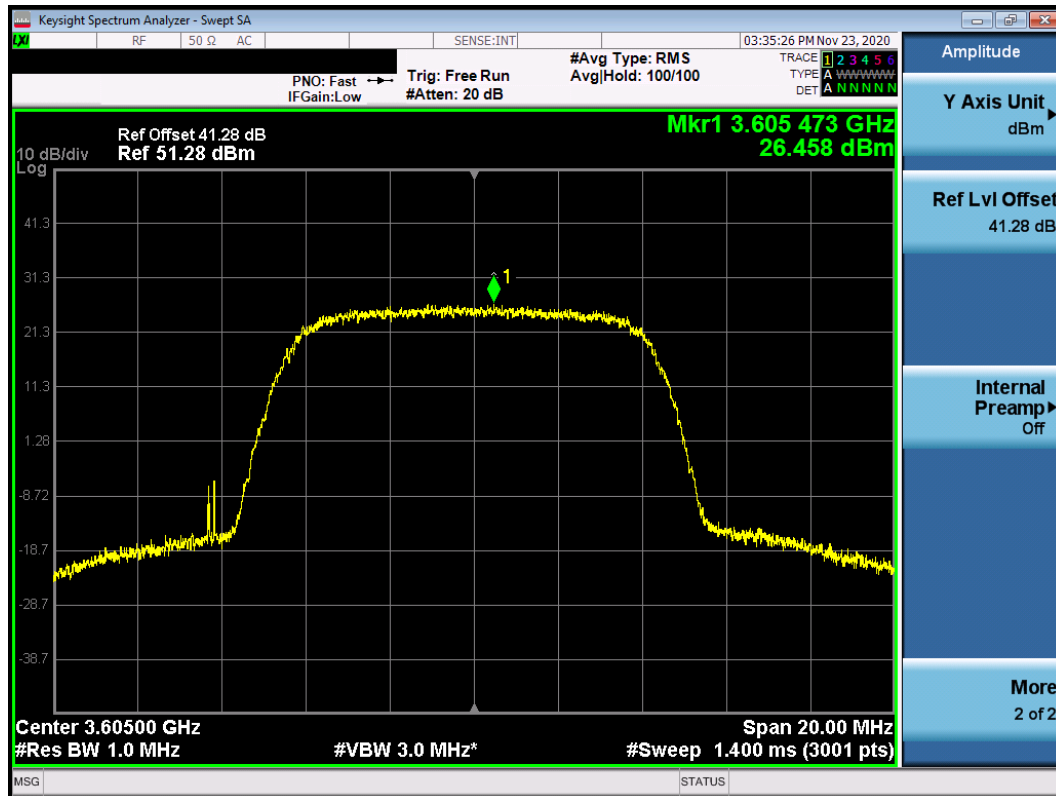
SAS Granted MaxEIRP 25 [dBm/MHz]

UUT MaxEIRP 24.325 [dBm/MHz]



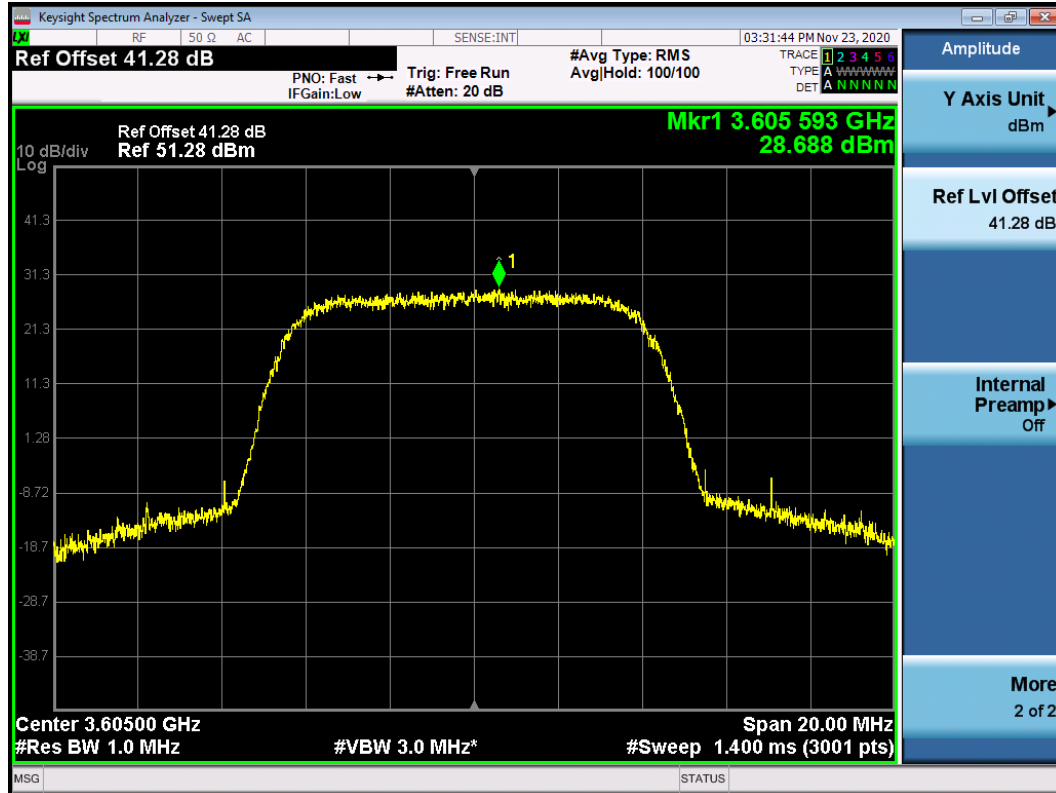
SAS Granted MaxEIRP 27 [dBm/MHz]

UUT MaxEIRP 26.458 [dBm/MHz]



SAS Granted MaxEIRP 29 [dBm/MHz]

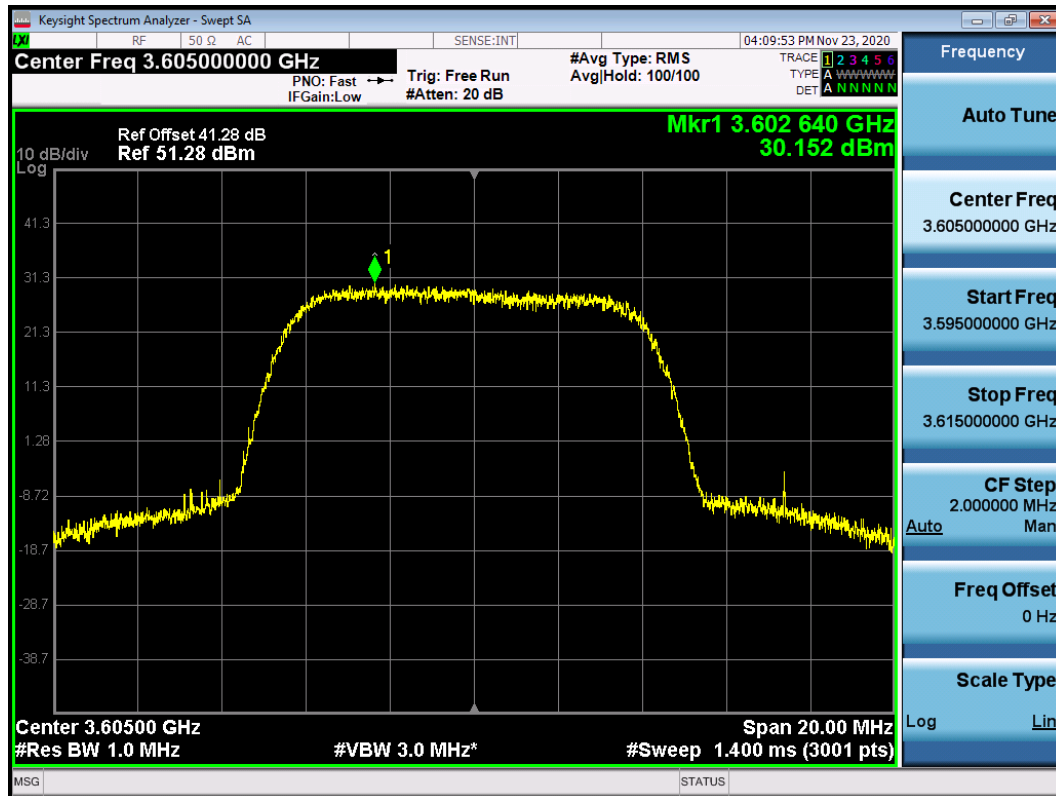
UUT MaxEIRP 28.688 [dBm/MHz]





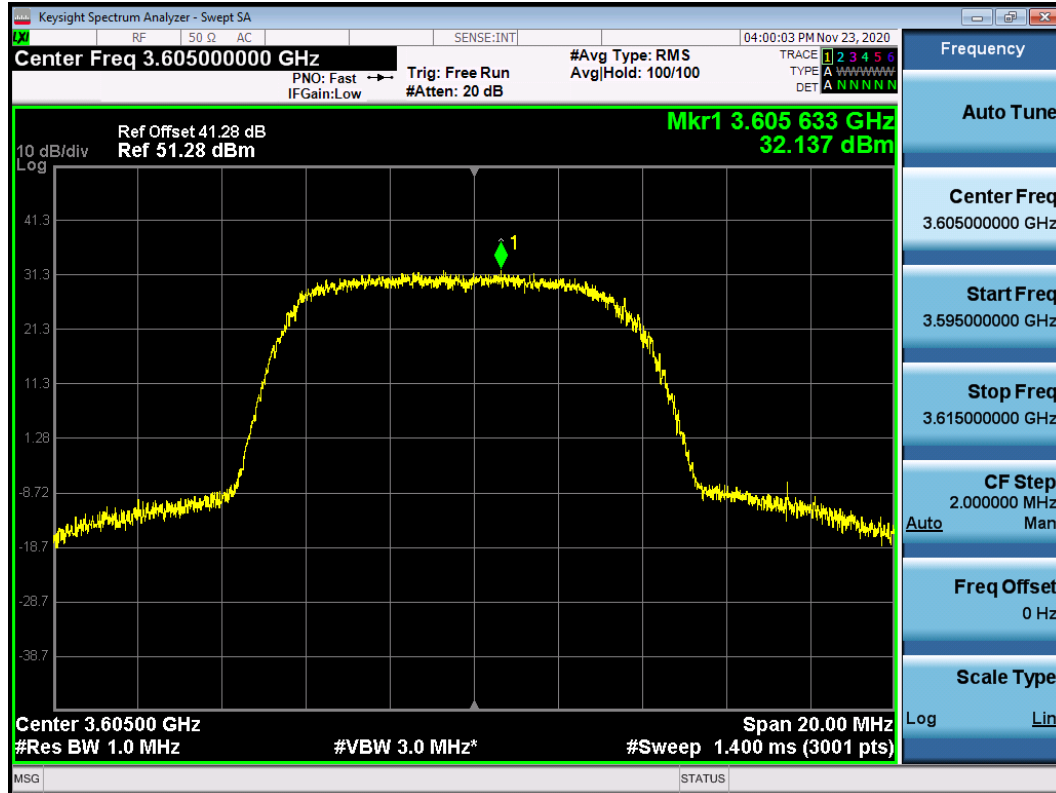
SAS Granted MaxEIRP 31 [dBm/MHz]

UUT MaxEIRP 30.152 [dBm/MHz]



SAS Granted MaxEIRP 33 [dBm/MHz]

UUT MaxEIRP 32.137 [dBm/MHz]



—THE END—