Report On

Application for Grant of Equipment Authorization of the Nextivity Inc. Cel-Fi Q4K-CBRS Cellphone Signal Booster

In accordance with: FCC CFR 47 Part 96 per KDB935210 D05

Product Service

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Prepared for:
Nextivity Inc.
16550 West Bernardo Drive, Bldg 5, Suite 550,
San Diego, CA 92127, USA

Issue Date: December 2022
Document Number: 72176539E | Issue: 01

RESPONSIBLE FOR	NAME	TITLE	DATE	SIGNATURE
Prepared By	Ferdinand S. Custodio	Senior RADIO Test Engineer / Wireless Team Lead	12/30/2022	
Authorized Signatory	Omar Castillo	Senior EMC/Wireless Test Engineer	12/30/2022	

Signatures in this approval box have checked this document in line with the requirements of TÜV SÜD Product Service document control rules.

EXECUTIVE SUMMARY
A sample of this product was tested and found to be in compliance with FCC CFR 47 Part 96 per KDB935210 D05

A2LA Cert. No. 2955.13

ACCREDITATION
Our A2LA Accreditation does not cover opinions and interpretations and any expressed are outside the scope of our A2LA Accreditation.

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Contents

1 Report Summary

1.1 Report Modification Record

Alterations and additions to this report will be issued to the holders of each copy in the form of a complete document.

Issue	Description of Change	Date of Issue
1	Initial Release	12/30/2022

1.2 Introduction

Manufacturer	Nextivity Inc. 16550 West Bernardo Drive, Bldg 5, Suite 550, San Diego, CA 92127, USA
Applicant Contact Information	CK Li Sr. Principal Engineer, Regulatory CLi@NextivityInc.com (858) 485-9442
FCC ID	NU: YETI44-1M34CNU and CU: YETI41-RECU
ISED Certification Number:	N/A
Model Number(s)	NU: I44-1M34CNU CU: I41-RECU
Serial Number(s)	NU S/N 110222000051 CU S/N 481222000175
Number of Samples Tested	2
Test Specification/Issue/Date	• FCC CFR 47 Part 96 (October 1, 2021). • KDB935210 D05 Indus Booster Basic Meas v01r04 (Measurements Guidance for Industrial and Non-Consumer Signal Booster, Repeater, and Amplifier Devices)
Start of Test	December 01, 2022
Finish of Test	December 27, 2022
Name of Engineer(s)	Ferdinand S. Custodio Miguel Rabago Garcia
Related Document(s)	• Product Spec for RFQ_Q4000 Phantom Bride_CBRS_v2.0.pdf • KDB935210 Signal Booster Certification v04r02 (Signal Boosters Basic Certification Requirements) • KDB971168 D01 Power Meas License Digital Systems v03r01 (Measurement Guidance for Certification of Licensed Digital Transmitters) • Supporting documents for EUT certification are separate exhibits.

1.3 Brief Summary of Results

A brief summary of the tests carried out in accordance with FCC CFR 47 Part 96 per KDB935210 D05 for CMRS Industrial Booster devices is shown below.

Section	Spec Clause per KDB935210 D05	Test Description	Results
2.1	3.2	AGC Threshold	Compliant
2.2	3.3	Out-of-Band Rejection	Compliant
2.3	3.4	Input-versus-Output Signal Comparison	Compliant
2.4	3.5	Input/Output Power and Amplifier/Booster Gain	Compliant
2.5	3.6	Measuring out-of-band/out-of-block (including intermodulation) and spurious emissions	Compliant
-	3.7	Frequency Stability Measurements	N/A
2.6	3.8	Spurious Emissions Radiated Measurements	Compliant
Section	**Spec Clause per §96 Subpart E**	**Comments/Results**	
-	§96.39(a) to (h)	EUT is an industrial booster/non-consumer repeater and not a CBSD. Requirements under these Clauses does not apply	
-	§96.41(c) (d) (f) and (g)		
	§96.43/§96.45/ §96.47		
-	§96.41(a)	EUT complies with the digital modulation requirement as it uses LTE B48 TDD	
-	§96.41(b)	Power limits compliance is verified per Sections 3.2 and 3.5 of KDB935210 D05 above	
-	§96.41(e)	Emissions compliance is verified per Section 3.6 of KDB935210 D05 above	
-	§96.51	Compliance with RF safety is a separate exhibit as part of the application for equipment authorization	

N/A *Not Applicable. The EUT does not alter the input signal in any way. Frequency Stability test is not required.*

1.4 Product Information

1.4.1 Technical Description

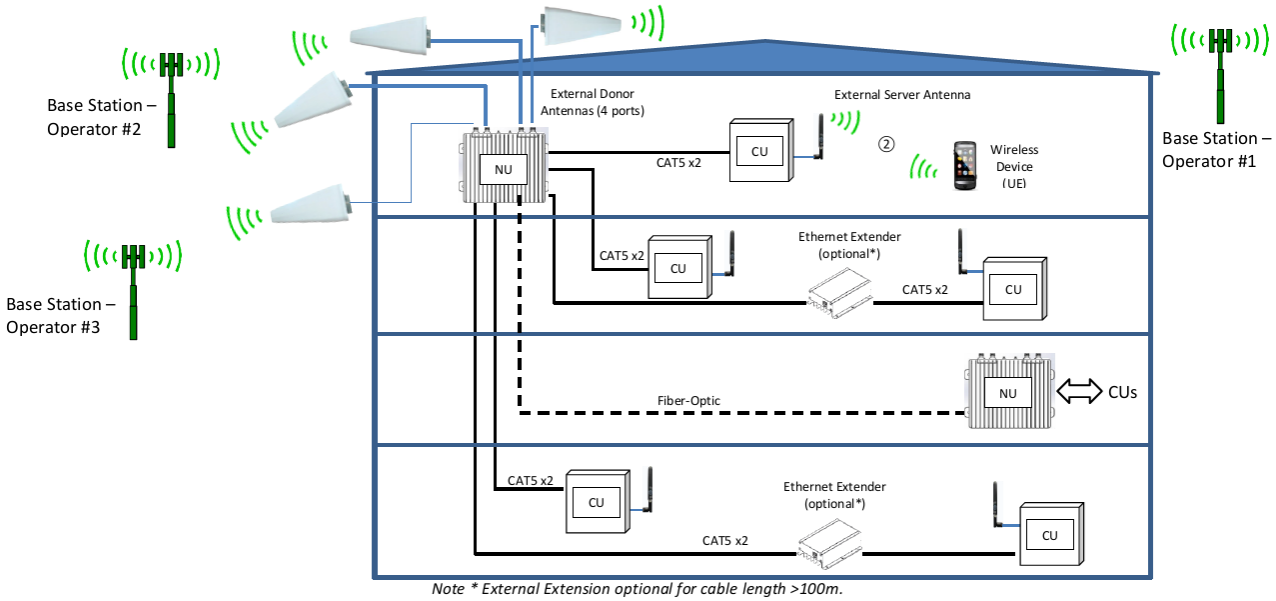
The Equipment Under Test (EUT) was a Nextivity Inc., Cel-Fi Q4K-CBRS Cellphone Signal Booster. The EUT is a WCDMA/LTE “Provider-Specific” Signal Booster to improve voice and data cellular performance in large enterprise environments. The EUT is capable to support up to Four (4) carriers (via separated donor antenna ports).

The EUT consists of two separate units: the Network Unit (NU), and the Coverage Unit (CU). The NU comprises a transmitter and receiver which communicate with the cell tower and the CU. CU comprises a transmitter and receiver which communicate with the User Equipment (e.g., Cell phone) and the NU. Figure below illustrates the typical application. The system operates with the need to install external antennas.

Users place the NU in an area with the strongest signal from the carrier networks. The CUs are then either placed in the center of the home or office, or in the area where the best signal quality is most needed. The NU and CU are placed at varying distances apart and are communicated via Ethernet cables.

One NU can connect up to Six (6) CUs via Ethernet Cat 5 cables. The NU transmits and receives Cellular signals from the base station and operates similar to a cellular handset. The CU transmits and receives signals with the cellular handset and operates on frequencies similar to the cellular base station. CU coverage area >10m

NU includes an FCC certified Cellular modem. With the use of the modem, it allows the system to access internet and for product registration, software updates, capturing and displaying details metrics of the system.



*Note * External Extension optional for cable length >100m.*

Up to 2 bands on each port															
Ant Port	1					2				3			4		
Operator #	A – A					B – T				C - V			D – P		
Max support BW	30 MHz					40 MHz				30 MHz			20 MHz		
Band	4	5	12	25	30	4	12	25	71	4	13	25	48		
Band Combination			✓			✓					✓		✓		
					✓		✓			✓	✓				
	✓		✓						✓		✓	✓			
	✓				✓	✓	✓								
		✓	✓			✓		✓							
		✓			✓	✓			✓						
			✓	✓			✓	✓							
				✓	✓			✓	✓						

1.4.2 EUT Specification

EUT Description	Cellphone Signal Booster	
Trade Name	Cel-Fi™	
Model Name	Cel-Fi Q4K-CBRS	
Model Number(s)	NU: I44-1M34CNU CU: I41-RECU	
Rated Voltage	NU: 120 VAC 60Hz CU: 54V DC (powered from NU via 2 Ethernet cables)	
Mode Verified	TDD LTE Band 48	
Frequency Bands	WCDMA Band 5:	UL: 824 - 849MHz DL: 869 - 894MHz
	LTE Band 4:	UL: 1710 - 1755MHz DL: 2110 - 2155MHz
	LTE Band 12:	UL: 699 - 716MHz DL: 729 - 746MHz
	LTE Band 13:	UL: 777 - 787MHz DL: 746 - 756MHz
	LTE Band 25:	UL: 1850 - 1915MHz DL: 1930 - 1995MHz
	LTE Band 30:	UL: 2305 - 2315MHz DL: 2350 - 2360MHz
	LTE Band 48:	UL: 3550- 3700MHz DL: 3550- 3700MHz
	LTE Band 71:	UL: 663 - 698MHz DL: 617 - 652MHz

Rated Power

Signal Bandwidth (MHz)	WCDMA Band 5		LTE Band 4, 25, 48, 71		LTE Band 12, 13, 30	
	DL (dBm)	UL (dBm)	DL (dBm)	UL (dBm)	DL (dBm)	UL (dBm)
5	16	22	16 22 (B48)	22	16	22 (B12, 13) 19 (B30)
10						
15					N/A	
20	N/A					

Capability: WCDMA (Band 5), LTE (Band 4, 12, 13, 25, 30, 48 and 71)

Channel Bandwidth: WCDMA Band 5: 15MHz
LTE Band 4, 25, 48 and 71: 5MHz, 10MHz, 15MHz and 20MHz
LTE Band 12, 13 and 30: 5MHz and 10MHz

Primary Unit (EUT): ☐ Production

☒ Pre-Production

☐ Engineering

Manufacturer Declared Temperature Range: 0°C to 40°C

Antenna Type: External Antenna

Manufacturer: Refer to the Antenna information supplied by the manufacture

Antenna Model: Refer to the Antenna information supplied by the manufacture

Maximum Antenna System (Antenna + Cable) Gain

Radio	Uplink (Donor)	Downlink (Server)
LTE Band 48	4.13 dBi	9.46 dBi

1.4.3 Transmit Frequency Table

Mode	Tx Frequency (MHz)	Emission Designator	EIRP (dBm/10MHz)
LTE Band 48 Downlink	3550- 3700	4M64G7D/D7W	23.0
		9M29G7D/D7W	23.0
		13M7G7D/D7W	23.0
		18M4G7D/D7W	23.0

LTE Band 48 Uplink	3550- 3700	4M64G7D/D7W	23.0
		9M24G7D/D7W	23.0
		13M6G7D/D7W	23.0
		18M4G7D/D7W	23.0

1.4.4 Test Configuration

Configuration	Description
A	Test Mode - Downlink (CU TX). Input signal is applied to antenna port of NU. Output is monitored from antenna port of CU. (refer to Figure 3)
B	Test Mode - Uplink (NU TX). Input signal is applied to antenna port of CU. Output is monitored from antenna port of NU. (refer to Figure 2)

1.4.5 EUT Exercise Software

Manufacturer provided Nextivity Chart Interface v2.0.0.16 running from a support laptop where both NU and CU are connected via USB.

1.4.6 Support Equipment and I/O cables

Manufacturer	Equipment/Cable	Description
Dell	Support Laptop	M/N: Latitude D630 PP18L S/N: 5SBJBG1
Dell	Support Laptop AC Adapter	M/N: PA-1900-02D S/N: 5SBJBG1
Nextivity	Support USB cable x 2	Custom 1.0 meter shielded USB Type A to Type A cable
Nextivity	Support USB cable x 2	Custom 1.0 meter shielded USB Type A to Micro B cable
Agilent	ESG Vector Signal Generator	M/N: E4438C S/N: MY49071335

1.4.7 Simplified Test Configuration Diagram

Figure 2 – Uplink test configuration in EUT test mode

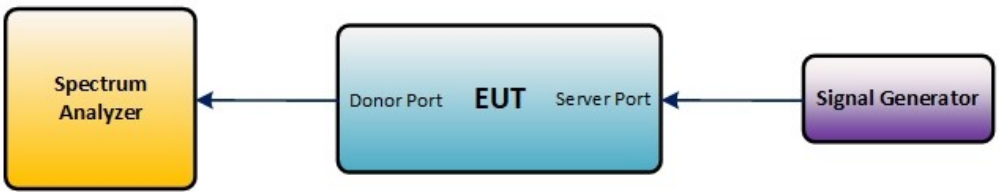
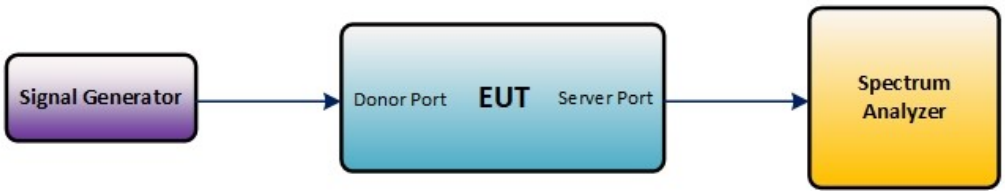


Figure 3 – Downlink test configuration in EUT test mode



1.5 Deviations from the Standard

There were no deviations made during testing from the applicable test standard or test plan.

1.6 EUT Modification Record

The table below details modifications made to the EUT during the test program. The modifications incorporated during each test are recorded on the appropriate test pages.

Modification State	Description of Modification still fitted to EUT	Modification Fitted By	Date Modification Fitted
0	As supplied by the manufacturer	-	-

1.7 Test Methods

All measurements contained in this report were conducted as per KDB935210 D05 Indus Booster Basic Meas v01r04 (Measurements Guidance for Industrial and Non-Consumer Signal Booster, Repeater, and Amplifier Devices).

1.8 Test Location

TÜV SÜD America conducted the following tests at our San Diego CA, Test Laboratory's.

Office Address:

TÜV SÜD America Inc. (Mira Mesa)

10040 Mesa Rim Road, San Diego, CA 92121-2912 (32.901268,-117.177681).
Phone: (858) 678 1400 Fax: (858) 546 0364.

TÜV SÜD America Inc. (Rancho Bernardo)

16936 Via Del Campo, San Diego, CA 92127-1708 (33.018644,-117.092409).
Phone: (858) 678 1400 Fax: (858) 546 0364.

1.9 Test Facility Registration

1.9.1 FCC – Designation No.: US1146

TÜV SÜD America Inc. (San Diego), is an accredited test facility with the site description report on file and has met all the requirements specified in §2.948 of the FCC rules. The acceptance letter from the FCC is maintained in our files and the Designation is US1146.

1.9.2 Innovation, Science and Economic Development Canada (ISED) Registration No.: 3067A-1 & 22806-1

The 10m Semi-anechoic chamber of TÜV SÜD America Inc. (San Diego Rancho Bernardo) has been registered by Certification and Engineering Bureau of Innovation, Science and Economic Development Canada for radio equipment testing with Registration No. 3067A-1.

The 3m Semi-anechoic chamber of TÜV SÜD America Inc. (San Diego Mira Mesa) has been registered by Certification and Engineering Bureau of Innovation, Science and Economic Development Canada for radio equipment testing with Registration No. 22806-1.

1.9.3 BSMI – Laboratory Code: SL2-IN-E-028R (US0102)

TÜV Product Service Inc. (San Diego) is a recognized RADIO testing laboratory by the BSMI under the MRA (Mutual Recognition Arrangement) with the United States. Accreditation includes CNS 13438 up to 6GHz.

1.9.4 NCC (National Communications Commission - US0102)

TÜV SÜD America Inc. (San Diego) is listed as a Foreign Recognized Telecommunication Equipment Testing Laboratory and is accredited to ISO/IEC 17025 (A2LA Certificate No.2955.13) which under APEC TEL MRA Phase 1 was designated as a Conformity Assessment Body competent to perform testing of equipment subject to the Technical Regulations covered under its scope of accreditation including RTTE01, PLMN01 and PLMN08 for TTE type of testing and LP0002 for Low-Power RF Device type of testing.

1.9.5 VCCI – Registration No. A-0280 and A-0281

TÜV SÜD America Inc. (San Diego) is a VCCI registered measurement facility which includes radiated field strength measurement, radiated field strength measurement above 1GHz, mains port interference measurement and telecommunication port interference measurement.

1.9.6 RRA – Identification No. US0102

TÜV SÜD America Inc. (San Diego) is National Radio Research Agency (RRA) recognized laboratory under Phase I of the APEC Tel MRA.

1.9.7 OFCA – U.S. Identification No. US0102

TÜV SÜD America Inc. (San Diego) is recognized by Office of the Communications Authority (OFCA) under Appendix B, Phase I of the APEC Tel MRA.

2 Test Details

2.1 AGC Threshold

2.1.1 Specification Reference

KDB935210 D05, Clause 3.2

2.1.2 Standard Applicable

Testing at and above the AGC threshold will be required. The AGC threshold shall be determined by applying the procedure of 3.2 (KDB935210 D05).

2.1.3 Equipment Under Test and Modification State

Serial No: 110222000051 and 481222000175 / Test Configuration A and B

2.1.4 Date of Test/Initial of test personnel who performed the test

December 27, 2022 / MRG

2.1.5 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.1.6 Environmental Conditions

Test performed at TÜV SÜD America Inc. Mira Mesa facility.

Ambient Temperature	24.4 °C
Relative Humidity	33.3 %
ATM Pressure	100.5 kPa

2.1.7 Additional Observations

- This is conducted Test. Test procedure is per Section 5.2.4.5 of ANSI C63.26 2015.
- The signal generator was set to transmit LTE B48 TDD signal with the corresponding BW.
- Only the worst-case channel presented.

2.1.8 Test Results

BW	Mode	AGC Threshold (dBm)	Max. Cable + Antenna Gain (dBi)	EIRP Limit (dBm/10MHz)
5 MHz	Uplink	***18.87***	***4.13***	23.00
	Downlink	9.82	10.17	23.00

BW	Mode	AGC Threshold (dBm)	Cable + Antenna Gain (dBi)	EIRP Limit (dBm)
10 MHz	Uplink	18.32	4.68	23.00
	Downlink	11.99	11.01	23.00
15 MHz	Uplink	17.47	5.53	23.00
	Downlink	13.08	9.92	23.00
20 MHz	Uplink	17.10	5.90	23.00
	Downlink	***13.54***	***9.46***	23.00

2.1.9 Sample Test Plot

Uplink 5MHz BW

11:03:08 27.12.2022

Downlink 20MHz BW

10:52:26 27.12.2022

Uplink 10MHz BW

2.2 Out-of-Band Rejection

2.2.1 Specification Reference

KDB935210 D05, Clause 3.3

2.2.2 Standard Applicable

A signal booster shall reject amplification of other signals outside of its passband. Adjust the internal gain control of the EUT (if so equipped) to the maximum gain for which equipment certification is sought.

2.2.3 Equipment Under Test and Modification State

Serial No: 110222000051 and 481222000175 / Test Configuration A and B

2.2.4 Date of Test/Initial of test personnel who performed the test

December 07, 2022 / MRG

2.2.5 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.2.6 Environmental Conditions

Test performed at TÜV SÜD America Inc. Mira Mesa facility.

Ambient Temperature	25.1 °C
Relative Humidity	40.5 %
ATM Pressure	101.0 kPa

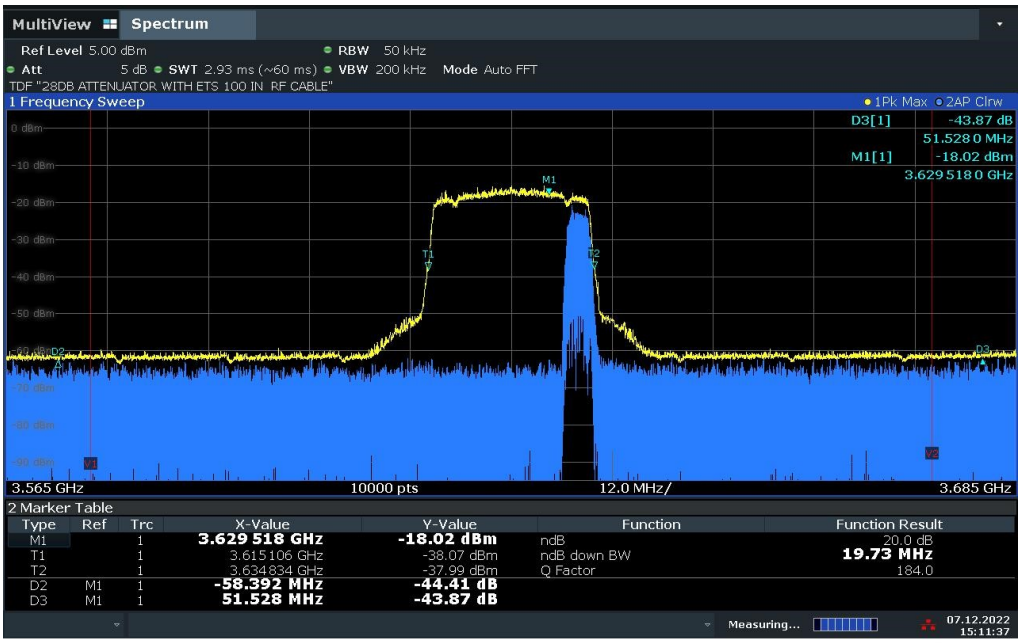
2.2.7 Additional Observations

- This is a conducted test. Test procedure is per Section 3.3 of KDB935210 D05.
- A CW sweep to be injected at the input of the EUT is programmed per Section 3.3(b).
- The CW level is verified to be 20dB above the noise floor.
- 20MHz BW is presented as worst-case configuration as the frequency range to be investigated is ± 250% of the passband.
- The 20dB BW of the passband is monitored and compared before and after the application of the CW sweep.
- No change on the 20dB BW of the passband observed when the CW sweep is applied.
- T1 and T2 points of the 20dB BW are the focal points for this measurement.

2.2.8 Test Plots

15:24:13 07.12.2022

CW Input Sweep for Uplink



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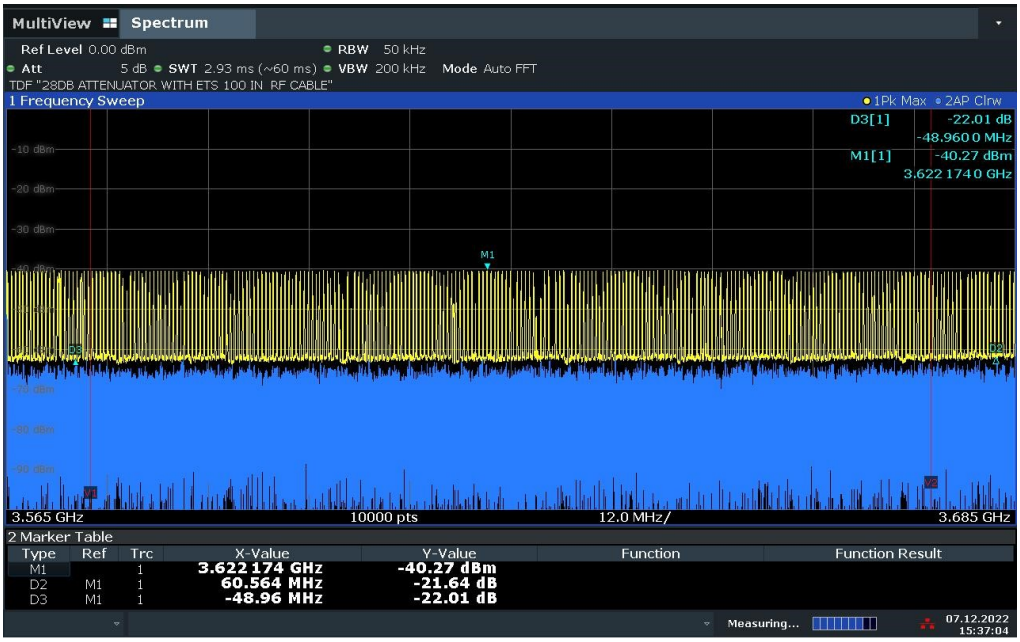
Uplink Frequency Response after applying the CW sweep



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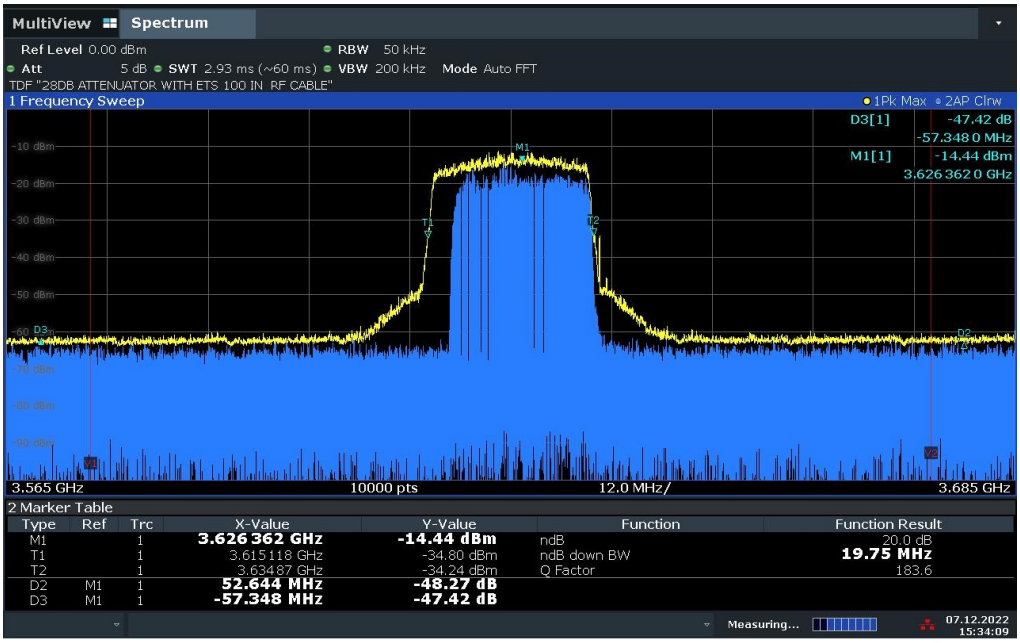
CW Input Sweep for Downlink



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Downlink Frequency Response after applying the CW sweep

2.3 Input-versus-Output Signal Comparison

2.3.1 Specification Reference

KDB935210 D05, Clause 3.4

2.3.2 Standard Applicable

A 26 dB bandwidth measurement shall be performed on the input signal and the output signal; alternatively, the 99% OBW can be measured and used.

2.3.3 Equipment Under Test and Modification State

Serial No: 110222000051 and 481222000175 / Test Configuration A and B

2.3.4 Date of Test/Initial of test personnel who performed the test

December 08, 2022 / MRG

2.3.5 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.3.6 Environmental Conditions

Test performed at TÜV SÜD America Inc. Mira Mesa facility.

Ambient Temperature	23.8 °C
Relative Humidity	38.7 %
ATM Pressure	101.1 kPa

2.3.7 Additional Observations

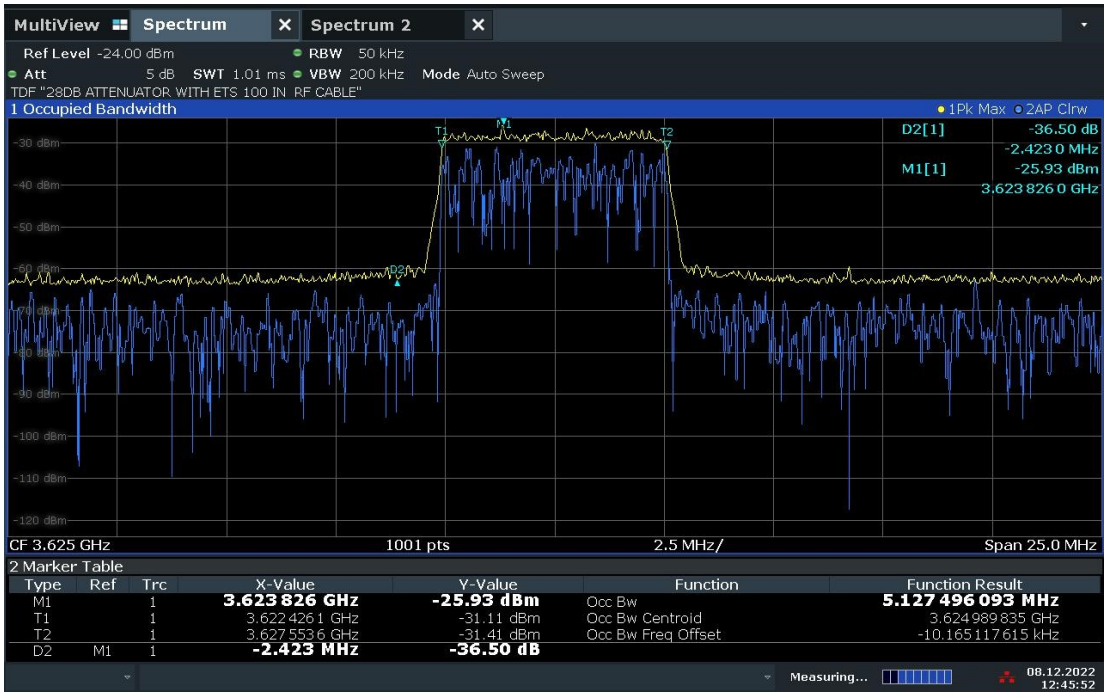
- This is a conducted test. Test procedure is per Section 3.4 of KDB935210 D05.
- For this test, the applicable signal type (LTE B48 TDD) is used instead of an AWGN signal.
- Following the procedure per Section 3.4, the spectral plot of the input signal is compared with the spectral plot of the output signal affirming they are similar in passband, rolloff characteristic features and relative spectral locations.

2.3.8 Test Results

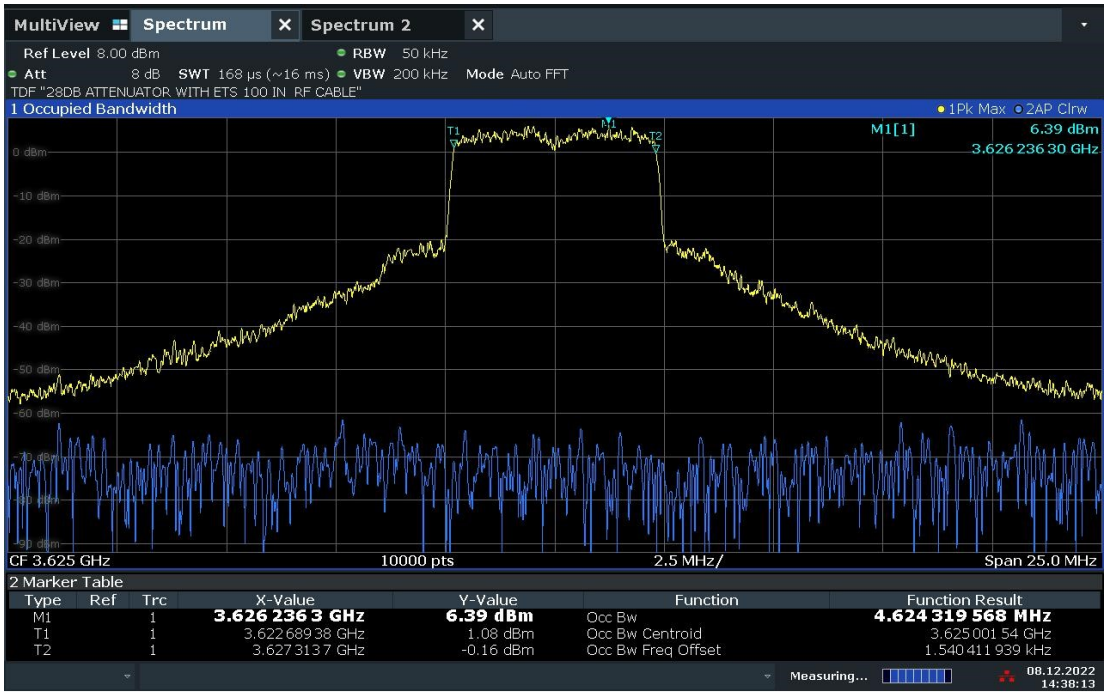
Condition	Mode	BW	99% OBW Characteristic		
			Passband comparison between Input and Output Signal	Rolloff characteristic comparison between Input and Output Signal	Relative spectral locations comparison between Input and Output Signal
Signal Amplitude < AGC threshold level (≤0.5dB)	Downlink	5MHz	Identical	Identical	Identical
		10MHz	Identical	Identical	Identical
		15MHz	Identical	Identical	Identical

		20MHz	Identical	Identical	Identical
	Uplink	5MHz	Identical	Identical	Identical
		10MHz	Identical	Identical	Identical
		15MHz	Identical	Identical	Identical
		20MHz	Identical	Identical	Identical
Input Signal Amplitude set to 3dB above the AGC	Downlink	5MHz	Identical	Identical	Identical
		10MHz	Identical	Identical	Identical
		15MHz	Identical	Identical	Identical
		20MHz	Identical	Identical	Identical
	Uplink	5MHz	Identical	Identical	Identical
		10MHz	Identical	Identical	Identical
		15MHz	Identical	Identical	Identical
		20MHz	Identical	Identical	Identical

2.3.9 Sample Test Plots



99% OBW Input Signal Profile (5MHz)



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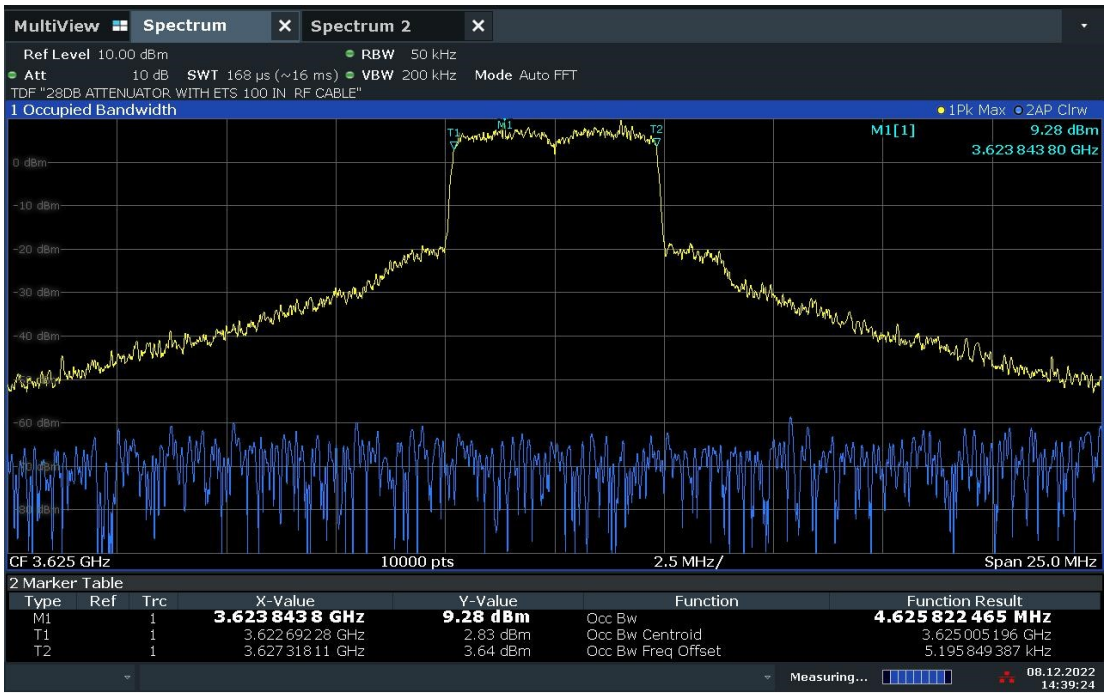
99% OBW Uplink Output Signal Profile ≤0.5dB AGC threshold level (5MHz)



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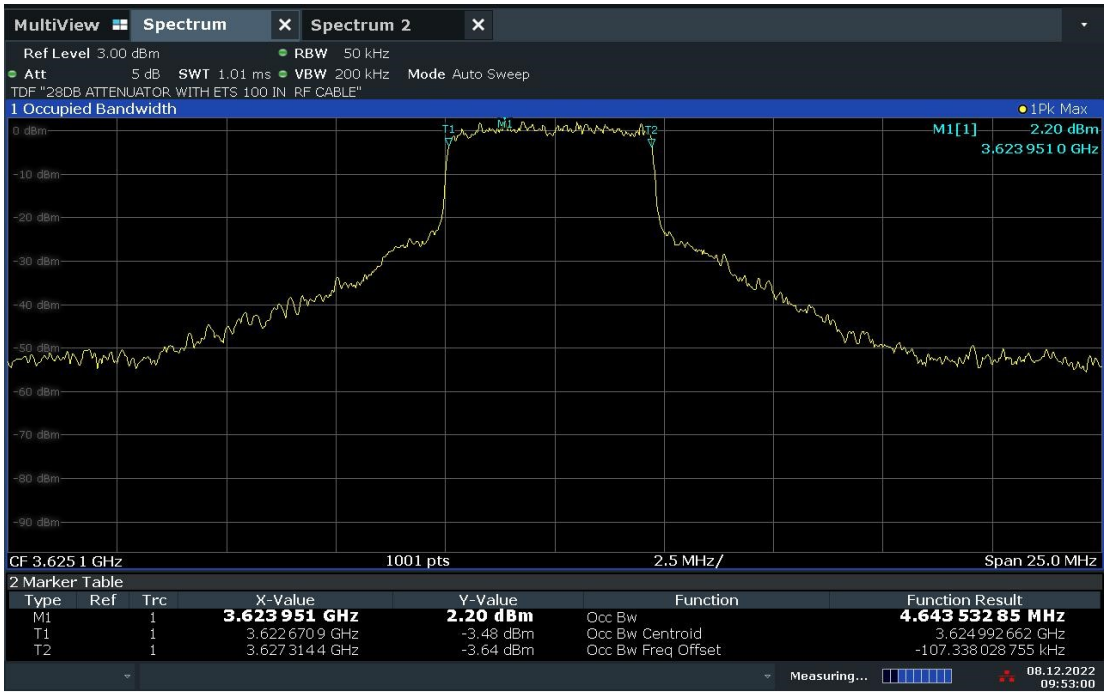
99% OBW Uplink Output Signal Profile AGC threshold level +3dB (5MHz)



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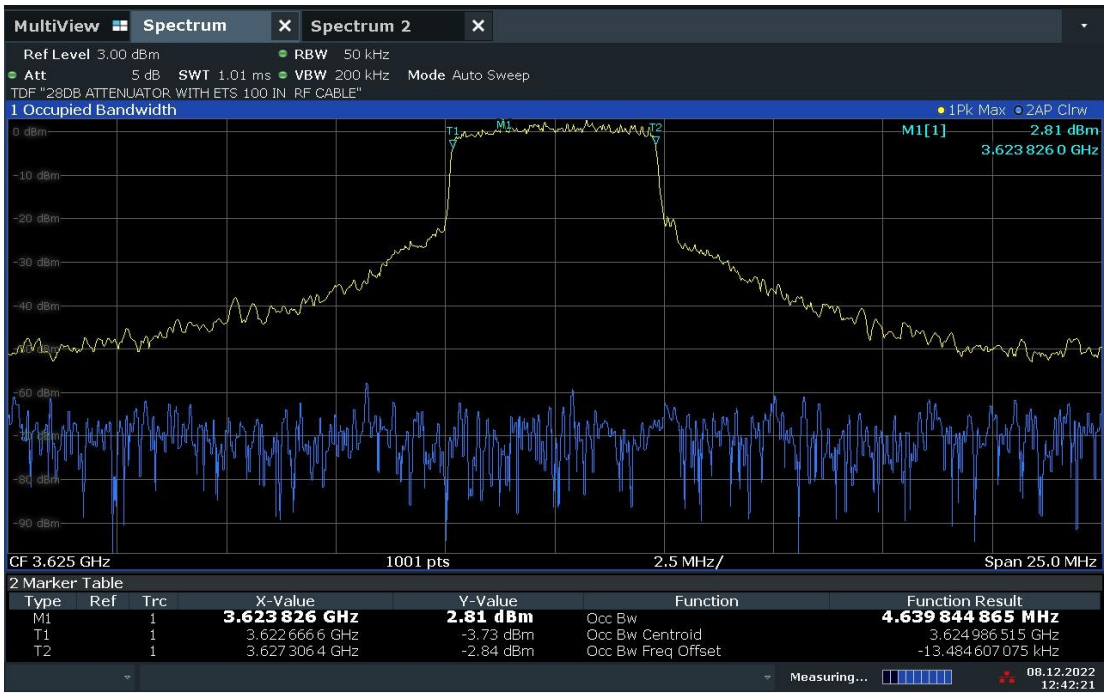
99% OBW Downlink Output Signal Profile ≤0.5dB AGC threshold level (5MHz)



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99% OBW Downlink Output Signal Profile AGC threshold level +3dB (5MHz)

2.4 Mean Output Power and Amplifier/Booster Gain

2.4.1 Specification Reference

KDB935210 D05, Clause 3.5

2.4.2 Standard Applicable

The guidance is provided for performing the measurement of mean input and output power of a CMRS non-consumer amplifier, repeater, or industrial booster, to compute the gain of the device.

2.4.3 Equipment Under Test and Modification State

Serial No: 110222000051 and 481222000175 / Test Configuration A and B

2.4.4 Date of Test/Initial of test personnel who performed the test

December 12, 2022 / MRG

2.4.5 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.4.6 Environmental Conditions

Test performed at TÜV SÜD America Inc. Mira Mesa facility.

Ambient Temperature	21.8 °C
Relative Humidity	40.3 %
ATM Pressure	100.9 kPa

2.4.7 Additional Observations

- This is a conducted test. Test procedure is per Section 3.5 of KDB935210 D05.
- For this test, the applicable signal type (LTE B48 TDD) is used instead of an AWGN signal.
- Per power limits requirement of § 96.41, presented results are representative 10MHz BW.

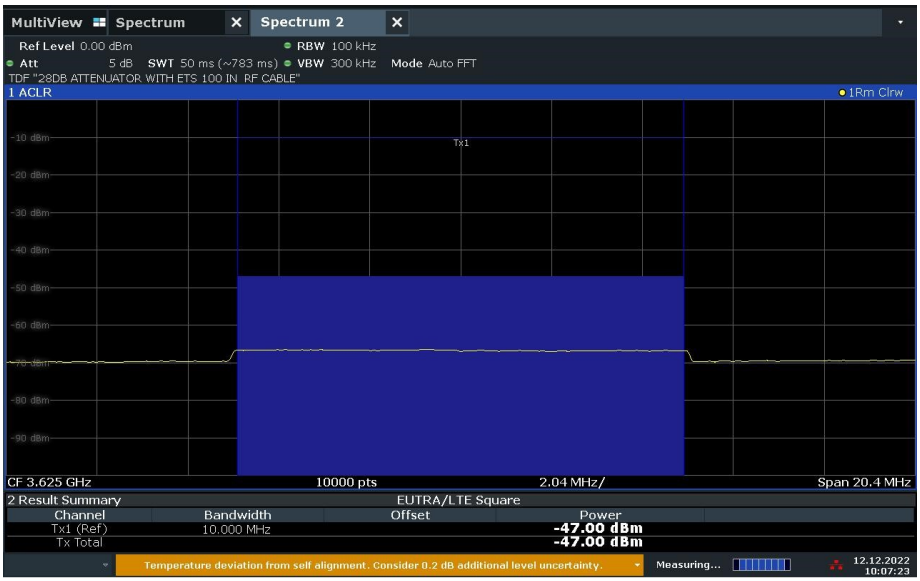
2.4.8 Test Results

Mode	Test condition of output level	Gain (dB) = Output power (dBm) − Input power (dBm)		
		Input Power	Output Power	Gain
LTE B48 Uplink	≤ 0.5dB AGC threshold level	-83.22	14.87	98.09
	3dB above AGC threshold level	-80.22	17.48	97.70
	Input level set to achieve max gain	N/A. Max gain observed is when input level is ≤ 0.5dB AGC threshold level		
LTE B48 Downlink	≤ 0.5dB AGC threshold level	-86.24	11.67	97.91

	3dB above AGC threshold level	-83.24	12.85	96.09
	Input level set to achieve max gain	N/A. Max gain observed is when input level is ≤ 0.5dB AGC threshold level		
CW Uplink	≤ 0.5dB AGC threshold level	-55.94	10.99	66.93
	3dB above AGC threshold level	-52.96	10.50	63.46
	Input level set to achieve max gain	N/A. Max gain observed is when input level is ≤ 0.5dB AGC threshold level		
CW Downlink	≤ 0.5dB AGC threshold level	-55.94	11.46	67.40
	3dB above AGC threshold level	-52.96	12.03	64.99
	Input level set to achieve max gain	N/A. Max gain observed is when input level is ≤ 0.5dB AGC threshold level		

2.4.9 Sample Test Plots

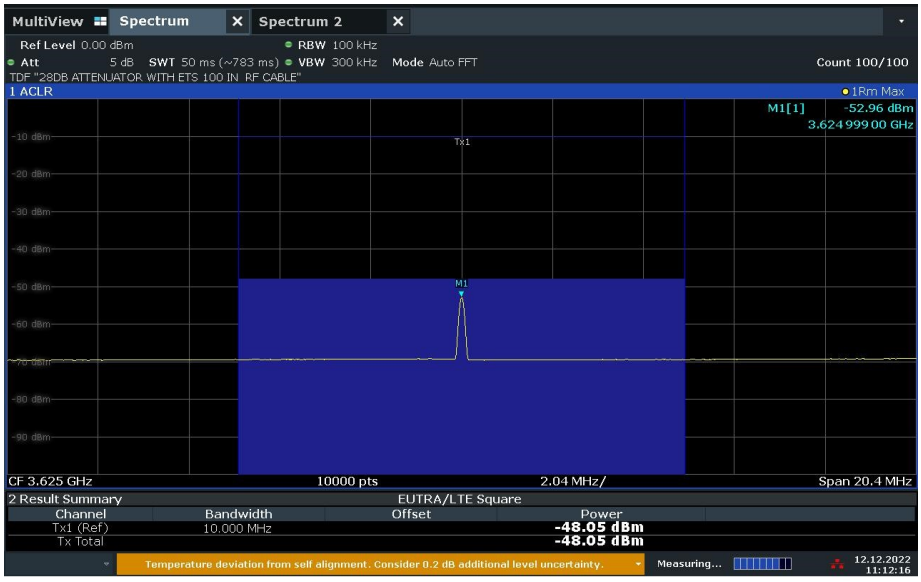
Input Power Uplink ≤ 0.5dB AGC threshold level using LTE B48



10:07:24 12.12.2022

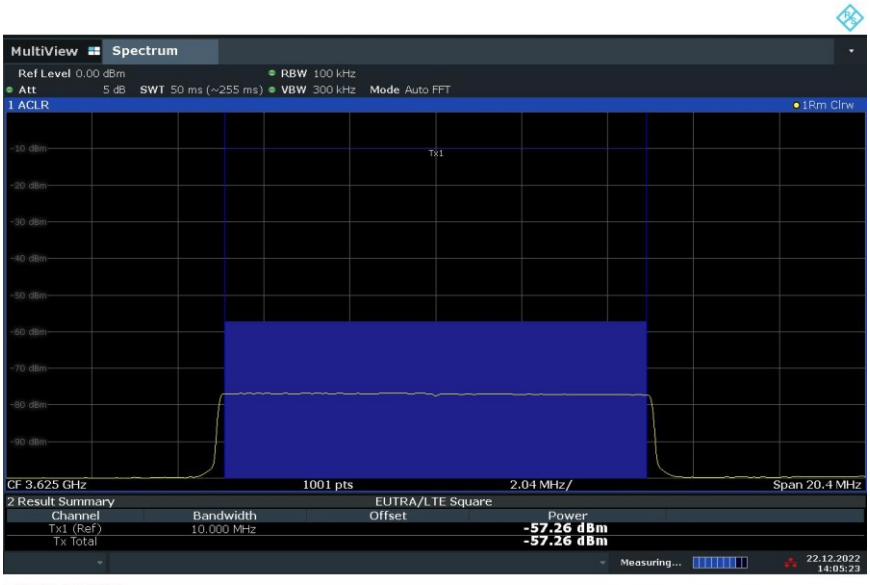
To show level above the noise floor, input was adjusted by 39.24dB, actual input level: -47.0dBm-39.24dB = -86.24dBm

Input Power Uplink 3dB above AGC threshold level using CW



11:12:16 12.12.2022

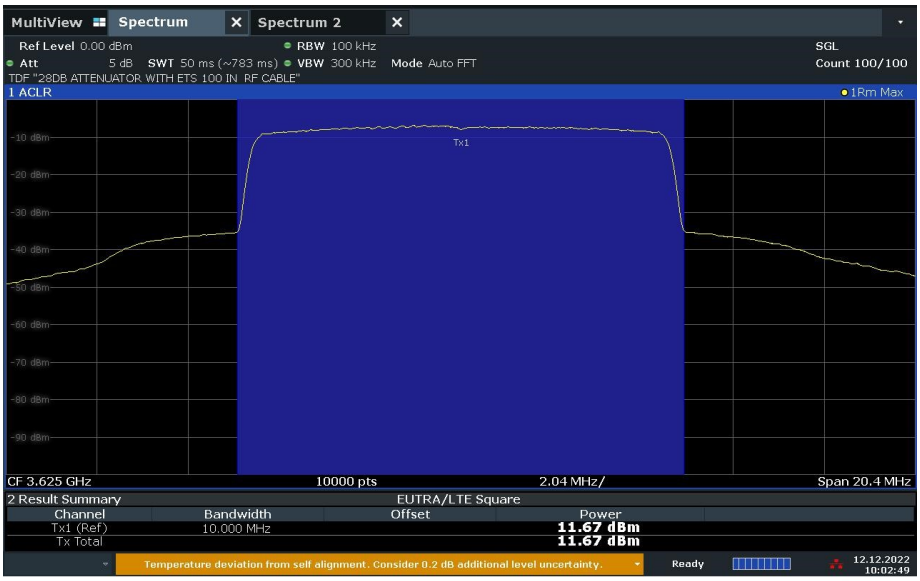
Input Power Uplink ≤ 0.5dB AGC threshold level using LTE B48



14:05:24 22.12.2022

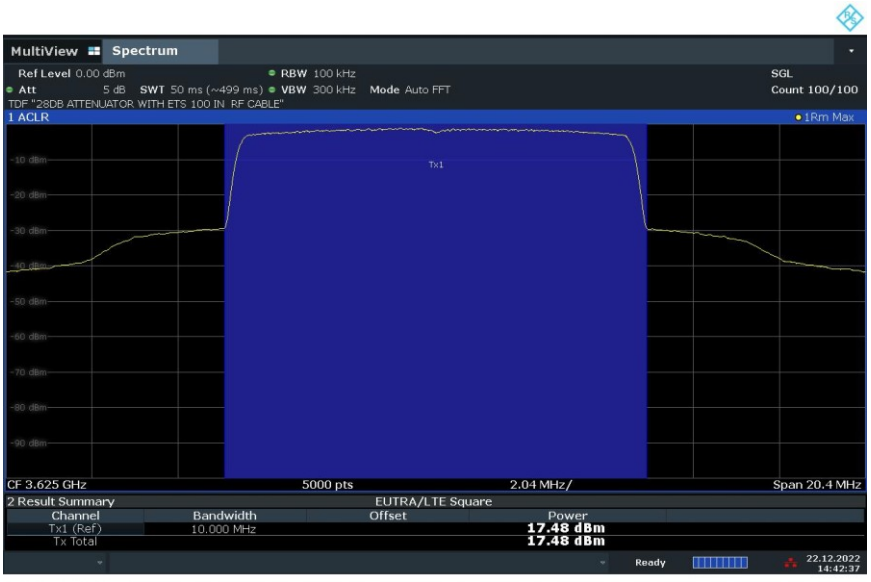
To show level above the noise floor, input was adjusted by 25.96dB, actual input level: -57.26dBm-25.96dB = -83.22dBm

Output Power Downlink ≤ 0.5dB AGC threshold level using LTE B48

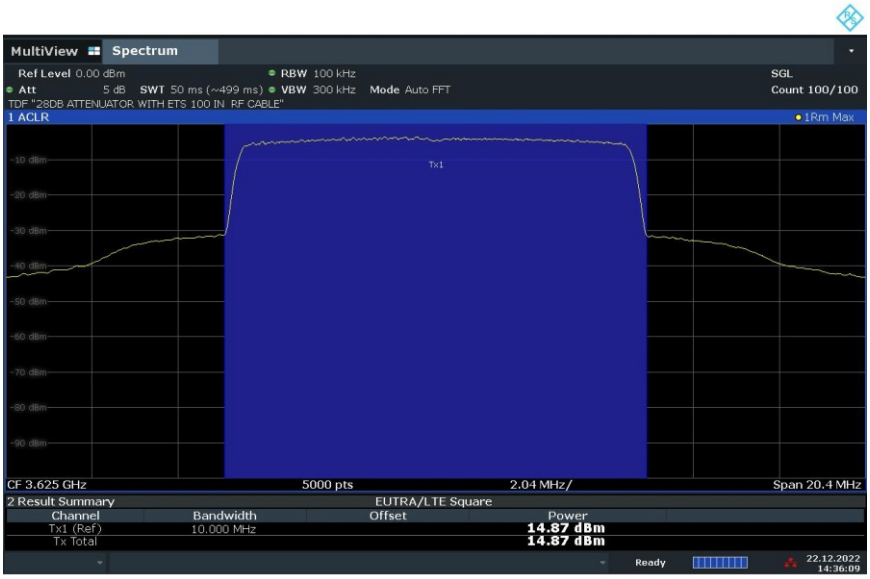
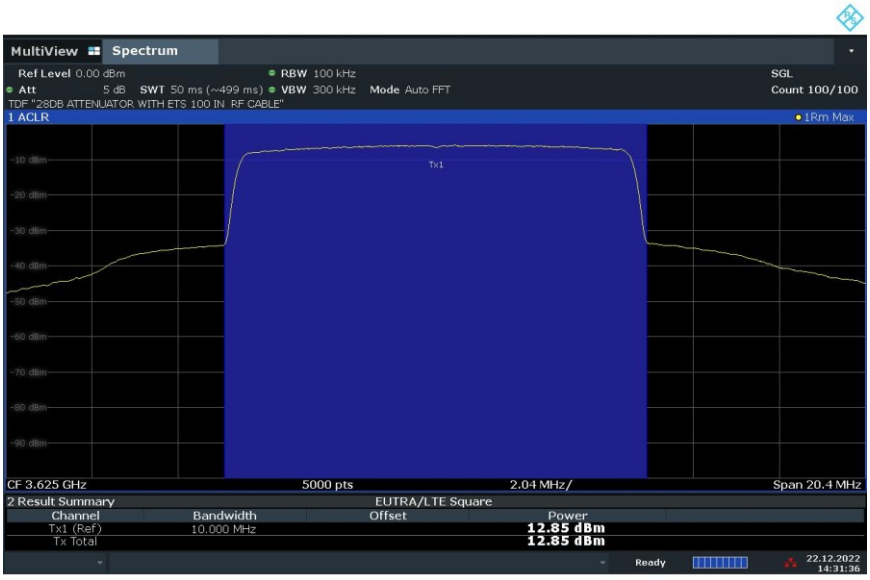


10:02:50 12.12.2022

Output Power Uplink ≤ 3dB above AGC threshold level using LTE B48



14:42:37 22.12.2022

Output Power Uplink ≤ 0.5dB AGC threshold level using LTE B48
 14:36:10 22.12.2022
Input Power Downlink 3dB above AGC threshold level using LTE B48
 14:31:37 22.12.2022

2.5 Out-Of-Band/Out-Of-Block (Including Intermodulation) Emissions And Spurious Emissions

2.5.1 Specification Reference

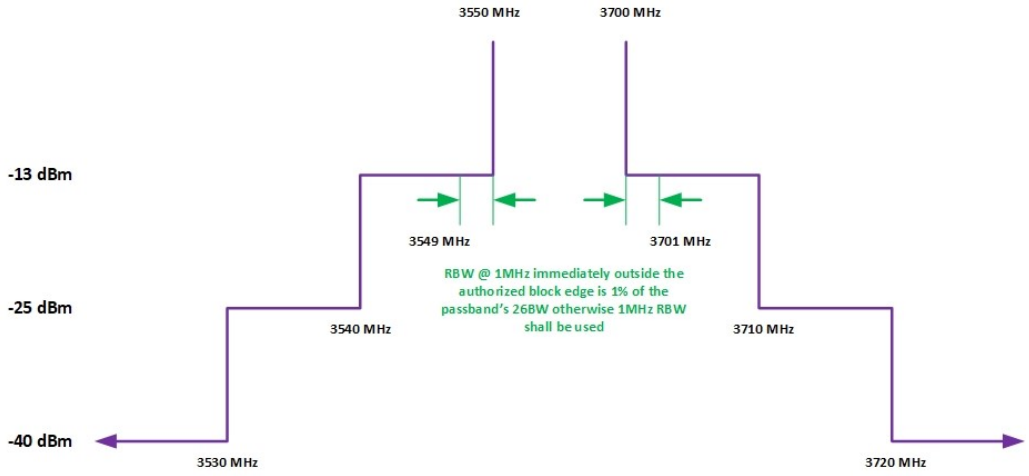
KDB935210 D05, Clause 3.6
§ 96.39 Subpart E – Technical Rules (e)(1)(i) and (e)(2)

2.5.2 Standard Applicable

Except as otherwise specified in paragraph (e)(2) of this section, for channel and frequency assignments made by the SAS to CBSDs, the conducted power of any CBSD emission outside the fundamental emission bandwidth as specified in paragraph (e)(3) of this section (whether the emission is inside or outside of the authorized band) shall not exceed −13 dBm/MHz within 0-10 megahertz above the upper SAS-assigned channel edge and within 0-10 megahertz below the lower SAS-assigned channel edge. At all frequencies greater than 10 megahertz above the upper SAS assigned channel edge and less than 10 MHz below the lower SAS assigned channel edge, the conducted power of any CBSD emission shall not exceed −25 dBm/MHz. The upper and lower SAS assigned channel edges are the upper and lower limits of any channel assigned to a CBSD by an SAS, or in the case of multiple contiguous channels, the upper and lower limits of the combined contiguous channels.

Additional protection levels. Notwithstanding paragraph (e)(1) of this section, for CBSDs and End User Devices, the conducted power of emissions below 3540 MHz or above 3710 MHz shall not exceed −25 dBm/MHz, and the conducted power of emissions below 3530 MHz or above 3720 MHz shall not exceed −40dBm/MHz.

Limits used for CMRS Non-Consumer Repeater and Idustrial Booster Device:



2.5.3 Equipment Under Test and Modification State

Serial No: 110222000051 and 481222000175 / Test Configuration A and B

2.5.4 Date of Test/Initial of test personnel who performed the test

December 12 to 14, 2022 / MRG

2.5.5 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.5.6 Environmental Conditions

Test performed at TÜV SÜD America Inc. Mira Mesa facility.

Ambient Temperature	20.4 to 21.9 °C
Relative Humidity	35.6 to 45.2 %
ATM Pressure	100.0 to 100.7 kPa

2.5.7 Additional Observations

- This is a conducted test. Test procedure is per Section 3.6.2 and 3.6.3 of KDB935210 D05.
- For this test, the applicable signal type (LTE B48 TDD) is used instead of an AWGN signal for accuracy.
- The EUT port that host LTE B48 does not have multi band support. Intermodulation verification will not be performed.
- This is a two-part verification. Out-Of-Band/Out-Of-Block Emissions and Conducted Spurious Emissions.
- For Conducted Spurious Emissions, in order to satisfy the sweep points requirements, the investigation is performed in four frequency ranges:
    1. 9kHz up to lower band/block edge frequency minus 1 MHz
    2. Upper band/block edge frequency plus 1 MHz up to 15.701GHz
    3. 15.701GHz up to 27.701GHz
    4. 27.701GHz up to 39.701GHz

2.5.8 Test Plots (out-of-band/out-of-block)

Downlink out-of-band/out-of-block low channel

14:56:14 12.12.2022

Downlink out-of-band/out-of-block low channel (3dB above AGC threshold)

15:02:08 12.12.2022

Downlink out-of-band/out-of-block high channel
 15:17:16 12.12.2022
Downlink out-of-band/out-of-block high channel (3dB above AGC threshold)
 15:19:00 12.12.2022

Downlink out-of-band/out-of-block low channel CW

14:59:27 12.12.2022

Downlink out-of-band/out-of-block low channel CW (3dB above AGC threshold)

15:06:04 12.12.2022

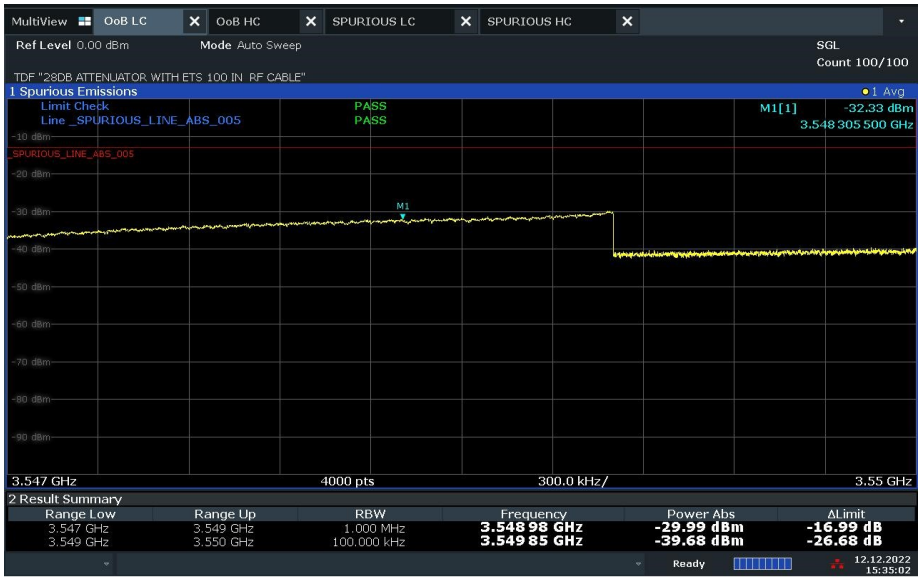
Downlink out-of-band/out-of-block high channel CW

15:17:16 12.12.2022

Downlink out-of-band/out-of-block high channel CW (3dB above AGC threshold)

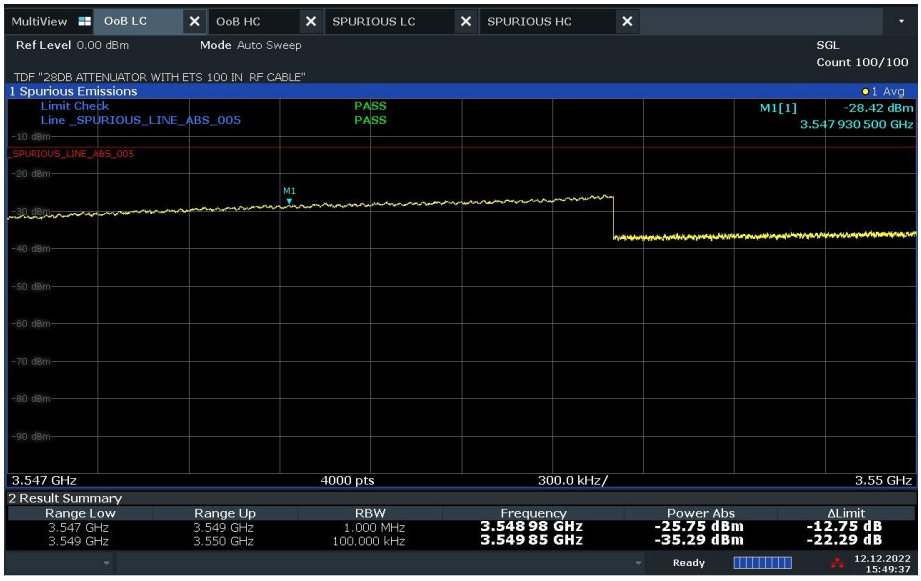
15:19:00 12.12.2022

Uplink out-of-band/out-of-block low channel



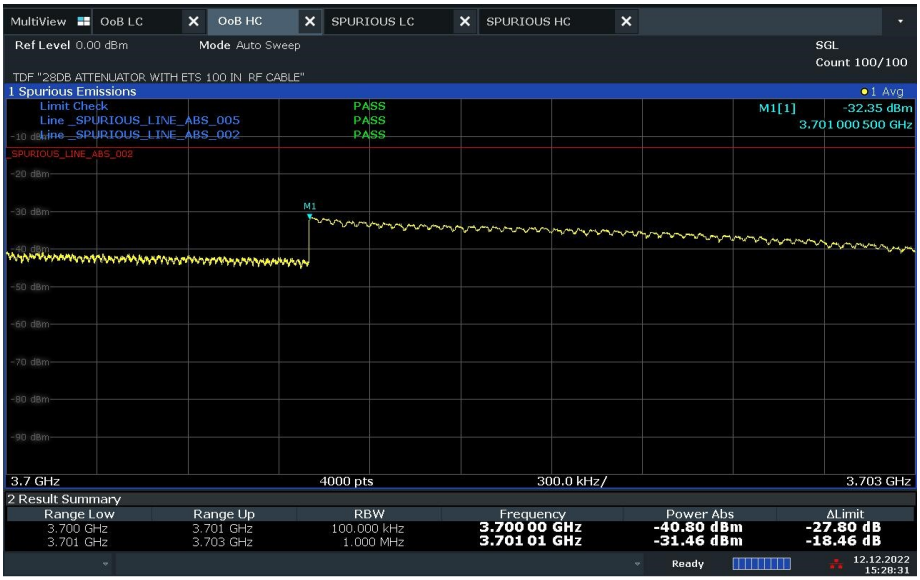
15:35:02 12.12.2022

Uplink out-of-band/out-of-block low channel (3dB above AGC threshold)



15:49:37 12.12.2022

Uplink out-of-band/out-of-block high channel



15:28:32 12.12.2022

Uplink out-of-band/out-of-block high channel (3dB above AGC threshold)

15:23:57 12.12.2022