Test Report

Report No.: E20230509197301-3

Customer:	Comba Telecom Network Systems Limited
Address:	Flat/Rm 10, 3/F, Bio-Informatics Ctr, 2 Science Park West Avenue, HK Science Park, Pak Shek Kok, N.T. Hong Kong
Sample Name:	Public Safety DAS
Sample Model:	RH78V3-A
Receive Sample Date:	May 16, 2023
Test Date:	May 17, 2023~ June 4, 2023
Reference Document:	FCC PART 90-- PRIVATE LAND MOBILE RADIO SERVICES
Test Result:	PASS
FCC ID:	PX8RH78V3-A

Prepared by: Chen Huiling Reviewed by: Chen Yuxia Approved by: Wang Hui

GRG METROLOGY & TEST GROUP CO., LTD.

Issued Date: June 13, 2023

GRG METROLOGY & TEST GROUP CO., LTD.
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2. The sample information is provided by the client and responsible for its authenticity; The content of the report is only valid for the samples sent this time.

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4. If there is any objection concerning the report, please inform us within 15 days from the date of receiving the report.

5. Without the agreement of the laboratory, the client is not authorized to use the test results for unapproved propaganda.

6. The test report without CMA approval mark is only used for scientific research, teaching, internal quality control and other purposes.

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1. Applicant information

1.1. Client information

Name:	Comba Telecom Network Systems Limited
Address:	Flat/Rm 10, 3/F, Bio-Informatics Ctr, 2 Science Park West Avenue, HK Science Park, Pak Shek Kok, N.T. Hong Kong

1.2. Manufacturer and Factory

Manufacture Name:	Comba Network Systems Company Limited
Address:	No. 10 Shenzhou Road, Guangzhou Science City, Guangzhou 510663, Guangdong, P.R.China
Factory:	Comba Telecom Technology (Guangzhou) Ltd.
Address:	No. 6 Jinbi Road, Economics and Technology Development District, Guangzhou, Guangdong, China

2. General description of EUT

2.1. Basic description of EUT

Product Name:	Public Safety DAS
Product Model:	RH78V3-A
Trade Name:	Comba
Power Supply:	Typical working voltage: AC 110V, 50/60Hz
Power cord:	AC power cord
Frequency Band:	700MHz Band: Downlink: 769MHz ~ 775MHz, Uplink: 799MHz ~805MHz 800MHz Band: Downlink: 851MHz ~861MHz, Uplink: 806MHz ~ 816MHz
Nominal Output Power:	Downlink: 32±1dBm (Center Frequency) Uplink: 27±1dBm(Center Frequency)
Nominal System Gain:	Downlink: 90±2dB(Center Frequency) Uplink: 90±2dB(Center Frequency)
EUT Operating Temperature:	-40°C to +55°C
Operating Humidity:	5% to 95%
Antenna Type:	N/A①

NOTE 1: This EUT is a Broadband device, which belongs to Class A signal booster.

NOTE 2: ① The EUT does not provide antenna by manufacturer's statement, but it is required that antenna gain shall not exceed 4dBi for downlink and 9 dBi for uplink when the project is used by manufacturer's statement.

NOTE 3: This Public Safety DAS system consists of Main Unit (MU), Expansion Unit (EU) and Remote Unit (RU), MU and EU are auxiliary equipment, while RU is the main equipment.

2.2. Signal Booster control process

2.2.1. System block

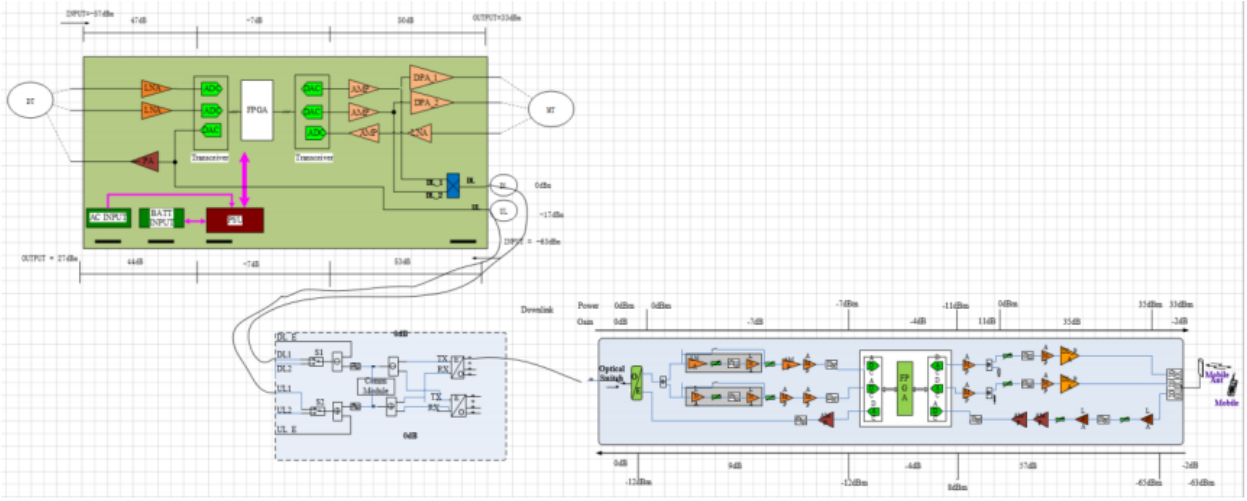

Figure 2-1 System block diagram

2.2.2. Signal control process

In the downlink path, the BTS signals are received by the donor antenna that is connected to the Master Unit. After the duplexer, the signals are sent to the LNA module for pre-amplification and to the digital RF integrated module for digital filtering and frequency conversion. Then the DL signals will be filtered via the duplexer, and then sent to the Expansion Unit(s), the RF signal is converted into an optical signal and then distributed to the Remote Unit(s) to over optical fiber. After amplification by the RU, the signals are transmitted at the MT port to the service.

In the uplink path, the mobile signals are received by the service antenna. After passing through the MT port duplexer, the signals are sent to the LNA and the integrated module for digital filtering, then the UL signals will be sent to the Expansion Unit(s), the RF signal is converted into an optical signal and then distributed to the Master Unit for filtering by the duplexer and power amplification. Finally, the uplink signals are sent to the donor antenna for transmission back to the BTS.

Both DL PA and UL PA have ALC function (ALC= Auto Level Control) to control the output power under the rated output power.

Downlink detection circuit detect the downlink output power at PA output port of Remote unit(RU) and send to differential comparator to compare with the rated output power 32±1dBm, and the output of differential comparator will send control level to attenuator at PA input port to make sure the output power at PA output port is not higher than 33dBm (TX/RX Separate).

Uplink detection circuit detect the uplink output power at PA output port of Master unit(MU) and send to differential comparator to compare with the rated output power 27±1dBm, and the output of differential comparator will send control level to attenuator at PA input port to make sure the output power at PA output port is not higher than 28dBm (TX/RX Separate).

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3. Test signal modulation description

Refer to FCC PART 2.202 (g), Table of necessary bandwidths follow:

3.1. Analog signals

Emission Designator	Description	Modulation type	M (modulaition Freq, kHz)	R (Rate, baud sym/s)	D (Deviation, kHz)	K (numeric constant)	S (Symbols)	Bandwidth Calculation	Necessary Bandwidth (kHz)
11K0F3E	Narrowband Analog FM Voice	FM	3.0	--	2.5	1.0	--	Bn=2M+2DK	11.0
16K0F3E	Wideband Analog FM Voice	FM	3.0	--	5.0	1.0	--	Bn=2M+2DK	16.0

3.2. Digital signals

Emission Designator	Description	Modulation type	M (modulaition Freq, kHz)	R (Rate, baud sym/s)	D (Deviation, kHz)	K (numeric constant)	S (Symbols)	Bandwidth Calculation	Necessary Bandwidth
8K10F1E	P25 Phase I C4FM Voice	4FSK	--	9600	1.8	0.916	4	$Bn=(R/\log_2 S)+2DK$	8.1
8K10F1D	P25 Phase I C4FM Data	4FSK	--	9600	1.8	0.916	4	$Bn=(R/\log_2 S)+2DK$	8.1
8K10F1W	P25 Phase II H-CPM Voice/Data	4FSK	--	9600	1.8	0.916	4	$Bn=(R/\log_2 S)+2DK$	8.1
9K80F1E	P25 Phase II H-DQPSK Voice	QPSK	--	12000	--	0.817	4	$Bn=2RK/\log_2 S$	9.8
9K80F1D	P25 Phase II H-DQPSK Data	QPSK	--	12000	--	0.817	4	$Bn=2RK/\log_2 S$	9.8
7K60FXE	DMR Voice	4FSK	--	9600	1.8	0.778	4	$Bn=(R/\log_2 S)+2DK$	7.6
7K60FXD	DMR Data	4FSK	--	9600	1.8	0.778	4	$Bn=(R/\log_2 S)+2DK$	7.6
21K0F1E	Tetra Voice	$\pi/4$DQPSK	--	9600	--	2.188	4	$Bn=2RK/\log_2 S$	21.0
21K0F1D	Tetra Data	$\pi/4$DQPSK	--	9600	--	2.188	4	$Bn=2RK/\log_2 S$	21.0

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NOTE: In the above test signal modes, the typical signal and the worst mode signal are used as representatives in this test. The specific test signal types are as follows:

Emission Designator	Description	Modulation type	M (modulaition Freq, kHz)	R (Rate, baud sym/s)	D (Deviation, kHz)	K (numeric constant)	S (Symbols)	Bandwidth Calculation	Necessary Bandwidth
16K0F3E	Wideband Analog FM Voice	FM	3.0	--	5.0	1.0	--	Bn=2M+2DK	16.0
8K10F1D	P25 Phase I C4FM Data	4FSK	--	9600	1.8	0.916	4	$Bn=(R/\log_2 S)+2DK$	8.1
9K80F1D	P25 Phase II H-DQPSK Data	QPSK	--	12000	--	0.817	4	$Bn=2RK/\log_2 S$	9.8
7K60FXD	DMR Data	4FSK	--	9600	1.8	0.778	4	$Bn=(R/\log_2 S)+2DK$	7.6
21K0F1D	Tetra Data	$\pi/4$DQPSK	--	9600	--	2.188	4	$Bn=2RK/\log_2 S$	21.0

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4. Reference documents

FCC PART 2(5/22/2023)
FCC PART 90(5/22/2023)
KDB 935210 D05 Indus Booster Basic Meas v01r04
KDB 935210 D02 Signal Booster Certification v04r02
KDB 971168 D01 Power Meas License Digital Systems v03r01
ANSI/TIA 603-E-2016
ANSI/TIA-102.CAAA-E-2016
ANSI C63.26-2015

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5. Test result summary

Test Item	Test Requirements	Test Method	Reported	N/A
Test Frequency	KDB 935210 D02 APPENDIX D/Table D.3, ANSI C63.26-2015 Clause 5.1.2	/	Reported only	
Input Signals	KDB 935210 D05 clause 4.1	/	Reported only	
AGC Threshold	KDB 935210 D05 clause 4.2	/	Reported only	
Out of Band Rejection	FCC PART 90.219 (a) FCC PART 90.219 (d)((7)	KDB 935210 D05 clause 4.3	☒	
Input VS output Comparison	KDB 935210 D05 clause 4.4 FCC PART 2.1049(c) FCC PART 90.210 FCC PART 90.219 (e)(4)(ii) FCC PART 90.219 (e)(4)(iii)	KDB 935210 D05 clause 4.4	☒	
Mean power and amplifier/booster gain	KDB 935210 D05 clause 4.5 FCC PART 90.219 (e)(1)	KDB 935210 D05 clause 4.5	☒	
Noise Figure	KDB 935210 D05 clause 4.6 FCC PART 90.219 (e)(2)	KDB 935210 D05 clause 4.6	☒	
Out-of-band/out-of-block emissions	KDB 935210 D05 clause 4.7.2 FCC PART 90.219 (d)(6)(i) FCC PART 90.219 (e)(3)	KDB 935210 D05 clause 4.7.2	☒	
Conducted spurious emissions	KDB 935210 D05 clause 4.7.3 FCC PART 2.1051 FCC PART 90.219 (e)(3)	KDB 935210 D05 clause 4.7.3	☒	
Frequency stability	KDB 935210 D05 clause 4.8 FCC PART 2 1055(a)(2) FCC PART 90.213 and 90.539 FCC PART 90.219 (e)(4)(i)	KDB 935210 D05/4.8 FCC PART 2 1055(b)	☒	
Radiated spurious emissions	KDB 935210 D05 clause 4.9 FCC PART 2.1053 FCC PART 90.219 (e)(3)	KDB 935210 D05 clause 4.9 ANSIC63.26-2015/5.5 ANSI/TIA 603-E-2016 ANSI/TIA-102.CAAA-E-2016	☒	

NOTE: ☒ mean that test needs to be performed.

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6. About Signal Booster

According to the basic information of EUT and FCC part 90.219 (a) and KDB 935210 D02 APPENDIXA3.1 rules, this EUT belongs to PART 90 class B Industrial signal booster and it is a non SMR.

6.1. KDB 935210 D02 APPENDIXA3.1

A.3.1 Signal Booster (Section 90.219)

A **Signal Booster (Section 90.219)** is a device or system that automatically receives, amplifies, and retransmits signals from wireless stations into and out of building interiors, tunnels, shielded outdoor areas and other locations where these signals would otherwise be too weak for reliable communications. Signal booster systems may contain both Class A and Class B signal boosters as components. [Section 90.219(a)]

All **Section 90.219 boosters** are a type of Industrial Signal Booster, and are classified as either **Class A boosters** (narrowband) or **Class B boosters** (wideband).[R11] [*Order*, ¶ 15]

Note also that Consumer Signal Boosters are not defined for PLMRS or PSRS because licensees are considered to operate private services. Part 90 PLMR licensees typically obtain authorizations for individual narrowband channels or groups of channels to satisfy their own communication needs. Moreover, many Part 90 channels are interleaved and a licensee's channels may not be adjacent to one another, which presents unique considerations for signal boosters used with Part 90 PLMR services. [*Order*, ¶ 144]

a) Class A signal booster: A signal booster designed to retransmit signals on one or more specific channels. A signal booster is deemed to be a Class A signal booster if none of its passbands exceed 75 kHz. [Section 90.219(a)]

b) Class B signal booster: A signal booster designed to retransmit any signals within a wide frequency band. A signal booster is deemed to be a Class B signal booster if it has a passband that exceeds 75 kHz. [Section 90.219(a)]

6.2. FCC part 90.219 (a) Definitions

§90.219 Use of signal boosters.

This section contains technical and operational rules allowing the use of signal boosters in the Private Land Mobile Radio Services (PLMRS). Rules for signal booster operation in the Commercial Mobile Radio Services under part 90 are found in §20.21 of this chapter.

https://www.ecfr.gov/cgi-bin/text-idx?SID=2097cbedce8abb94d012e95530a44e05&mc=true&node=pt47.5.90&rgn=div5

2020/6/15 Electronic Code of Federal Regulations (eCFR)

(a) *Definitions.* The definitions in this paragraph apply only to the rules in this section.

Class A signal booster. A signal booster designed to retransmit signals on one or more specific channels. A signal booster is deemed to be a Class A signal booster if none of its passbands exceed 75 kHz.

Class B signal booster. A signal booster designed to retransmit any signals within a wide frequency band. A signal booster is deemed to be a Class B signal booster if it has a passband that exceeds 75 kHz.

7. Test modes

Test modes	Downlink mode: After the Main Unit (MU), Expansion Unit (EU) and Remote Unit (RU) are connected, the "DT" port of the MU is connected to the signal generator, and the "MT" port of the RU is connected to the spectrum analyzer through the attenuator to turn on the MU and RU power supplies and transmit signals. Uplink mode: After the Main Unit (MU), Expansion Unit (EU) and Remote Unit (RU) are connected, the "MT" port of the RU is connected to the signal generator, and the "DT" port of the MU is connected to the spectrum analyzer through the attenuator to turn on the MU and RU power supplies and transmit signals.

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8. Laboratory

8.1. Laboratory

The tests & measurements refer to this report were performed by GRG METROLOGY & TEST （CHENGDU）CO., LTD.

Testing Certificate Number: 2861.02

Add.	:	Park,No.9,Wu Ke East 3rd Road, WuHou District,ChengDu,SiChuan,610045,People's Republic of China
P.C.	:	610045
Tel	:	028-86496437
Fax	:	028-86496437

8.2. Accreditations

Our laboratories are accredited and approved by the following approval agencies according to ISO/IEC 17025.

USA:	A2LA(Certificate #2861.02)

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9. Measurements uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Measurement		Frequency	Uncertainty
Radiated spurious emissions	Horizontal	30MHz～1000MHz	4.8dB
	Horizontal	1GHz～18GHz	5.1dB
	Vertical	30MHz～1000MHz	4.9dB
	Vertical	1GHz～18GHz	5.0dB

Measurement	Uncertainty
RF frequency	6.0×10^{-6}
RF power conducted	0.60dB
Occupied channel bandwidth	0.40%
Unwanted emission, conducted	0.66dB
Humidity	6.0%
Temperature	2.0℃

Note: This uncertainty represents an expanded uncertainty factor of *k*=2.

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10. Test instrument equipment and accessory equipment during test

10.1. Test instrument

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due	Calibration Period
Vector Signal Generator	Agilent	N5182A	MY50142870	2023-07-13	1 year
Vector Signal Generator	Agilent	N5173B	MY53271076	2023-11-11	1 year
Vector Signal Generator	R&S	SMBV 100B	101965	2023-07-17	1 year
Vector Signal Generator	R&S	SMBV 100A	260996	2023-11-17	1 year
Spectrum analyzer	R&S	FSV30	103264	2023-09-22	1 year
Spectrum analyzer	Keysight	N9010B	MY56460128	2023-11-11	1 year
NFA Series Noise Figure Analyzer	Agilent	N8973A	MY45272551	2023-11-22	1 year
SNS Series Noise Source	Agilent	N4000A	MY53232432	2024-03-22	1 year
Frequency meter	Suin	SS7300	6F8052017	2023-09-21	1 year
Power splitter	WEINSCHEL	1580	SL767	2024-01-15	1 year
AC variable frequency power supply	GuangzhouYUXI	YT-11010	4550	2024-02-09	1 year
Receiver	R&S	ESU40	100106	2023-09-20	1 year
Bi-log Antenna	Schwarzbeck	VULB 9168	01303	2023-07-30	1 year
Bi-log Antenna	Schwarzbeck	VULB 9163	01175	2023-09-18	1 year
Horn Antenna	Schwarzbeck	BBHA9120D	01668	2023-12-06	1 year
Horn Antenna	ETS	3117 C	00075824	2023-12-30	1 year
Broadband Amplifiers	Schwarzbeck	BBV 9718 C	00073	2024-02-27	1 year
Broadband Amplifiers	Schwarzbeck	BBV9718 C	00074	2024-05-26	1 year
Semi-anechoic chamber	SAEMC	10×8×6.4m	SA180320	2024-09-15	3 year
Semi-anechoic chamber	ETS-lindgren	966(RFD-F/A-100)	3730	2023-09-11	1 year

10.2. Test accessory instrument

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due	Calibration Period
Attenuation	Shanghaihua xiang	DTS50-20dB-3G-A	16111001	2023-11-11	1 year
Voltage regulator	Qingdaoqingzhi	TDGC2J-5	GRGTAG2013026	/	/

11. Radio technical requirement specification

11.1. Test Frequencies

Test requirement: KDB 935210 D02 APPENDIX D/Table D.3
FCC PART 2.1057
ANSI C63.26-2015 Clause 5.1.2

11.1.1. Requirements

Reference to FCC regulations, FCC part 2.1057, ANSI C63.26-2015 clause 5.1.2 and KDB 935210 D02 Appendix D / table D.3 have relevant frequency band requirements.

(1) FCC PART 2.1057

§2.1057 Frequency spectrum to be investigated.

(a) In all of the measurements set forth in §§2.1051 and 2.1053, the spectrum shall be investigated from the lowest radio frequency signal generated in the equipment, without going below 9 kHz, up to at least the frequency shown below:

(1) If the equipment operates below 10 GHz: to the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower.

(2) If the equipment operates at or above 10 GHz and below 30 GHz: to the fifth harmonic of the highest fundamental frequency or to 100 GHz, whichever is lower.

(3) If the equipment operates at or above 30 GHz: to the fifth harmonic of the highest fundamental frequency or to 200 GHz, whichever is lower.

(b) Particular attention should be paid to harmonics and subharmonics of the carrier frequency as well as to those frequencies removed from the carrier by multiples of the oscillator frequency. Radiation at the frequencies of multiplier stages should also be checked.

(c) The amplitude of spurious emissions which are attenuated more than 20 dB below the permissible value need not be reported.

(d) Unless otherwise specified, measurements above 40 GHz shall be performed using a minimum resolution bandwidth of 1 MHz.

(2) ANSI C63.26-2015 Clause 5.1.2

5.1.2 Number of fundamental frequencies to be tested in EUT transmit band

5.1.2.1 General requirement

Measurements of transmitters shall be performed and, if required, reported for each frequency band in which the EUT can be operated with the device transmitting at the number of frequencies in each band specified in Table 2.

[24] See 47 CFR 2.1057.

Table 2—Number of frequencies to be tested

Frequency range over which EUT operates	Number of frequencies	Location in frequency range of operation
1 MHz or less	1	Middle
1 MHz to 10 MHz	2	1 near top and 1 near bottom
More than 10 MHz	3	1 near top, 1 near middle, and 1 near bottom

(3) KDB 935210 D02 APPENDIX D/Table D.3

Section 90.219 purposes (for info only – see rules for details, also KDB Publication 634817 [R14])

F_L (MHz)	–	F_L (MHz)	Rule(s)	Misc. Notes
150	–	150.05	Federal (non-FCC)	
150.05	–	150.8	90.265	
150.8	–	162.0125	90	
162.0125	–	173.2	90.265	
173.2	–	173.4	90	
173.4	–	174	Federal (non-FCC)	
406.1	–	420	90.265	
420	–	421	ULS presently shows no licensees for 420-420.9 MHz	
421	–	430	90	
430	–	450	Not available under 90 Subparts B, C land mobile service	
450	–	470	90 (selected bands)	
470	–	512	90	
746	–	757	27.5(b)(3) Block C; 90 not available	
757	–	758	27.5(b)(1) Block A; 90 not available	
758	–	768	90-R, Public Safety (PS) Broadband (FirstNet)	B9B (LTE)
768	–	769	PS Guardband	
769	–	775	PS Narrowband	
775	–	776	27.5(b)(2) Block B; 90 not available	
776	–	787	27.5(b)(3) Block C; 90 not available	
787	–	788	27.5(b)(1) Block A; 90 not available	
788	–	798	90-R, Public Safety (PS) Broadband (FirstNet)	B9B (LTE)
798	–	799	PS Guardband	
799	–	805	PS Narrowband	
805	–	806	27.5(b)(2) Block B; 90 not available	
806	–	809	90 NPSPAC (PS) [90.617(a)(1)]	B9B/B9A
809	–	815	90 Interleaved PS; B/ILT; SMR [90.614(a); 90.613 ch. nos. 1-470][a]	B9B/B9A
815	–	816	90 Expansion B/ILT; SMR [90.614(a); 90.613 ch. nos. 470-550][a]	B9B/B9A
816	–	817	90 Guardband	B9B/B9A
817	–	824	CMRS 90 ESMR [90.614(b); 90.613 ch. nos. 551-830]	B2I 90-S
824	–	849	22 H; 90 not available	B2I
849	–	851	22 G; 90 not available	BOS
851	–	854	90 NPSPAC (PS) [90.617(a)(1)]	B9B/B9A
854	–	860	90 Interleaved PS; B/ILT; SMR [90.614(a); 90.613 ch. nos. 1-470][a]	B9B/B9A
860	–	861	90 Expansion B/ILT; SMR [90.614(a); 90.613 ch. nos. 470-550][a]	B9B/B9A
861	–	862	90 Guardband	B9B/B9A
862	–	869	CMRS 90 ESMR [90.614(b); 90.613 ch. nos. 551-830]	B2I 90-S
869	–	894	22-H; 90 not available	B2I
894	–	896	22-G; 90 not available	BOS
896	–	901	90 Interleaved B/ILT [90.617(c)] and SMR [90.617(f)]; UL (donor)	B2I 90-S & B9B/B9A 90-S
901	–	902	24-D; 90 not available	B2I
928	–	929	101; 90 not available[b,c]	BOS
929	–	930	90[b,c]	B9B/B9A
930	–	931	24-D; 90 not available	B2I
931	–	932	22-E; 90 not available	B2I
932	–	935	101; 90 not available	BOS
935	–	940	90 Interleaved B/ILT [90.617(c)] and SMR [90.617(f)]; DL (server)	B2I 90-S & B9B/B9A 90-S

The EUT will utilize bands:

700MHz Band: Downlink: 769MHz ~ 775MHz, Uplink: 799MHz ~ 805MHz
800MHz Band: Downlink: 851MHz ~ 861MHz, Uplink: 806MHz ~ 816MHz

11.1.2. Result

This project is only reported and checked, the frequency range of this EUT meets the above regulatory requirements.

11.2. Input Signals

Test requirement: KDB 935210 D05 clause 4.1

11.2.1. Requirements

KDB 935210 D05 clause 4.1

The procedures in this clause are specific to EUTs intended for operating in the Private Land Mobile Radio Services (PLMRS) and Public Safety Radio Services (PSRS)[5], which are governed under the provisions and requirements of the Part 90 rules (i.e., Section 90.219 applies).

Table 1 depicts signal types associated with PLMRS operations, which are to be considered as test signals to be used in performing compliance testing on PLMRS amplifiers, repeaters, and industrial boosters. Not all of the procedures in this clause will require using each of the signals listed in Table 1, because for

[5] As explained in § 90.16, Public Safety Radio Services is part of the Public Safety Radio Pool, also known as the Public Safety Pool.

many EUTs a CW tone can adequately model the narrowband signals typically encountered within these services. For EUTs supporting digitally modulated signals, the intended operating signal types should be tested (e.g., P25 Phase 1, P25 Phase 2, TETRA, etc.), especially for PSRS devices. Devices intended for use in 700 MHz Public Safety Broadband spectrum shall be tested using a representative band-limited AWGN signal (99 % OBW of 4.1 MHz) or the applicable signal type (e.g., LTE).

Table 1—Test signals for PLMRS devices

Emission Designator	Modulation	Occupied Bandwidth	Channel Bandwidth	Audio Frequency
16K0F3E	FM	16 kHz	25 kHz	1 kHz
11K3F3E	FM	11.3 kHz	12.5 kHz	1 kHz
4K00F1E	FM	4 kHz	6.25 kHz	1 kHz
N/A	CW	N/A	N/A	N/A

11.2.2. Result

Test Date (yy-mm-dd): 2023-05-17

Normal condition: Temp: 28.1℃, Humid: 62%, Atmospheric Pressure:101kpa

Supply Voltage: AC 110V, 50Hz

This project is only reported and checked.

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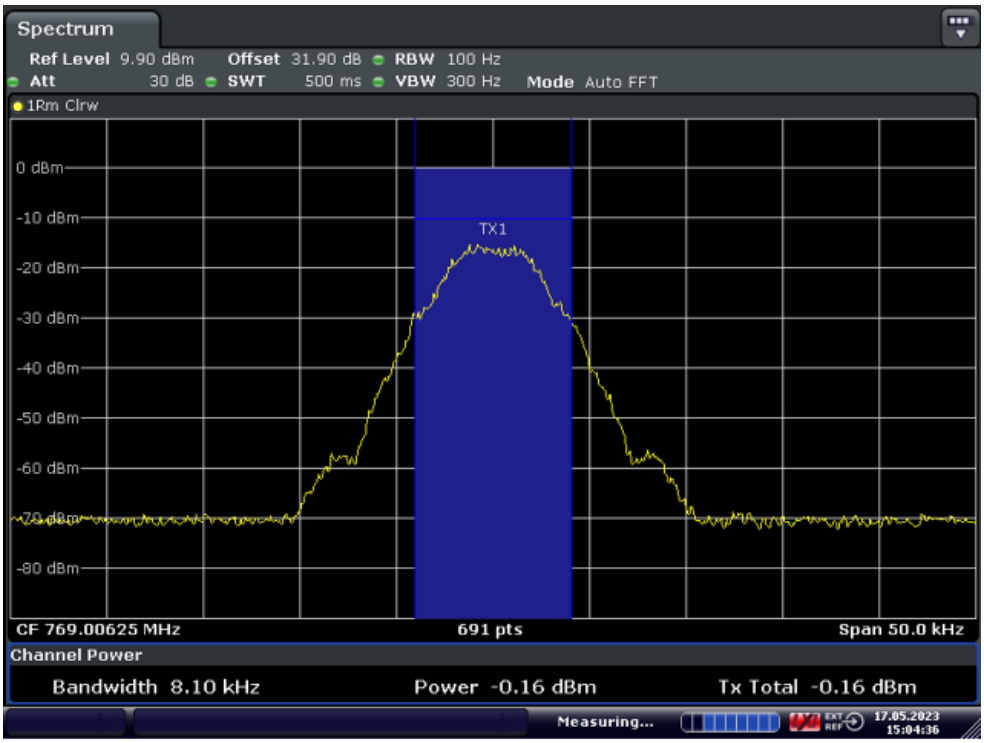
11.2.3. Input Signals screenshot

11.2.3.1. 700MHz Band

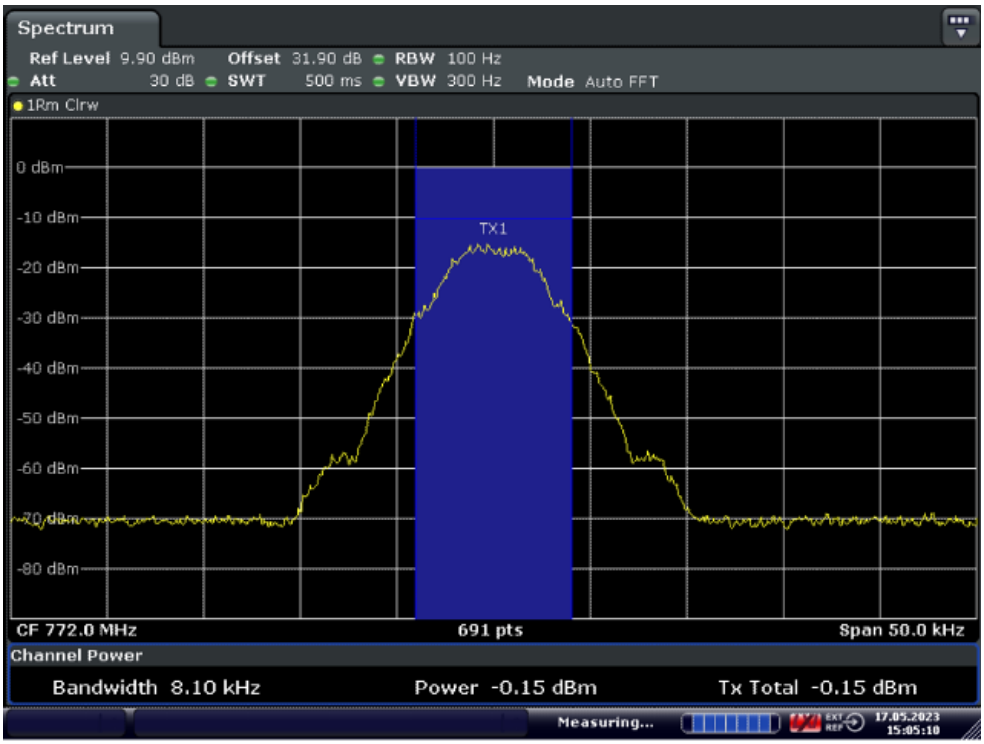
11.2.3.1.1. P25 Phase I(C4FM)

11.2.3.1.1.1. Downlink



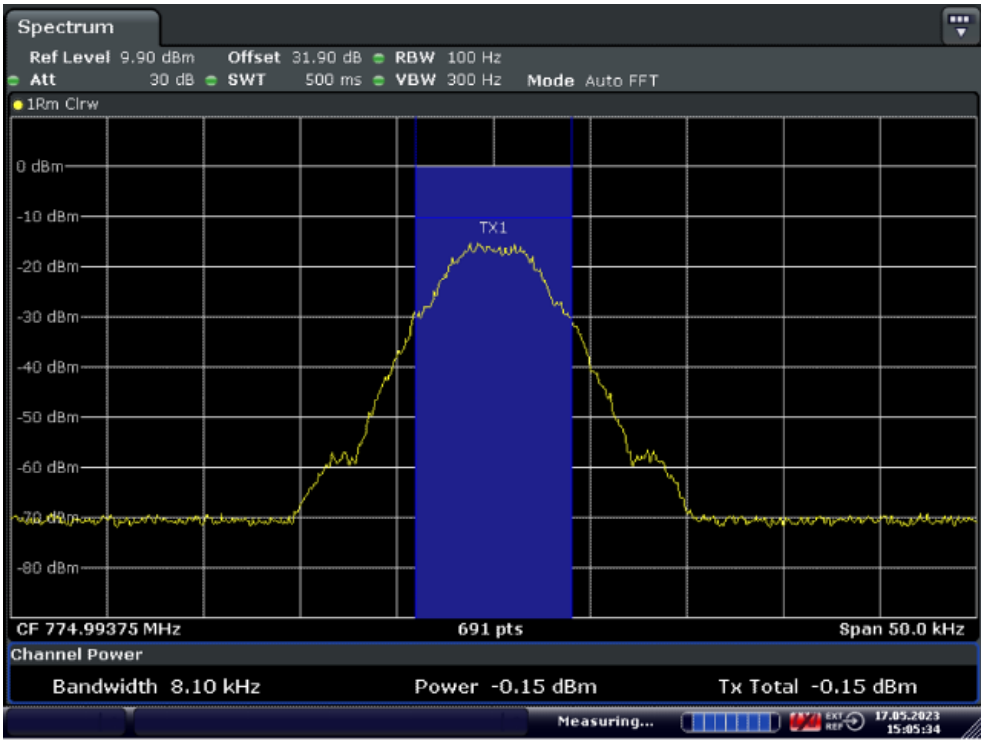
Date: 17.MAY.2023 15:04:37

Low Frequency: 769.00625MHz



Date: 17.MAY.2023 15:05:11

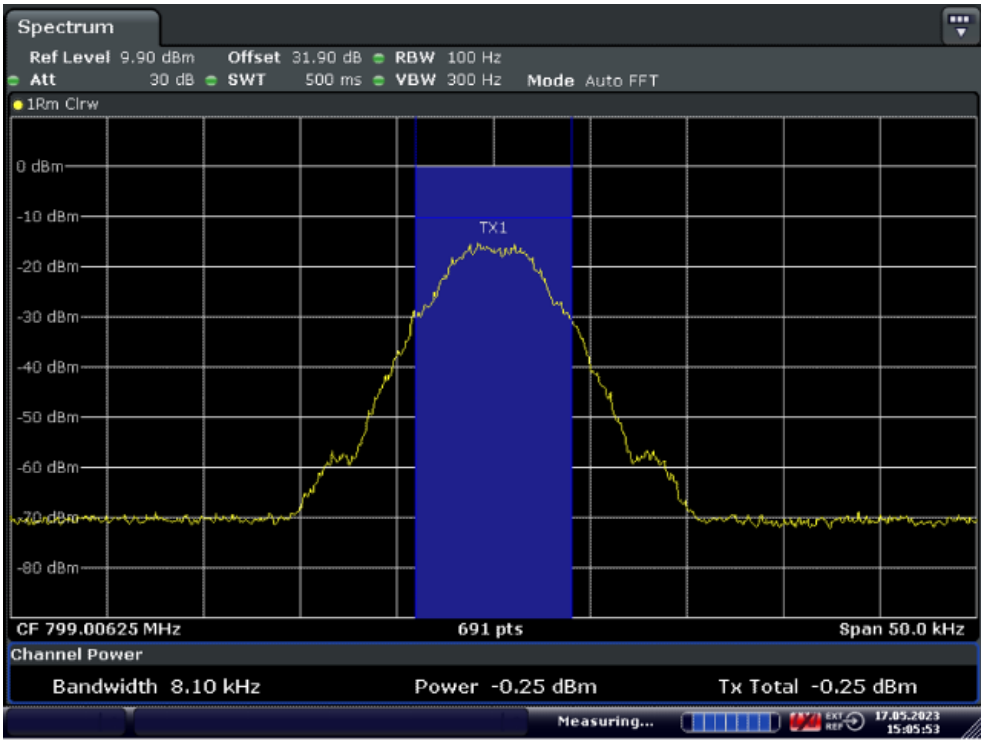
Middle Frequency: 772.0MHz



Date: 17.MAY.2023 15:05:34

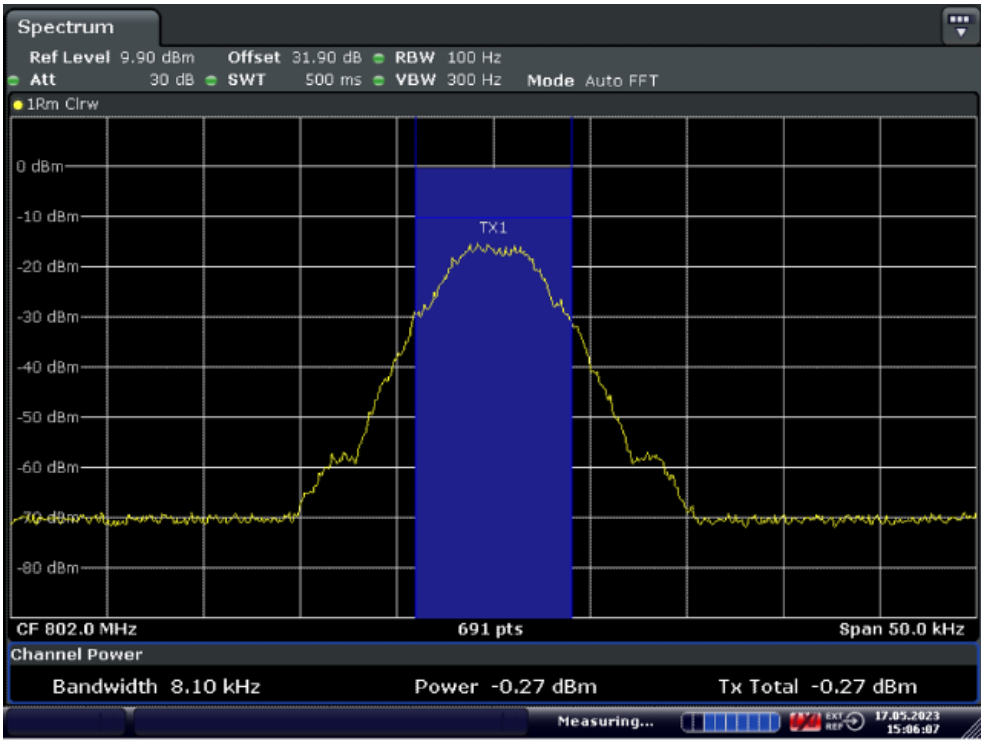
High Frequency: 774.99375MHz

11.2.3.1.1.2. Uplink



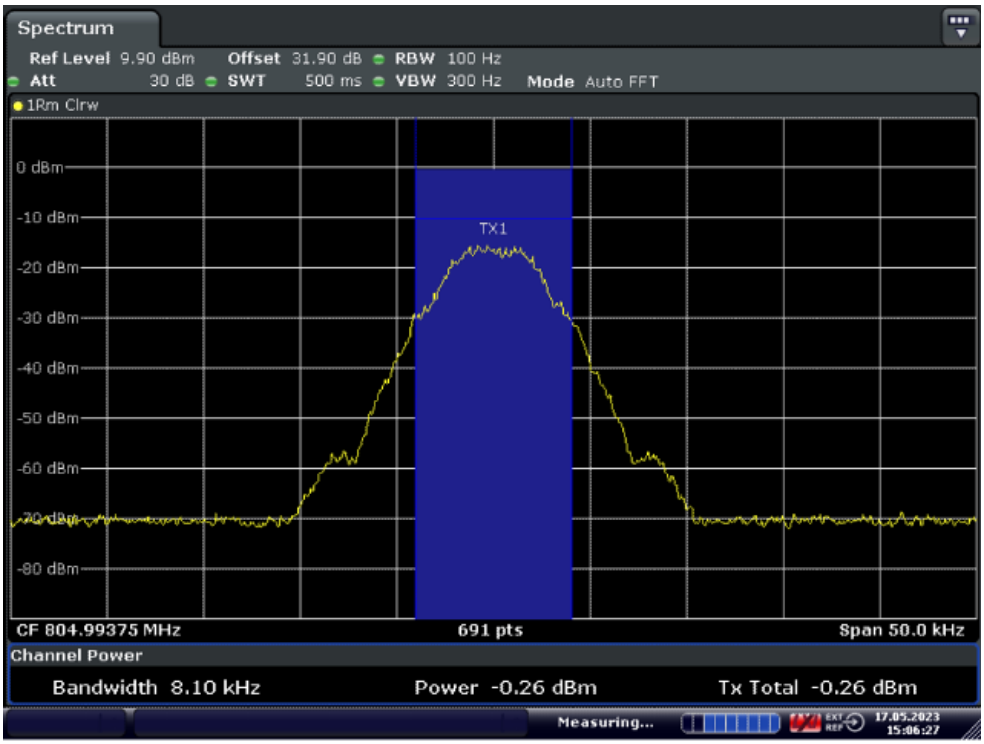
Date: 17.MAY.2023 15:05:53

Low Frequency: 799.00625MHz



Date: 17.MAY.2023 15:06:08

Middle Frequency: 802.0MHz

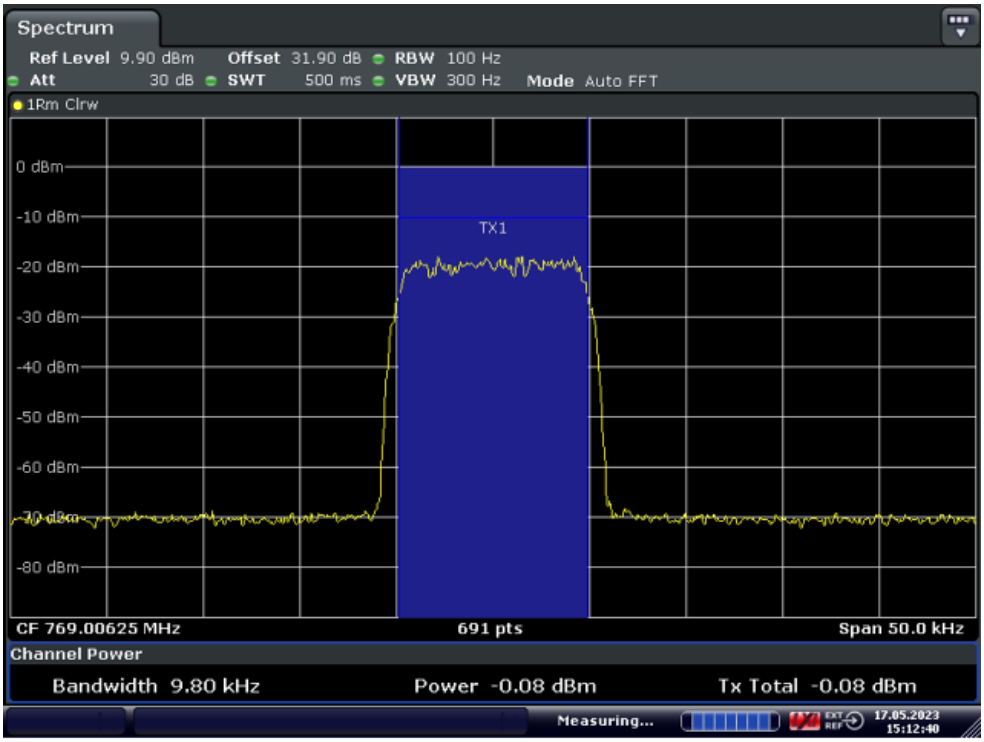


Date: 17.MAY.2023 15:06:28

High Frequency: 804.99375MHz

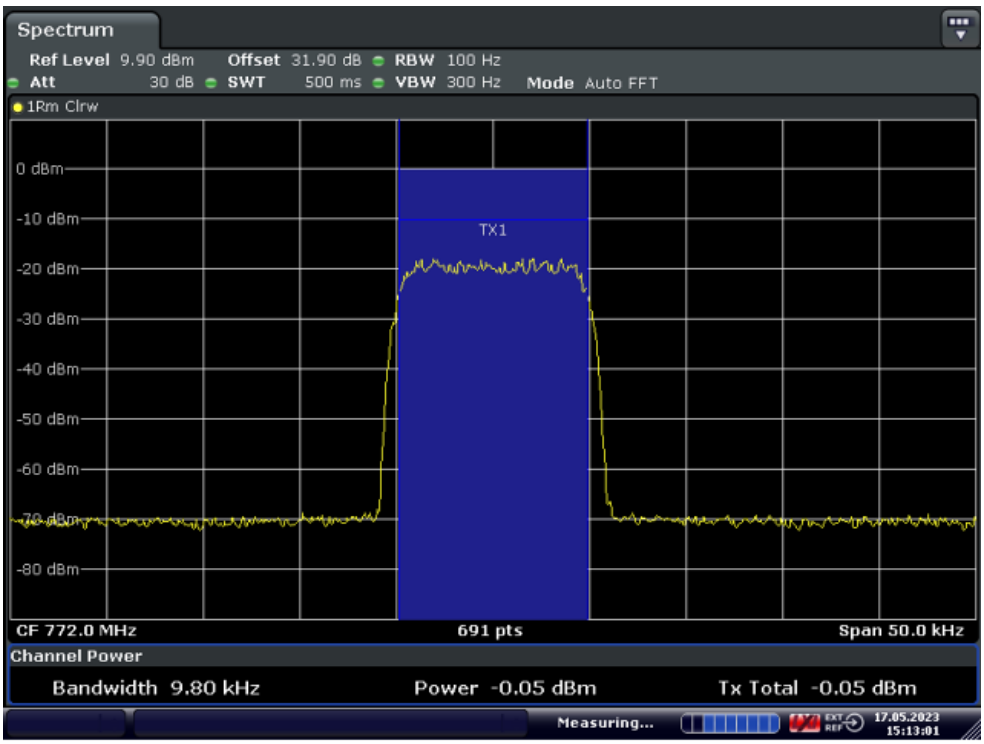
11.2.3.1.2. P25 Phase II(H-DQPSK)

11.2.3.1.2.1. Downlink



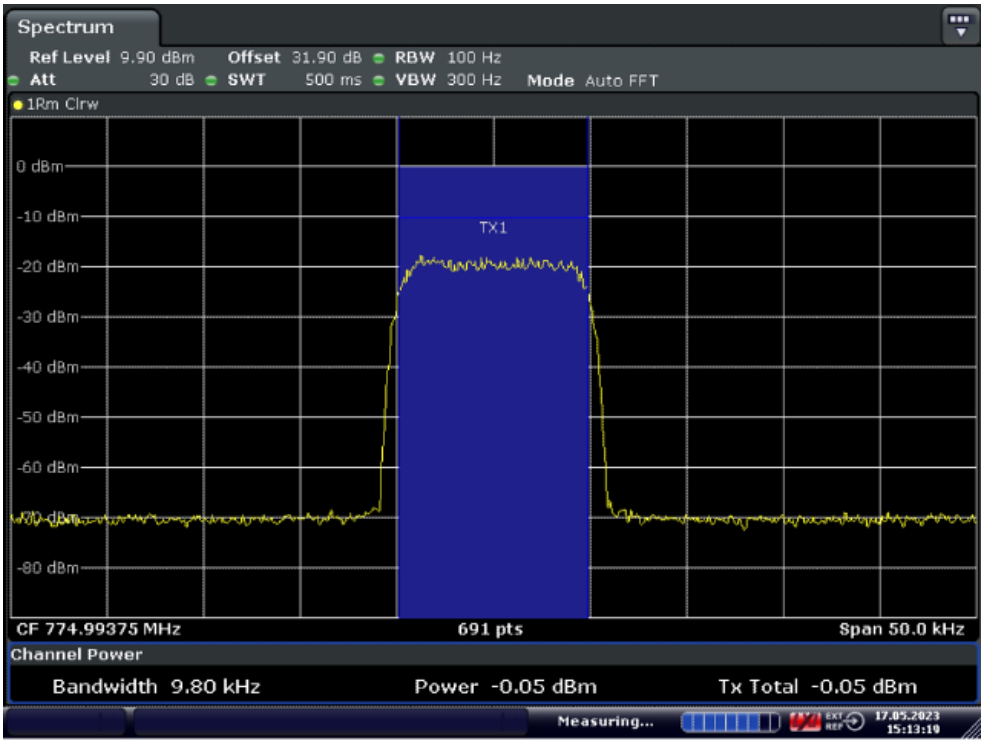
Date: 17.MAY.2023 15:12:41

Low Frequency: 769.00625MHz



Date: 17.MAY.2023 15:13:01

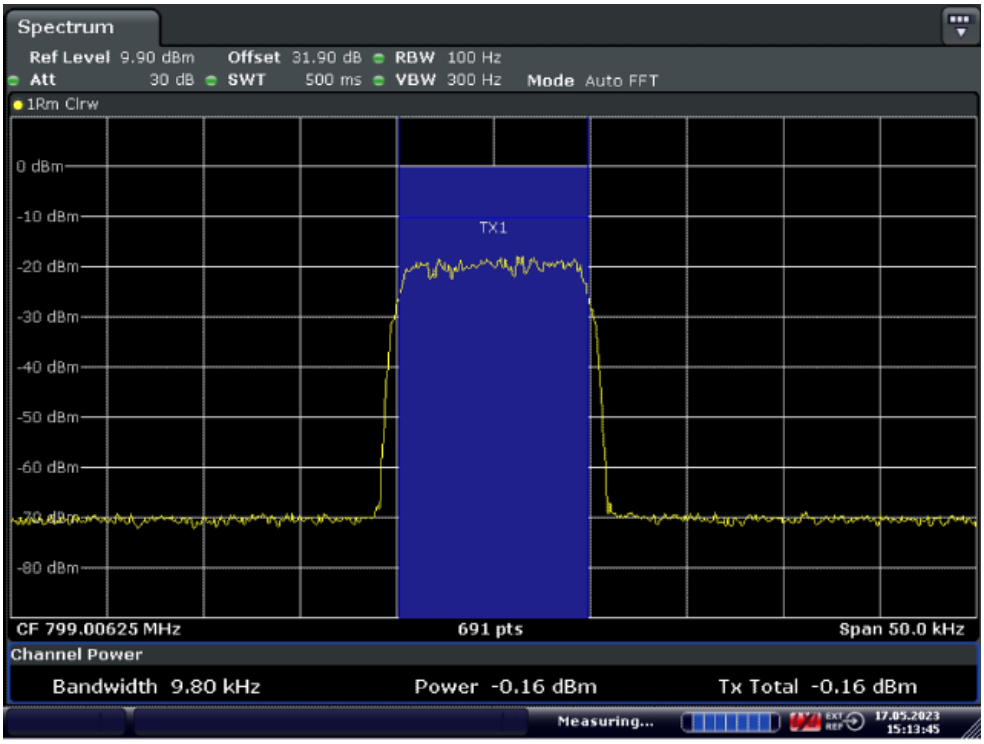
Middle Frequency: 772.0MHz



Date: 17.MAY.2023 15:13:19

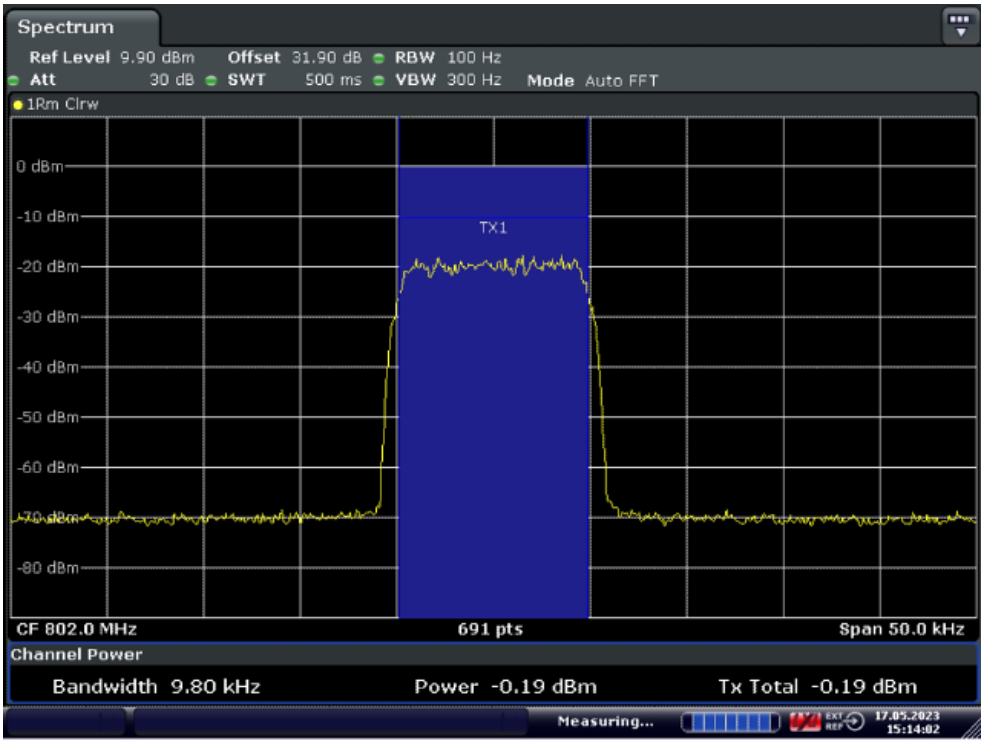
High Frequency: 774.99375MHz

11.2.3.1.2.2. Uplink



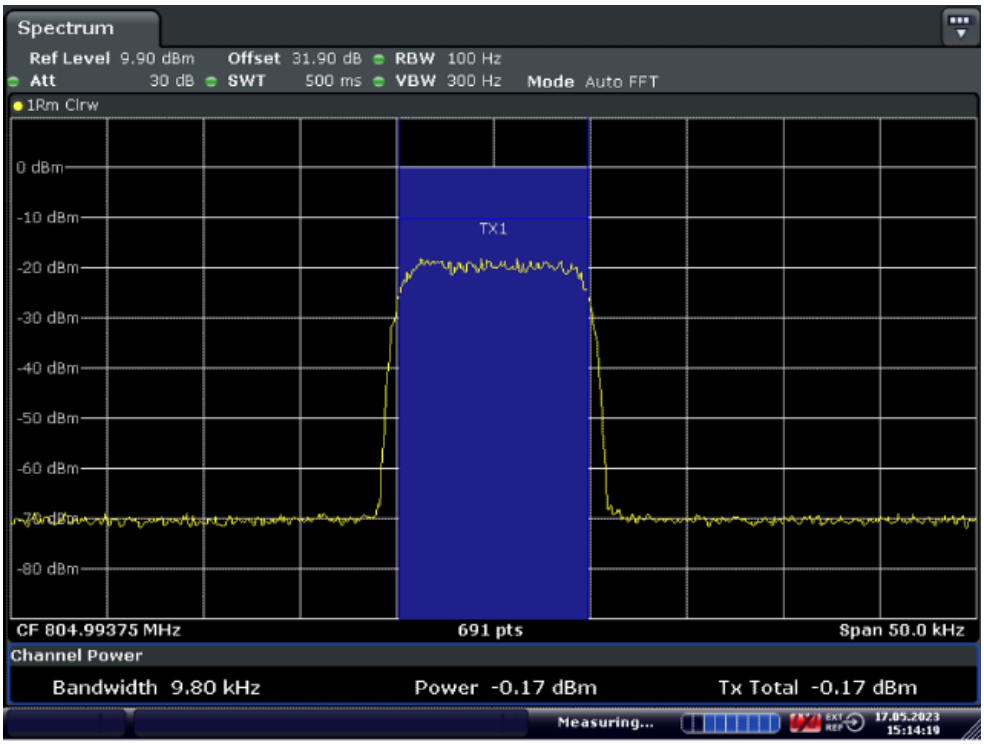
Date: 17.MAY.2023 15:13:46

Low Frequency: 799.00625MHz



Date: 17.MAY.2023 15:14:02

Middle Frequency: 802.0MHz

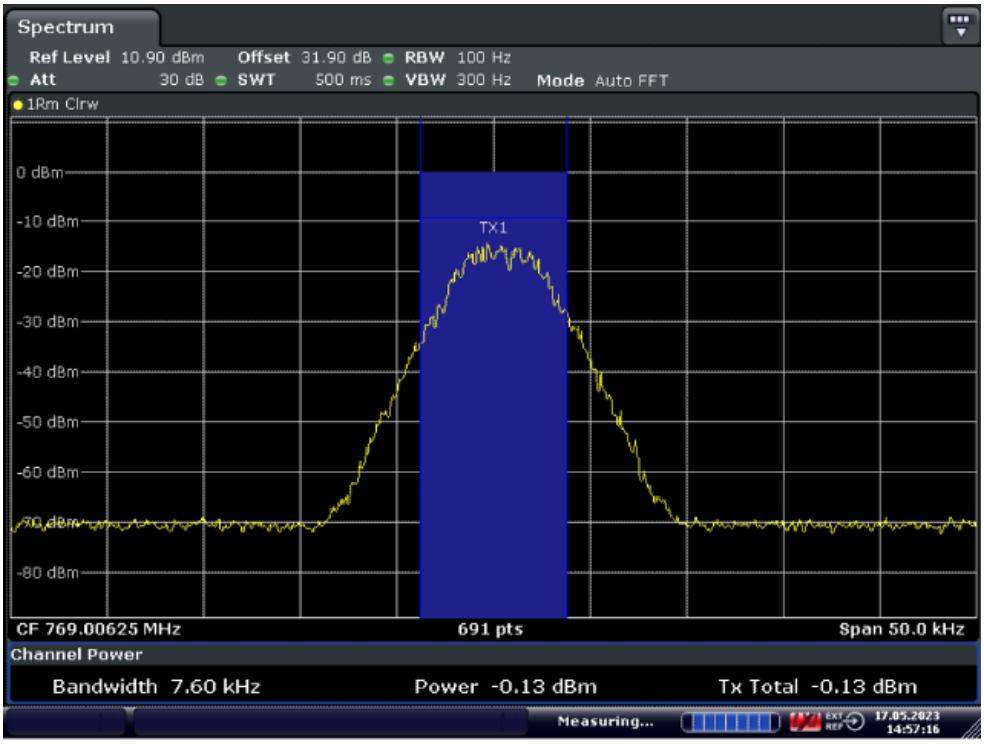


Date: 17.MAY.2023 15:14:19

High Frequency: 804.99375MHz

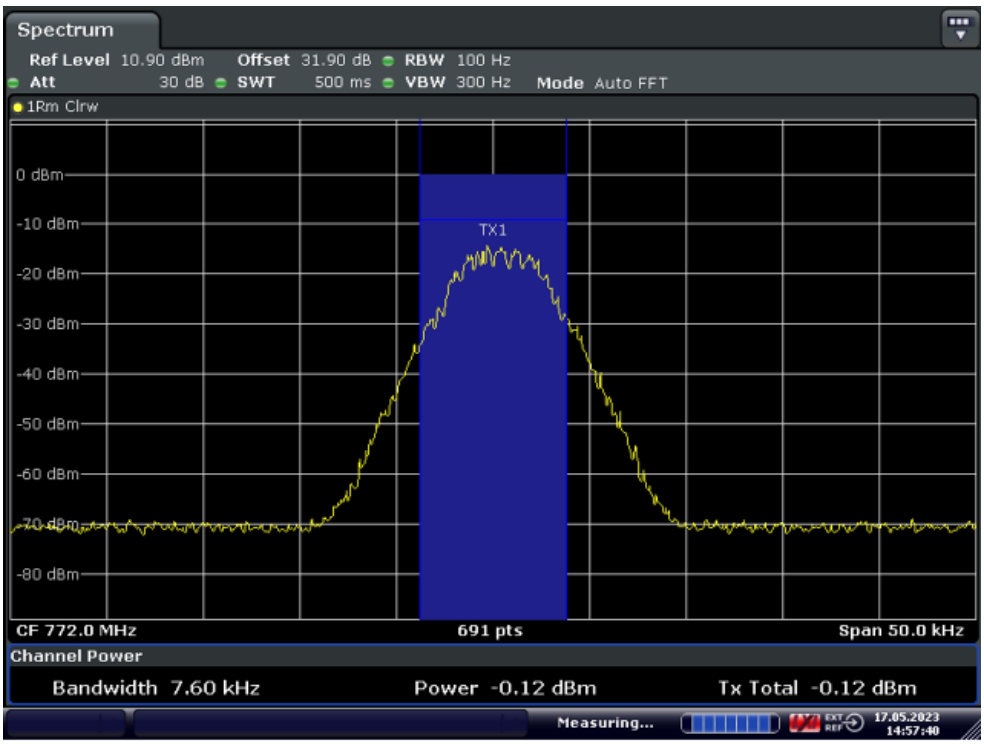
11.2.3.1.3. DMR

11.2.3.1.3.1. Downlink



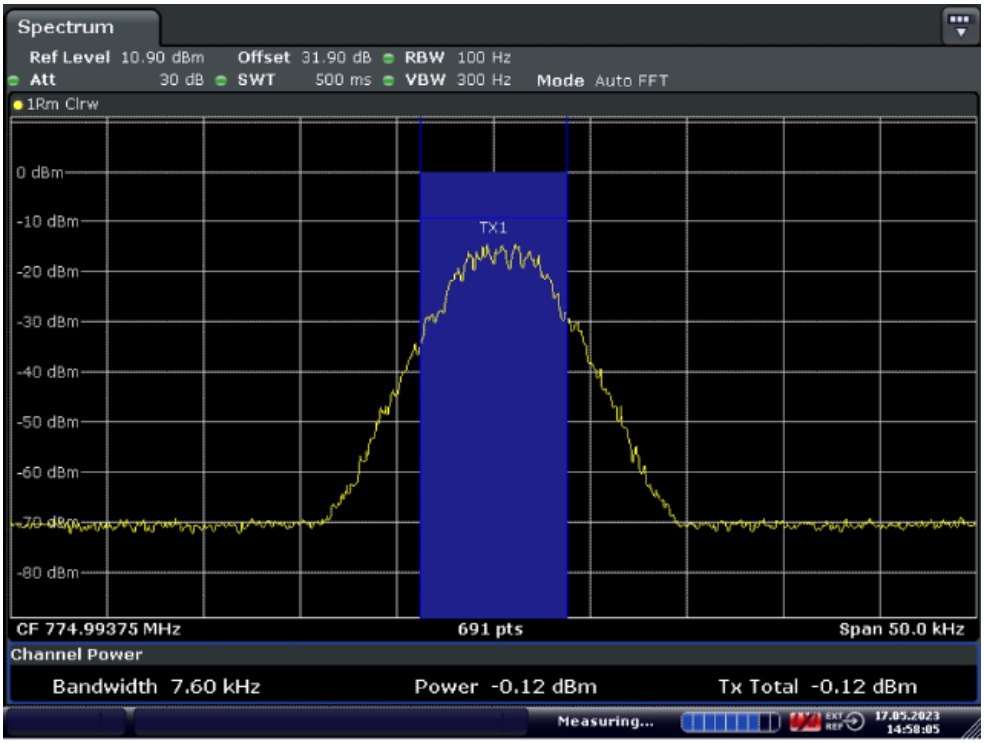
Date: 17.MAY.2023 14:57:16

Low Frequency: 769.00625MHz



Date: 17.MAY.2023 14:57:40

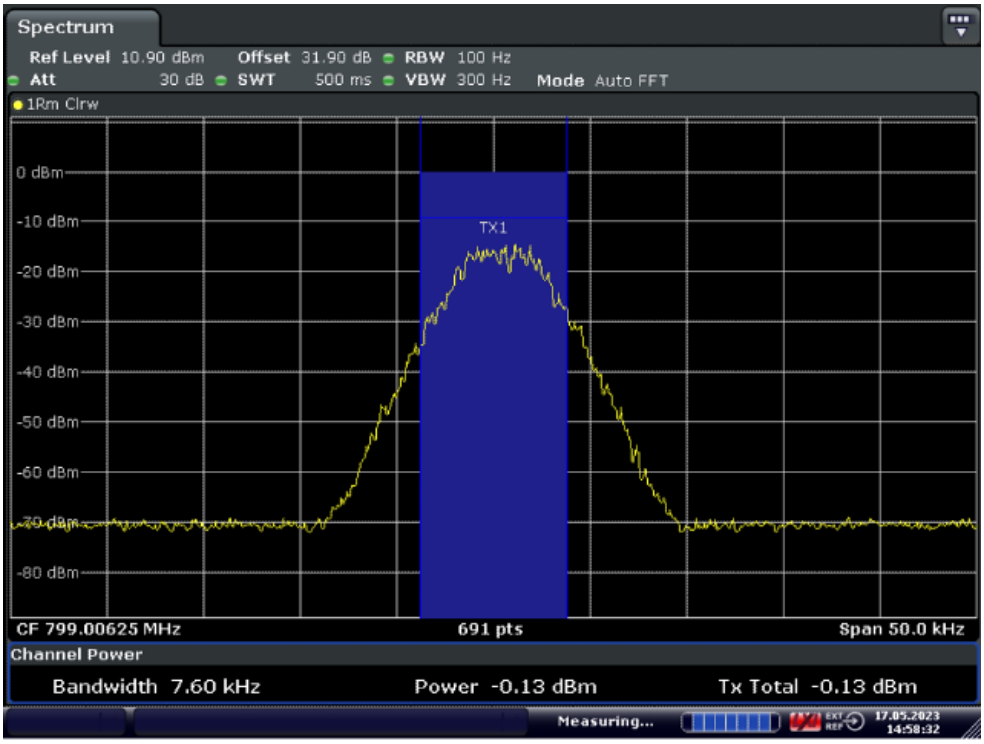
Middle Frequency: 772.0MHz



Date: 17.MAY.2023 14:58:06

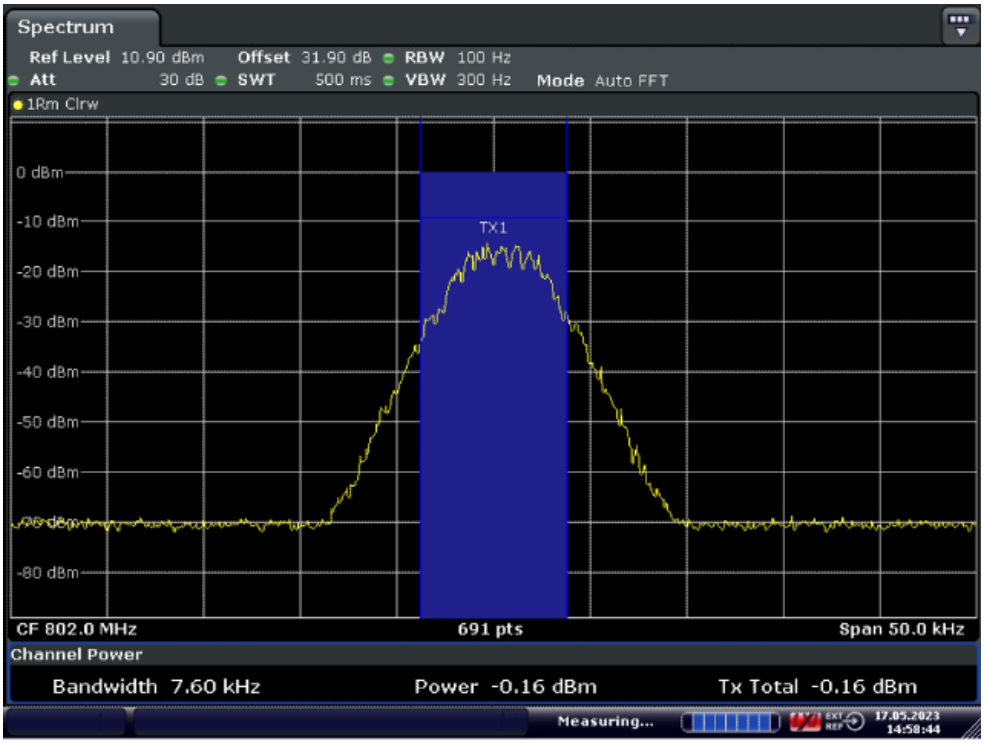
High Frequency: 774.99375MHz

11.2.3.1.3.2. Uplink



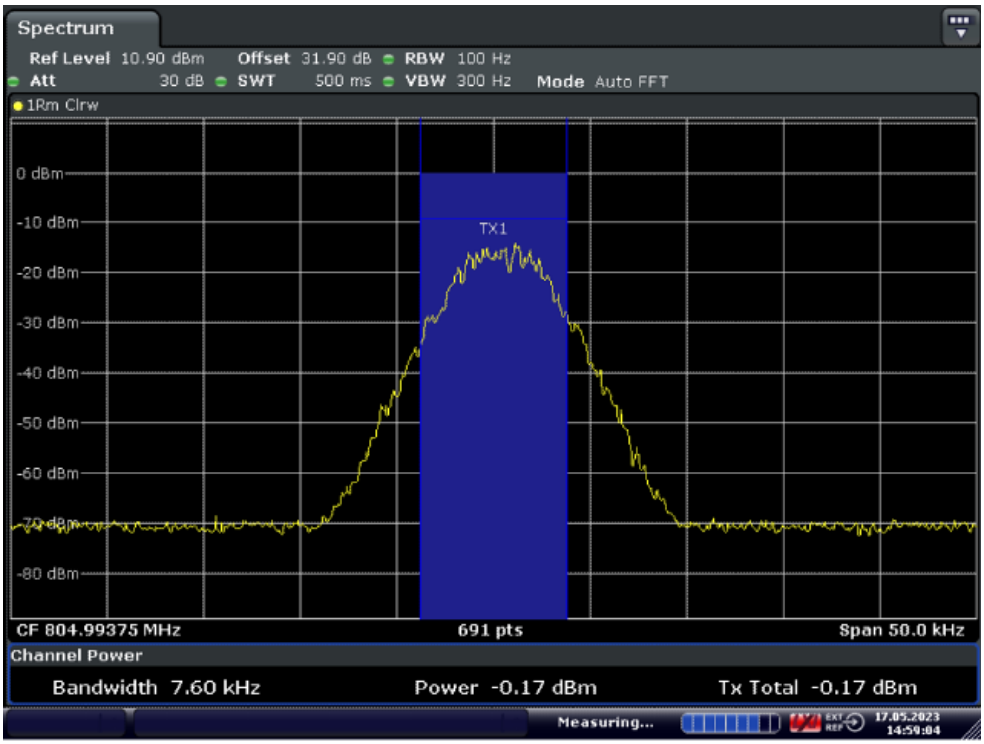
Date: 17.MAY.2023 14:58:32

Low Frequency: 799.00625MHz



Date: 17.MAY.2023 14:58:45

Middle Frequency: 802.0MHz

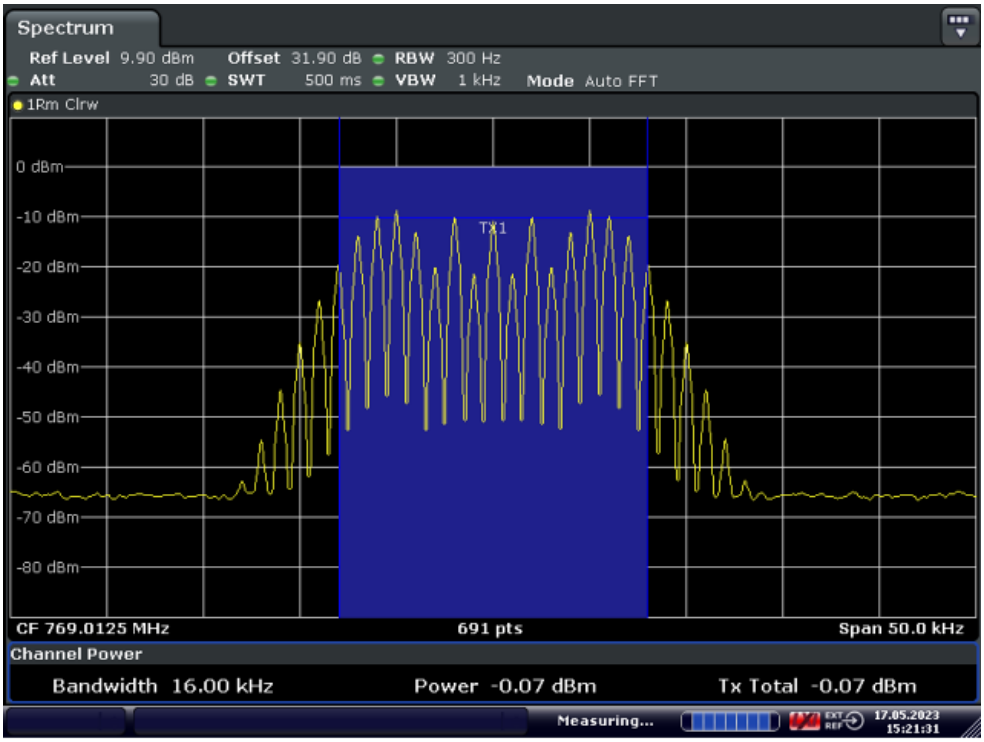


Date: 17.MAY.2023 14:59:04

High Frequency: 804.99375MHz

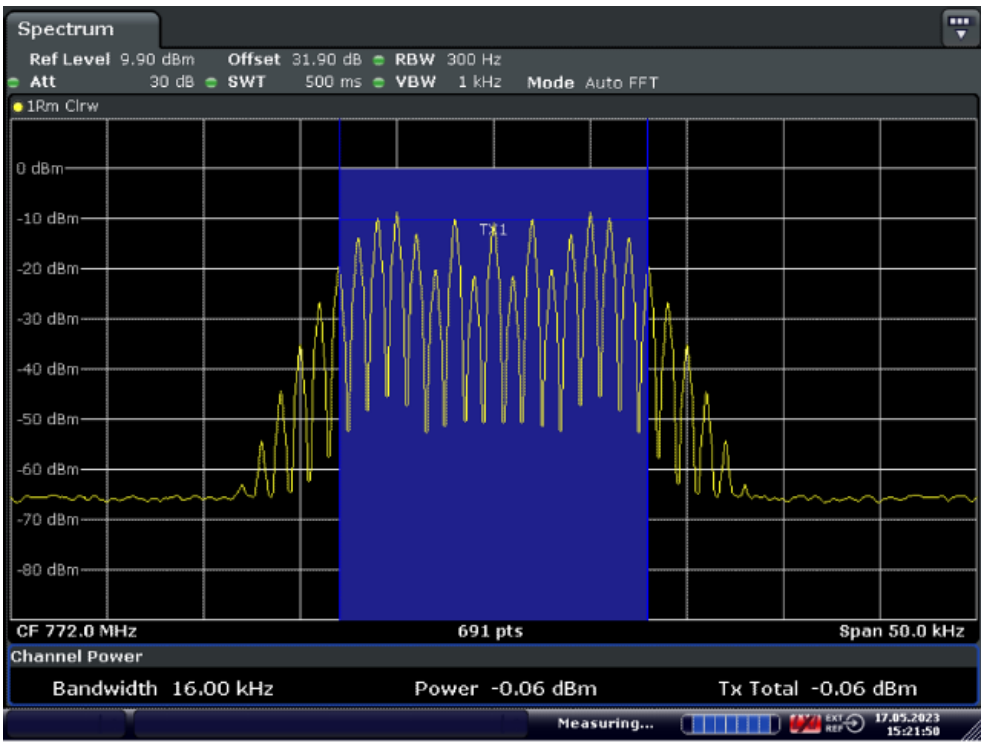
11.2.3.1.4. Analog FM

11.2.3.1.4.1. Downlink



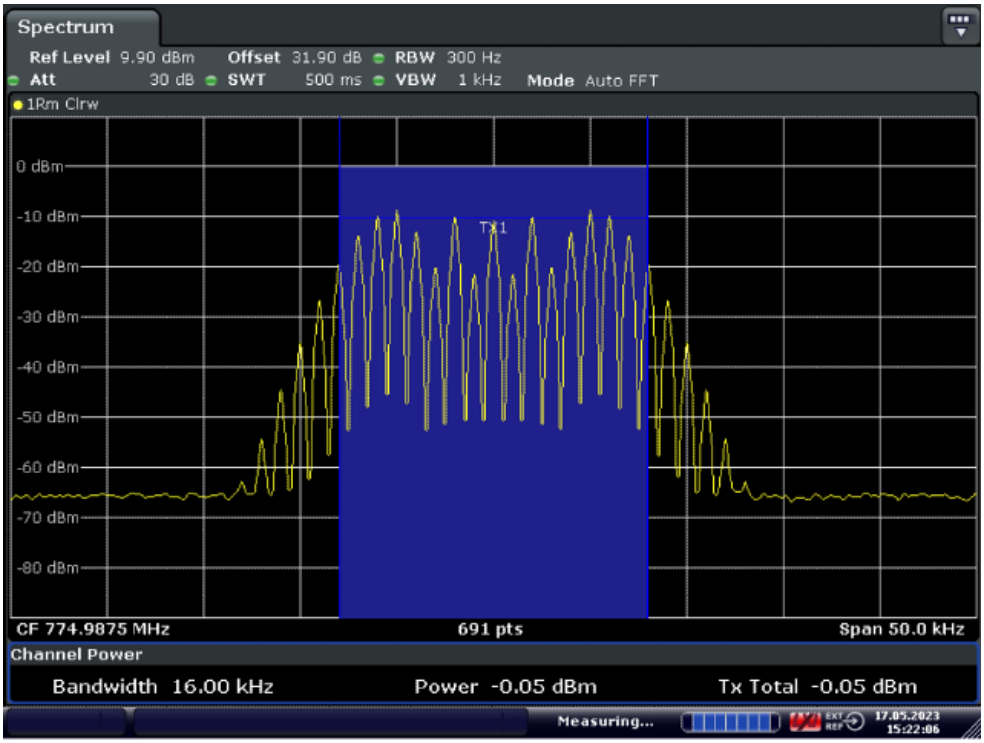
Date: 17.MAY.2023 15:21:31

Low Frequency: 769.0125MHz



Date: 17.MAY.2023 15:21:51

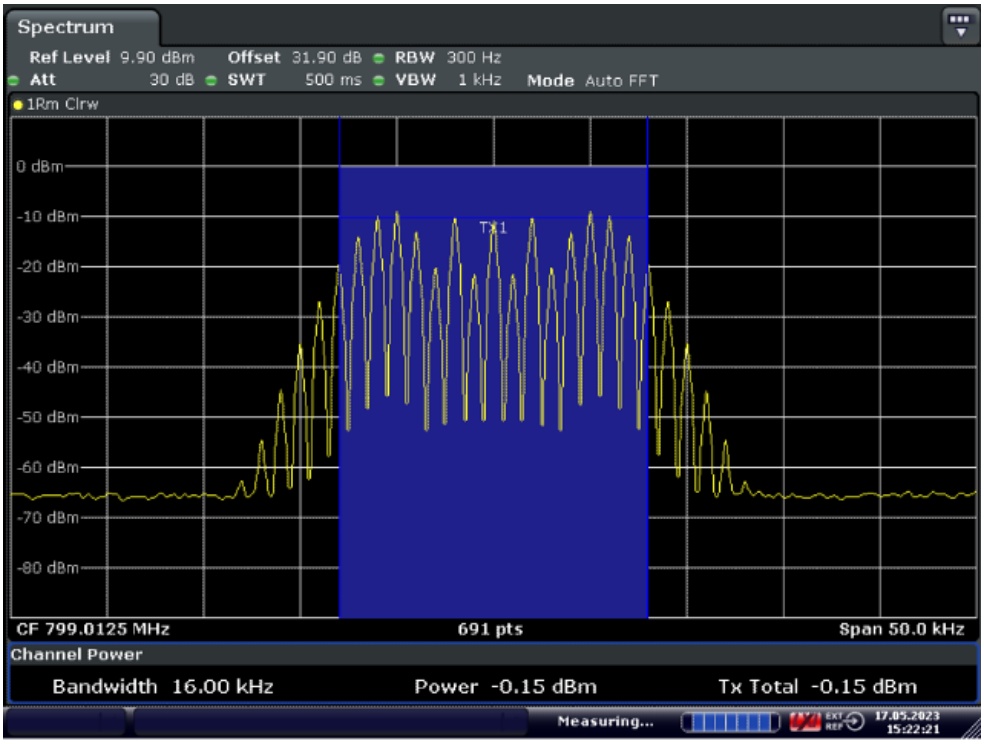
Middle Frequency: 772.0MHz



Date: 17.MAY.2023 15:22:07

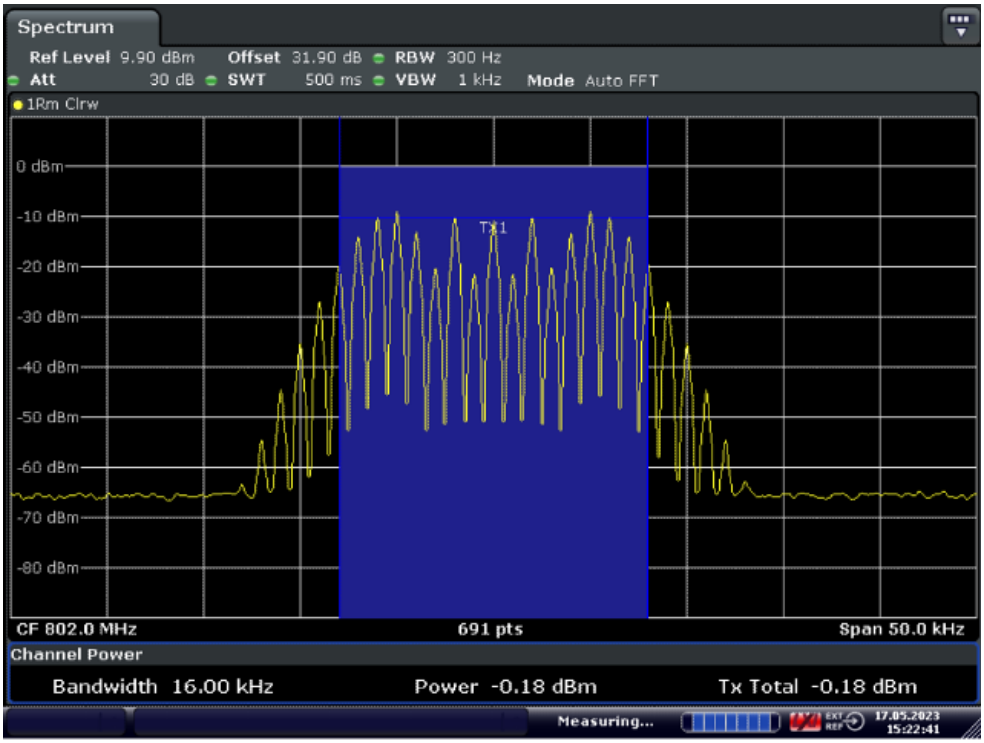
High Frequency: 774.9875MHz

11.2.3.1.4.2. Uplink



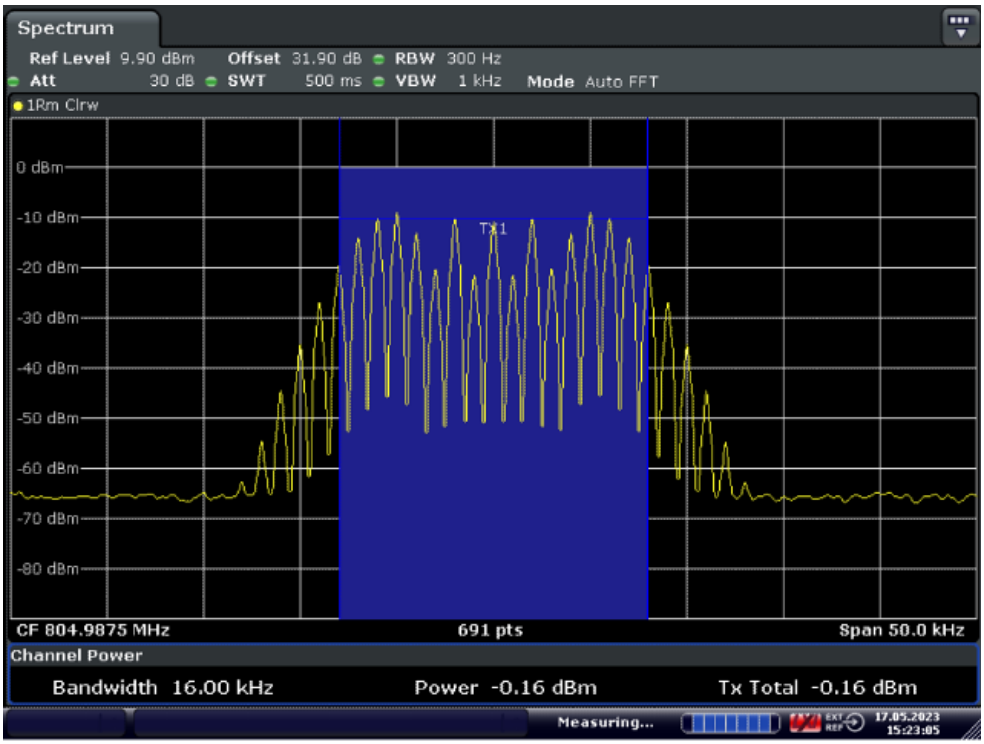
Date: 17.MAY.2023 15:22:22

Low Frequency: 799.0125MHz



Date: 17.MAY.2023 15:22:41

Middle Frequency: 802.0MHz

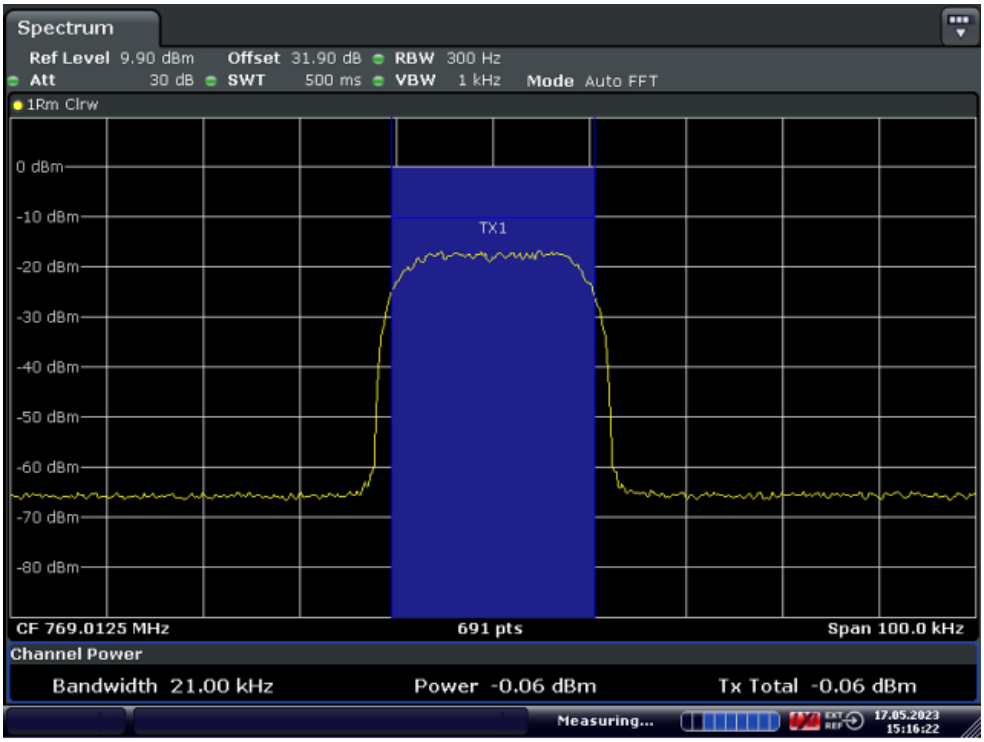


Date: 17.MAY.2023 15:23:05

High Frequency: 804.9875MHz

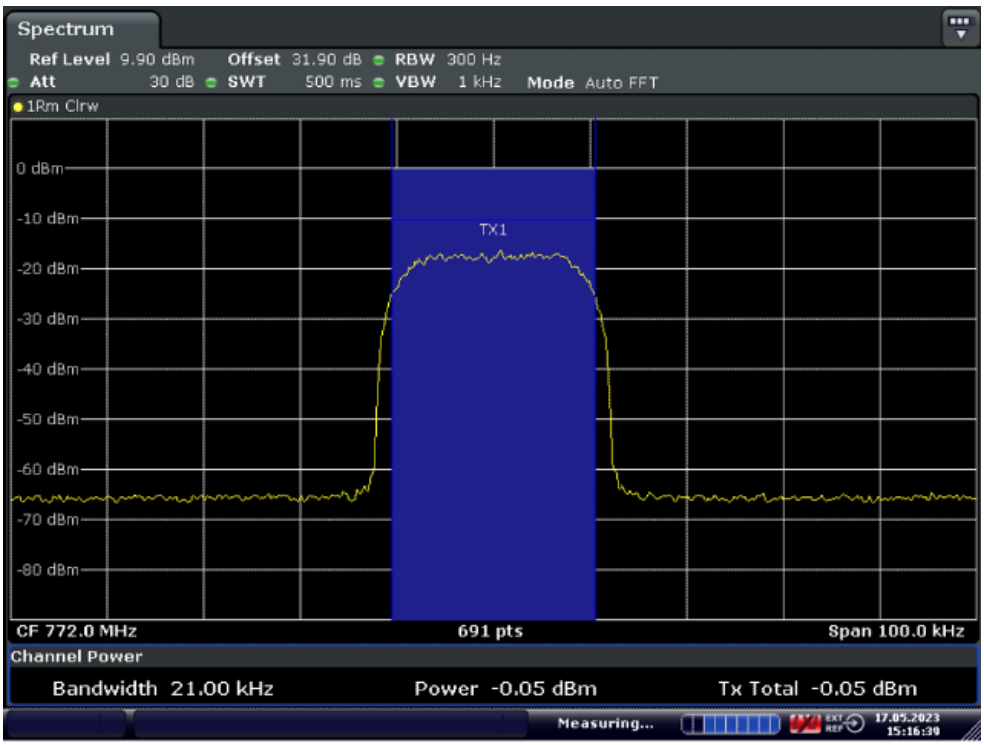
11.2.3.1.5. Tetra

11.2.3.1.5.1. Downlink



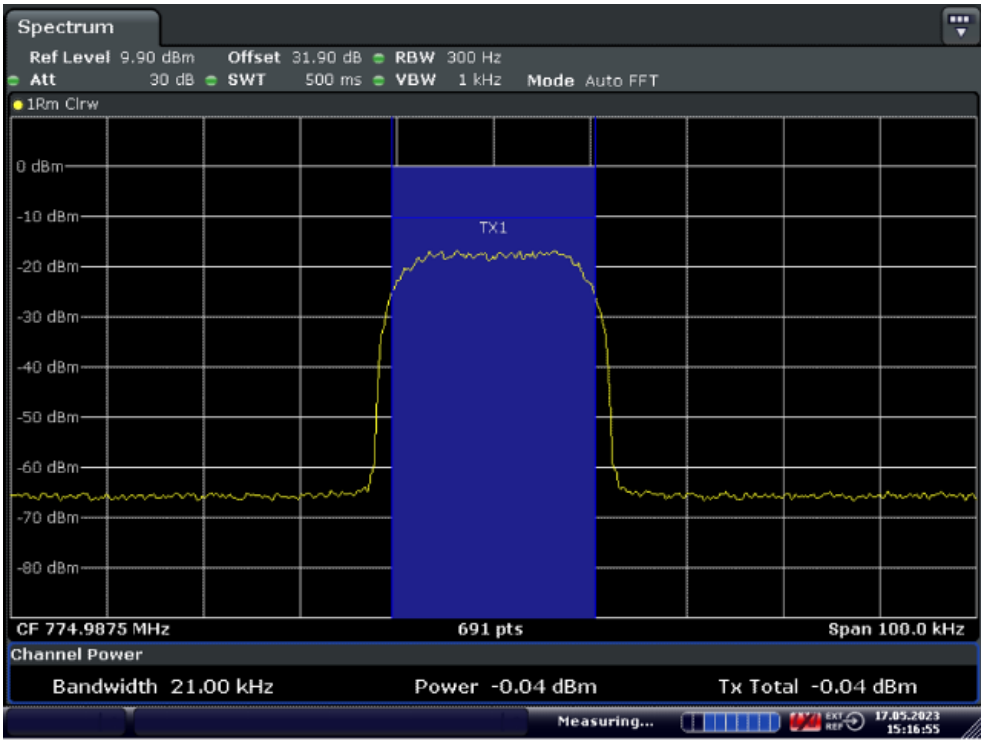
Date: 17.MAY.2023 15:16:23

Low Frequency: 769.0125MHz



Date: 17.MAY.2023 15:16:39

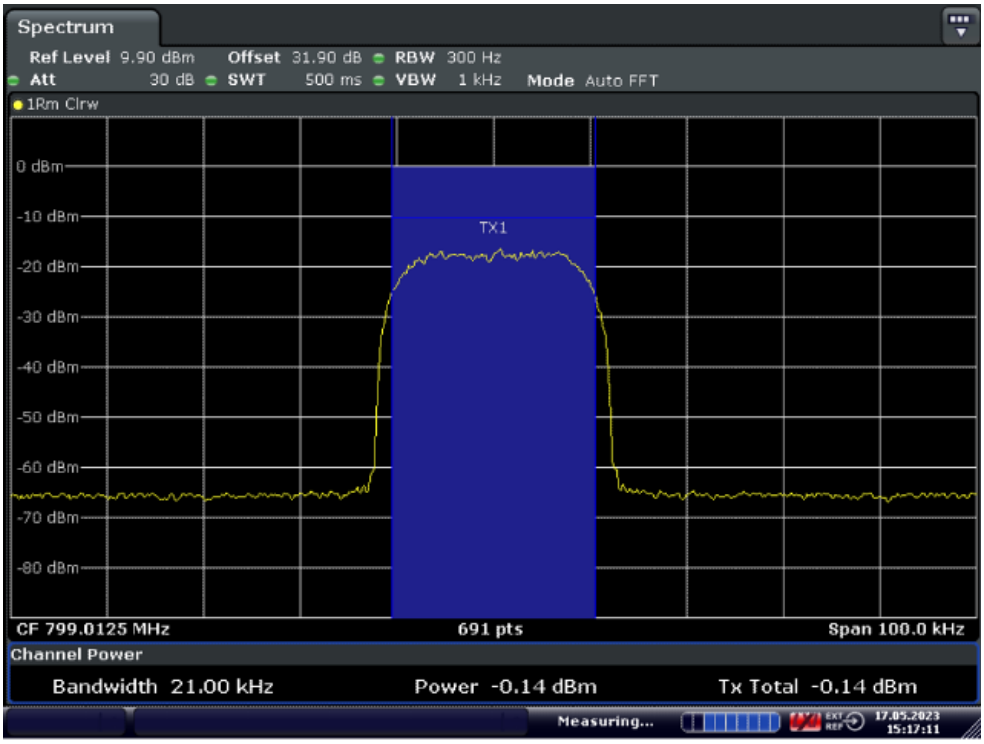
Middle Frequency: 772.0MHz



Date: 17.MAY.2023 15:16:55

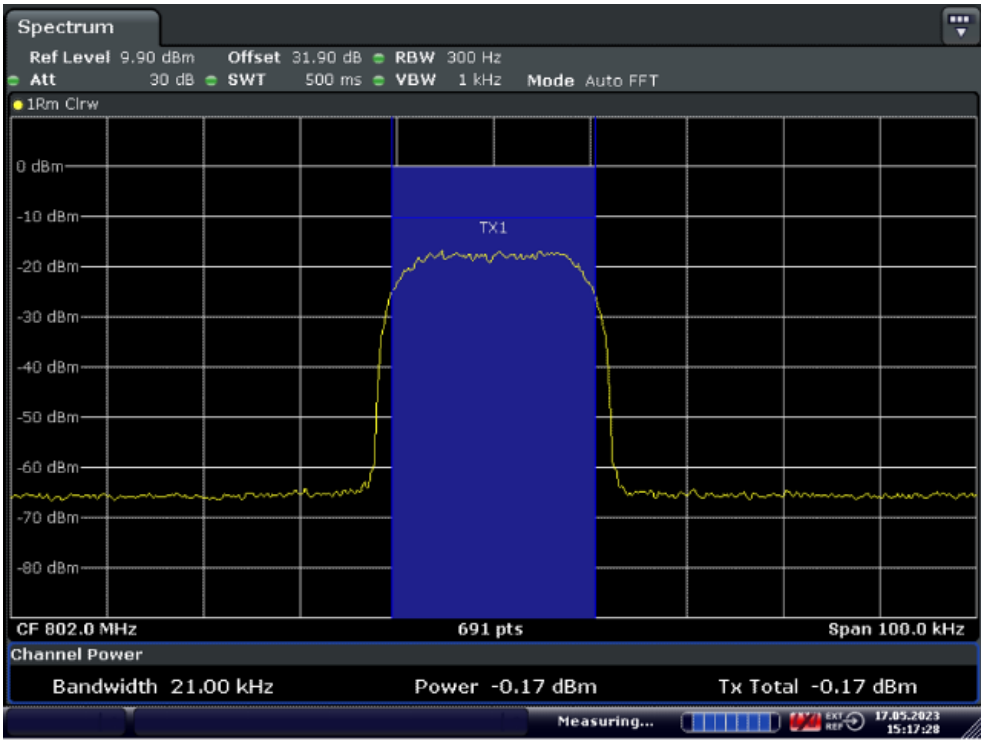
High Frequency: 774.9875MHz

11.2.3.1.5.2. Uplink



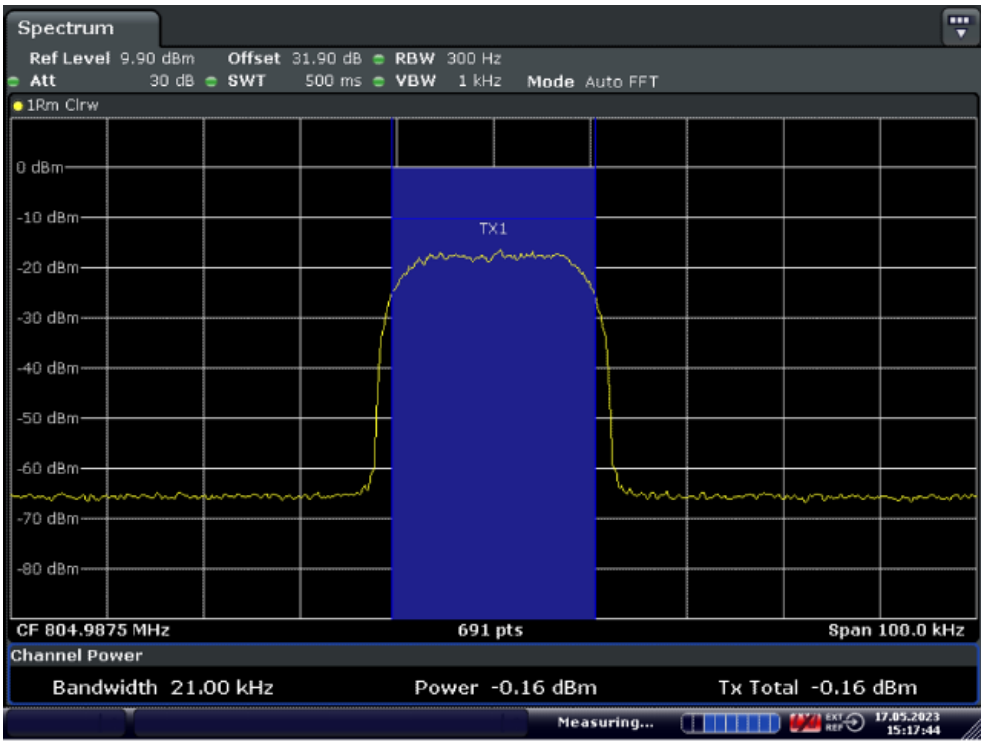
Date: 17.MAY.2023 15:17:11

Low Frequency: 799.0125MHz



Date: 17.MAY.2023 15:17:29

Middle Frequency: 802.0MHz



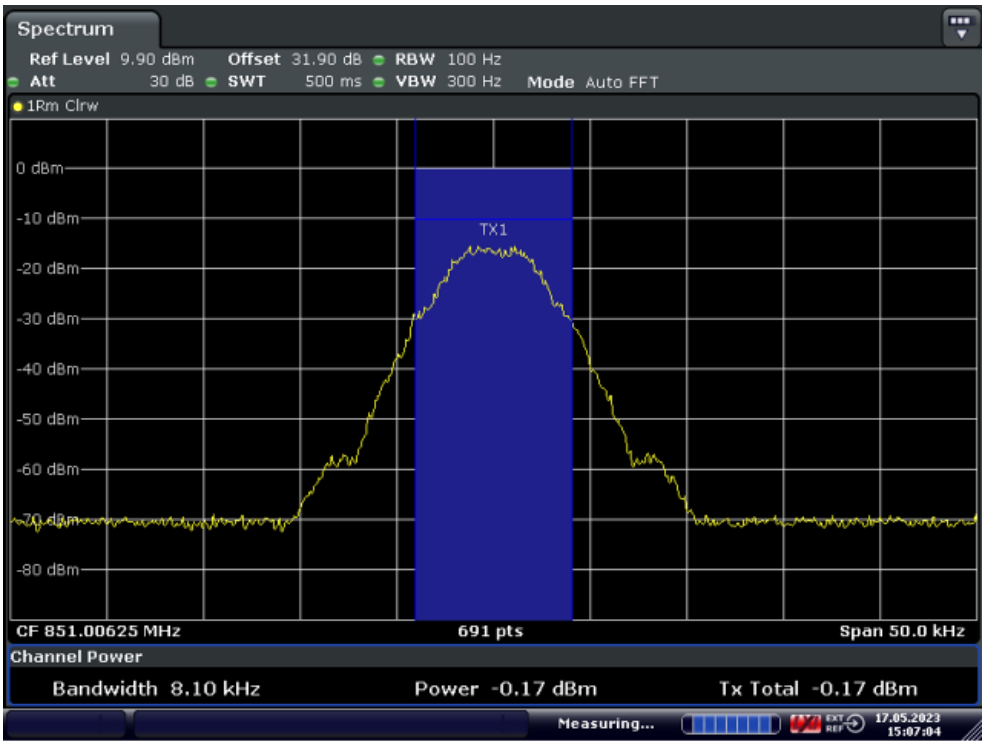
Date: 17.MAY.2023 15:17:44

High Frequency: 804.9875MHz

11.2.3.2. 800MHz Band

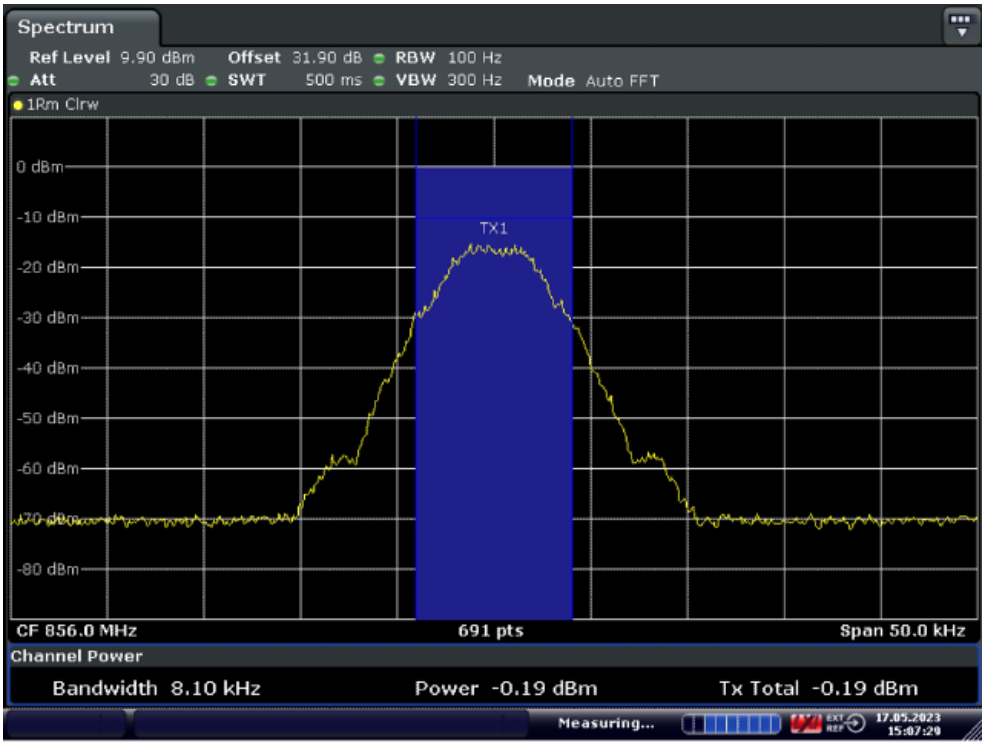
11.2.3.2.1. P25 phase I (C4FM)

11.2.3.2.1.1. Downlink



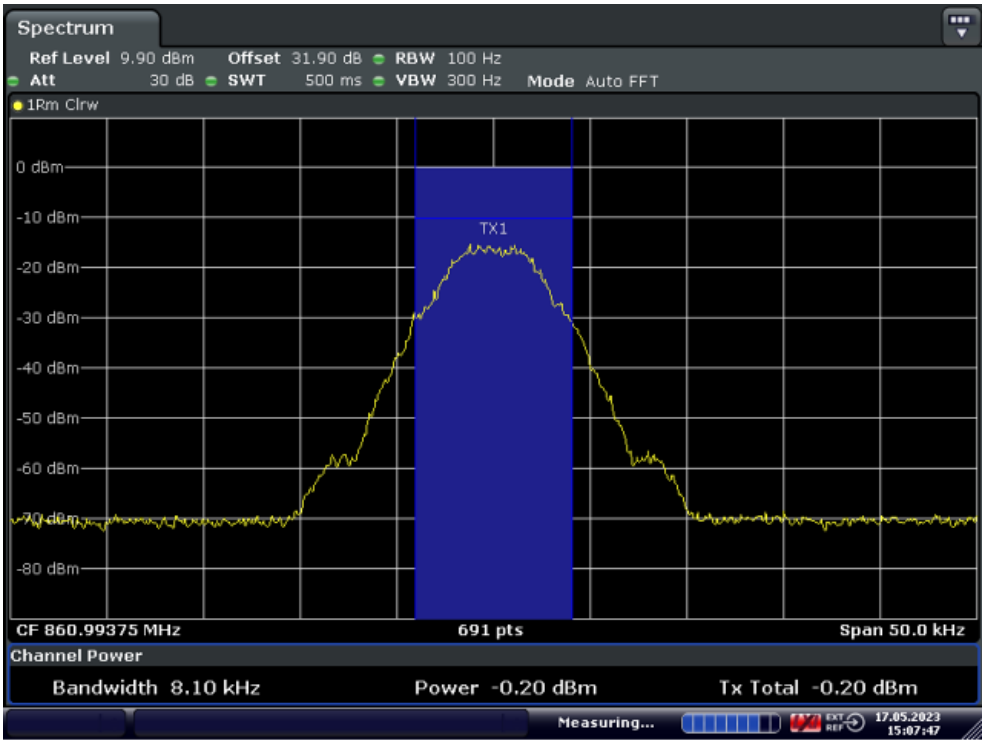
Date: 17.MAY.2023 15:07:04

Low Frequency: 851.00625MHz



Date: 17.MAY.2023 15:07:29

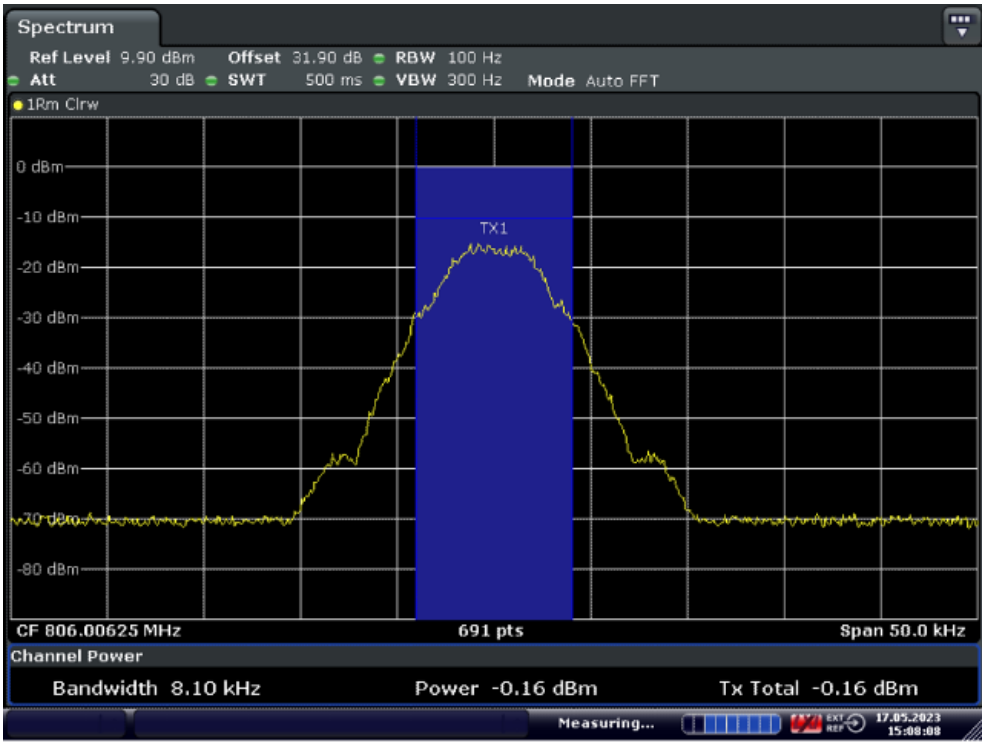
Middle Frequency: 856.0MHz



Date: 17.MAY.2023 15:07:47

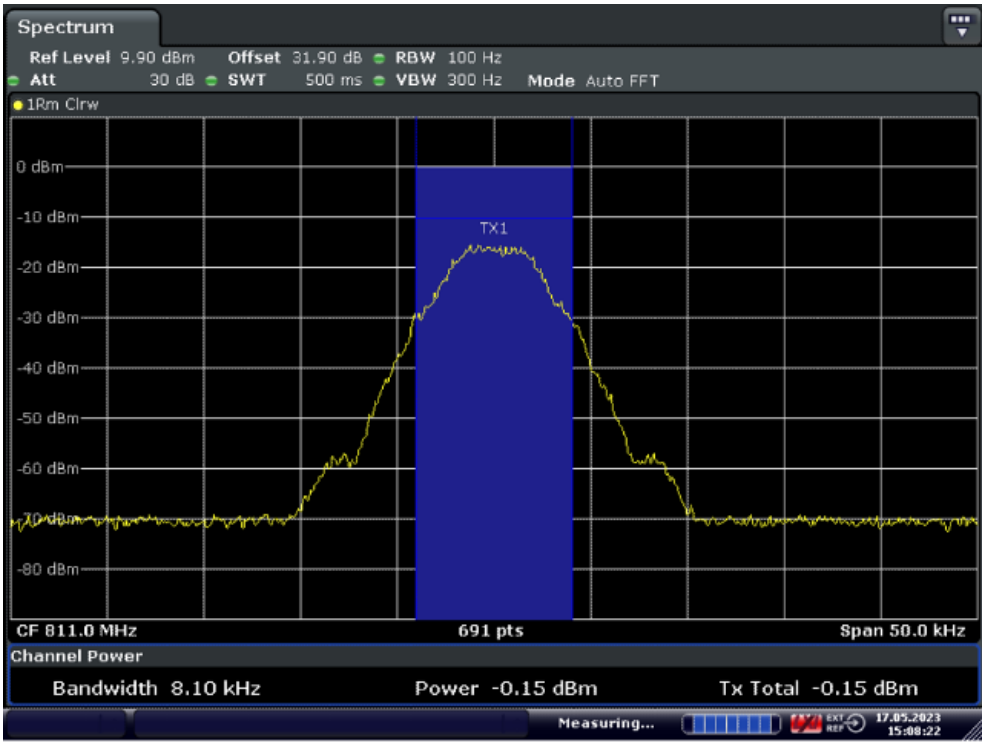
High Frequency: 860.99375MHz

11.2.3.2.1.2. Uplink



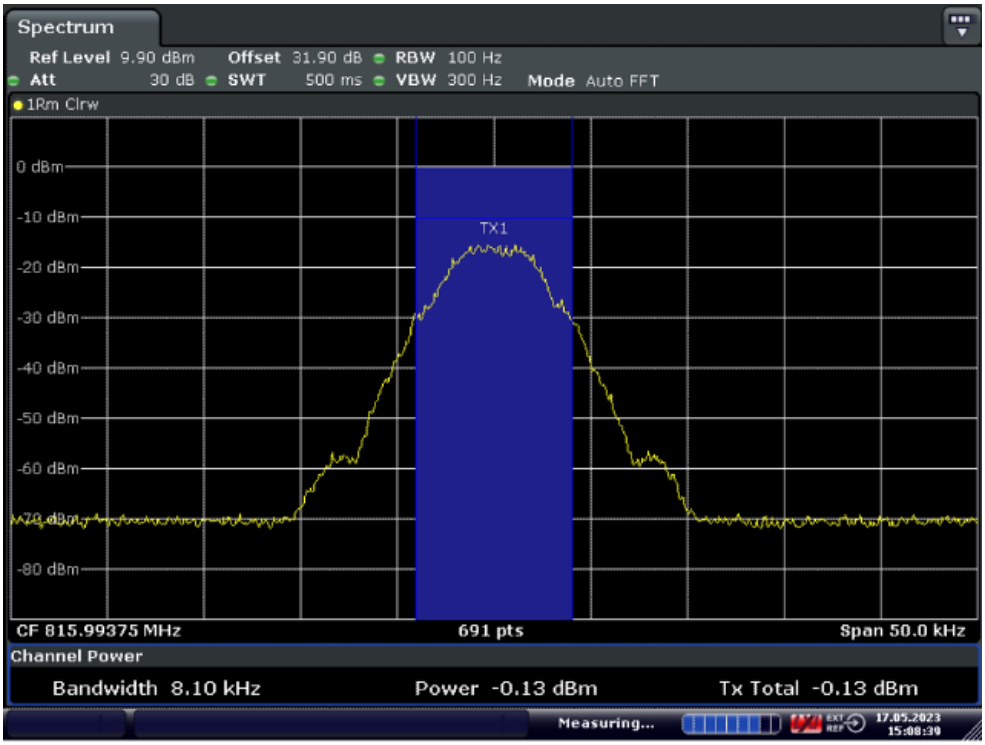
Date: 17.MAY.2023 15:08:09

Low Frequency: 806.00625MHz



Date: 17.MAY.2023 15:08:22

Middle Frequency: 811.0MHz



Date: 17.MAY.2023 15:08:39

High Frequency: 815.99375MHz