

Wireless Test Report – 358249-2TRFWL

Applicant:

Teko Telecom Srl a Socio Unico

Product:

Very Very High-Power Amplifier

Model:

MWHPA0003S7-D

FCC ID:

XM2-WHPA7E

Specification:

FCC 47 CFR Part 90

Private land mobile radio services

Date of issue: **December 10, 2018**

Test engineer(s): **Andrey Adelberg, Senior EMC/Wireless Specialist** Signature:



Reviewed by: **David Duchesne, Senior EMC/Wireless Specialist** Signature:



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Lab and test locations

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Test site registration	Organization	Recognition numbers and location
	FCC	CA2040 (Ottawa)
	ISED	CA2040A-4 (Ottawa)
Website	www.nemko.com	

Limits of responsibility

Note that the results contained in this report relate only to the items tested and were obtained in the period between the date of initial receipt of samples and the date of issue of the report.

This test report has been completed in accordance with the requirements of ISO/IEC 17025. All results contained in this report are within Nemko Canada's ISO/IEC 17025 accreditation.

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Section 1. Report summary

1.1 Applicant and manufacturer

Company name	Teko Telecom Srl a Socio Unico
Address	Via Meucci, 24/a I-40024 Castel S. Pietro Terme (BO), Italy

1.2 Test specifications

FCC 47 CFR Part 90	Private land mobile radio services
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1.3 Test methods

KDB 935210 D05 Indus Booster Basic Meas v01r02	Measurements guidance for industrial and non-consumer signal booster, repeater, and amplifier devices
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1.4 Statement of compliance

In the configuration tested, the EUT was found compliant.

Testing was performed against all relevant requirements of the test standard except as noted in section 1.5 below. Results obtained indicate that the product under test complies in full with the requirements tested. The test results relate only to the items tested.

See "Summary of test results" for full details.

1.5 Exclusions

None

1.6 Test report revision history

Table 1.6-1: Test report revision history

Revision #	Date of issue	Details of changes made to test report
TRF	December 10, 2018	Original report issued

Section 2. Summary of test results

2.1 Results

Table 2.1-1: Result summary

Part	Test description	Verdict
KDB 935210 Clause 4.2	AGC threshold level	Pass
FCC 90.219(e)(1), 90.542(a)(3) and KDB 935210 Clause 4.5	Mean output power at RF antenna connector and booster gain	Reported
KDB 935210 Clause 4.3	Out-of-band rejection	Pass
FCC 90.219(e)(2) and KDB 935210 Clause 4.6	Noise figure	Pass
FCC 90.543(e)(1)(3), 90.219(e)(3) and KDB 935210 Clause 4.7	Spurious emissions at RF antenna connector	Pass
FCC 90.543(e)(1)(3)(f) and KDB 935210 Clause 4.9	Radiated spurious emissions	Pass
KDB 935210 Clause 4.8	Frequency stability	Not applicable ¹
FCC 90.219(e)(4), §2.1049 and KDB 935210 Clause 4.5	Occupied bandwidth	Pass

Notes: ¹The EUT is not a Translator and does not alter the input signal in any way.

Section 3. Equipment under test (EUT) details

3.1 Sample information

Receipt date	September 10, 2018
Nemko sample ID number	1

3.2 EUT information

Product name	Very Very High-Power Amplifier
Model	MWHPA0003S7-D
Serial number	None

3.3 Technical information

Operating band	758–768 MHz
Modulation type	LTE: AWGN
Channel BW	5 MHz
Power requirements	10 A, 28-30 V _{DC}
Emission designator	5M00D7W
Gain	46 dB
Antenna information	External Antenna is not provided EUT used a 50 Ω termination.

3.4 Product description and theory of operation

EUT is a high-power amplifier.

3.5 EUT exercise details

The EUT was controlled via a Laptop interface with GUI to configure the system. Input of the EUT was connected to signal generator which replicated the AWGN test signal that has a 4.1 MHz 99 % occupied bandwidth (OBW) (representative of a 5 MHz LTE channel) with a pseudo-random symbol pattern.

3.6 EUT setup diagram

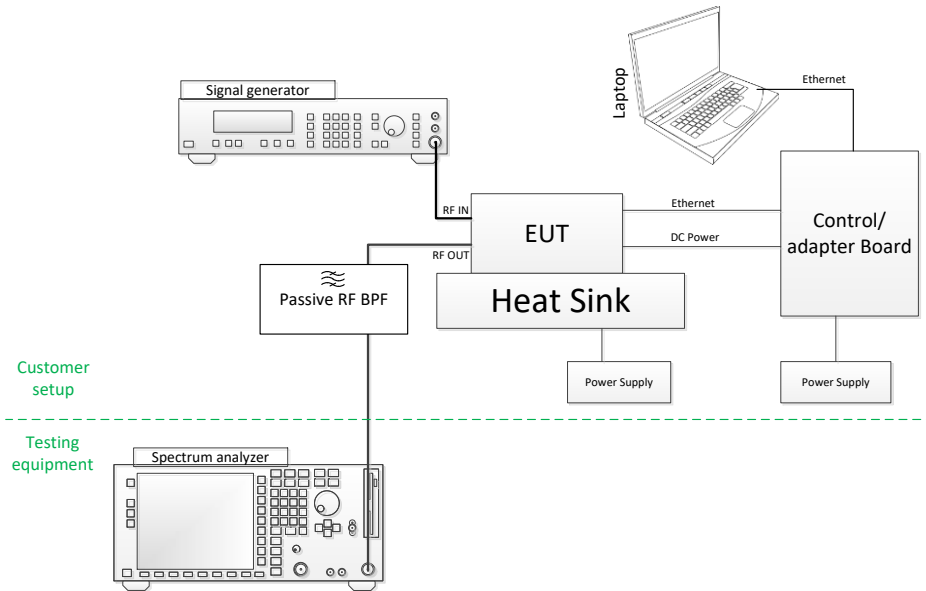


Figure 3.6-1: Setup diagram

Name	Info
Heat sink	Teko Telecom, domestic production
Supervision for amplifier	Teko Telecom M/N: MSPVRUV0001, S/N: 2015729111
External power supply for amplifier	TDK LAMBDA Z36-24-L-E, S/N: LOC-606A416-0001
External passive band pass filter	M/N: Teko 05 015 4270 S/N:18050850 (for 600 and 700 band)
External passive band pass filter	M/N: Teko 05 015 4315 (for AWF band), S/N:18010511415
Laptop	Dell E5440, S/N:9XV5N12
Signal Generator	Agilent M/N N5182A MXG, S/N: MY48180714

Section 4. Engineering considerations

4.1 Modifications incorporated in the EUT

There were no modifications performed to the EUT during this assessment.

4.2 Technical judgment

None

4.3 Deviations from laboratory tests procedures

No deviations were made from laboratory procedures.

Section 5. Test conditions

5.1 Atmospheric conditions

Temperature	15–30 °C
Relative humidity	20–75 %
Air pressure	860–1060 mbar

When it is impracticable to carry out tests under these conditions, a note to this effect stating the ambient temperature and relative humidity during the tests shall be recorded and stated.

5.2 Power supply range

The normal test voltage for equipment to be connected to the mains shall be the nominal mains voltage. For the purpose of the present document, the nominal voltage shall be the declared voltage, or any of the declared voltages $\pm 5\%$, for which the equipment was designed.

Section 6. Measurement uncertainty

6.1 Uncertainty of measurement

Measurement uncertainty budgets for the tests are detailed below. Measurement uncertainty calculations assume a coverage factor of $K = 2$ with 95% certainty.

Test name	Measurement uncertainty, dB
All antenna port measurements	0.55
Conducted spurious emissions	1.13
Radiated spurious emissions	3.78

Section 7. Test equipment

7.1 Test equipment list

Table 7.1-1: Equipment list

Equipment	Manufacturer	Model no.	Asset no.	Cal cycle	Next cal.
Spectrum analyzer	Rohde & Schwarz	FSU	FA001877	1 year	Oct 26/18
Power meter	Agilent	E4418B	FA001678	1 year	June 5/19
Power sensor	HP	8482A	FA001944	1 year	May 30/19
Receiver/spectrum analyzer	Rohde & Schwarz	ESU 26	FA002043	1 year	Mar. 26/19
Bilog antenna (20–3000 MHz)	Sunol	JB3	FA002108	1 year	Oct. 1/18
Horn antenna (1–18 GHz)	EMCO	3115	FA000649	1 year	Sept. 27/18
Preamp (1–18 GHz)	ETS-Lindgren	124334	FA002877	1 year	Nov. 14/18
50 Ω coax cable	Huber + Suhner	None	FA002830	1 year	May 8/19
50 Ω coax cable	C.C.A.	None	FA002555	1 year	May 1/19

Notes: None,

Section 8. Testing data

8.1 KDB 935210 Clause 4.2 AGC threshold

8.1.1 Definitions and limits

Test EUT to find an AGC threshold.

8.1.2 Test summary

Test date	September 13, 2018
Test engineer	Andrey Adelberg

8.1.3 Observations, settings and special notes

- The output power was measured by using a calibrated RMS power meter.
- Test was repeated with input single carrier set to the 1 dB compression point.

8.1.4 Test data

Table 8.1-1: AGC threshold results

Frequency, MHz	AGC threshold level	RF power at the input, dBm	RF power at the output, dBm	Gain, dB
760.5	Nominal	-0.18	45.54	45.72
760.5	Nominal + 1 dB	0.81	45.68	44.87
763.0	Nominal	-0.18	44.40	44.58
763.0	Nominal + 1 dB	0.81	44.54	43.73
765.5	Nominal	-0.18	40.18	40.36
765.5	Nominal + 1 dB	0.81	41.20	40.39



8.2 FCC 90.219(e)(1), 90.542(a)(3) and KDB 935210 Clause 4.5 Mean output power at RF antenna connector and booster gain

8.2.1 Definitions and limits

FCC 90.542(a) The following power limits apply to the 758–768/788–798 MHz band:

(3) Fixed and base stations transmitting a signal in the 758–768 MHz band with an emission bandwidth greater than 1 MHz must not exceed an ERP of 1000 watts/MHz and an antenna height of 305 m HAAT, except that antenna heights greater than 305 m HAAT are permitted if power levels are reduced below 1000 watts/MHz ERP accordance with Table 3 of this section (FCC 90.542).

FCC 90.219(e)(1) The output power capability of a signal booster must be designed for deployments providing a radiated power not exceeding 5 Watts ERP (37 dBm) for each retransmitted channel.

8.2.2 Test summary

Test date	September 13, 2018
Test engineer	Andrey Adelberg

8.2.3 Observations, settings and special notes

The output power was measured by using a calibrated RMS power meter.

Test was repeated with input single carrier set to the 0.5 dB below AGC threshold level and 3 dB above AGC threshold level.

8.2.4 Test data

Table 8.2-1: Gain measurement results

Frequency, MHz	AGC threshold level	RF power at the input, dBm	RF power at the output, dBm	Gain, dB
760.5	Nominal – 0.5 dB	-0.69	45.04	45.73
760.5	Nominal + 3 dB	2.81	45.68	42.87
763.0	Nominal – 0.5 dB	-0.69	43.91	44.60
763.0	Nominal + 3 dB	2.81	44.54	41.73
765.5	Nominal – 0.5 dB	-0.69	39.70	40.39
765.5	Nominal + 3 dB	2.81	43.20	40.39

In a DAS system, a system path loss (due to cable insertion, splitter, etc.) is about 15 dB.

G_{\max} antenna gain (dBi) = EIRP – Pout + insertion loss = 39 – 46 + 15 = 8 dBi

EIRP = Pout – insertion loss + G_{\max} antenna gain (dBi) = 46 – 15 + 8 = 39 dBm

ERP = 39 – 2.14 = 36.86 dBm = 4.85 W < 5 W ERP

8.3 KDB 935210 Clause 4.3 Out-of-band rejection

8.3.1 Definitions and limits

Test EUT for out-of-band rejection of input signals to show the filter frequency response.

8.3.2 Test summary

Test date	September 13, 2018
Test engineer	Andrey Adelberg

8.3.3 Observations, settings and special notes

- The signal generator at the EUT input swept from 700 to 780 MHz with CW signal.
- The testing was performed with spectrum analyser with the following settings:

Detector mode	Peak
Resolution bandwidth	50 kHz and 500 kHz
Video bandwidth	>RBW
Trace mode	Max Hold
Measurement time	Auto

8.3.4 Test data

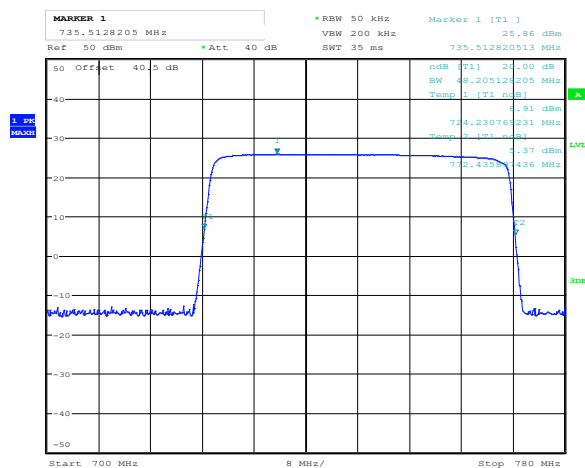


Figure 8.3-1: Out-of-band rejection at 1 % of EBW

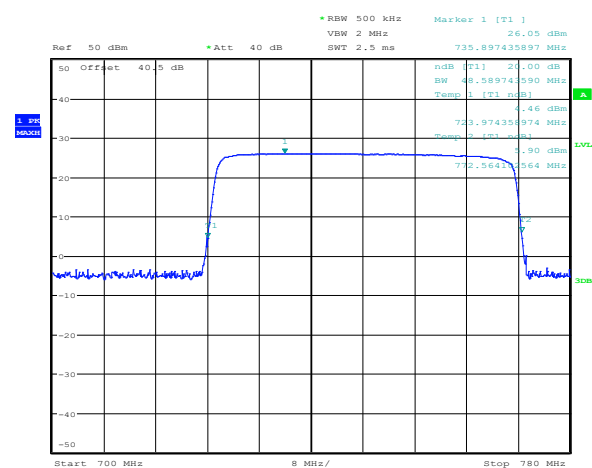


Figure 8.3-2: Out-of-band rejection at 1 % of pass band

Summary: 20 dB bandwidth of the filter is 48.5 MHz.

8.4 FCC 90.219(e)(2) and KDB 935210 Clause 4.6 Noise figure

8.4.1 Definitions and limits

90.219(e)(2) The noise figure of a signal booster must not exceed 9 dB in either direction.
 Clause 6.4 The ERP of noise within the passband should not exceed -43 dBm in a 10 kHz measurement bandwidth.
 The ERP of noise in spectrum more than 1 MHz outside of the passband should not exceed -70 dBm in a 10 kHz measurement bandwidth.
 The noise figure of a zone enhancer shall not exceed 9 dB in either direction.

8.4.2 Test summary

Test date	November 5, 2018
Test engineer	Andrey Adelberg

8.4.3 Observations, settings and special notes

None

8.4.4 Test data

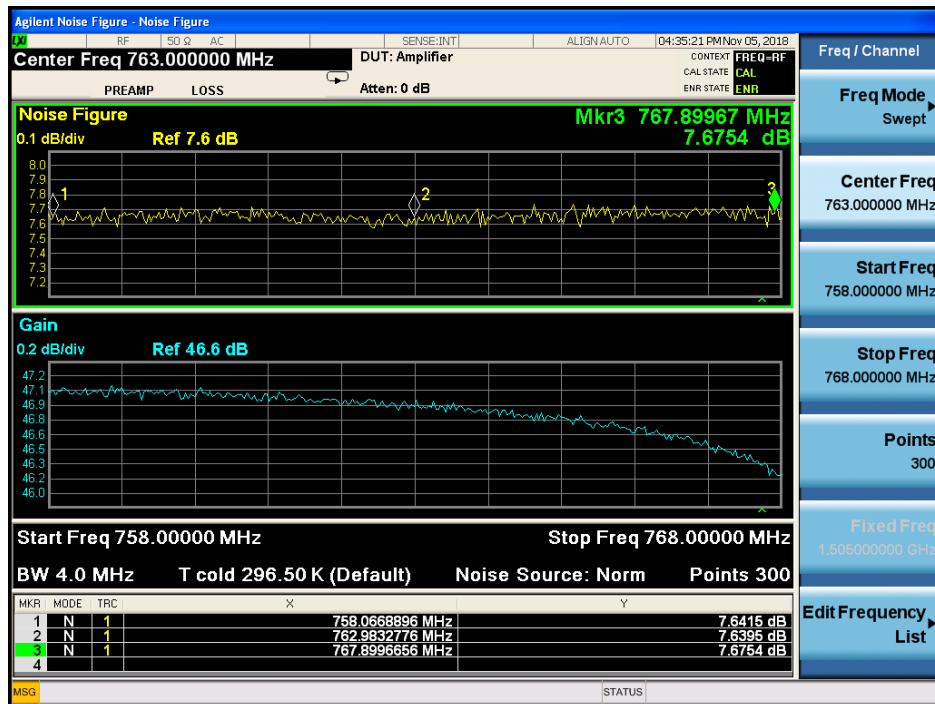


Figure 8.4-1: Noise figure

Limit: the noise figure of a signal booster must not exceed 9 dB in either direction.

8.5 FCC 90.543(e)(1)(3), 90.219(e)(3) and KDB 935210 Clause 4.7 Spurious emissions at RF antenna connector

8.5.1 Definitions and limits

FCC 90.543(e) For operations in the 758–768 MHz and the 788–798 MHz bands, the power of any emission outside the licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, in accordance with the following:

(3) On any frequency between 775–788 MHz, above 805 MHz, and below 758 MHz, by at least $43 + 10 \log(P)$ dB.

FCC 90.219(e)(3) Spurious emissions from a signal booster must not exceed –13 dBm within any 100 kHz measurement bandwidth.

90.543(e)(1) limits (1) On all frequencies between 769–775 MHz and 799–805 MHz, by a factor not less than $76 + 10 \log(P)$ dB in a 6.25 kHz band segment, for base and fixed stations.

90.219(e)(3) limits (3) Spurious emissions from a signal booster must not exceed –13 dBm within any 100 kHz measurement bandwidth.

8.5.2 Test summary

Test date	September 13, 2018
Test engineer	Andrey Adelberg

8.5.3 Observations, settings and special notes

For intermodulation testing signal generator provided two identical adjacent channels at the EUT input.

Frequency range	30 MHz to 10 th harmonic
Detector mode	RMS
Resolution bandwidth sweep	100 kHz (below 1 GHz), 1000 kHz (above 1 GHz)
Resolution bandwidth band edge	> 1 -5% of OBW
Video bandwidth	>RBW
Trace mode	Max Hold
Measurement time	Averaging

Section 8

Testing data

Test name

FCC 90.543(e)(1)(3), 90.219(e)(3) and KDB 935210 Clause 4.7 Spurious emissions at RF antenna connector

Specification

FCC Part 90 and 935210 D05 Indus Booster Basic Meas v01r02



8.5.4 Test data

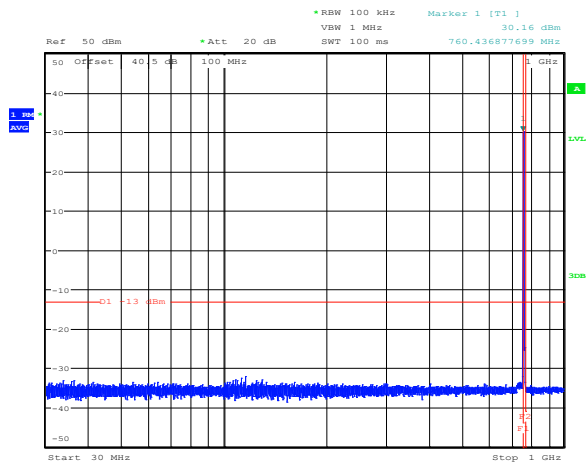


Figure 8.5-1: Conducted spurious emissions below 1 GHz for low channel (700FirtsNet)

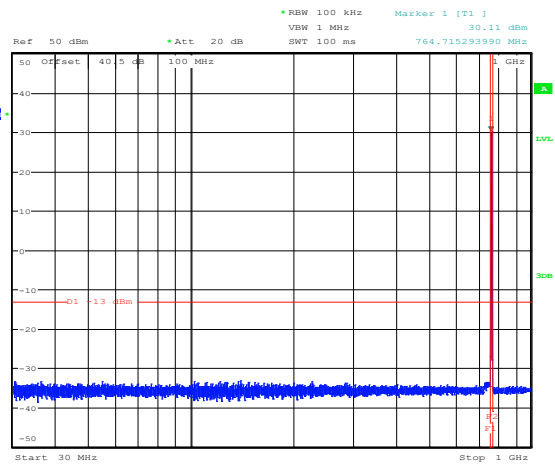


Figure 8.5-2: Conducted spurious emissions below 1 GHz for mid channel (700FirtsNet)

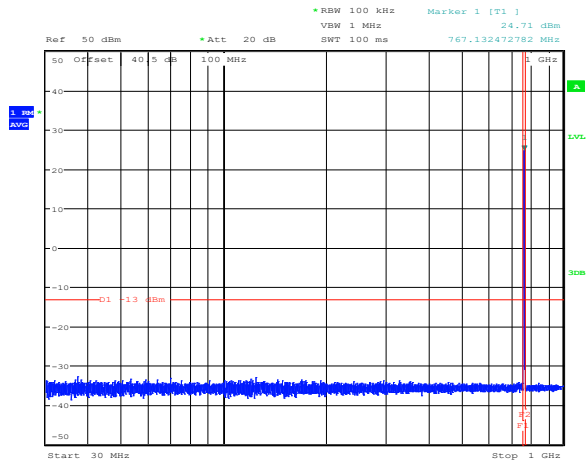


Figure 8.5-3: Conducted spurious emissions below 1 GHz for high channel (700FirtsNet)

Section 8

Testing data

Test name

FCC 90.543(e)(1)(3), 90.219(e)(3) and KDB 935210 Clause 4.7 Spurious emissions at RF antenna connector

Specification

FCC Part 90 and 935210 D05 Indus Booster Basic Meas v01r02



8.5.4 Test data, continued

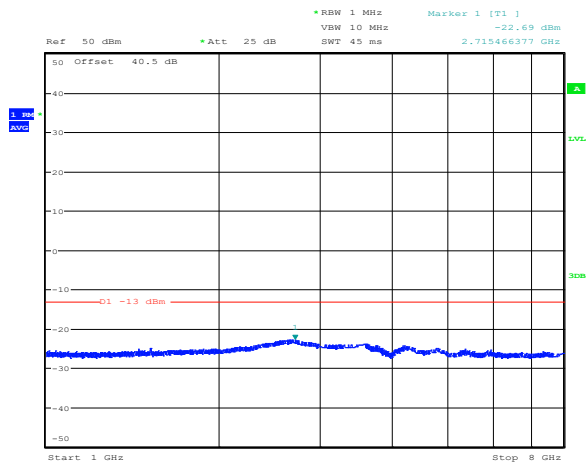


Figure 8.5-4: Conducted spurious emissions above 1 GHz for low channel (700FirstNet)

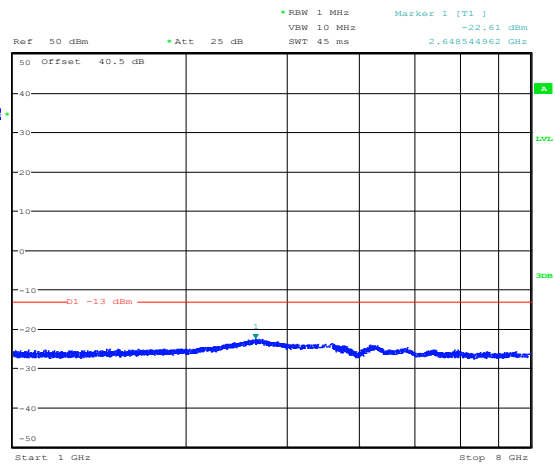


Figure 8.5-5: Conducted spurious emissions above 1 GHz for mid channel (700FirstNet)

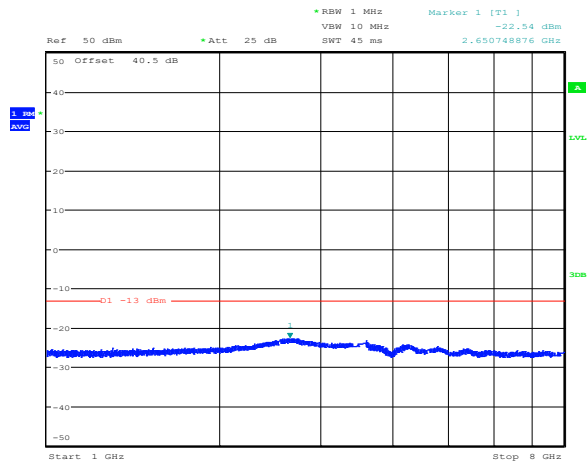


Figure 8.5-6: Conducted spurious emissions above 1 GHz for high channel (700FirstNet)

Section 8

Testing data

Test name

FCC 90.543(e)(1)(3), 90.219(e)(3) and KDB 935210 Clause 4.7 Spurious emissions at RF antenna connector

Specification

FCC Part 90 and 935210 D05 Indus Booster Basic Meas v01r02



8.5.4 Test data, continued

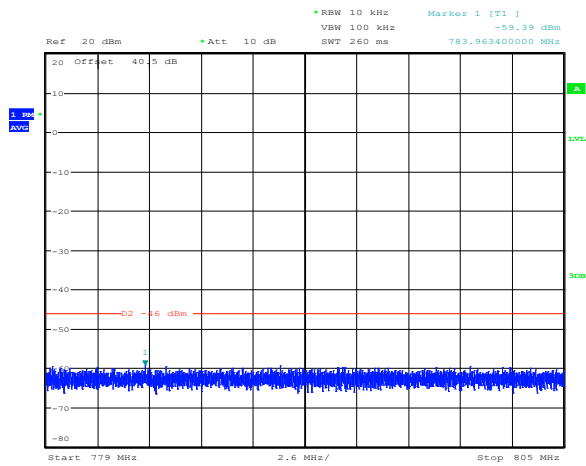


Figure 8.5-7: Conducted spurious emissions 799-805 MHz for low channel (700FirstNet)

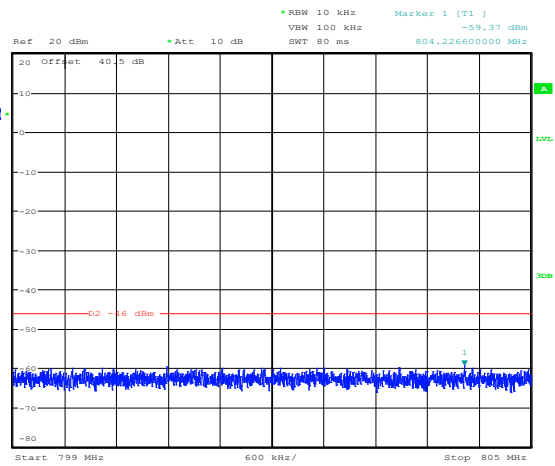


Figure 8.5-8: Conducted spurious emissions 799-805 MHz for mid channel (700FirstNet)

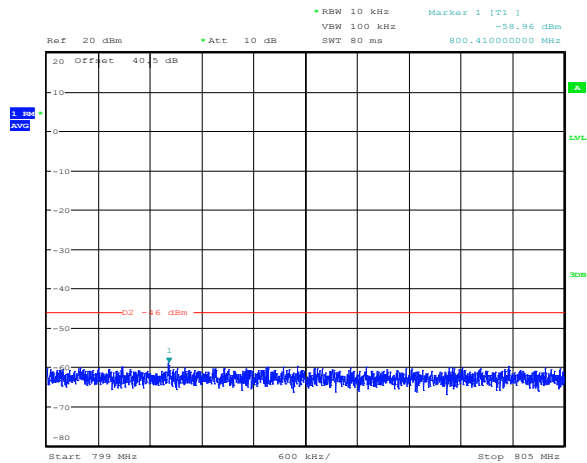


Figure 8.5-9: Conducted spurious emissions 799-805 MHz for high channel (700FirstNet)

Section 8

Testing data

Test name

FCC 90.543(e)(1)(3), 90.219(e)(3) and KDB 935210 Clause 4.7 Spurious emissions at RF antenna connector

Specification

FCC Part 90 and 935210 D05 Indus Booster Basic Meas v01r02



8.5.4 Test data, continued

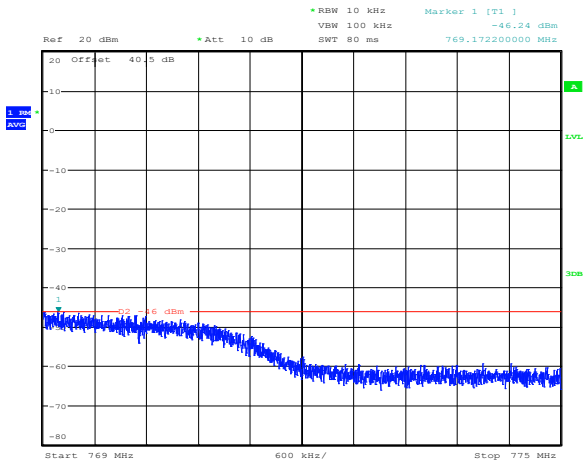


Figure 8.5-10: Conducted spurious emissions 769-775 MHz for low channel (700FirstNet)

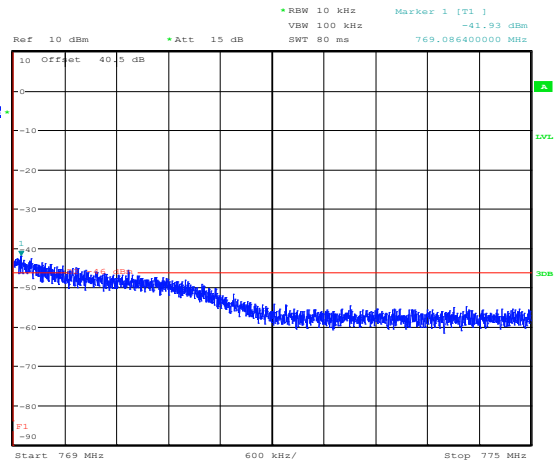


Figure 8.5-11: Conducted spurious emissions 769-775MHz for mid channel (700FirstNet)

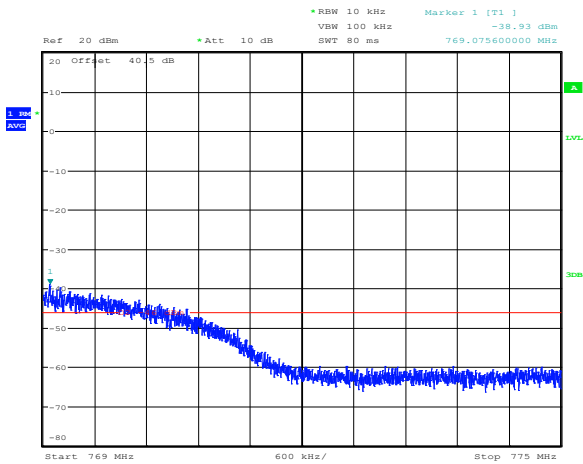


Figure 8.5-13: Conducted spurious emissions 769-775MHz for high channel (700FirstNet)

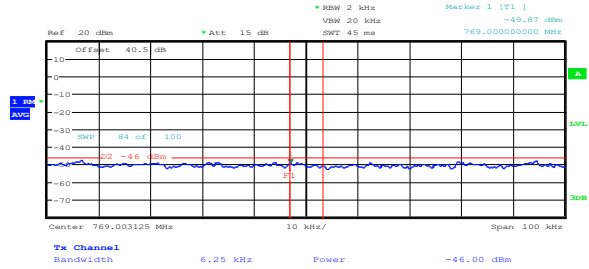


Figure 8.5-12: Conducted spurious emissions 769-775MHz for Mid channel (700FirstNet)

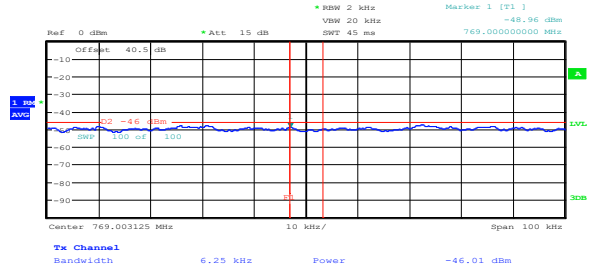


Figure 8.5-14: Conducted spurious emissions 769-775MHz for high channel (700FirstNet)

Section 8

Testing data

Test name

FCC 90.543(e)(1)(3), 90.219(e)(3) and KDB 935210 Clause 4.7 Spurious emissions at RF antenna connector

Specification

FCC Part 90 and 935210 D05 Indus Booster Basic Meas v01r02



8.5.4 Test data, continued

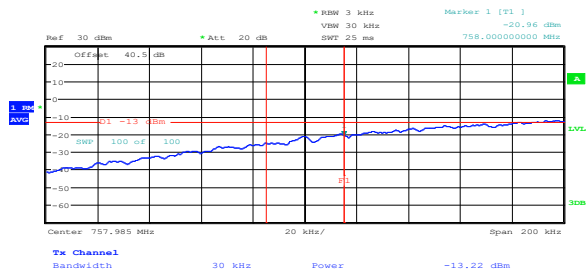


Figure 8.5-15: Conducted lower band edge at 758 MHz at AGC threshold (700FistNet)

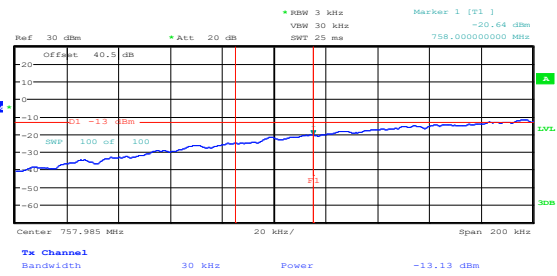


Figure 8.5-16: Conducted lower band edge at 758 MHz at AGC threshold + 3 dB (700FistNet)

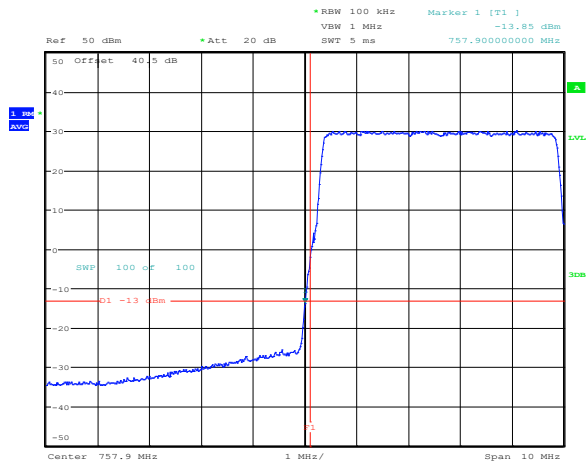


Figure 8.5-17: Conducted lower band edge at 758 MHz -100 kHz at AGC threshold (700FistNet)

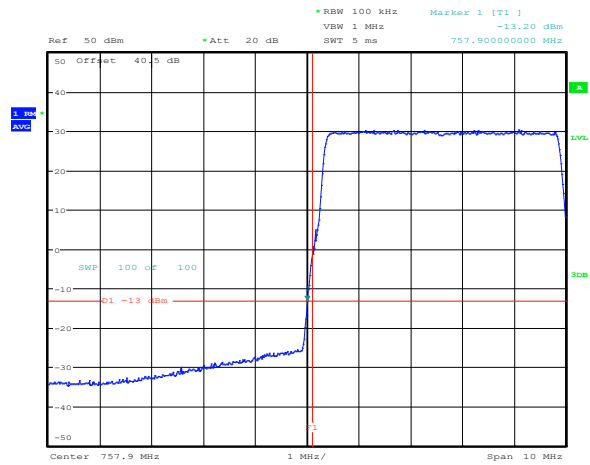


Figure 8.5-18: Conducted lower band edge at 758 MHz -100 kHz at AGC threshold + 3 dB (700FistNet)

Section 8

Testing data

Test name

FCC 90.543(e)(1)(3), 90.219(e)(3) and KDB 935210 Clause 4.7 Spurious emissions at RF antenna connector

Specification

FCC Part 90 and 935210 D05 Indus Booster Basic Meas v01r02



8.5.4 Test data, continued

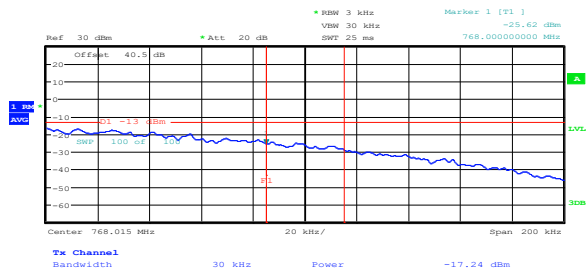


Figure 8.5-19: Conducted upper band edge at 768 MHz at AGC threshold (700FistNet)

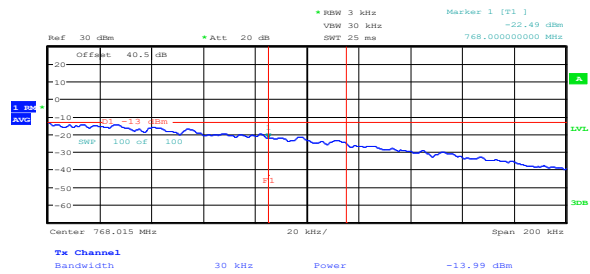


Figure 8.5-20: Conducted upper band edge at 768 MHz at AGC threshold + 3 dB (700FistNet)

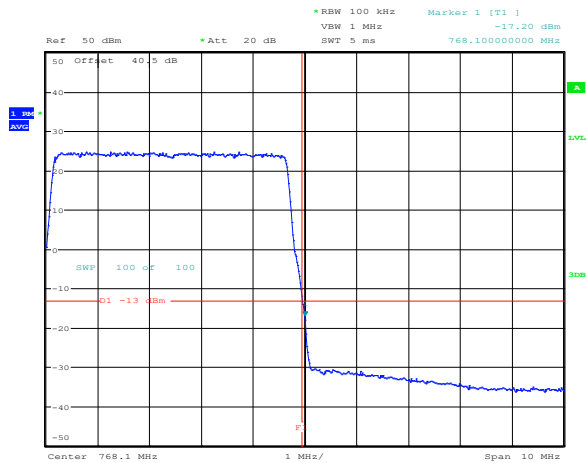


Figure 8.5-21: Conducted upper band edge at 768 MHz +100 kHz at AGC threshold (700FistNet)

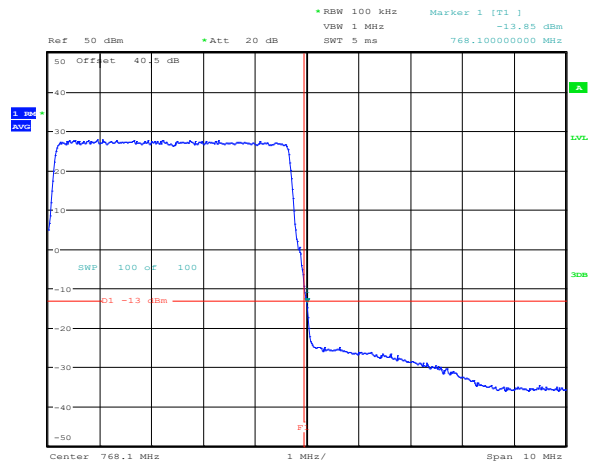


Figure 8.5-22: Conducted upper band edge at 768 MHz +100 kHz at AGC threshold + 3 dB (700FistNet)

Section 8

Testing data

Test name

FCC 90.543(e)(1)(3), 90.219(e)(3) and KDB 935210 Clause 4.7 Spurious emissions at RF antenna connector

Specification

FCC Part 90 and 935210 D05 Indus Booster Basic Meas v01r02



8.5.4 Test data, continued

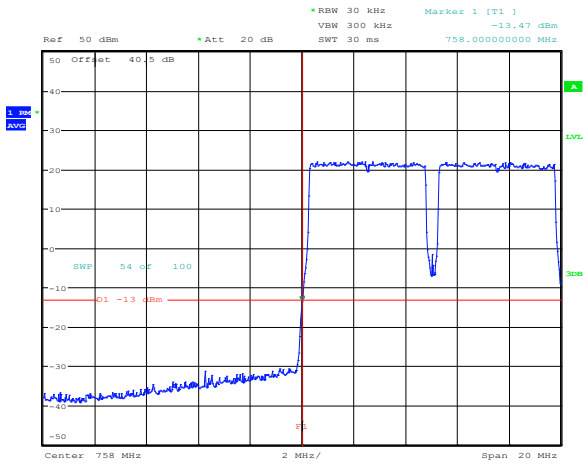


Figure 8.5-23: Conducted lower band edge at 758 MHz at AGC threshold (intermodulation) (700FistNet)

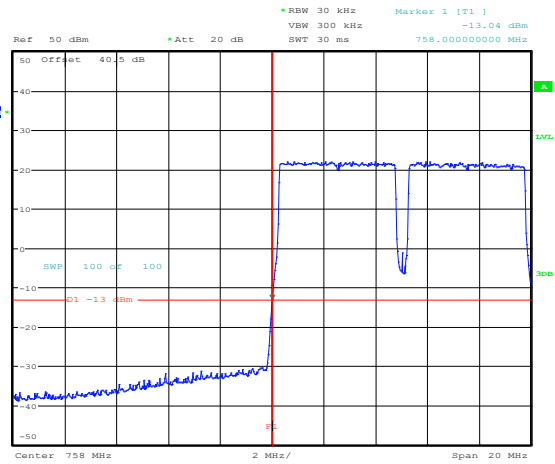


Figure 8.5-24: Conducted lower band edge at 758 MHz at AGC threshold + 3 dB (intermodulation) (700FistNet)

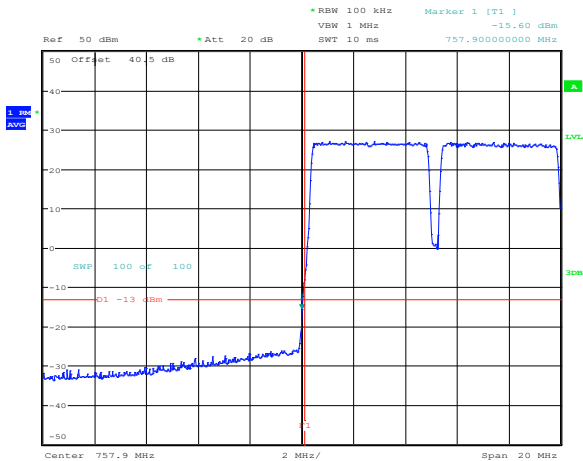


Figure 8.5-25: Conducted lower band edge at 758 MHz -100 kHz at AGC threshold (intermodulation) (700FistNet)

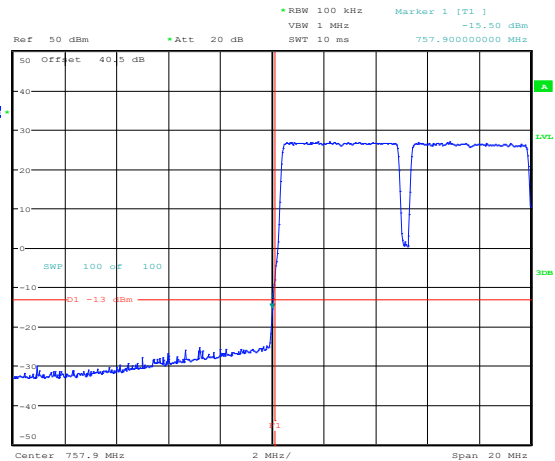


Figure 8.5-26: Conducted lower band edge at 758 MHz-100 kHz at AGC threshold + 3 dB (intermodulation) (700FistNet)

Section 8

Testing data

Test name

FCC 90.543(e)(1)(3), 90.219(e)(3) and KDB 935210 Clause 4.7 Spurious emissions at RF antenna connector

Specification

FCC Part 90 and 935210 D05 Indus Booster Basic Meas v01r02



8.5.4 Test data, continued

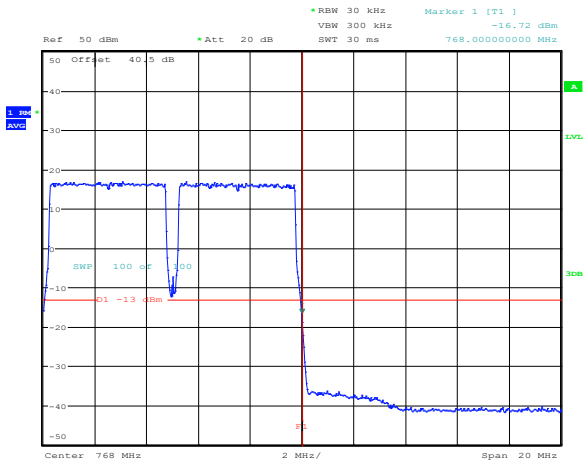


Figure 8.5-27: Conducted upper band edge at 768 MHz at AGC threshold (intermodulation) (700FistNet)

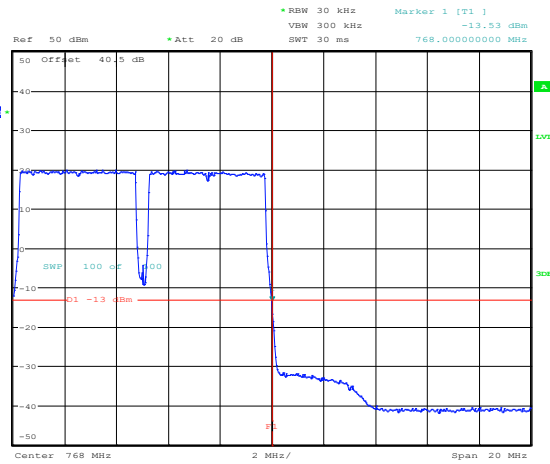


Figure 8.5-28: Conducted upper band edge at 768 MHz at AGC threshold + 3 dB (intermodulation) (700FistNet)

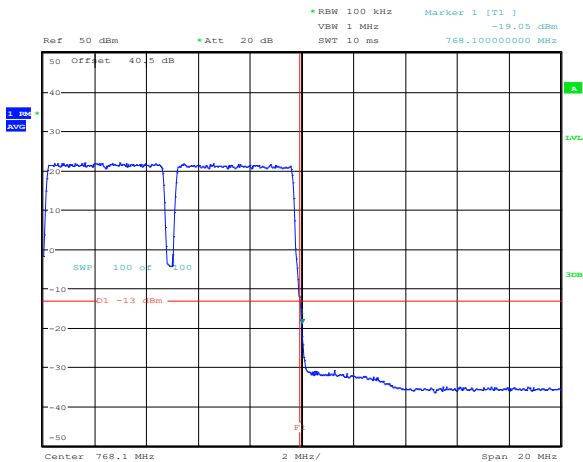


Figure 8.5-29: Conducted upper band edge at 768 MHz +100 kHz at AGC threshold (intermodulation) (700FistNet)

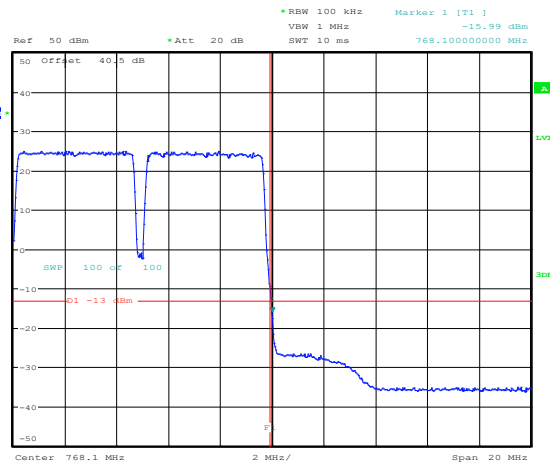


Figure 8.5-30: Conducted upper band edge at 768 MHz +100 kHz at AGC threshold + 3 dB (intermodulation) (700FistNet)



8.6 FCC 90.543(e)(1)(3)(f) and KDB 935210 Clause 4.9 Radiated spurious emissions

8.6.1 Definitions and limits

FCC 90.543(e) For operations in the 758–768 MHz and the 788–798 MHz bands, the power of any emission outside the licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, in accordance with the following:

(3) On any frequency between 775–788 MHz, above 805 MHz, and below 758 MHz, by at least $43 + 10 \log (P)$ dB.

90.543(e)(1) limits (1) On all frequencies between 769–775 MHz and 799–805 MHz, by a factor not less than $76 + 10 \log (P)$ dB in a 6.25 kHz band segment, for base and fixed stations.

90.543(f) limits (f) For operations in the 758–775 MHz and 788–805 MHz bands, all emissions including harmonics in the band 1559–1610 MHz shall be limited to -70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals

8.6.2 Test summary

Test date	September 13, 2018
Test engineer	Andrey Adelberg

8.6.3 Observations, settings and special notes

None

Receiver settings were:

Frequency range	30 MHz to 10 th harmonic
Detector mode	Peak
Resolution bandwidth	100 kHz (below 1 GHz), 1000 kHz (above 1 GHz)
Video bandwidth	>RBW
Trace mode	Max Hold

8.6.4 Test data

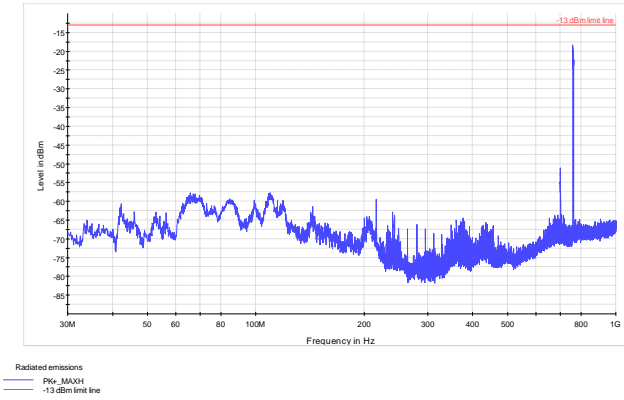


Figure 8.6-1: Radiated spurious emissions within 30 MHz to 1 GHz – Low Channel (700FirstNet)

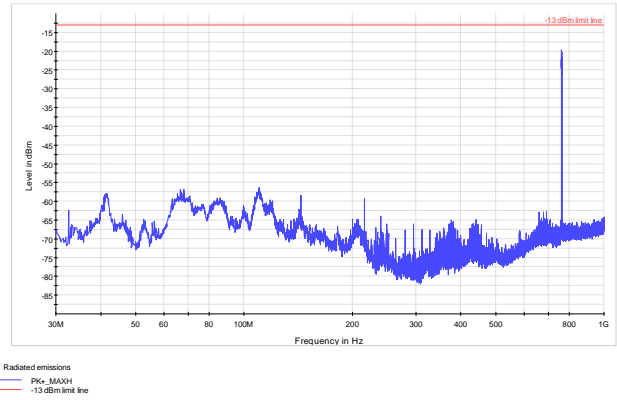


Figure 8.6-2: Radiated spurious emissions within 30 MHz to 1 GHz – Middle Channel (700FirstNet)

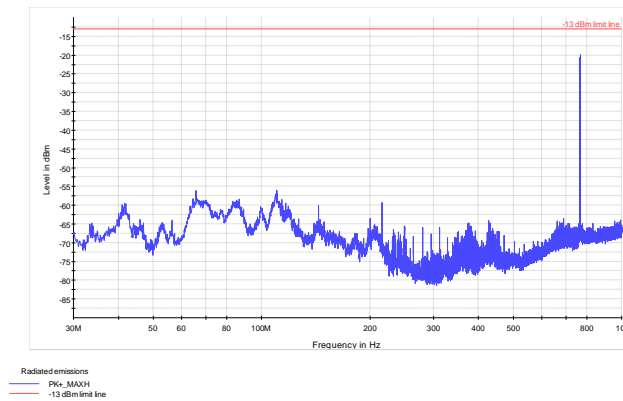


Figure 8.6-3: Radiated spurious emissions within 30 MHz to 1 GHz – High Channel (700FirstNet)

8.6.4 Test data, continued

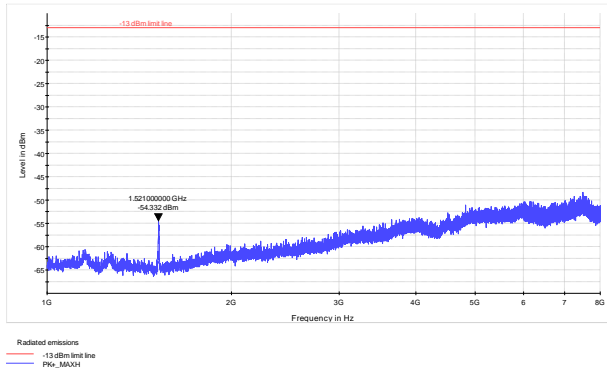


Figure 8.6-4: Radiated spurious emissions within 1 to 8 GHz – Low Channel (700FirstNet)

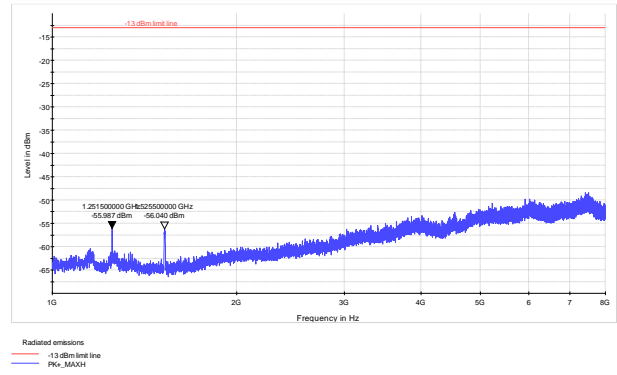


Figure 8.6-5: Radiated spurious emissions within 1 to 8 GHz – Mid Channel (700FirstNet)

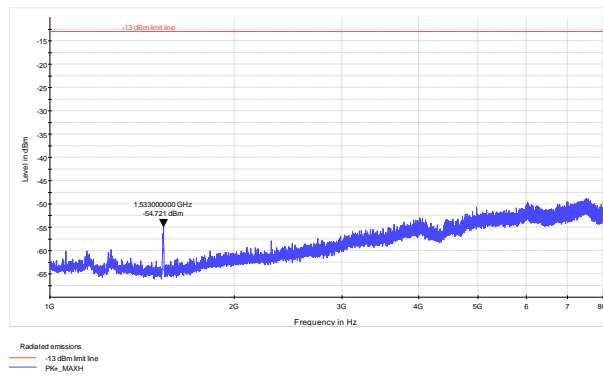


Figure 8.6-6: Radiated spurious emissions within 1 to 8 GHz – High Channel (700FirstNet)

8.6.4 Test data, continued

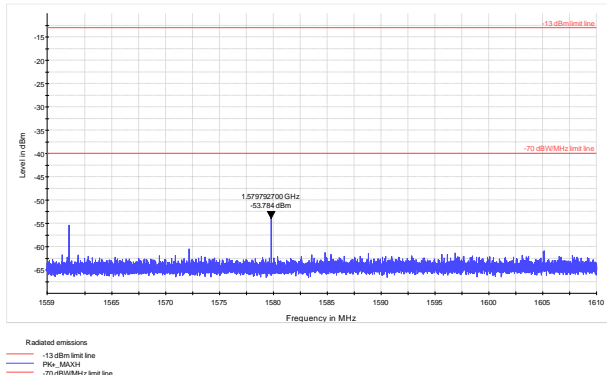


Figure 8.6-7: Radiated spurious emissions within 1559–1610 MHz – Low Channel (700FirstNet)

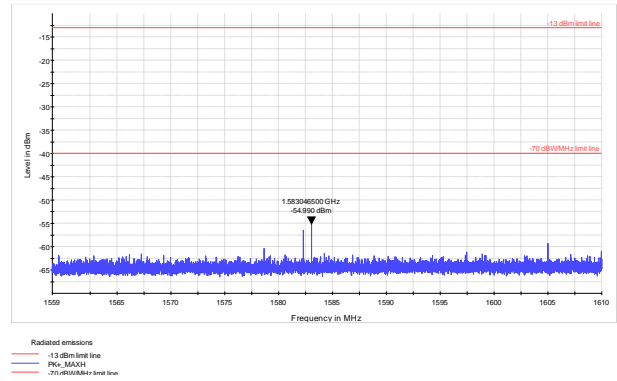


Figure 8.6-8: Radiated spurious emissions within 1559–1610 MHz – Mid Channel (700FirstNet)

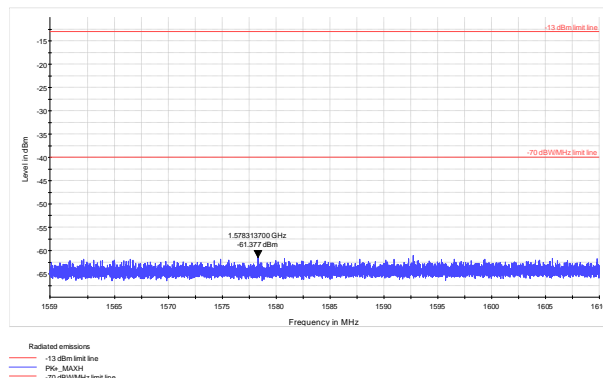


Figure 8.6-9: Radiated spurious emissions within 1559–1610 MHz – High Channel (700FirstNet)

8.6.4 Test data, continued

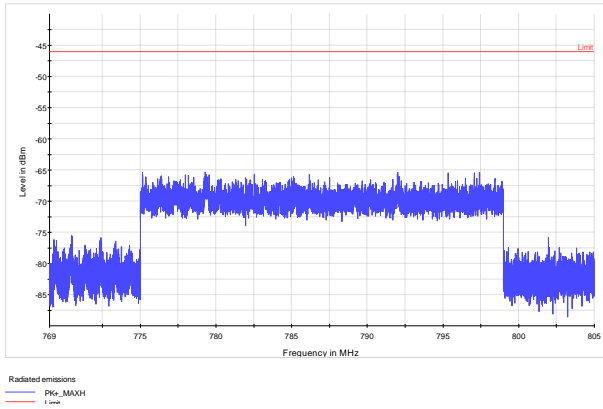


Figure 8.6-10: Radiated spurious emissions within 769–805 MHz – Low Channel (700FirstNet)

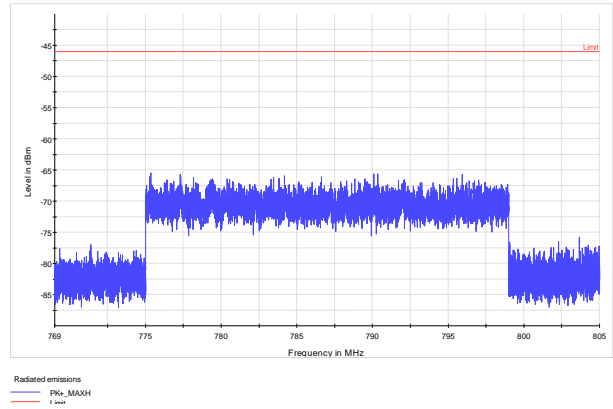


Figure 8.6-11: Radiated spurious emissions within 769–805MHz – Mid Channel (700FirstNet)

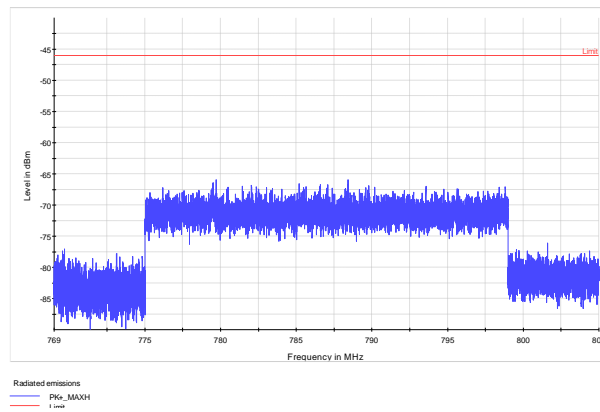


Figure 8.6-12: Radiated spurious emissions within 769–805MHz – High Channel (700FirstNet)



8.7 Part 90.219(e)(4), 2.1049 and KDB 935210 Clause 4.4 Occupied bandwidth: input versus output signal comparison

8.7.1 Definitions and limits

The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power. The spectral shape of the output should look similar to the input. Input OBW and output OBW were assessed and compared side by side.

90.219(e)(4) limits:

A signal booster must be designed such that all signals that it retransmits meet the following requirements:

- (i) The signals are retransmitted on the same channels as received. Minor departures from the exact provider or reference frequencies of the input signals are allowed, provided that the retransmitted signals meet the requirements of §90.213.
- (ii) There is no change in the occupied bandwidth of the retransmitted signals.
- (iii) The retransmitted signals continue to meet the unwanted emissions limits of §90.210 applicable to the corresponding received signals (assuming that these received signals meet the applicable unwanted emissions limits by a reasonable margin).

8.7.2 Test summary

Test date	September 13, 2018
Test engineer	Andrey Adelberg

8.7.3 Observations, settings and special notes

None

Spectrum analyzer settings:

Detector mode	Peak
Resolution bandwidth	≥1 % of OBW
Video bandwidth	≥ RBW
Trace mode	Max Hold



8.7.4 Test data

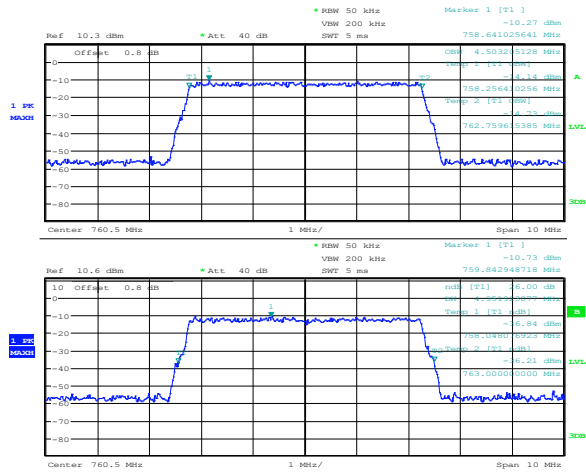


Figure 8.7-1: 99% OBW and 26 dB EBW at the input of the EUT at AGC threshold, low channel (700FirstNet)

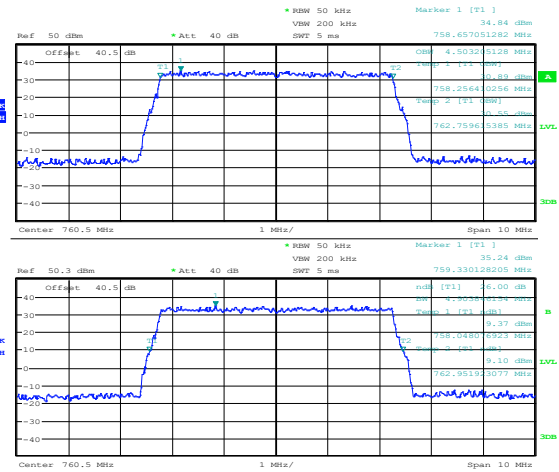


Figure 8.7-2: 99% OBW and 26 dB EBW at the output of the EUT at AGC threshold, low channel (700FirstNet)

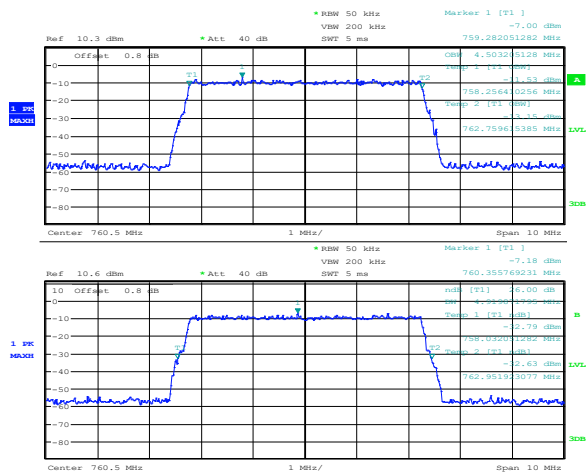


Figure 8.7-3: 99% OBW and 26 dB EBW at the input of the EUT at AGC threshold +3 dB, Low channel (700FirstNet)

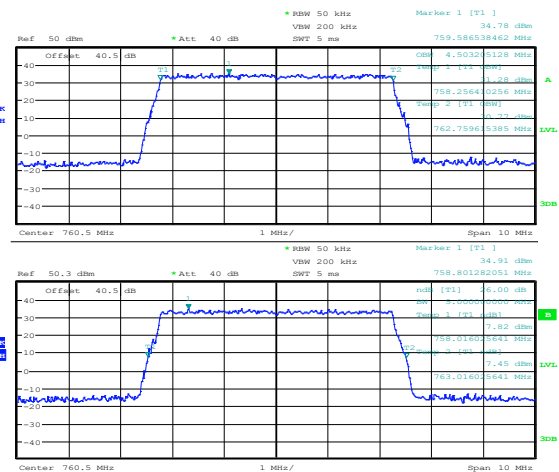


Figure 8.7-4: 99% OBW and 26 dB EBW at the output of the EUT at AGC threshold +3 dB, Low channel (700FirstNet)

Section 8

Test name

Specification

Testing data

Part 90.219(e)(4), 2.1049 and KDB 935210 Clause 4.4 Occupied bandwidth: input versus output signal comparison

FCC Part 2 and 935210 D05 Indus Booster Basic Meas v01r02



8.7.4 Test data, continued

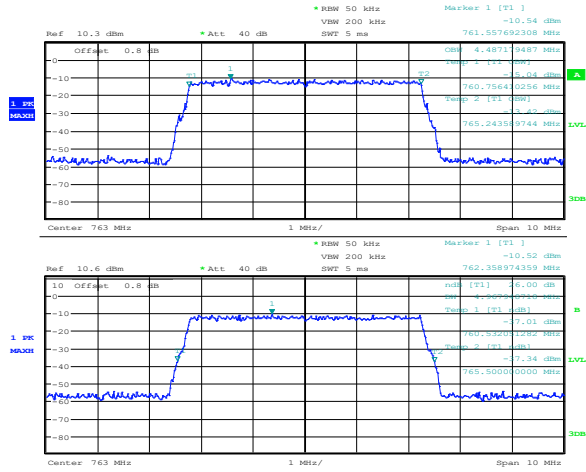


Figure 8.7-5: 99% OBW and 26 dB EBW at the input of the EUT at AGC threshold, Middle channel (700FirstNet)

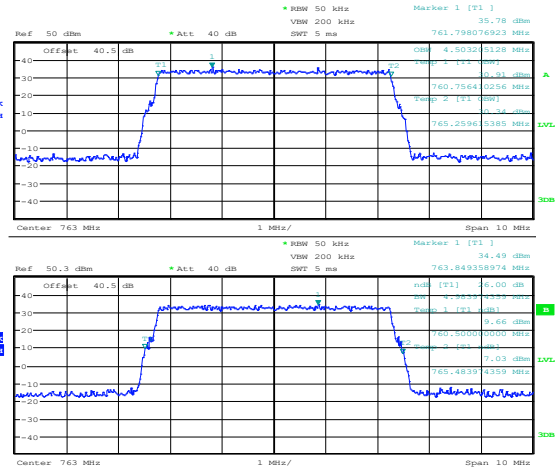


Figure 8.7-6: 99% OBW and 26 dB EBW at the output of the EUT at AGC threshold, Middle channel (700FirstNet)

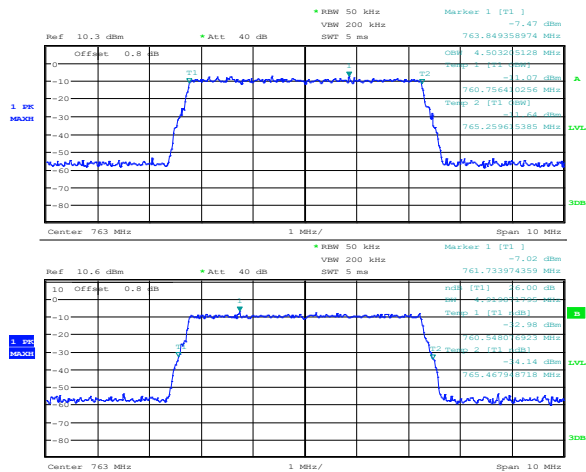


Figure 8.7-7: 99% OBW and 26 dB EBW at the input of the EUT at AGC threshold +3 dB, Middle channel (700FirstNet)

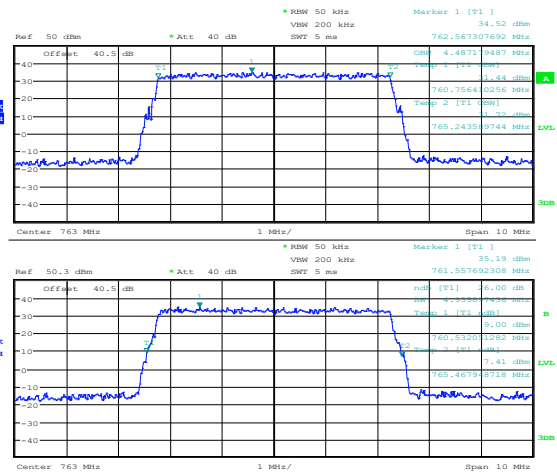


Figure 8.7-8: 99% OBW and 26 dB EBW at the output of the EUT at AGC threshold +3 dB, Middle channel (700FirstNet)

Section 8

Test name

Specification

Testing data

Part 90.219(e)(4), 2.1049 and KDB 935210 Clause 4.4 Occupied bandwidth: input versus output signal comparison

FCC Part 2 and 935210 D05 Indus Booster Basic Meas v01r02



8.7.4 Test data, continued

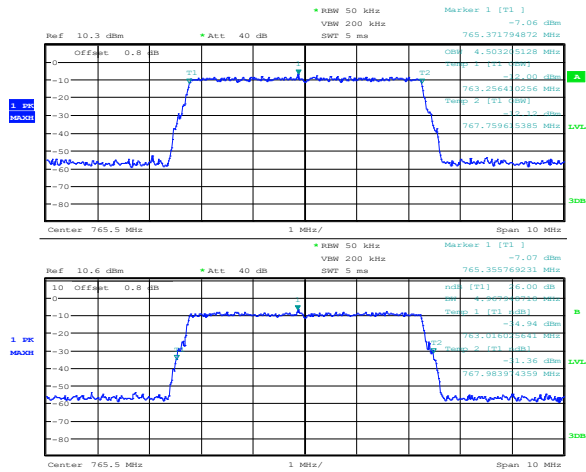


Figure 8.7-9: 99% OBW and 26 dB EBW at the input of the EUT at AGC threshold, High channel (700FirstNet)

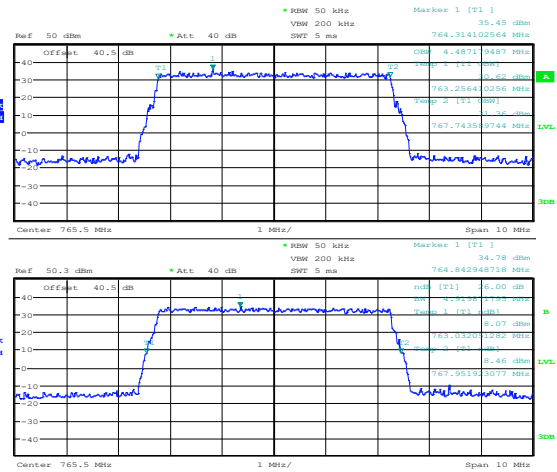


Figure 8.7-10: 99% OBW and 26 dB EBW at the output of the EUT at AGC threshold, High channel (700FirstNet)

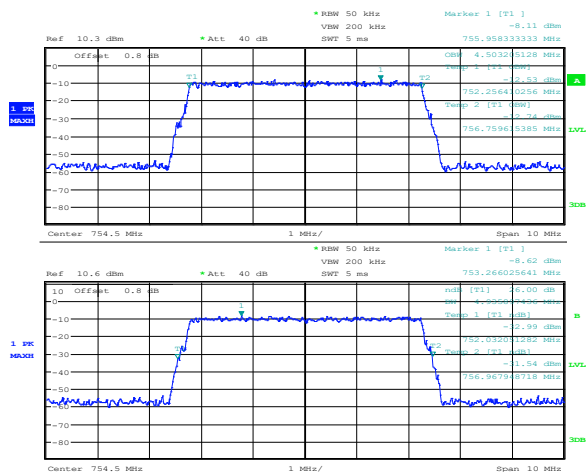


Figure 8.7-11: 99% OBW and 26 dB EBW at the input of the EUT at AGC threshold +3 dB, High channel (700FirstNet)

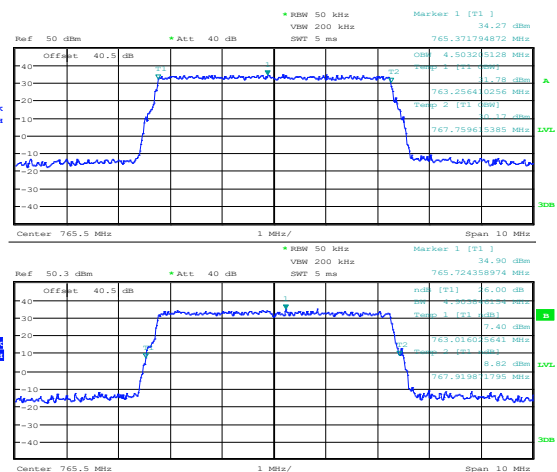


Figure 8.7-12: 99% OBW and 26 dB EBW at the output of the EUT at AGC threshold +3 dB, High channel (700FirstNet)

Section 9. Setup Photos

9.1 Set-up

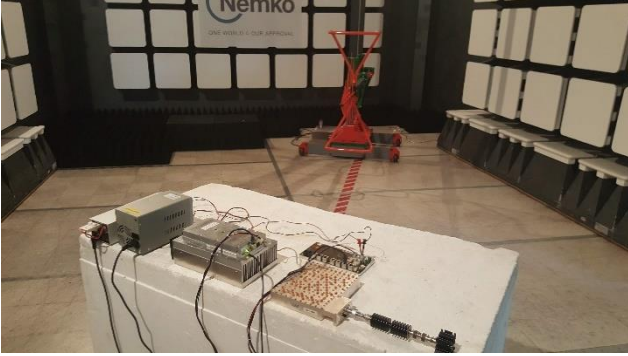


Figure 9.1-1: Radiated setup photo below 1 GHz



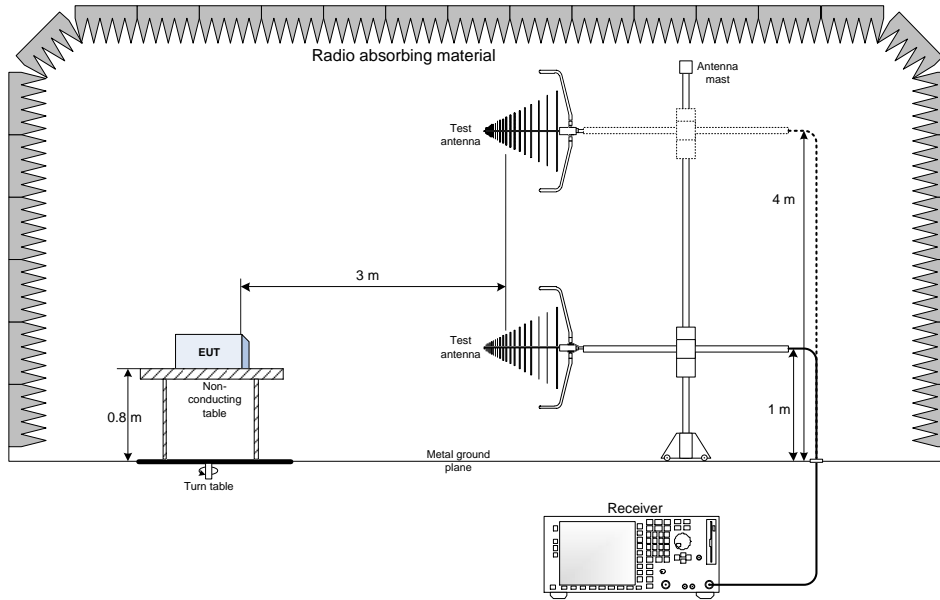
Figure 9.1-2: Radiated setup photo below 1 GHz



Figure 9.1-3: Radiated setup photo above 1 GHz

Section 10. Block diagrams of test set-ups

10.1 Radiated emissions set-up for frequencies below 1 GHz



10.2 Radiated emissions set-up for frequencies above 1 GHz

