REPORT

issued by an Accredited Testing Laboratory

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Testing

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Radio measurements on AIR 5331 B260 equipment with FCC ID TA8AKRD901079

Rev1. 2019-02-07: Clarification on how the measurement and calculations have been done.

Product name: AIR 5331 B260
Product number: KRD 901 079/1 for DC and KRD 901 079/4 for AC

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Electronics - EMC

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ISO/IEC 17025

Summary

Standard Listed part of	Compliant
FCC CFR 47 part 30	
2.1046 RF power output	Yes
2.1049 Occupied bandwidth	Yes
2.1053 Field strength of spurious radiation	Yes

Description of the test object

Equipment:	Radio equipment AIR 5331 B260 Product number: KRD 901 079/1 (DC powered version), KRD 901 079/4 (AC powered version) FCC ID: TA8AKRD901079
Hardware revision state:	R1C.
Tested configuration:	3GPP NR TDD
Frequency band:	TX/ RX: 37000 – 40000 MHz
Total BW:	800 MHz
Output power:	Maximum output power per Beam 100 W Maximum total output power per Unit 800 W
RF configurations:	2 Beams/ PAAM TX Diversity, 2x2 MIMO, Contiguous Spectrum (CS) and Non-Contiguous spectrum (NCS), Carrier Aggregation (CA) intra-band supported
Antenna beam steering:	Azimuth ±60 deg, elevation ±15 deg
Channel bandwidths:	50 MHz, 100 MHz and 200 MHz
Modulations/ Emission designators:	QPSK, 16QAM and 64QAM
Emission designators:	46M2W7D, 95M6W7D, 205MW7D
Emission designators Carrier Aggregation:	194MW7D (2x 100 MHz), 391MW7D (2x 200 MHz) 396MW7D (4x 100 MHz), 784MW7D (4x 200 MHz)
RF power Tolerance:	+1.5/ -3.3 dB
CPRI Speed	Up to 10.1 Gbit/s

The information above is supplied by the manufacturer.

Purpose of test

The purpose of the tests is to verify compliance to the performance characteristics specified in applicable items of FCC CFR 47.

Operation modes during measurements

The measurements were performed with the test object transmitting test models as defined in NEW-18:012192 PA1. Test model NR FR2 TM 1.1 was used to represent QPSK, test model NR FR2 TM 3.2 to represent 16QAM, test model NR FR2 TM 3.1 to represent 64QAM modulation

Different beam index locked and scan mode was tested. Locked mode in bore site was found to represent worst case.
All measurements were performed with the test object configured for maximum transmit power at bore site. The measured configurations is representative for worst case settings.

The measurement shall be done during active part of transmission, or if the measurement is performed with constant duty cycle <98%, the result shall be adjusted for the duty cycle according to ANSI C63.26 5.2.4.3.4. The duty cycle was measured to 55% and to compensate for this 2.57 dB was added to the test results.

Measurements

The DC powered version was used for all measurements. In addition, out of band emission was performed on the AC powered version in a limited frequency range.

References

Measurements were done according to relevant parts of the following standards:

CFR 47 part 30, October 2018
ANSI C63.26-2015
ANSI C63.26 mmWave JTG v1.0
3GPP TS 38.141-2 v1.1.0
3GPP TR 37.842 V13.2.0 (2017-03)
662911 D01 Multiple Transmitter Output v02r01 (2013-10-31)
662911 D02 MIMO with Cross Polarized Antenna v01 (2011-10-25)
971168 D01 Power Meas License Digital Systems v03 (2017-10-27)

Measurement equipment

	Calibration Due	RISE number
Anechoic chamber, Hertz	2020-11	BX50194
R&S FSW 43	2019-08	902 073
R&S ESU	2019-08	901 553
R&S ZNB 40	2019-08	BX50051
Bilog antenna Schaffner 6143	2021-07	504079
Flann STD Gain Horn Antenna 20240-20	-	503 674
Flann STD Gain Horn Antenna 22240-20	-	503 674
Flann STD Gain Horn Antenna 24240-20	-	503 674
Flann STD Gain Horn Antenna 26240-20	-	503 674
Flann STD Gain Horn Antenna 27240-20	-	503 674
Flann STD Gain Horn Antenna 29240-20	-	503 674
Flann STD Gain Horn Antenna 30240-20	-	503 674
Mixer FS-Z60	2019-11	100147
Mixer FS-Z90	2020-08	503 569
Mixer FS-Z110	2019-05	BX81427
Mizer FS-Z140	2020-02	BX81428
Mixer FS-Z220	2020-03	BX81429
Miteq, Low Noise Amplifier	2020-01	503 278
EMCO Horn Antenna 3115	2021-07	502 175
EMCO Horn Antenna 3115	2019-03	501 548
EMCO Horn Antenna 3116	2021-07	503 279
µComp Nordic, Low Noise Amplifier	2020-01	901 544
Temperature and humidity meter, Testo 615	2019-06	503 498

Uncertainties

Measurement and test instrument uncertainties are described in the quality assurance documentation ”SP-QD 10885”. The uncertainties are calculated with a coverage factor k=2 (95% level of confidence).
Compliance evaluation is based on a shared risk principle with respect to the measurement uncertainty.

Reservation

The test results in this report apply only to the particular test object as declared in the report.

Delivery of test object

The test object was delivered: 2018-11-08.

Manufacturer’s representative

Mikael Jansson, Ericsson AB.

Test engineers

Tomas Lennhager Tomas Isbring and Hyder Khalaf, RISE

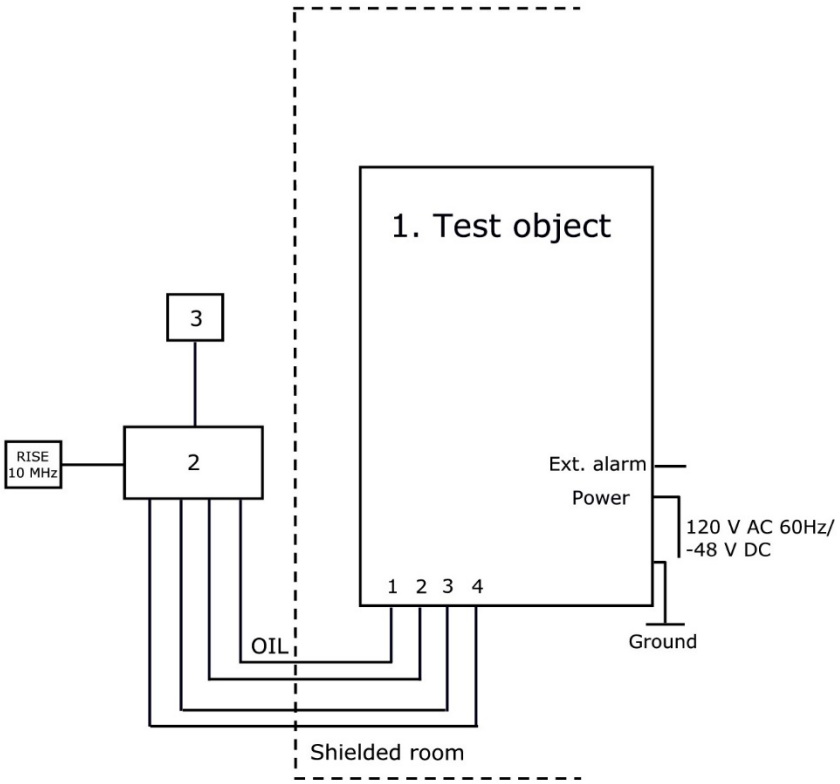
Test participant(-s)

Mikael Jansson, Ericsson AB.

Test frequencies used for radiated measurements

Frequency PAAM 0 Hor/ Ver [MHz]	Frequency PAAM 1 Hor/ Ver [MHz]	Frequency PAAM 2 Hor/ Ver [MHz]	Frequency PAAM 3 Hor/ Ver [MHz]	Symbolic name	Comment
37025	37775	37875	38575	$BMTL_{50}$	50 MHz BW, TX bottom middle and top frequency configuration lower band
39225	39275	39925	39975	MTH_{50}	50 MHz BW, TX bottom middle and top frequency configuration high band
37025 37075 37125	37675 37725 37775	37875 37925 37975	38475 38525 38575	$3BMTL_{50}$	50 MHz BW, 3 carrier, TX bottom middle and top frequency configuration lower band
39125 39175 39225	39275 39325 39375	39725 39775 39825	39875 39925 39975	$3MTH_{50}$	50 MHz BW, 3 carrier, TX middle and top frequency configuration high band
37050	37750	37850	38550	$BMTL_{100}$	100 MHz BW, TX bottom middle and top frequency configuration lower band
39250	39350	39850	39950	MTH_{100}	100 MHz BW, TX bottom middle and top frequency configuration high band
37050 37150	37250 37350	37250 37350	37050 37150	$2BEL_{100}$	100 MHz, TX 2 carrier band edge low
38450 38550	38250 38350	38250 38350	38450 38550	$2ML_{100}$	100 MHz, TX 2 carrier low band edge high
38650 38750	38850 38950	38850 38950	38650 38750	$2MH_{100}$	100 MHz, TX 2 carrier high band edge low
39850 39950	39650 39750	39650 39750	39850 39950	$2BEH_{100}$	100 MHz, TX 2 carrier band edge high
37050	37050	37150	37150	BEL_{100}	100 MHz, TX band edge low
38550	38550	38450	38450	ML_{100}	100 MHz, TX low band edge high
38650	38650	38750	38750	MH_{100}	100 MHz, TX high band edge low
39950	39950	39850	39850	BEH_{100}	100 MHz, TX band edge high
37450	37850	38250	39950	$WC5Lo_{100}$	100 MHz BW, TX Worst case 5LO configuration
39150	38950	38750	38350	$WC6Lo_{100}$	100 MHz BW, TX Worst case 6LO configuration
37050	37150	37050	37150	$WC43.2GHz_{100}$	100 MHz, TX Spurr 43.2 GHz Spurr
37100	37700	37900	38500	$BMTL_{200}$	200 MHz BW, TX bottom middle and top frequency configuration lower band
39200	39400	39700	39900	MTH_{200}	200 MHz BW, TX bottom middle and top frequency configuration high band
37050	37150	37250	37350	CA_{100}	4x 100 MHz BW, 400 MHz Aggregation configuration
37100	37300	37500	37700	CA_{200}	4x 200 MHz BW, 800 MHz aggregation configuration
37050	37150	37050	37150	CA_{2x100}	4x 100 MHz BW, 200 MHz aggregation configuration
37100	37300	37100	37300	CA_{2x200}	4x 200 MHz BW, 400 MHz aggregation configuration

Test setup: radiated measurements



Test object:

1.	DC: AIR 5331 B260, KRD 901 079/1, rev. R1C, s/n: D16Y124597 With Radio Software: CXP 901 3268/16, rev. R75DB AC: AIR 5331 B260, KRD 901 079/4, rev. R1C, s/n: D16Y098672 With Radio Software: CXP 901 3268/16, rev. R75DB. FCC ID: TA8AKRD901079

Associated equipment:

2.	Testing Equipment: CT11, LPC 102 494/1, rev. R2A, s/n: T0G487940, BAMS – 1001866186 with software CXC 173 5312/25, rev. R1A05, TCA software R12B04

Functional test equipment:

3.	Computer, HP EliteBook 8770w, BAMS - 1001450166

Interfaces:

Power input configuration AC: 120 VAC 60Hz	Power
Power input configuration DC: -48 V DC	Power
1, Optical Interface Link, single mode opto fibre	Signal
2, Optical Interface Link, single mode opto fibre	Signal
3, Optical Interface Link, single mode opto fibre	Signal
4, Optical Interface Link, single mode opto fibre	Signal
EXT Alarm, shielded multi-wire	Signal
Ground wire	Ground

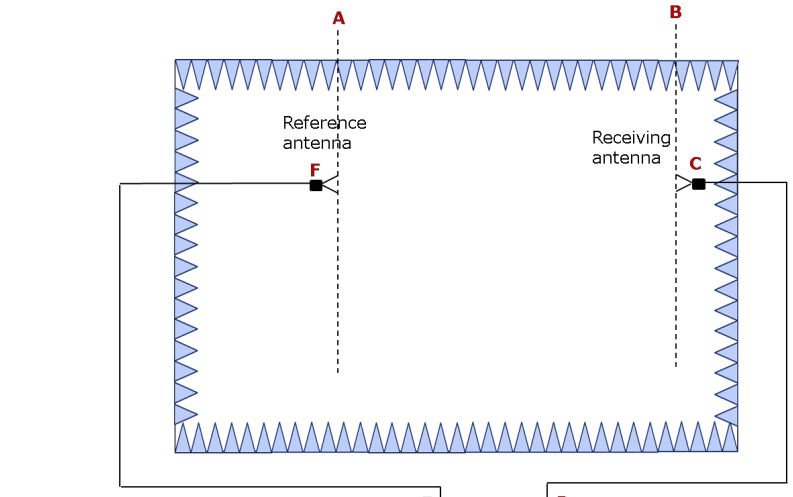
RF power output measurements according to CFR 47 §30.202

Date	Temperature	Humidity
2018-12-12	22 °C ± 3 °C	30 % ± 5 %
2018-12-15	22 °C ± 3 °C	35 % ± 5 %
2018-12-17	22 °C ± 3 °C	32 % ± 5 %
2018-12-20	22 °C ± 3 °C	20 % ± 5 %
2019-01-22	22 °C ± 3 °C	26 % ± 5 %

Test set-up and procedure

The test object was located in a anechoic chamber. The measuring antenna was aligned to the centre of each PAAM. A turn table was used to find the highest output power. A signal analyzer with the channel power function activated was used to measure the output power with the RMS detector activated. The bandwidth setting of the channel power function was set to 100 MHz.

A substitution measurement defined in 3GPP TR 37.842 V13.2.0 (2017-03) chapter 10.3.1.1.2 was used to get the actual correction factor (Transducer factor A-D in the figure 1 below) with a Network analyzer (ZNB 40).



E: Network analyzer output connector
F: Reference antenna connector
A: Phase centre of the reference antenna
(aligned to the reference point of AAS BS at DUT measurement)
B: Phase centre of the receiving antenna
C: Receiving antenna connector
D: Network Analyzer input connection point
(the same as the measurement equipment connection point at DUT measurement)

Figure 1: Indoor Anechoic Chamber calibration system setup for EIRP

Stage 1 - Calibration:

1) Connect the reference antenna and the receiving antenna to the measurement RF out port and RF in port of the network analyzer, respectively, as shown in figure 1.
2) Install the reference antenna with its *beam peak direction* and the height of its phase centre aligned with the receiving antenna.
3) Set the centre frequency of the network analyzer to the carrier centre frequency of the tested signal for EIRP measurement of the EUT and measure $LF_{EIRP,\,E\rightarrow D}$, which is equivalent to 20log|S21| (dB) obtained by the network analyzer:

$LF_{EIRP, E→D}$: Pathloss between E and D in figure 1.

4) Measure the cable loss, $LF_{EIRP, E→F}$ between the reference antenna connector and the network analyzer connector:
$LF_{EIRP, E→F}$: Cable loss between E and F in figure 1.

5) Calculate the calibration value between A and D with the following formula:
$L_{EIRP\_cal, A→D} = LF_{EIRP, E→D} + G_{REF\_ANT\_EIRP, A→F} - LF_{EIRP, E→F}$.
$L_{EIRP\_cal, A→D}$: Calibration value between A and D in figure 1. Was implemented in the spectrum analyzer as a transducer.
$G_{REF\_ANT\_EIRP, A→F}$: Antenna gain of the reference antenna.

Stage 2 - Measurement:

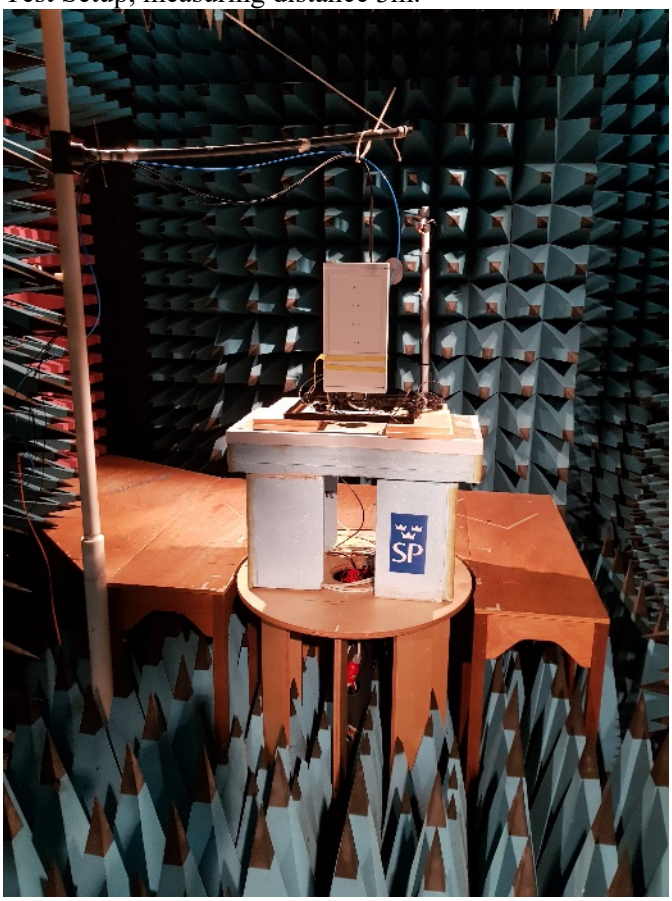
6) Uninstall the reference antenna and install the EUT with the manufacturer declared coordinate system reference point in the same place as the phase centre of the reference antenna. The manufacturer declared coordinate system orientation of the EUT is set to be aligned with the testing system.

7) Measure the mean power, $P_{R\_EUT\_EIRP, D}$, D in figure 1.

8) Calculate the EIRP with the following formula:

$$EIRP = P_{R\_EUT\_EIRP, D} + L_{EIRP\_cal, A→D}$$

Test Setup, measuring distance 3m:



Measurement equipment	RISE number
Anechoic chamber, Hertz	BX50194
R&S FSW 43	902 073
R&S ZNB 40	BX50051
EMCO Horn Antenna 3116	503 279
FLANN Std gain 22240-20	503 674
Testo 615, temperature and humidity meter	503 498

Measurement uncertainty: 3.3 dB

Results

KRD 901 079/1: DC

Single carrier (one carrier on each PAAM and polarization)

Beam index 0 Bore site, Bandwidth 50MHz
Rated output power per 100 MHz EIRP, at each PAAM 1x 47 dBm/ Polarization.

		Output power per 100 MHz, EIRP [RMS dBm] Vertical/ Horizontal			
Modulation	Symbolic name	PAAM 0	PAAM 1	PAAM 2	PAAM 3
QPSK	$BMTL_{50}$	46.04/47.19	46.69/46.78	46.68/ 47.13	47.16/ 47.53
16 QAM	$BMTL_{50}$	46.19/47.24	46.71/46.81	46.72/ 47.11	47.21/ 47.54
64 QAM	$BMTL_{50}$	46.20/47.12	46.65/46.70	46.71/ 47.12	47.13/ 47.63
QPSK	MTH_{50}	46.77/46.89	46.66/46.88	45.51/ 45.58	44.76/ 45.12
16 QAM	MTH_{50}	46.80/46.89	46.73/46.86	45.54/ 45.52	44.81/ 45.23
64 QAM	MTH_{50}	46.83/46.82	46.66/46.79	45.59/ 45.58	44.76/ 45.10

Beam index 0 Bore site, Bandwidth 100MHz
Rated output power per 100 MHz EIRP, at each PAAM 1x 50 dBm/ Polarization. 1.8 dBm power back off applies for 64 QAM.

		Output power per 100 MHz, EIRP [RMS dBm] Vertical/ Horizontal			
Modulation	Symbolic name	PAAM 0	PAAM 1	PAAM 2	PAAM 3
QPSK	$BMTL_{100}$	49.07/50.11	49.75/ 49.84	49.69/ 50.07	50.16/ 50.46
16 QAM	$BMTL_{100}$	49.02/50.14	49.87/ 49.85	49.66/ 50.04	50.09/ 50.39
64 QAM	$BMTL_{100}$	47.05/47.97	47.78/ 47.80	47.57/ 48.04	48.16/ 48.33
QPSK	MTH_{100}	49.53/49.59	49.30/ 49.54	48.26/ 48.39	47.43/ 48.01
16 QAM	MTH_{100}	49.49/49.53	49.24/ 49.56	48.21/ 48.42	47.42/ 47.99
64 QAM	MTH_{100}	47.62/47.56	47.46/ 47.59	46.41/ 46.48	45.54/ 46.18

Beam index 0 Bore site, Bandwidth 200MHz
Rated output power per 100 MHz EIRP, at each PAAM 1x 45.2 dBm/ Polarization.

		Output power per 100 MHz, EIRP [RMS dBm] Vertical/ Horizontal			
Modulation	Symbolic name	PAAM 0	PAAM 1	PAAM 2	PAAM 3
QPSK	$BMTL_{200}$	43.42/ 44.26	44.89/ 44.34	44.17/ 44.31	45.34/ 45.30
16 QAM	$BMTL_{200}$	43.51/ 44.35	44.58/ 44.49	44.10/ 44.20	45.35/ 45.38
64 QAM	$BMTL_{200}$	43.54/ 44.37	44.78/ 44.61	44.14/ 44.24	45.34/ 45.35
QPSK	MTH_{200}	44.42/ 44.65	44.08/ 44.17	42.89/ 42.97	41.96/ 42.06
16 QAM	MTH_{200}	44.30/ 44.61	44.01/ 44.12	42.94/ 43.04	41.93/ 42.05
64 QAM	MTH_{200}	44.26/ 44.55	43.94/ 44.08	42.88/ 42.91	41.92/ 41.95

Beam index 0 Bore site, Bandwidth 100MHz

Rated output power per 100 MHz EIRP, with two PAAM transmitting on the same frequency, 1x 53 dBm/ Polarization.

		Output power per 100 MHz, EIRP [RMS dBm] Vertical/ Horizontal	
Modulation	Symbolic name	PAAM 0+1	PAAM 2+3
QPSK	BEL_{100}	52.13/ 52.40	52.55/ 52.68
QPSK	ML_{100}	53.59/ 53.43	53.09/ 52.89
QPSK	MH_{100}	53.05/ 53.23	52.30/ 52.25
QPSK	BEH_{100}	50.30/ 50.02	50.36/ 50.13

Multi carrier (two or three carrier on each PAAM and polarization)

Beam index 0 Bore site, Bandwidth 50MHz
Rated output power per 50 MHz EIRP, at each PAAM 3x 45.2 dBm/ Polarization (48.2 dBm/ 100 MHz).

		Output power per 100 MHz, EIRP [RMS dBm] Vertical/ Horizontal			
Modulation	Symbolic name	PAAM 0	PAAM 1	PAAM 2	PAAM 3
QPSK	$3BMTL_{50}$	47.23/ 48.52	47.15/ 47.18	47.34/ 47.69	48.85/ 48.59
QPSK	$3MTH_{50}$	48.27/ 48.62	47.11/ 46.90	45.74/ 45.7	45.64/ 45.35

Beam index 0 Bore site, Bandwidth 100MHz

Rated output power per 100 MHz EIRP, with two PAAM transmitting on the same frequencies 2x 45.2 dBm/ Polarization (48.2 dBm/ 100 MHz).

		Output power per 100 MHz, EIRP [RMS dBm] Vertical/ Horizontal	
Modulation	Symbolic name	PAAM 0+3	PAAM 1+2
QPSK	$2BEL_{100}$	48.28/ 49.30	48.70/ 47.58
QPSK	$2MH_{100}$	48.63/ 49.09	48.93/ 48.81
QPSK	$2BEH_{100}$	46.60/ 46.53	46.76/ 46.63

Carrier Aggregation

Beam index 0 Bore site
Rated output power per 100 MHz EIRP, with two PAAM transmitting on the same frequencies 1x 50 dBm/ Polarization (53 dBm/ 100 MHz).

		Output power per 100 MHz, EIRP [RMS dBm] Vertical/ Horizontal
Modulation	Symbolic name	PAAM 0+2, 1+3
QPSK	CA_{2x100}	51.25/ 51.40

Rated output power per 100 MHz EIRP, with two PAAM transmitting on the same frequencies 1x 45.2 dBm/ Polarization (48.2 dBm/ 100 MHz).

		Output power per 100 MHz, EIRP [RMS dBm] Vertical/ Horizontal
Modulation	Symbolic name	PAAM 0+2, 1+3
QPSK	CA_{2x200}	46.93/ 47.37

Beam index 0 Bore site
Rated output power per 100 MHz EIRP, at each PAAM 1x 50 dBm/ Polarization.

		Output power per 100 MHz, EIRP [RMS dBm] Vertical/ Horizontal
Modulation	Symbolic name	PAAM 0, 1, 2, 3
QPSK	CA_{100}	48.52/ 49.54

Rated output power per 100 MHz EIRP, at each PAAM 1x 48.2 dBm/ Polarization.

		Output power per 100 MHz, EIRP [RMS dBm] Vertical/ Horizontal
Modulation	Symbolic name	PAAM 0, 1, 2, 3
QPSK	CA_{200}	44.14/ 44.78

Limits

CFR47 §30.202 Power limits.

(a) For fixed and base stations operating in connection with mobile systems, the average power of the sum of all antenna elements is limited to an equivalent isotopically radiated power (EIRP) density of +75dBm/100 MHz. For channel bandwidths less than 100 MHz the EIRP must be reduced proportionally and linearly based on the bandwidth relative to 100 MHz.

Complies?	Yes

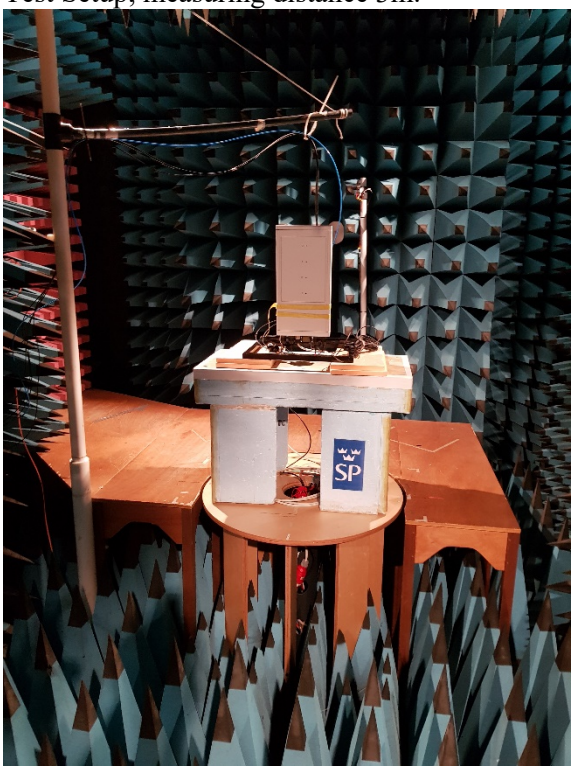
Occupied bandwidth measurements according to CFR47 2.1049

Date	Temperature	Humidity
2018-12-12	22 °C ± 3 °C	30 % ± 5 %
2018-12-15	22 °C ± 3 °C	35 % ± 5 %
2018-12-17	22 °C ± 3 °C	32 % ± 5 %
2018-12-20	22 °C ± 3 °C	20 % ± 5 %
2019-01-22	22 °C ± 3 °C	26 % ± 5 %

Test set-up and procedure

The test object was located in a anechoic chamber. The measuring antenna was aligned to the centre of the of each PAAM. A turn table was used to find the highest output power. A signal analyzer with Peak detector and max hold was used to measure the OBW.

Test Setup, measuring distance 3m:



Measurement equipment	RISE number
Anechoic chamber, Hertz	BX50194
R&S FSW 43	902 073
R&S ZNB 40	BX50051
EMCO Horn Antenna 3116	503 279
FLANN Std gain 22240-20	503 674
Testo 615, temperature and humidity meter	503 498

Measurement uncertainty: 3.3 dB

Results

Number of diagram for each bandwidth have been reduced due to similar result.

KRD 901 079/1, Bandwidth: 50 MHz

Modulation: QPSK

Diagram	Carrier Frequency [MHz]	PAAM	Polarization	Occupied BW (99%) [MHz]
	37025	0	Hor	46.033
	37025	0	Ver	45.988
	37775	1	Hor	45.951
	37775	1	Ver	46.020
	37875	2	Hor	45.912
	37875	2	Ver	45.911
	38575	3	Hor	46.011
	38575	3	Ver	45.933
	39225	0	Hor	46.104
	39225	0	Ver	46.107
1	39275	1	Hor	46.054
2	39275	1	Ver	46.093
	39925	2	Hor	46.076
	39925	2	Ver	46.038
3	39975	3	Hor	46.132
4	39975	3	Ver	46.153

Modulation: 16 QAM

Diagram	Carrier Frequency [MHz]	PAAM	Polarization	Occupied BW (99%) [MHz]
5	37025	0	Hor	46.014
6	37025	0	Ver	45.990
	37775	1	Hor	45.933
	37775	1	Ver	45.993
	37875	2	Hor	45.875
	37875	2	Ver	45.984
	38575	3	Hor	45.968
	38575	3	Ver	45.992
	39225	0	Hor	46.117
	39225	0	Ver	46.206
	39275	1	Hor	46.063
	39275	1	Ver	46.038
7	39925	2	Hor	46.022
8	39925	2	Ver	46.235
	39975	3	Hor	46.066
	39975	3	Ver	46.190

Modulation: 64 QAM

Diagram	Carrier Frequency [MHz]	PAAM	Polarization	Occupied BW (99%) [MHz]
	37025	0	Hor	45.956
	37025	0	Ver	45.977
	37775	1	Hor	45.844
	37775	1	Ver	45.952
	37875	2	Hor	45.894
	37875	2	Ver	45.957
	38575	3	Hor	45.992
	38575	3	Ver	45.971
9	39225	0	Hor	46.048
10	39225	0	Ver	46.137
	39275	1	Hor	45.968
	39275	1	Ver	46.071
	39925	2	Hor	46.056
	39925	2	Ver	46.058
11	39975	3	Hor	46.158
12	39975	3	Ver	46.042

Bandwidth: 100MHz

Modulation: QPSK

Diagram	Carrier Frequency [MHz]	PAAM	Polarization	Occupied BW (99%) [MHz]
	37050	0	Hor	95.125
	37050	0	Ver	95.013
	37750	1	Hor	94.673
	37750	1	Ver	94.651
	37850	2	Hor	94.726
	37850	2	Ver	94.593
	38550	3	Hor	94.855
	38550	3	Ver	94.757
13	39250	0	Hor	95.164
14	39250	0	Ver	95.570
	39350	1	Hor	94.849
	39350	1	Ver	95.270
	39850	2	Hor	94.919
	39850	2	Ver	94.922
15	39950	3	Hor	95.058
16	39950	3	Ver	95.543

Modulation: 16 QAM

Diagram	Carrier Frequency [MHz]	PAAM	Polarization	Occupied BW (99%) [MHz]
	37050	0	Hor	94.841
	37050	0	Ver	95.040
	37750	1	Hor	94.577
	37750	1	Ver	94.730
	37850	2	Hor	94.972
	37850	2	Ver	94.564
	38550	3	Hor	94.685
	38550	3	Ver	94.664
17	39250	0	Hor	94.912
18	39250	0	Ver	95.373
	39350	1	Hor	94.734
	39350	1	Ver	95.306
	39850	2	Hor	94.794
	39850	2	Ver	94.917
19	39950	3	Hor	94.951
20	39950	3	Ver	95.549

Modulation: 64 QAM

Diagram	Carrier Frequency [MHz]	PAAM	Polarization	Occupied BW (99%) [MHz]
	37050	0	Hor	94.450
	37050	0	Ver	94.286
21	37750	1	Hor	94.249
22	37750	1	Ver	94.228
	37850	2	Hor	94.324
	37850	2	Ver	94.375
	38550	3	Hor	94.422
	38550	3	Ver	94.431
	39250	0	Hor	94.539
	39250	0	Ver	94.562
	39350	1	Hor	94.522
	39350	1	Ver	94.494
23	39850	2	Hor	94.511
24	39850	2	Ver	94.557
	39950	3	Hor	94.639
	39950	3	Ver	94.717

Bandwidth: 200MHz

Modulation: QPSK

Diagram	Carrier Frequency [MHz]	PAAM	Polarization	Occupied BW (99%) [MHz]
	37100	0	Hor	189.901
	37100	0	Ver	189.671
	37700	1	Hor	189.521
	37700	1	Ver	189.764
	37900	2	Hor	191.550
	37900	2	Ver	189.995
	38500	3	Hor	191.135
	38500	3	Ver	189.731
	39200	0	Hor	190.006
	39200	0	Ver	190.270
	39400	1	Hor	189.601
	39400	1	Ver	190.615
25	39700	2	Hor	197.955
26	39700	2	Ver	190.873
27	39900	3	Hor	203.772
28	39900	3	Ver	193.062

Modulation: 16 QAM

Diagram	Carrier Frequency [MHz]	PAAM	Polarization	Occupied BW (99%) [MHz]
29	37100	0	Hor	204.895
30	37100	0	Ver	191.434
	37700	1	Hor	201.840
	37700	1	Ver	191.863
	37900	2	Hor	188.958
	37900	2	Ver	192.616
	38500	3	Hor	188.888
	38500	3	Ver	190.468
	39200	0	Hor	203.369
	39200	0	Ver	194.207
	39400	1	Hor	197.305
	39400	1	Ver	193.979
	39700	2	Hor	189.540
	39700	2	Ver	195.755
	39900	3	Hor	190.120
	39900	3	Ver	200.418

Modulation: 64 QAM

Diagram	Carrier Frequency [MHz]	PAAM	Polarization	Occupied BW (99%) [MHz]
	37100	0	Hor	196.332
	37100	0	Ver	194.958
	37700	1	Hor	193.225
	37700	1	Ver	194.811
	37900	2	Hor	189.270
	37900	2	Ver	192.137
	38500	3	Hor	189.146
	38500	3	Ver	190.665
	39200	0	Hor	200.062
	39200	0	Ver	195.790
31	39400	1	Hor	192.717
32	39400	1	Ver	198.092
	39700	2	Hor	189.803
	39700	2	Ver	195.119
	39900	3	Hor	190.739
	39900	3	Ver	200.502

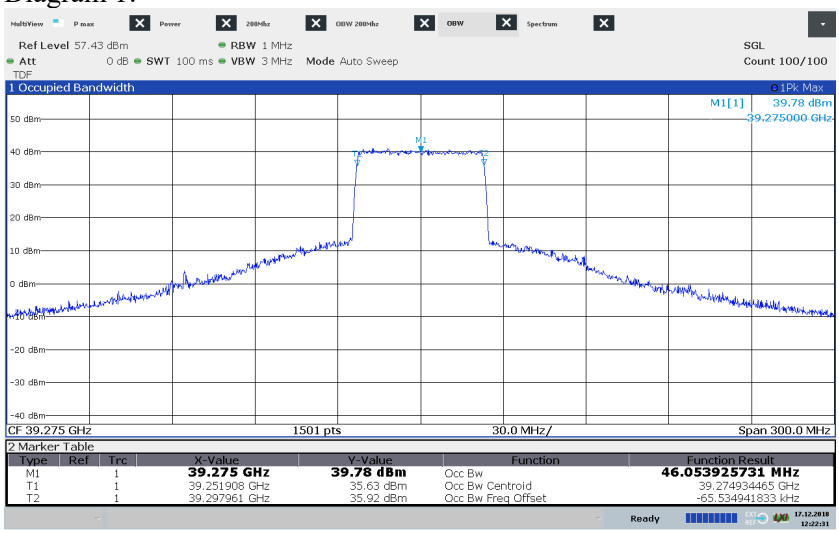
Carrier Aggregation, Bandwidth: 200MHz, Modulation: QPSK

Diagram	Symbolic name	PAAM	Polarization	Occupied BW (99%) [MHz]
33	CA_{2x200}	0+2, 1+3	Hor	390.172
34	CA_{2x200}	0+2, 1+3	Ver	391.398
35	CA_{200}	0, 1, 2, 3	Hor	784.027
36	CA_{200}	0, 1, 2, 3	Ver	783.996

Carrier Aggregation, Bandwidth: 100MHz, Modulation: QPSK

Diagram	Symbolic name	PAAM	Polarization	Occupied BW (99%) [MHz]
37	CA_{2x100}	0+2, 1+3	Hor	193.904
38	CA_{2x100}	0+2, 1+3	Ver	193.888
39	CA_{100}	0, 1, 2, 3	Hor	395.398
40	CA_{100}	0, 1, 2, 3	Ver	395.754

Diagram 1:



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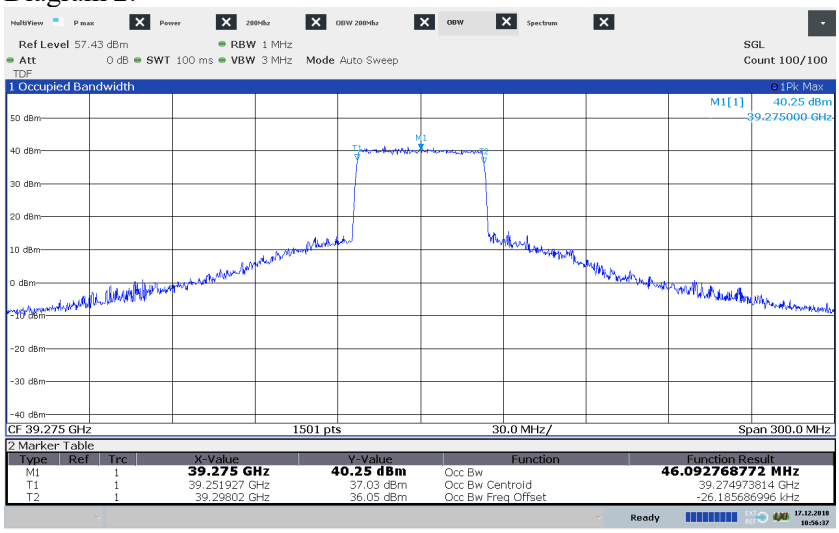

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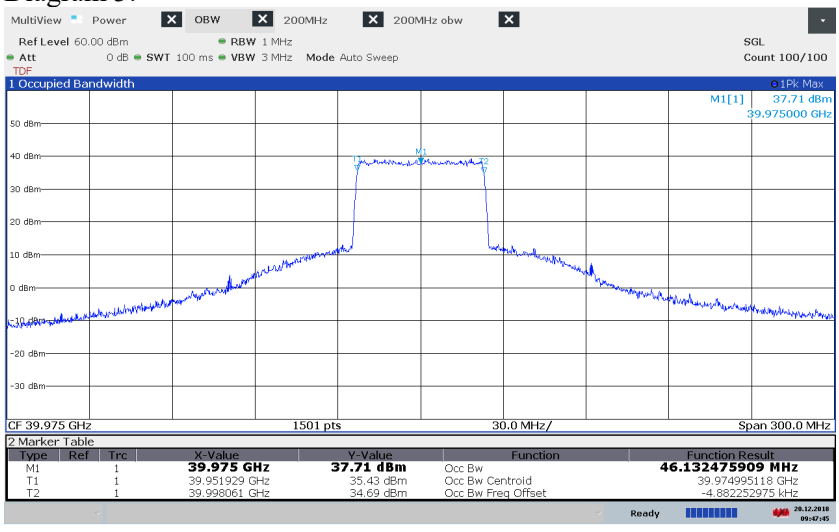

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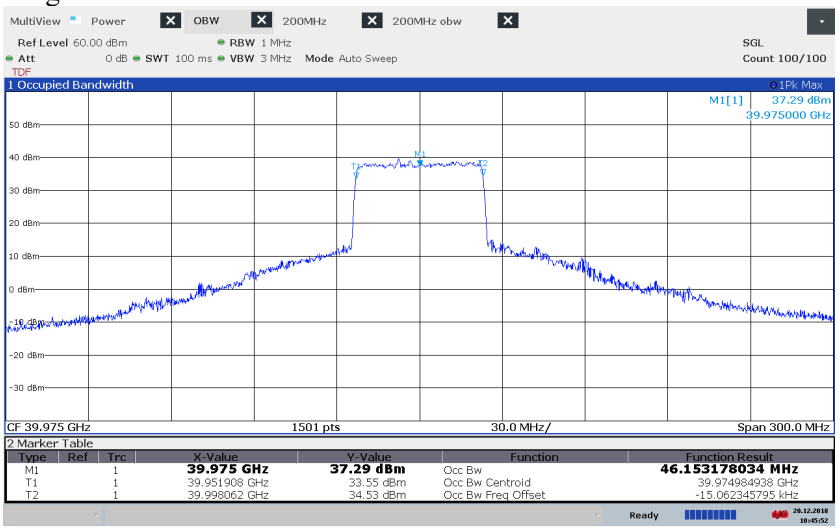

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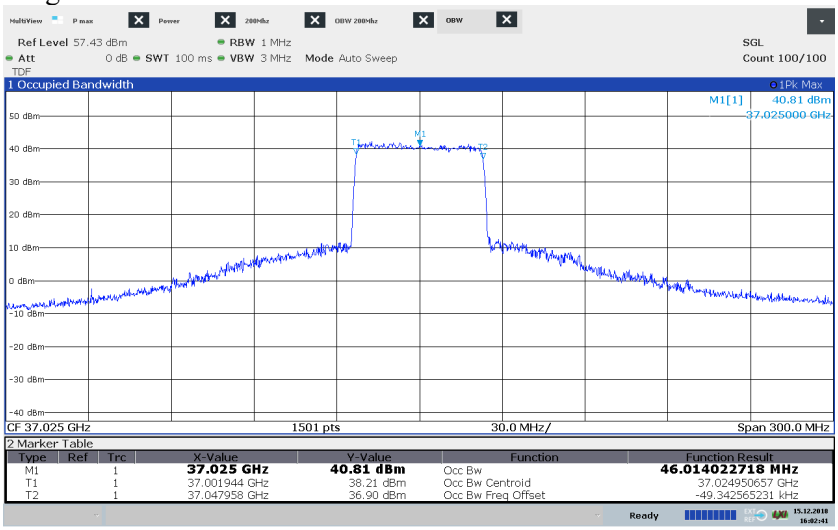

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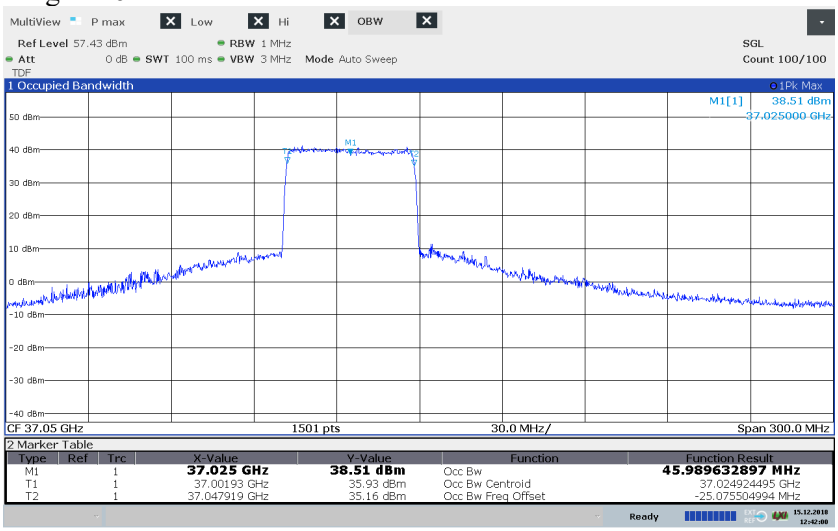

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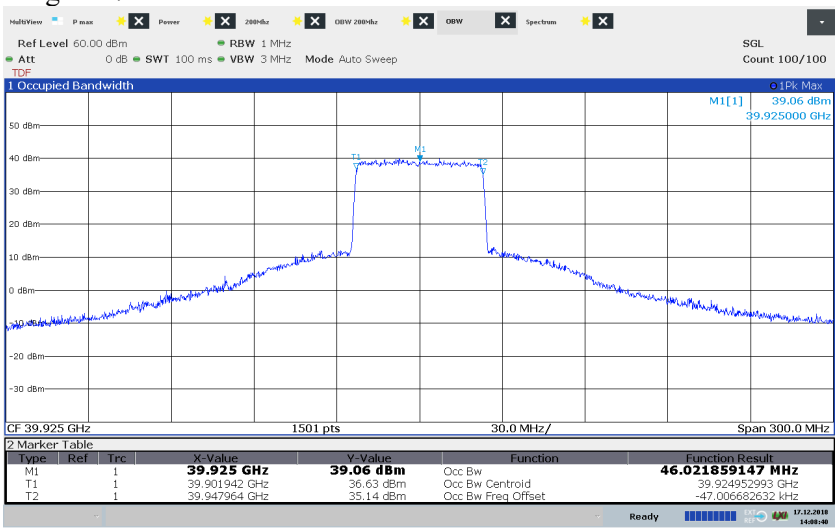

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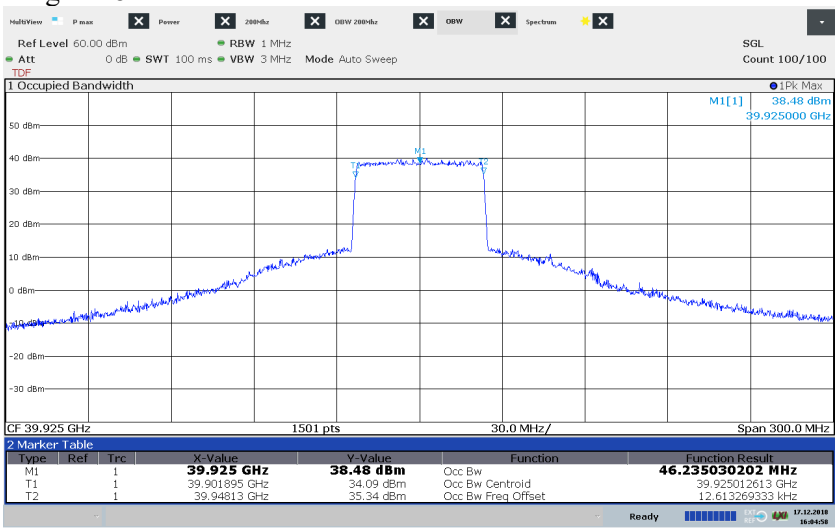

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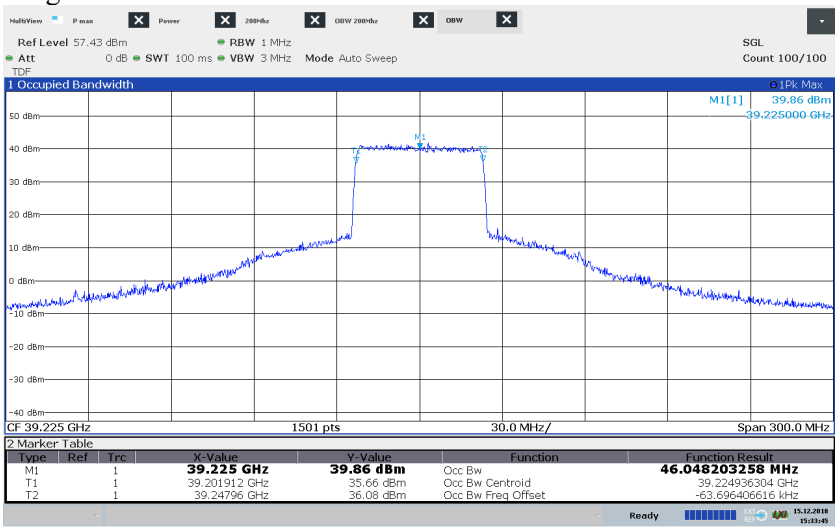

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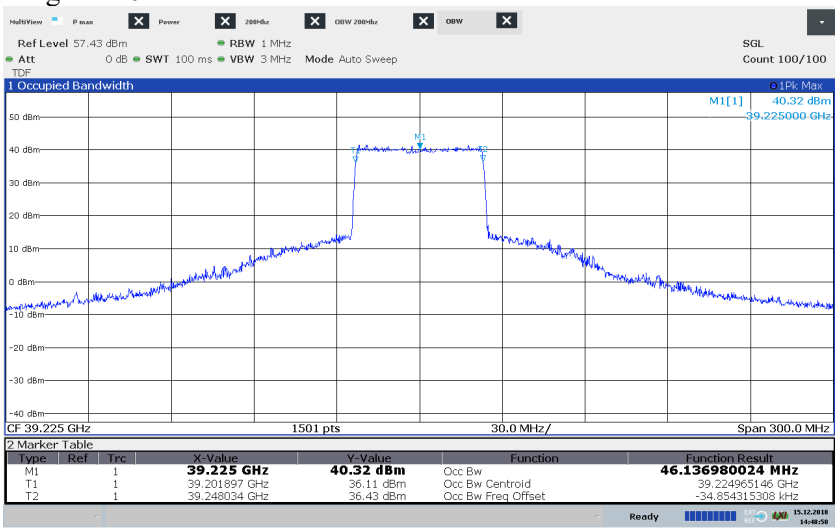

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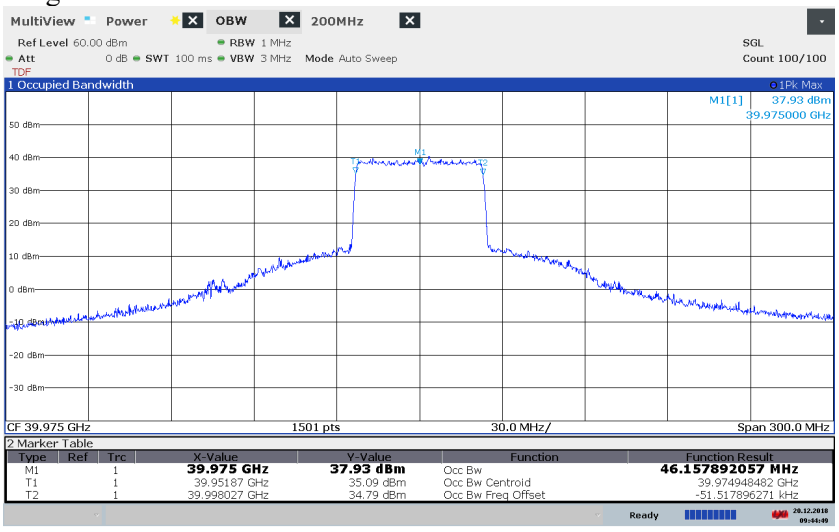

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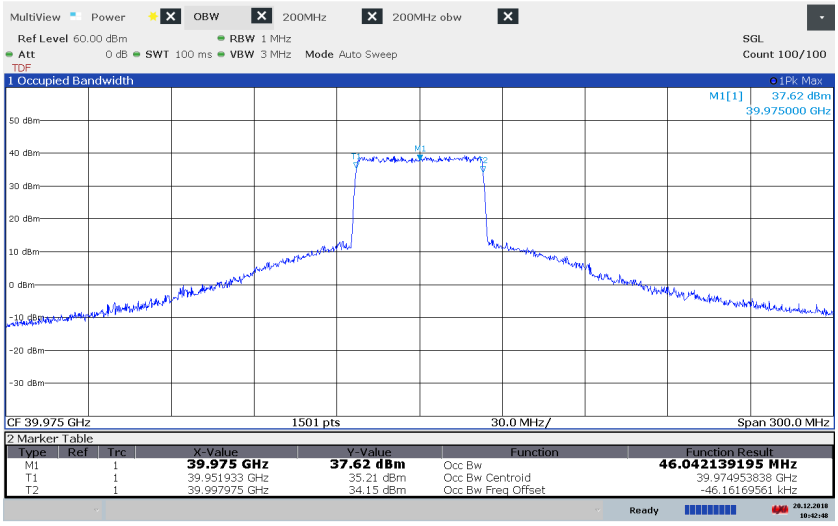

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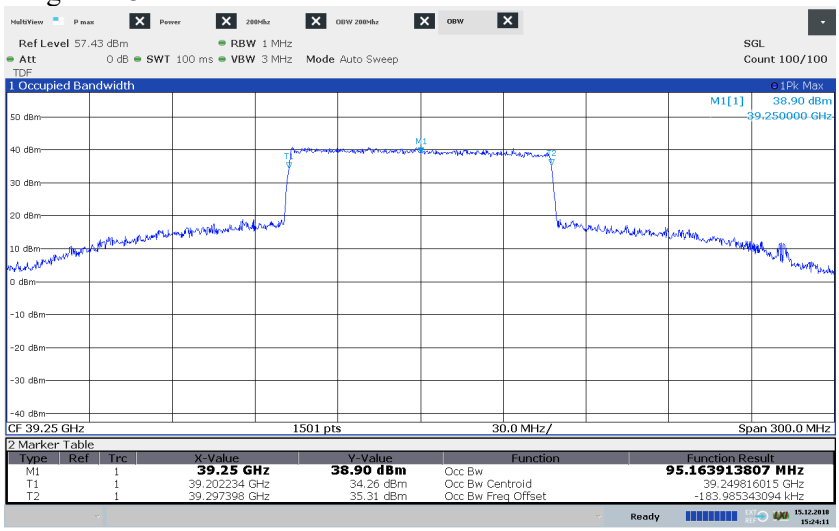

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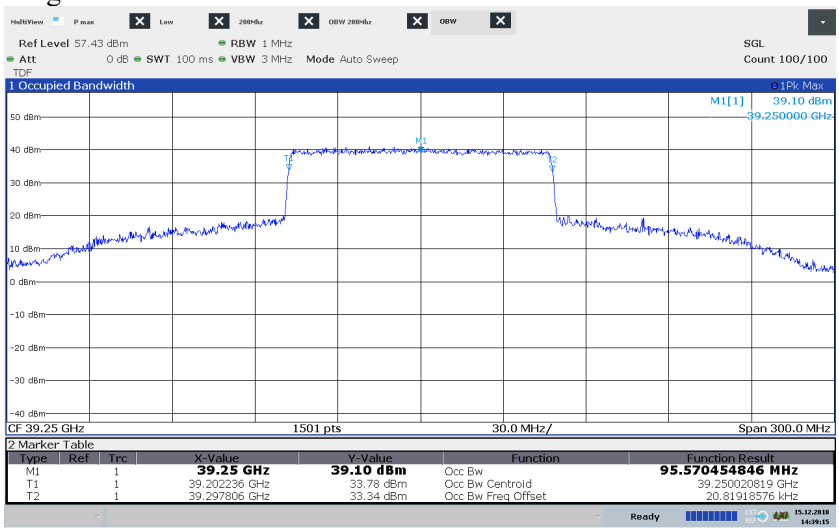

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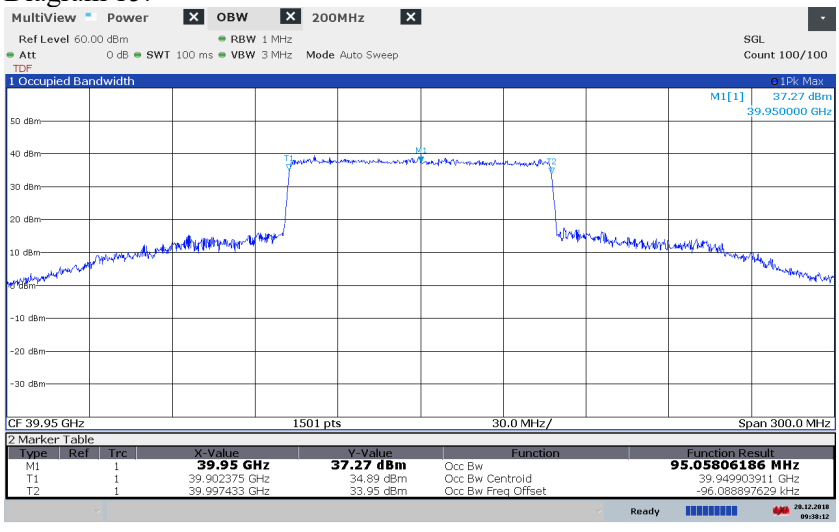

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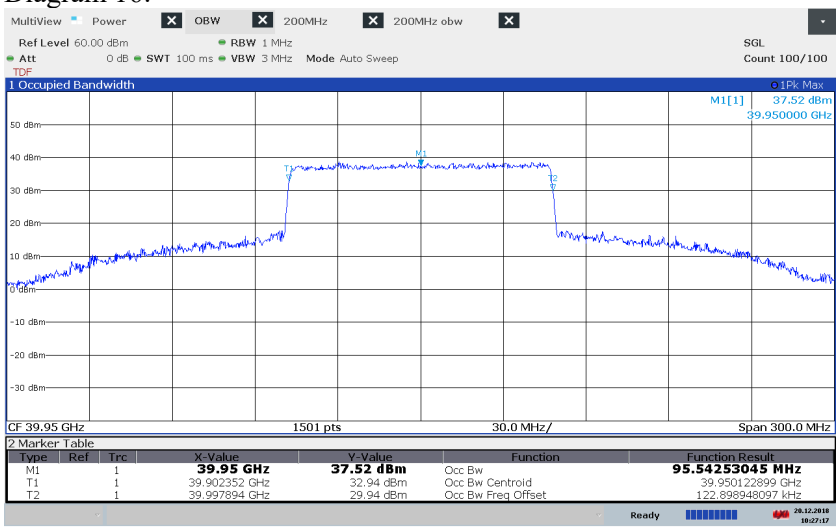

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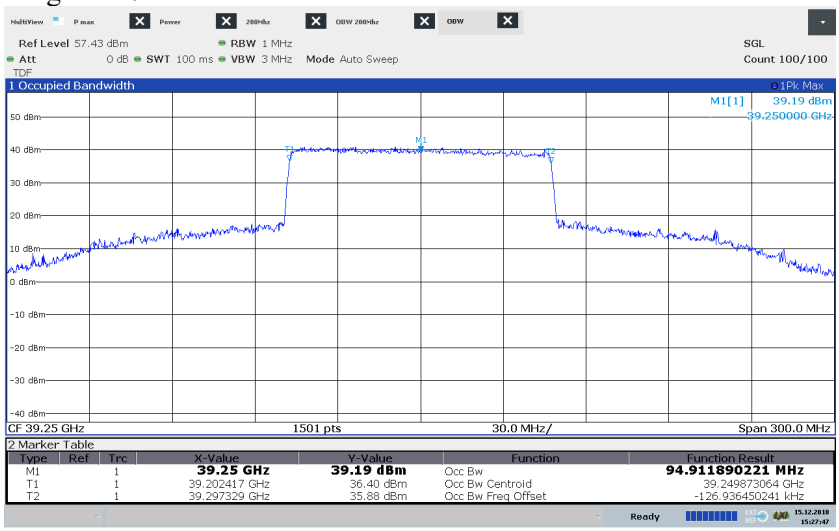

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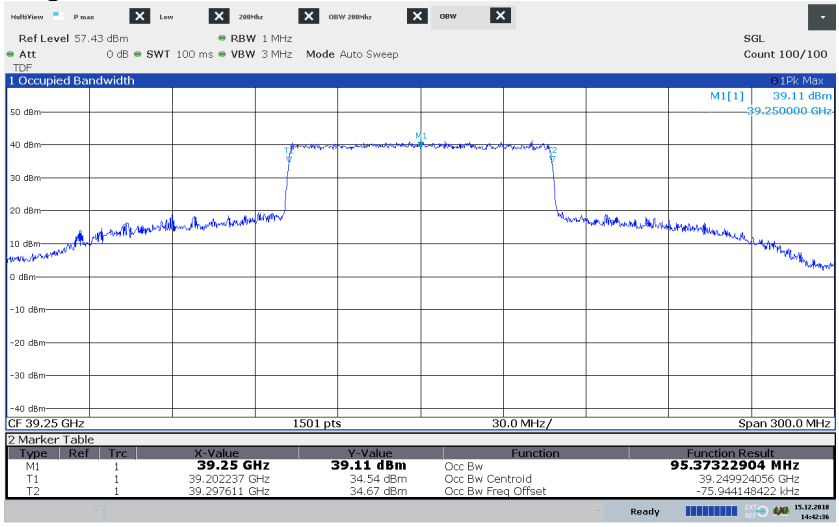

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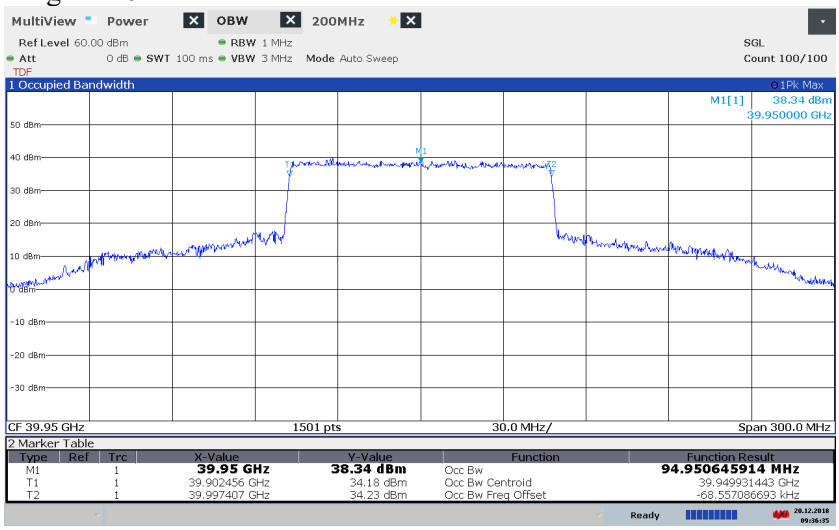

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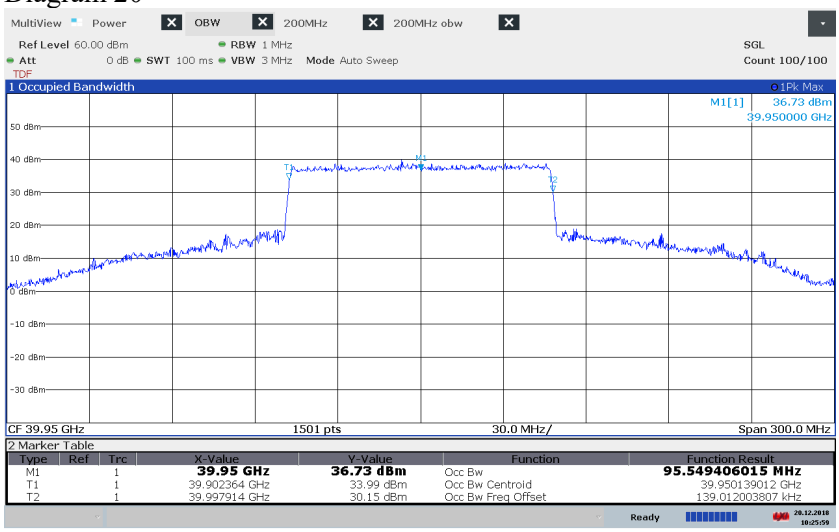

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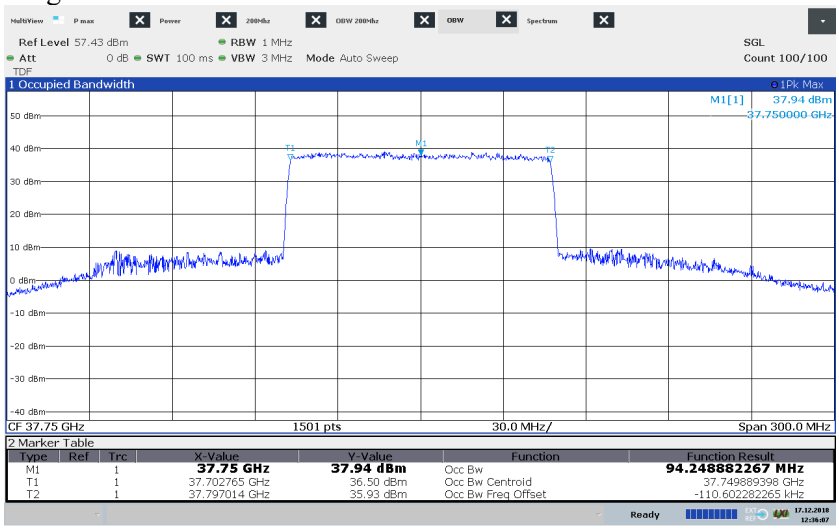

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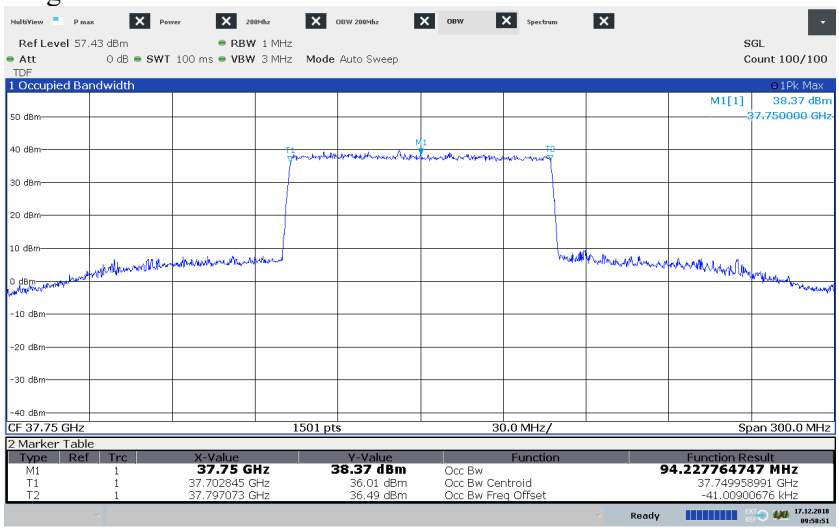

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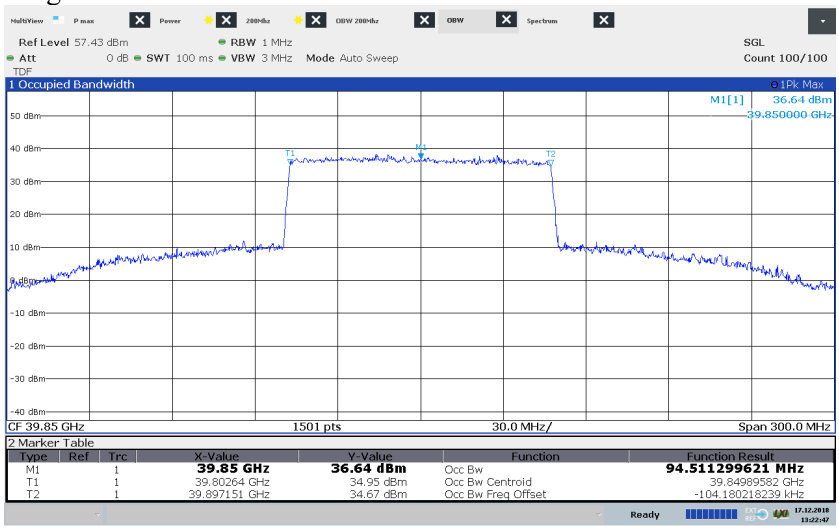

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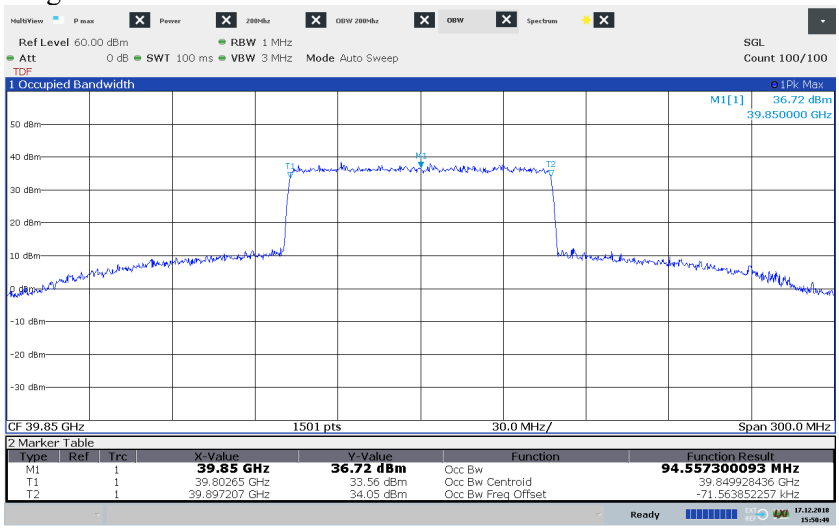

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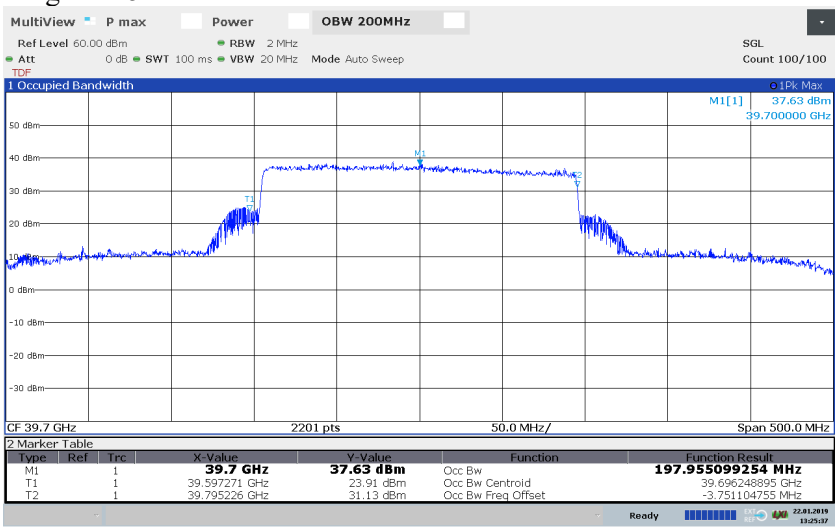

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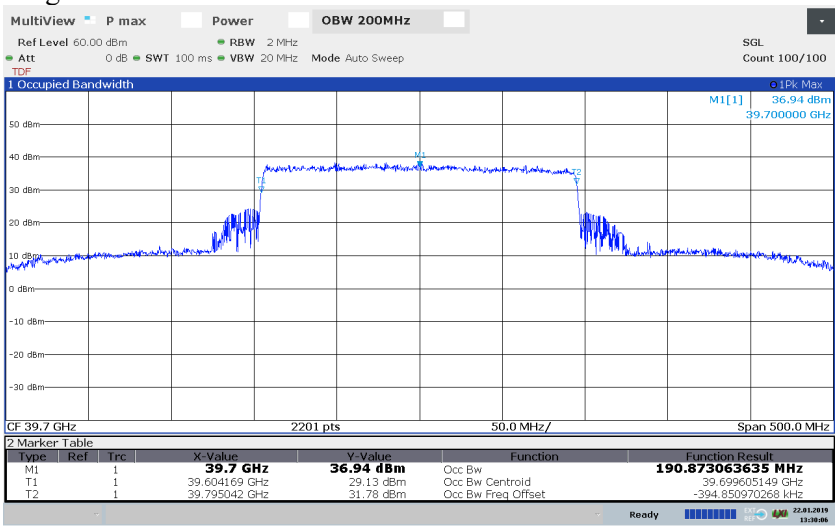

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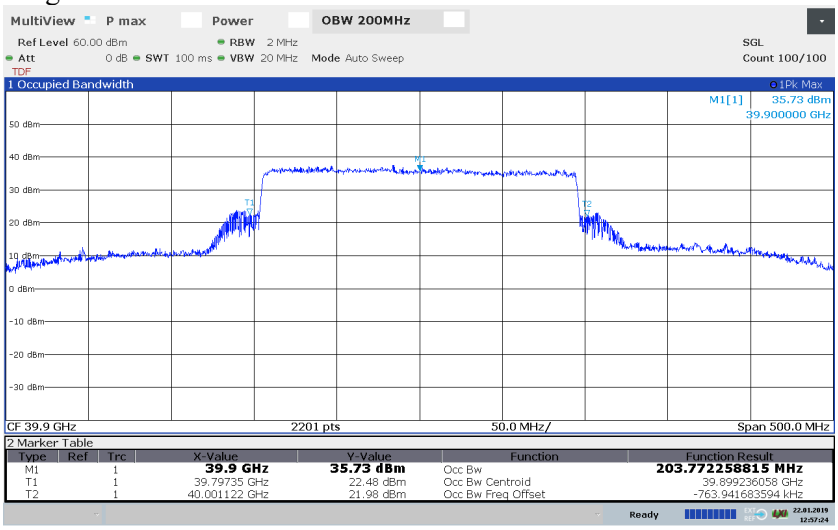

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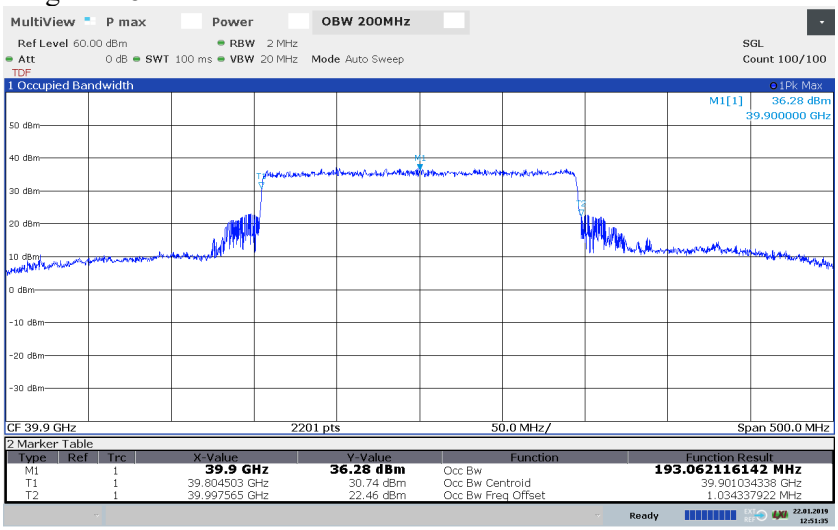

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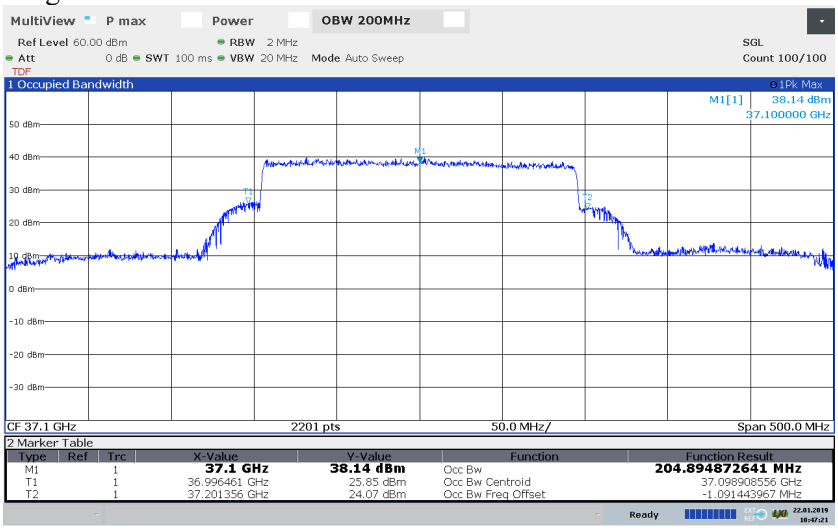

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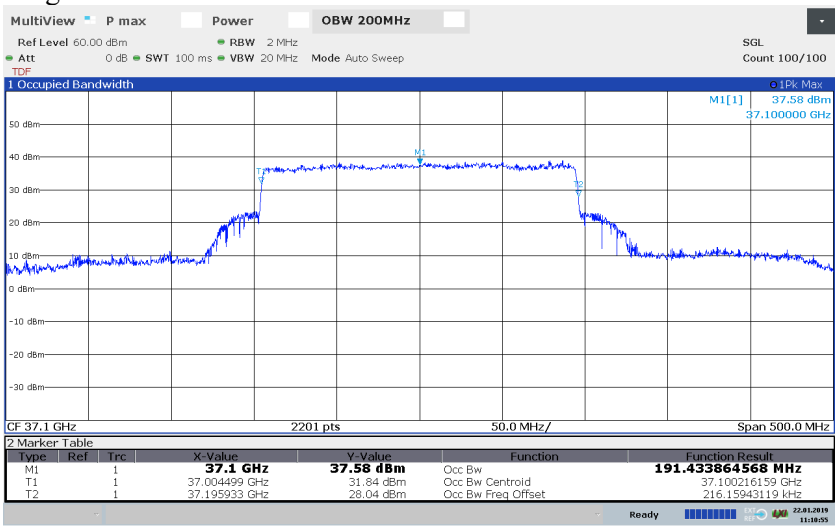

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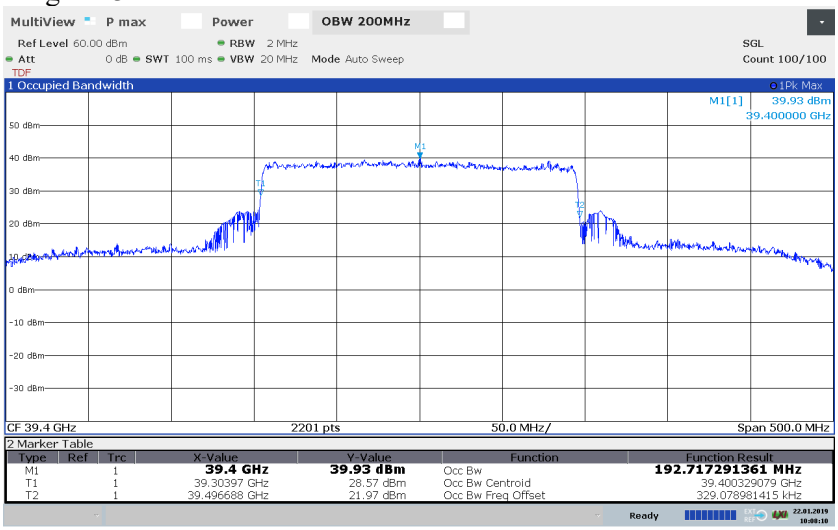

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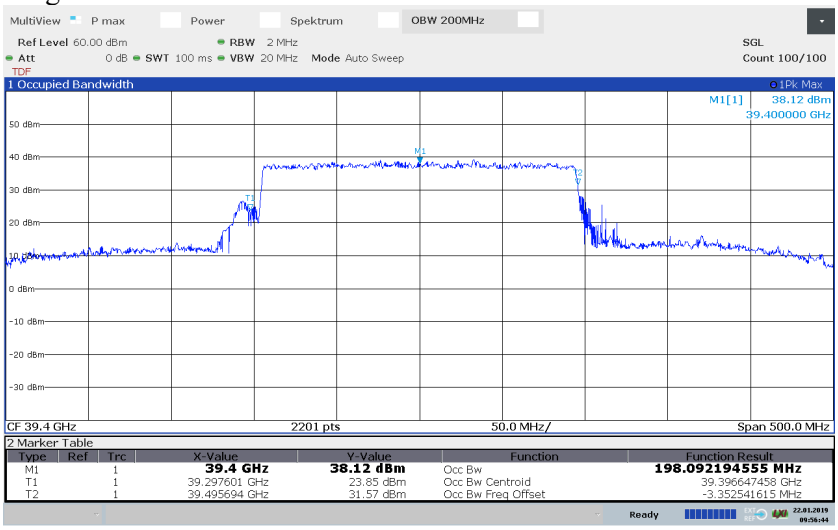

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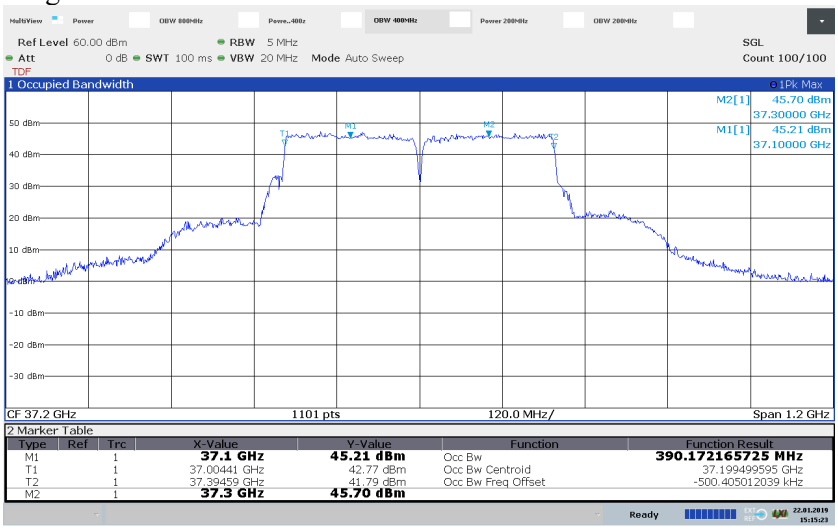

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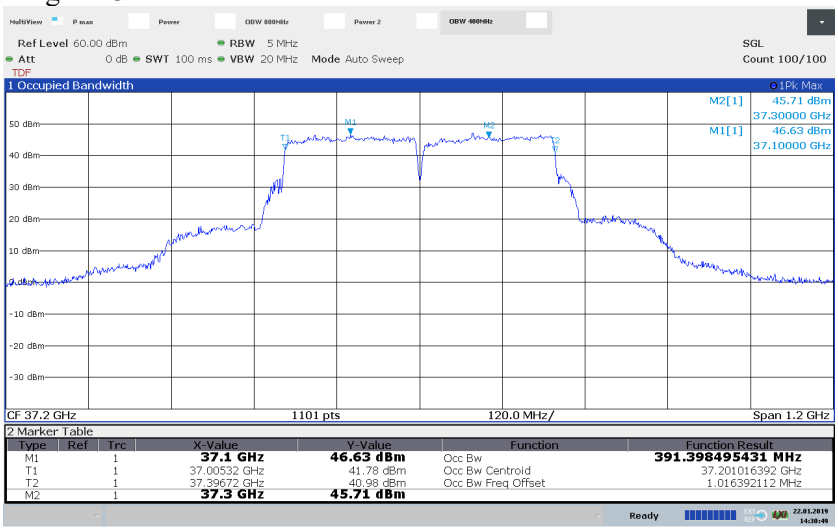

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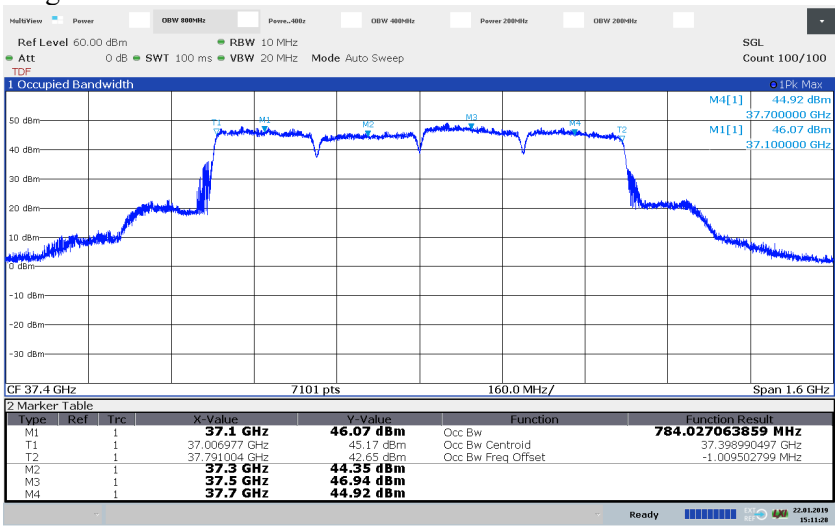

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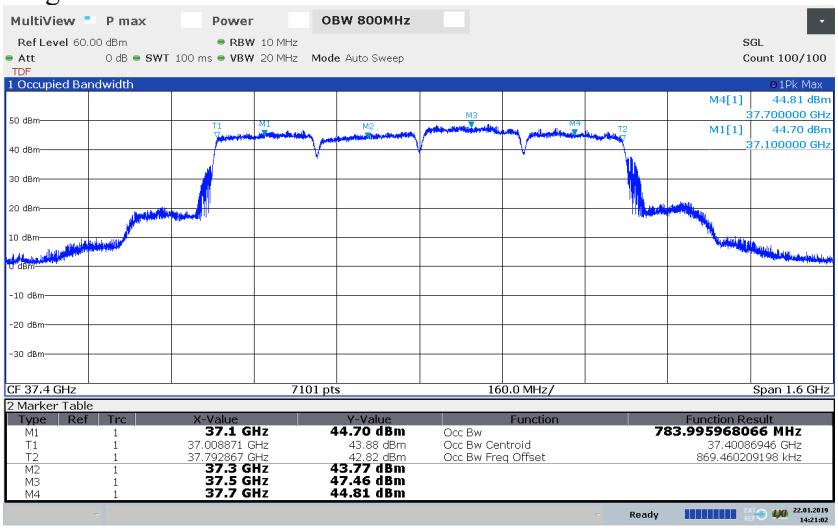

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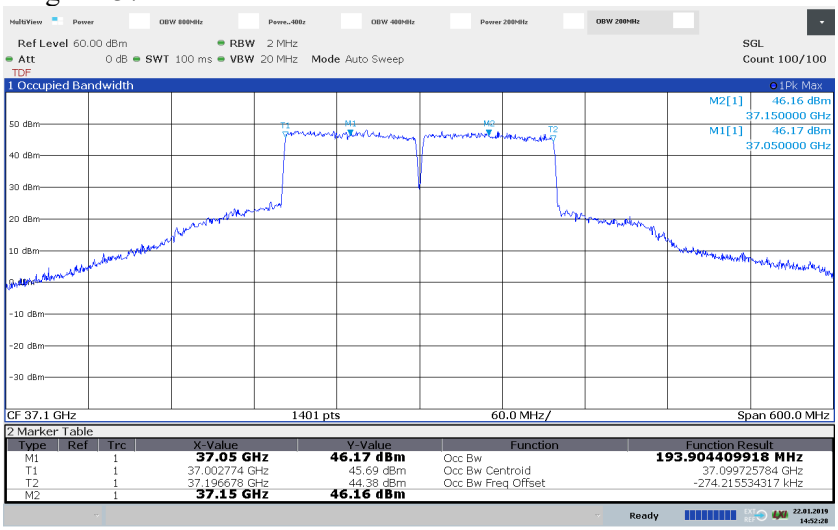

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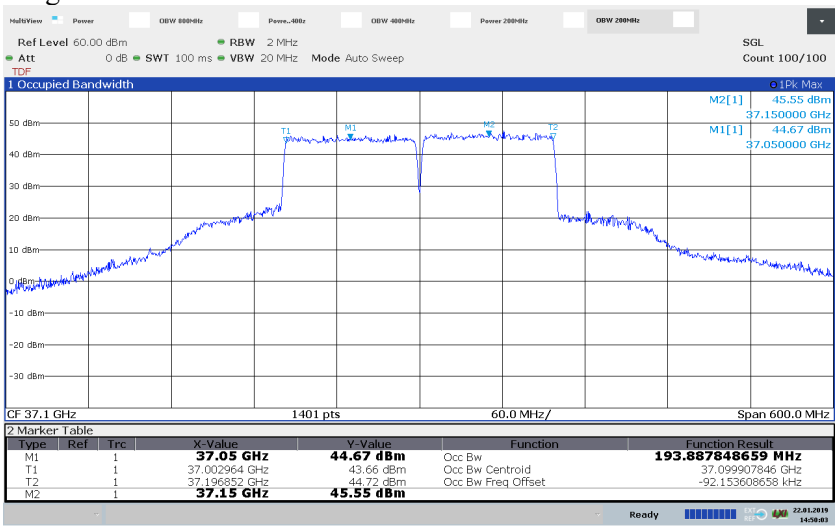

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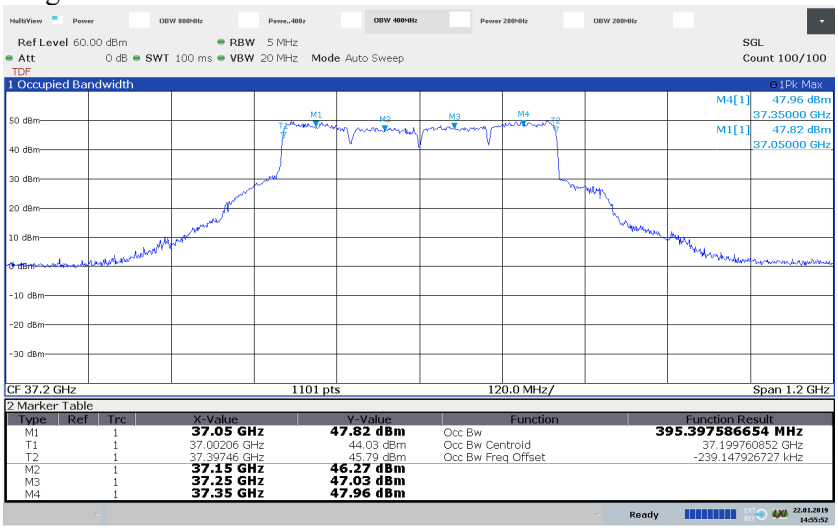

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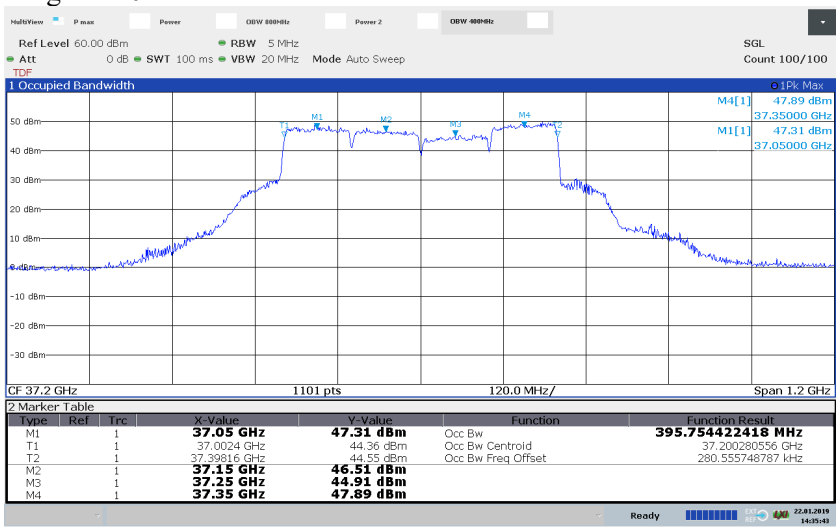
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SGL
Count 100/100
TDF
1 Occupied Bandwidth
1Pk Max
M4[1] 47.89 dBm
37.35000 GHz
M1[1] 47.31 dBm
37.05000 GHz
50 dBm
40 dBm
30 dBm
20 dBm
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
CF 37.2 GHz
1101 pts
120.0 MHz/
Span 1.2 GHz
2 Marker Table
Type Ref Trc X-Value Y-Value Function Function Result
M1 1 37.05 GHz 47.31 dBm Occ Bw 395.754422418 MHz
T1 1 37.0024 GHz 44.36 dBm Occ Bw Centroid 37.200280556 GHz
T2 1 37.39816 GHz 44.55 dBm Occ Bw Freq Offset 280.555748787 kHz
M2 1 37.15 GHz 46.51 dBm
M3 1 37.25 GHz 44.91 dBm
M4 1 37.35 GHz 47.89 dBm
Ready
14:35:44 22.01.2019