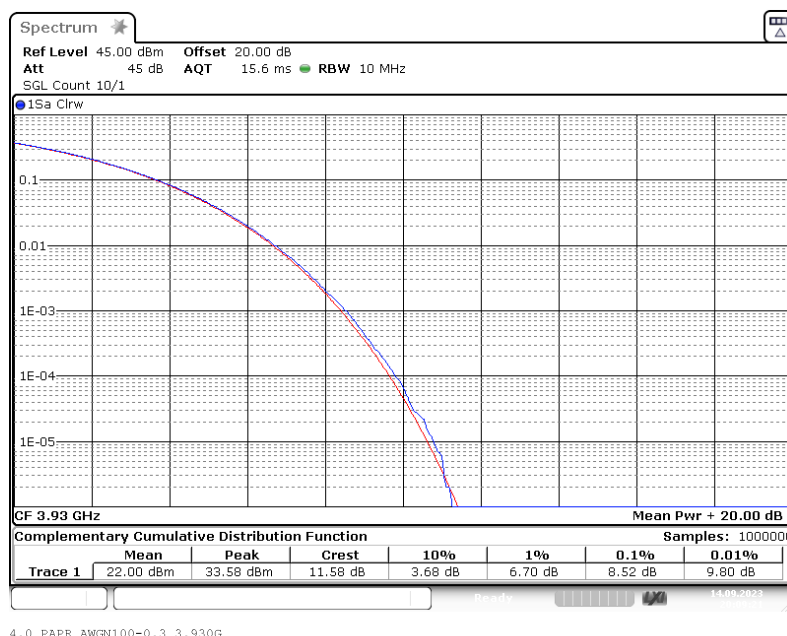


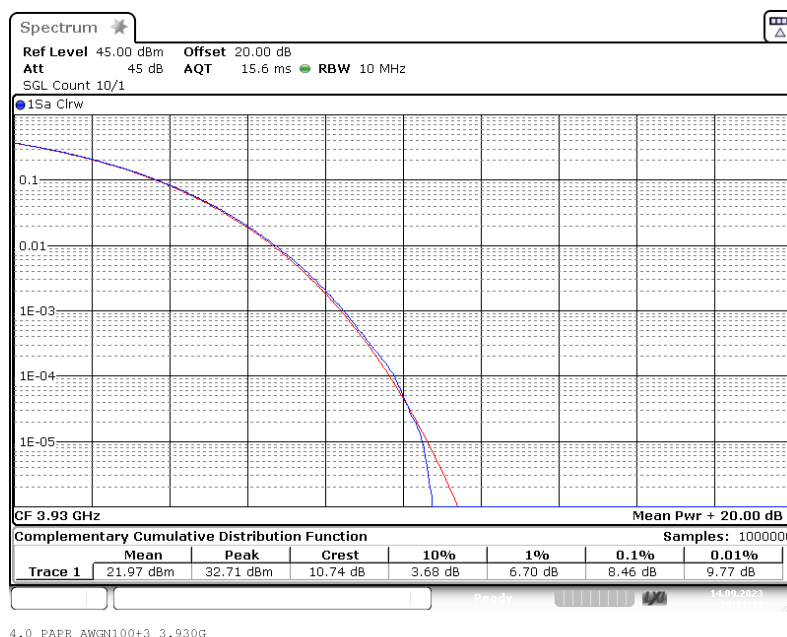
EMC Test Report No.: 23-0199

EMC tests on Andrew CAP M2 34T/37T/37T F-DC-F1 [37T]

Band: Band C high A2; Frequency: 3.9300 GHz; Band Edge: mid; Mod: AWGN100; PAPR 0.3 dB < AGC



Band: Band C high A2; Frequency: 3.9300 GHz; Band Edge: mid; Mod: AWGN100; PAPR 3 dB > AGC



The test results relate only to the tested item. The sample has been provided by the client.
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EMC Test Report No.: 23-0199

EMC tests on Andrew CAP M2 34T/37T/37T F-DC-F1 [37T]

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4.2.5 TEST EQUIPMENT USED

- Conducted

The test results relate only to the tested item. The sample has been provided by the client.
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2023-0313-EMC-TR-23-0199-V02

4.3 OCCUPIED BANDWIDTH/INPUT-VERSUS-OUTPUT SPECTRUM

Standard FCC Part 2.1049; Occupied Bandwidth

The test was performed according to:

ANSI C63.26. KDB KDB 935210 D05 v01r04: 3.4

Test date: 2023-09-06 – 2023-11-14

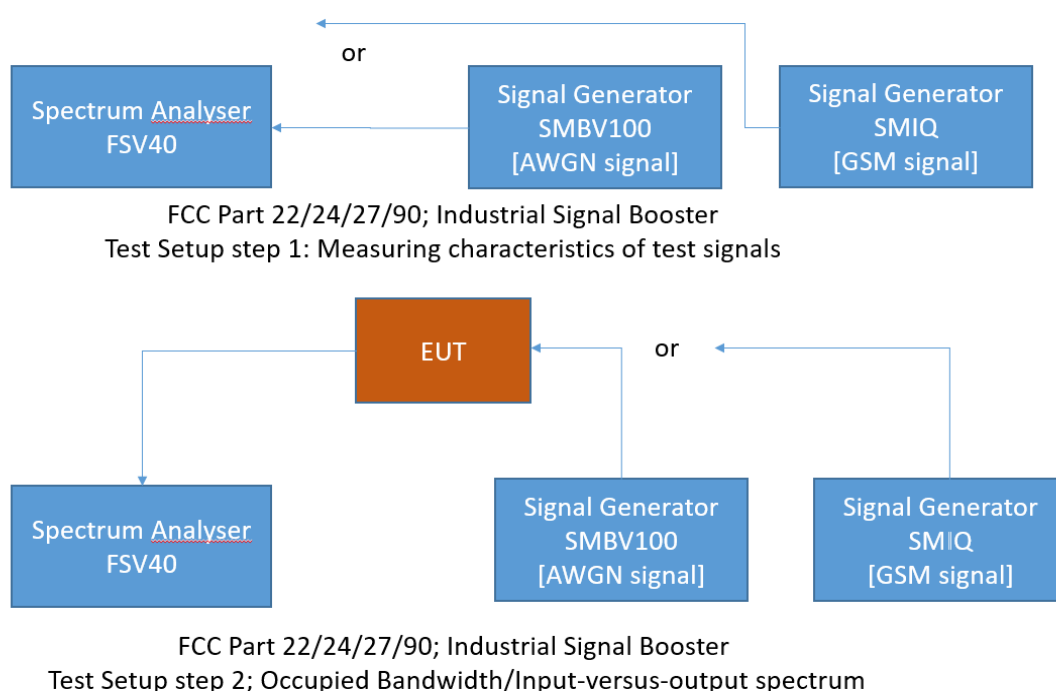
Environmental conditions: 23 ° C ± 5 K; 40 % r. F. ± 20 % r. F.

Test engineer: Thomas Hufnagel

4.3.1 TEST DESCRIPTION

This test case is intended to demonstrate compliance to the applicable conducted spurious emission limits per FCC §2.1049

The EUT was connected to the test setups according to the following diagram:



The attenuation of the measuring and stimulus path are known for each measured frequency and are considered.

The Spectrum Analyzer settings can be directly found in the measurement diagrams.



4.3.2 TEST REQUIREMENTS/LIMITS

FCC Part 2.1049; Occupied Bandwidth:

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission shall be measured under the following conditions as applicable:

(h) Transmitters employing digital modulation techniques—when modulated by an input signal such that its amplitude and symbol rate represent the maximum rated conditions under which the equipment will be operated. The signal shall be applied through any filter networks, pseudo-random generators or other devices required in normal service. Additionally, the occupied bandwidth shall be shown for operation with any devices used for modifying the spectrum when such devices are optional at the discretion of the user.

(i) Transmitters designed for other types of modulation—when modulated by an appropriate signal of sufficient amplitude to be representative of the type of service in which used. A description of the input signal should be supplied.

4.3.3 TEST PROTOCOL

C-Band. segment 1. downlink							
Signal Type	Input Power	Signal Frequency [MHz]	Occupied Bandwidth SG [kHz]	Occupied Bandwidth Booster [kHz]	Delta Occupied Bandwidth [kHz]	Limit Delta Occupied Bandwidth [kHz]	Margin to Limit [kHz]
Wideband 1	0.3 dB < AGC	3750.00	4387.81	4384.12	3.69	205.0	201.3
Wideband 1	3 dB > AGC	3750.00	4394.57	4385.96	8.61	205.0	196.4
Narrowband	0.3 dB < AGC	3752.00	315.34	317.80	2.46	10.0	7.54
Narrowband	3 dB > AGC	3752.00	315.58	317.62	2.04	10.0	7.96
Wideband 2	0.3 dB < AGC	3750.00	103420	103045	375	4920	4545
Wideband 2	3 dB > AGC	3750.00	103465	103090	375	4920	4545

C-Band. segment 2. downlink							
Signal Type	Input Power	Signal Frequency [MHz]	Occupied Bandwidth SG [kHz]	Occupied Bandwidth Booster [kHz]	Delta Occupied Bandwidth [kHz]	Limit Delta Occupied Bandwidth [kHz]	Margin to Limit [kHz]
Wideband 1	0.3 dB < AGC	3840.00	4388.42	4386.58	1.84	205	203.2
Wideband 1	3 dB > AGC	3840.00	4385.35	4385.96	0.61	205	204.4
Narrowband	0.3 dB < AGC	3840.00	321.46	316.84	4.62	10	5.38
Narrowband	3 dB > AGC	3840.00	317.32	318.82	1.5	10	8.50
Wideband 2	0.3 dB < AGC	3841.00	103150	103060	90	4920	4830
Wideband 2	3 dB > AGC	3841.00	102970	103225	255	4920	4665

C-Band. segment 3. downlink							
Signal Type	Input Power	Signal Frequency [MHz]	Occupied Bandwidth SG [kHz]	Occupied Bandwidth Booster [kHz]	Delta Occupied Bandwidth [kHz]	Limit Delta Occupied Bandwidth [kHz]	Margin to Limit [kHz]
Wideband 1	0.3 dB < AGC	3930.00	4389.65	4388.42	1.23	205.0	203.8
Wideband 1	3 dB > AGC	3930.00	4387.81	4388.42	0.61	205.0	204.4
Narrowband	0.3 dB < AGC	3930,00	317.02	318.22	1.2	10.0	8.80
Narrowband	3 dB > AGC	3930,00	313.72	317.08	3.36	10.0	6.64
Wideband 2	0.3 dB < AGC	3931.00	103465	103255	210	4920	4710
Wideband 2	3 dB > AGC	3931.00	103300	103180	120	4920	4800

Remark: Please see next sub-clause for the measurement plot.

The test results relate only to the tested item. The sample has been provided by the client.
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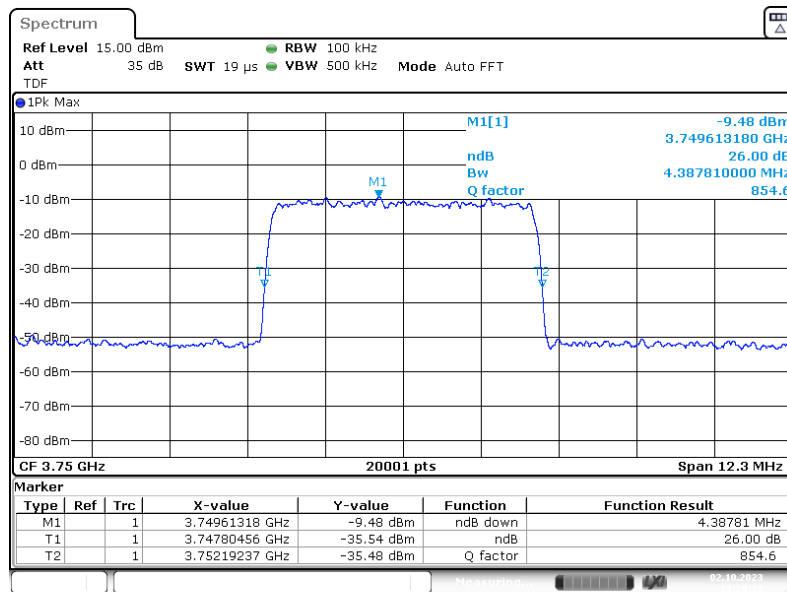


EMC Test Report No.: 23-0199

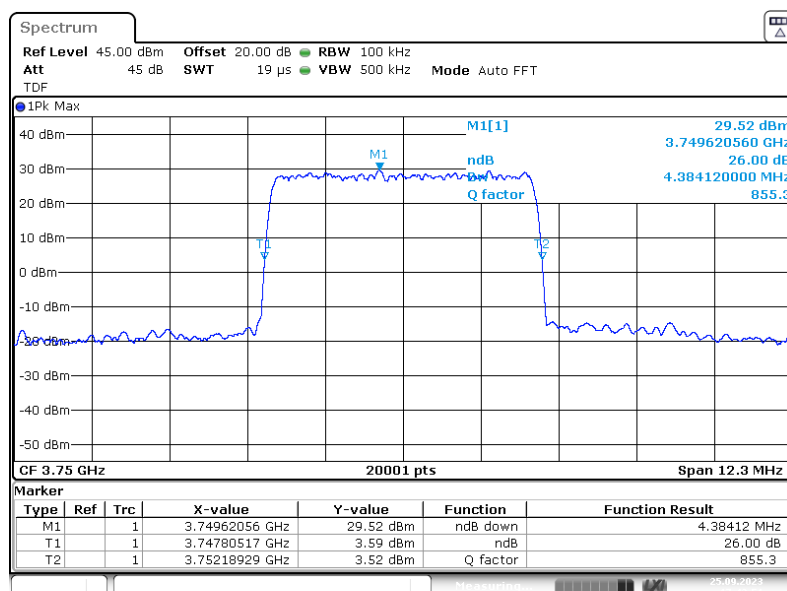
EMC tests on Andrew CAP M2 34T/37T/37T F-DC-F1 [37T]

4.3.4 MEASUREMENT PLOT

Band: Band C low A2; Frequency: 3.7500 GHz; Band Edge: mid; Mod: AWGN;
Input OCBw 0.3 dB < AGC



Band: Band C low A2; Frequency: 3.7500 GHz; Band Edge: mid; Mod: AWGN;
Output OCBw 0.3 dB < AGC

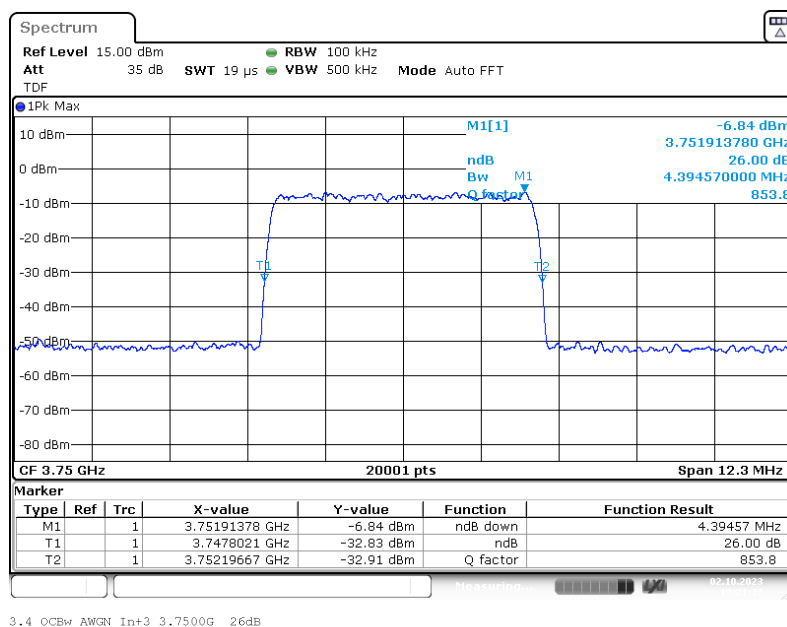


The test results relate only to the tested item. The sample has been provided by the client.
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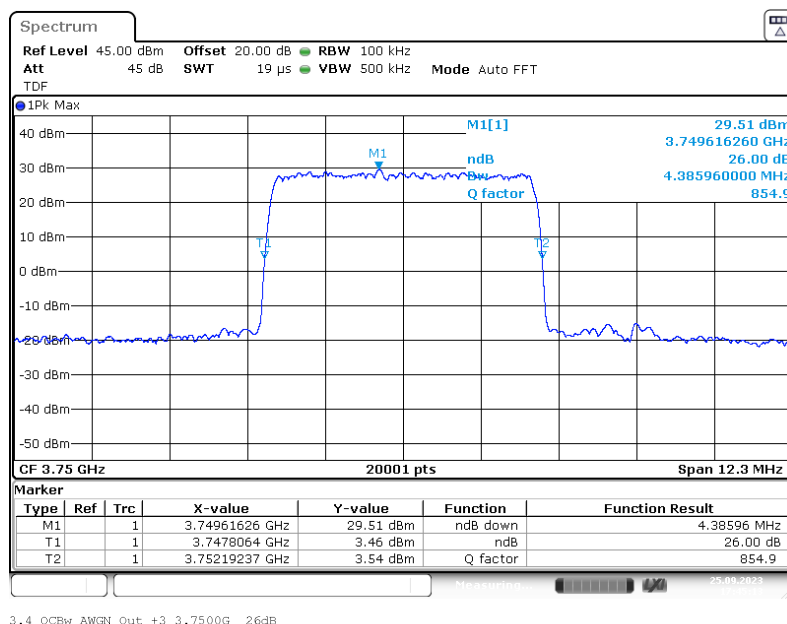
EMC Test Report No.: 23-0199

EMC tests on Andrew CAP M2 34T/37T/37T F-DC-F1 [37T]

Band: Band C low A2; Frequency: 3.7500 GHz; Band Edge: mid; Mod: AWGN;
Input OCBw 3 dB > AGC



Band: Band C low A2; Frequency: 3.7500 GHz; Band Edge: mid; Mod: AWGN;
Output OCBw 3 dB > AGC



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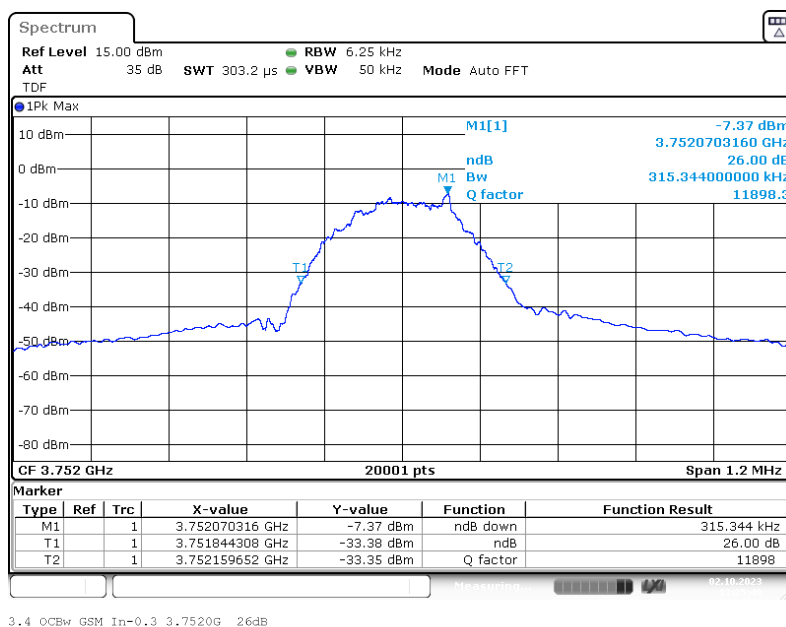


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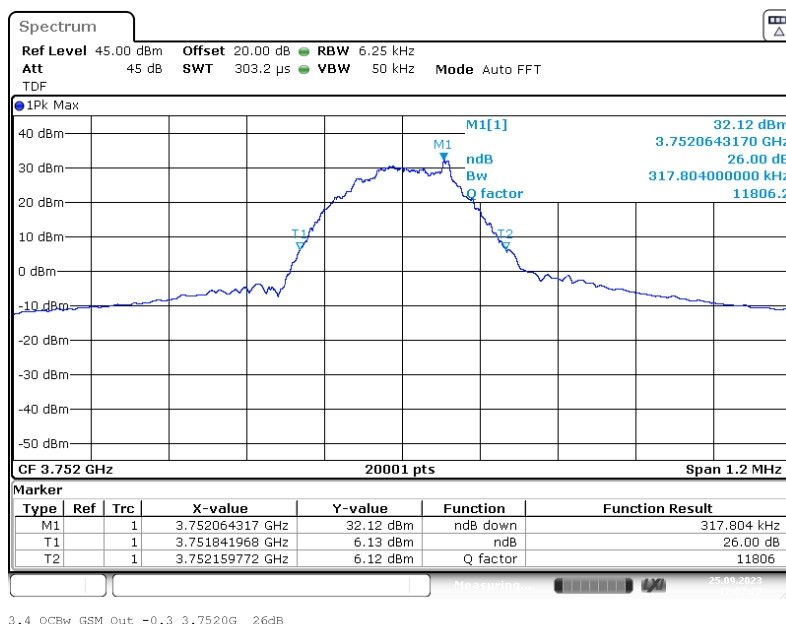
EMC Test Report No.: 23-0199

EMC tests on Andrew CAP M2 34T/37T/37T F-DC-F1 [37T]

Band: Band C low A2; Frequency: 3.7520 GHz; Band Edge: mid; Mod: GSM;
Input OCBw 0.3 dB < AGC



Band: Band C low A2; Frequency: 3.7520 GHz; Band Edge: mid; Mod: GSM;
Output OCBw 0.3 dB < AGC

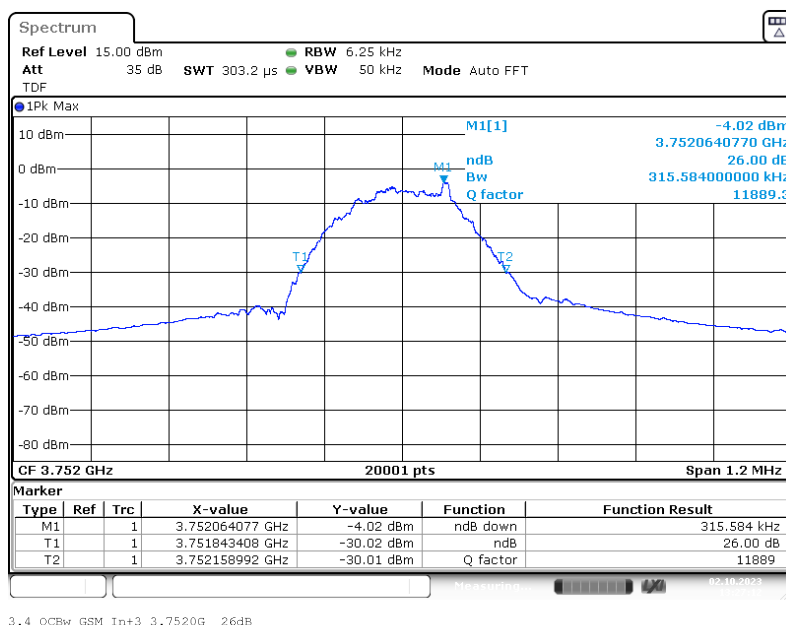


The test results relate only to the tested item. The sample has been provided by the client.
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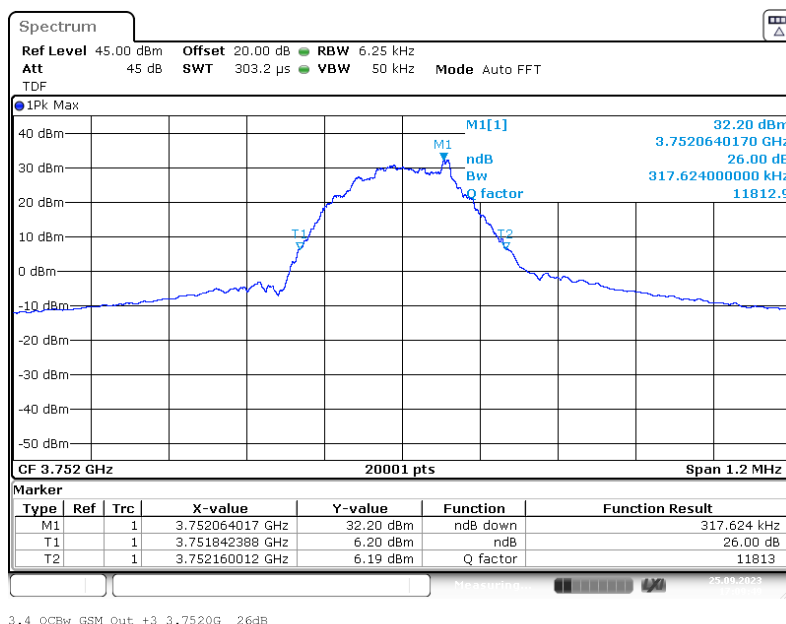
EMC Test Report No.: 23-0199

EMC tests on Andrew CAP M2 34T/37T/37T F-DC-F1 [37T]

Band: Band C low A2; Frequency: 3.7520 GHz; Band Edge: mid; Mod: GSM;
Input OCBw 3 dB > AGC



Band: Band C low A2; Frequency: 3.7520 GHz; Band Edge: mid; Mod: GSM;
Output OCBw 3 dB > AGC

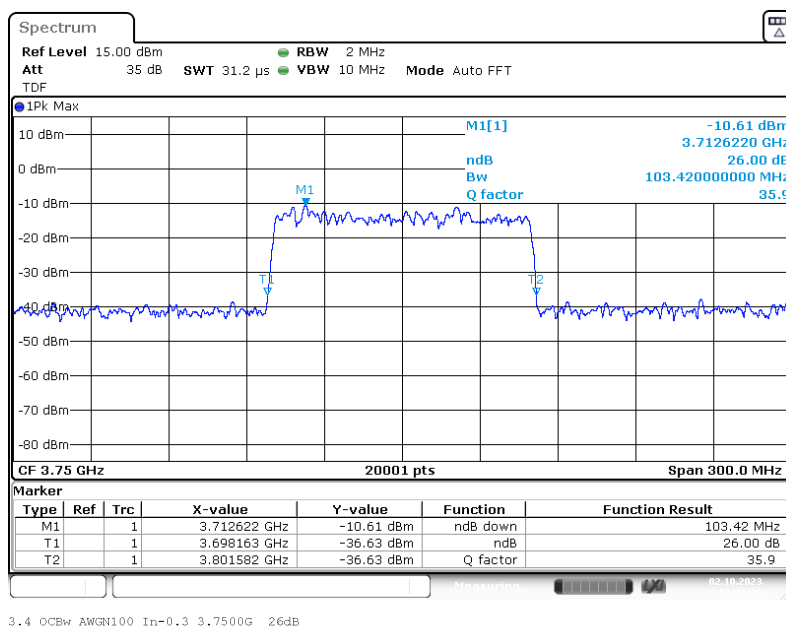


The test results relate only to the tested item. The sample has been provided by the client.
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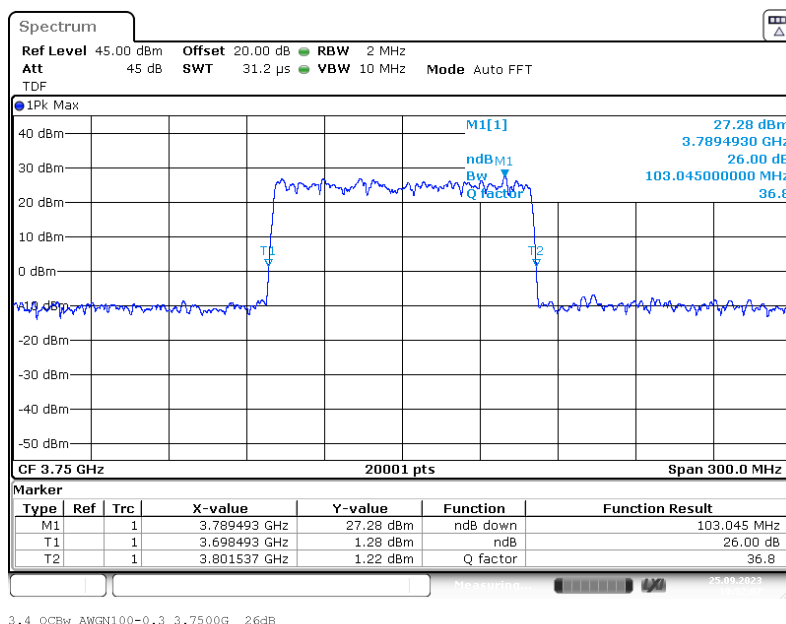
EMC Test Report No.: 23-0199

EMC tests on Andrew CAP M2 34T/37T/37T F-DC-F1 [37T]

Band: Band C low A2; Frequency: 3.7500 GHz; Band Edge: mid; Mod: AWGN100;
Input OCBw 0.3 dB < AGC



Band: Band C low A2; Frequency: 3.7500 GHz; Band Edge: mid; Mod: AWGN100;
Output OCBw 0.3 dB < AGC



The test results relate only to the tested item. The sample has been provided by the client.
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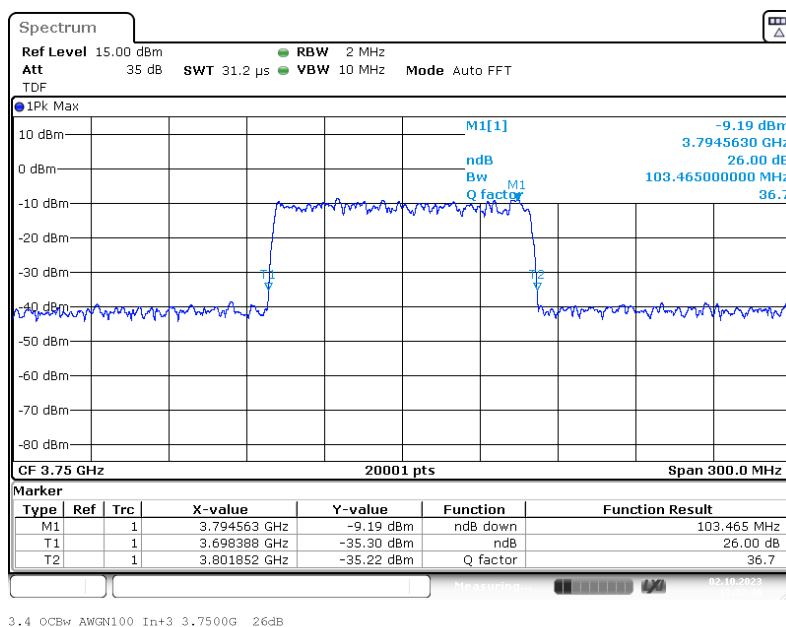


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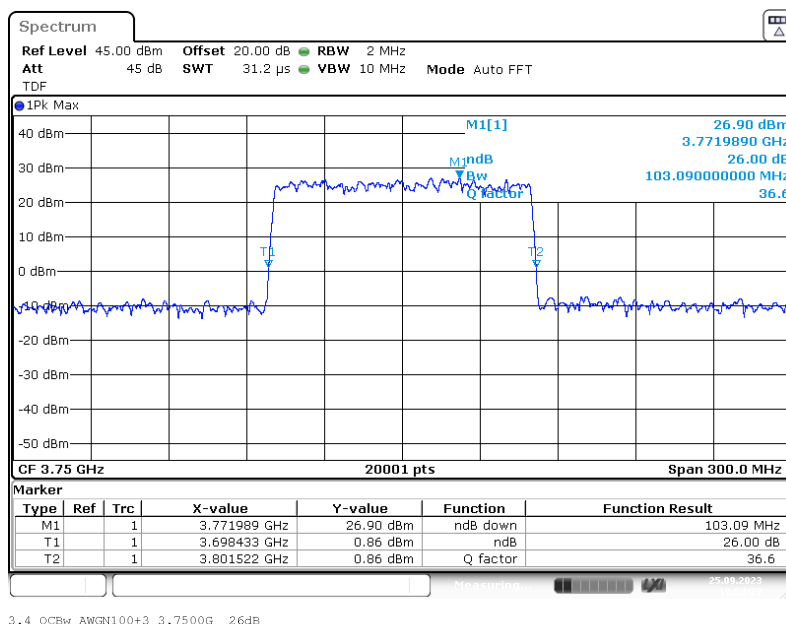
EMC Test Report No.: 23-0199

EMC tests on Andrew CAP M2 34T/37T/37T F-DC-F1 [37T]

Band: Band C low A2; Frequency: 3.7500 GHz; Band Edge: mid; Mod: AWGN100;
Input OCBw 3 dB > AGC



Band: Band C low A2; Frequency: 3.7500 GHz; Band Edge: mid; Mod: AWGN100;
Output OCBw 3 dB > AGC



The test results relate only to the tested item. The sample has been provided by the client.
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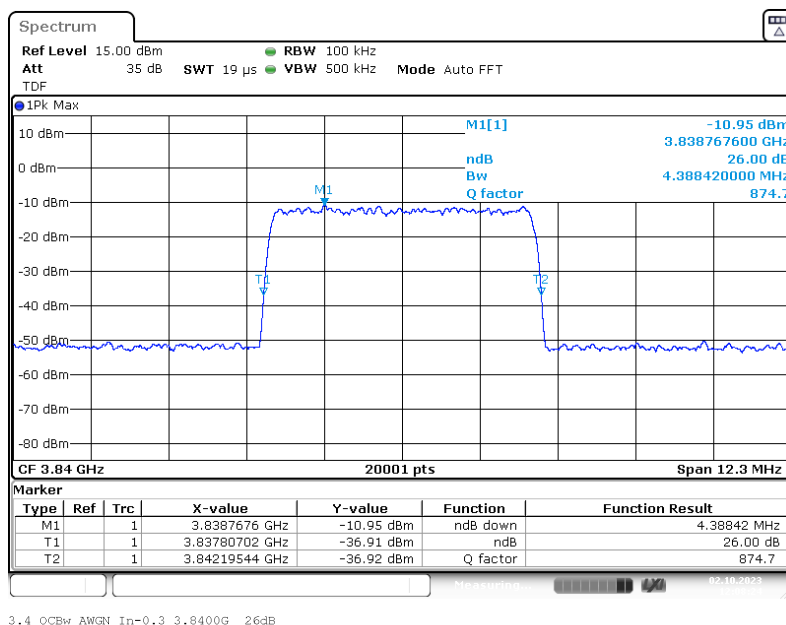


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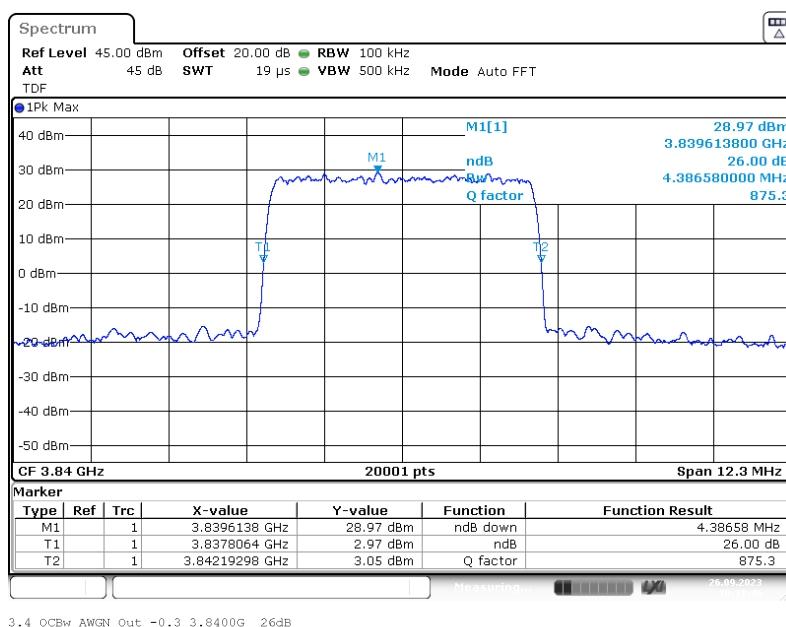
EMC Test Report No.: 23-0199

EMC tests on Andrew CAP M2 34T/37T/37T F-DC-F1 [37T]

Band: Band C mid A2; Frequency: 3.8400 GHz; Band Edge: mid; Mod: AWGN;
Input OCBw 0.3 dB < AGC



Band: Band C mid A2; Frequency: 3.8400 GHz; Band Edge: mid; Mod: AWGN;
Output OCBw 0.3 dB < AGC

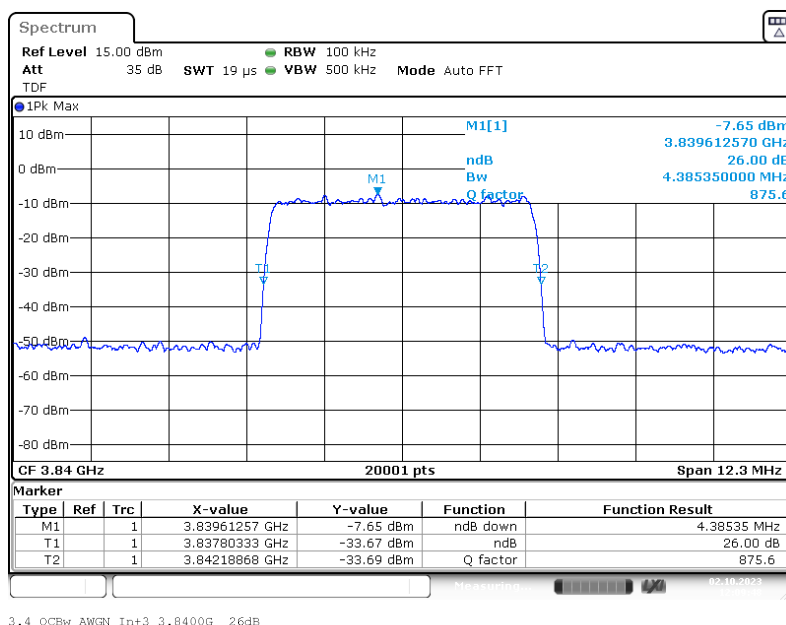


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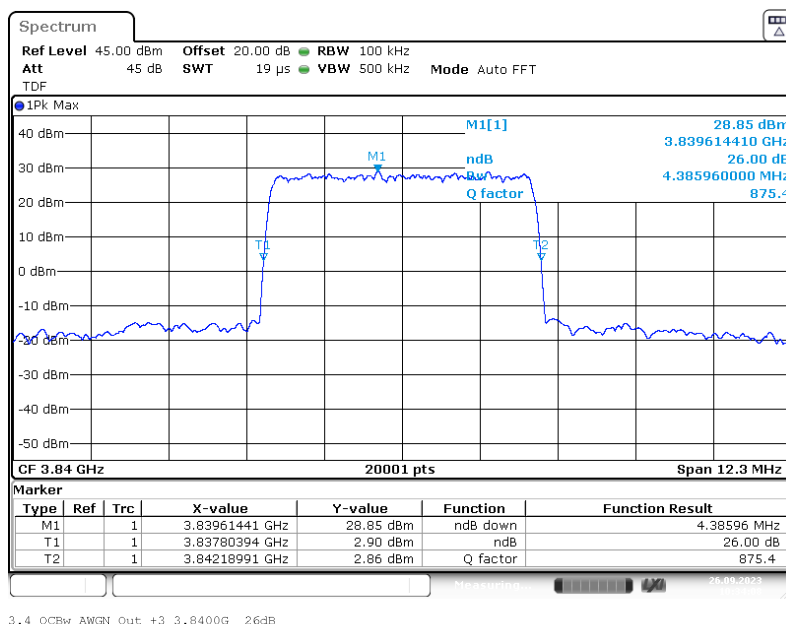
EMC Test Report No.: 23-0199

EMC tests on Andrew CAP M2 34T/37T/37T F-DC-F1 [37T]

Band: Band C mid A2; Frequency: 3.8400 GHz; Band Edge: mid; Mod: AWGN;
Input OCBw 3 dB > AGC



Band: Band C mid A2; Frequency: 3.8400 GHz; Band Edge: mid; Mod: AWGN;
Output OCBw 3 dB > AGC

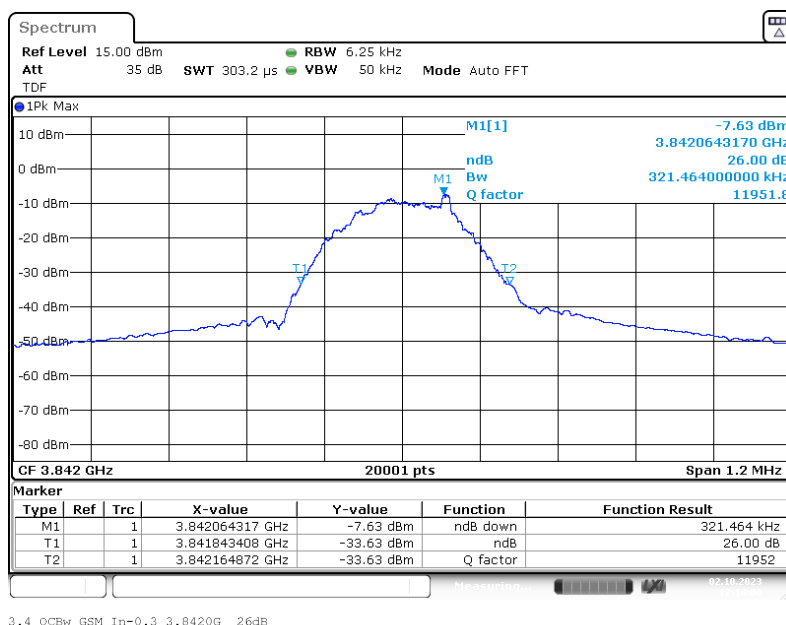


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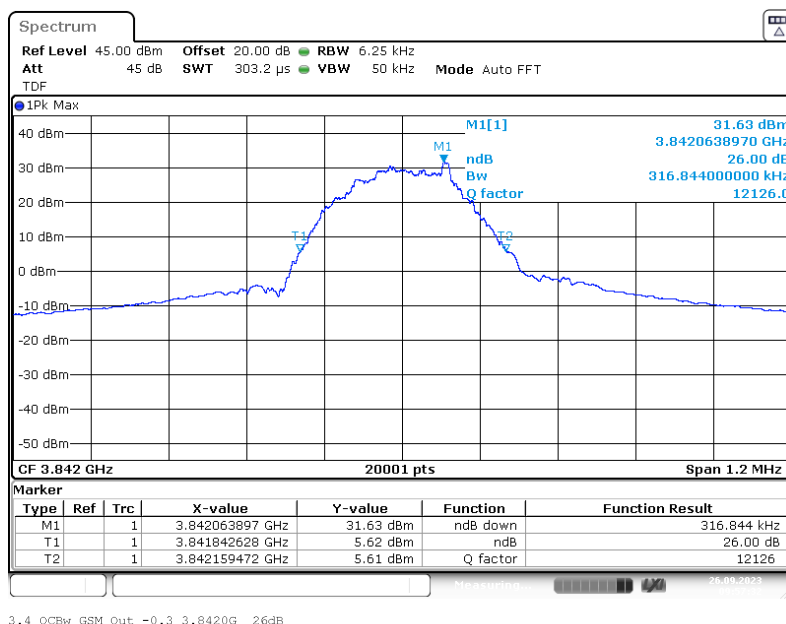
EMC Test Report No.: 23-0199

EMC tests on Andrew CAP M2 34T/37T/37T F-DC-F1 [37T]

Band: Band C mid A2; Frequency: 3.8420 GHz; Band Edge: mid; Mod: GSM;
Input OCBw 0.3 dB < AGC



Band: Band C mid A2; Frequency: 3.8420 GHz; Band Edge: mid; Mod: GSM;
Output OCBw 0.3 dB < AGC

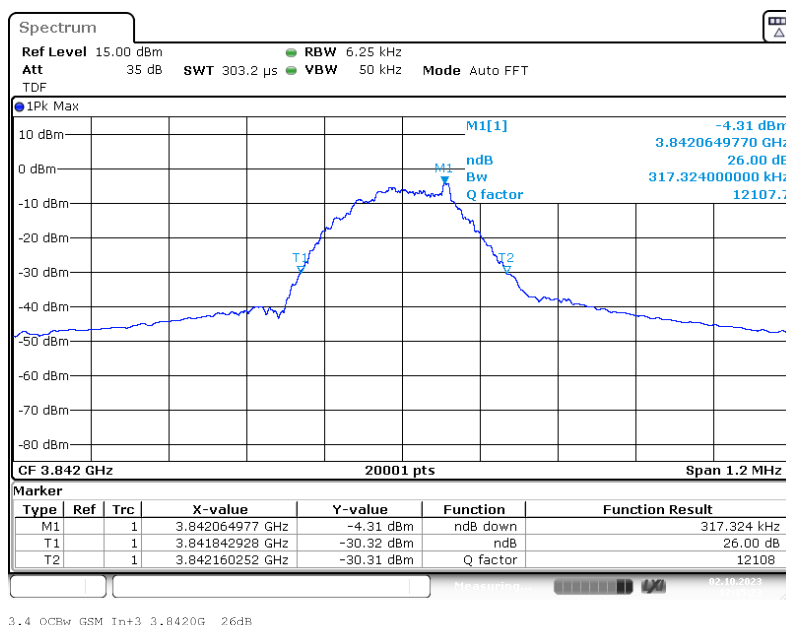


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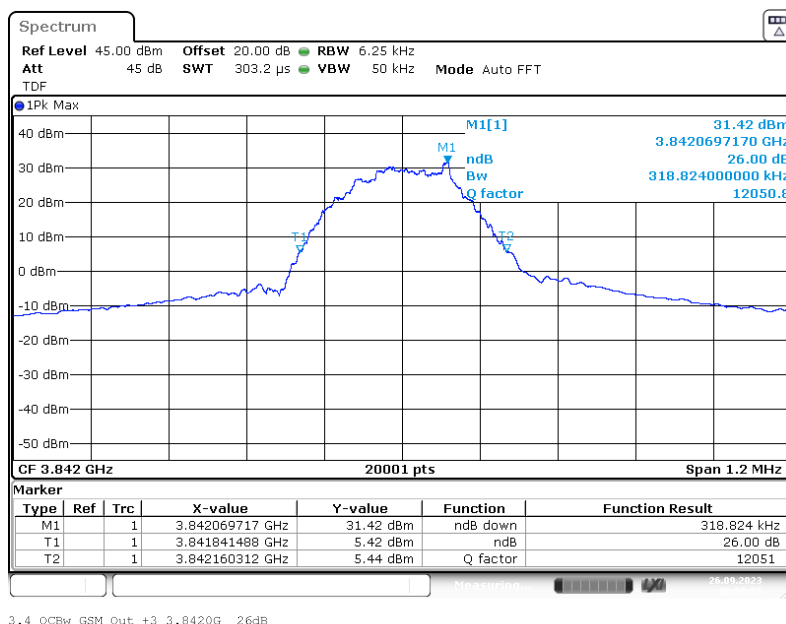
EMC Test Report No.: 23-0199

EMC tests on Andrew CAP M2 34T/37T/37T F-DC-F1 [37T]

Band: Band C mid A2; Frequency: 3.8420 GHz; Band Edge: mid; Mod: GSM;
Input OCBw 3 dB > AGC



Band: Band C mid A2; Frequency: 3.8420 GHz; Band Edge: mid; Mod: GSM;
Output OCBw 3 dB > AGC

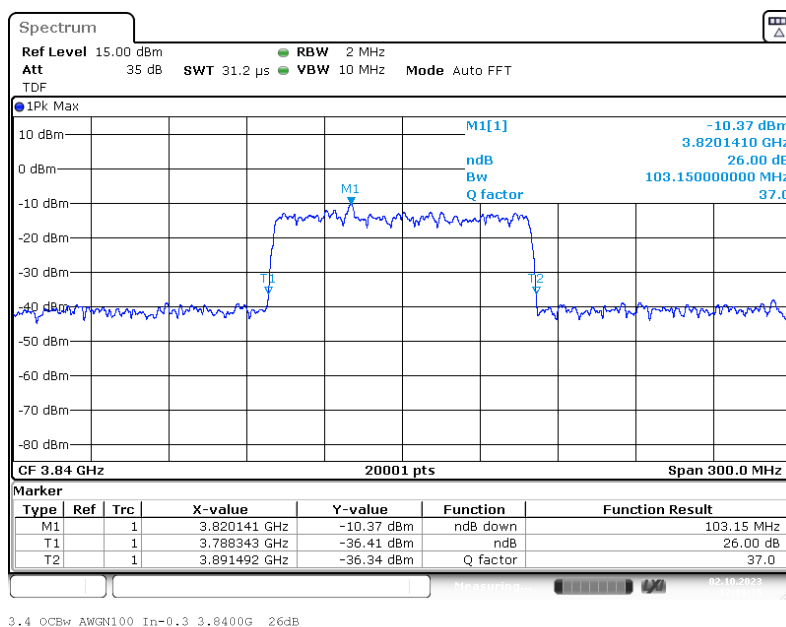


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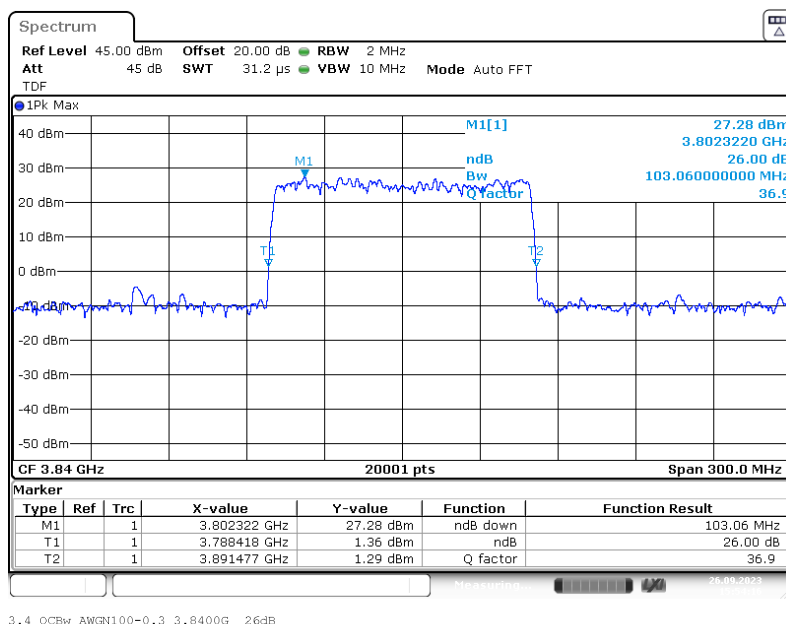
EMC Test Report No.: 23-0199

EMC tests on Andrew CAP M2 34T/37T/37T F-DC-F1 [37T]

Band: Band C mid A2; Frequency: 3.8400 GHz; Band Edge: mid; Mod: AWGN100;
Input OCBw 0.3 dB < AGC



Band: Band C mid A2; Frequency: 3.8400 GHz; Band Edge: mid; Mod: AWGN100;
Output OCBw 0.3 dB < AGC



The test results relate only to the tested item. The sample has been provided by the client.
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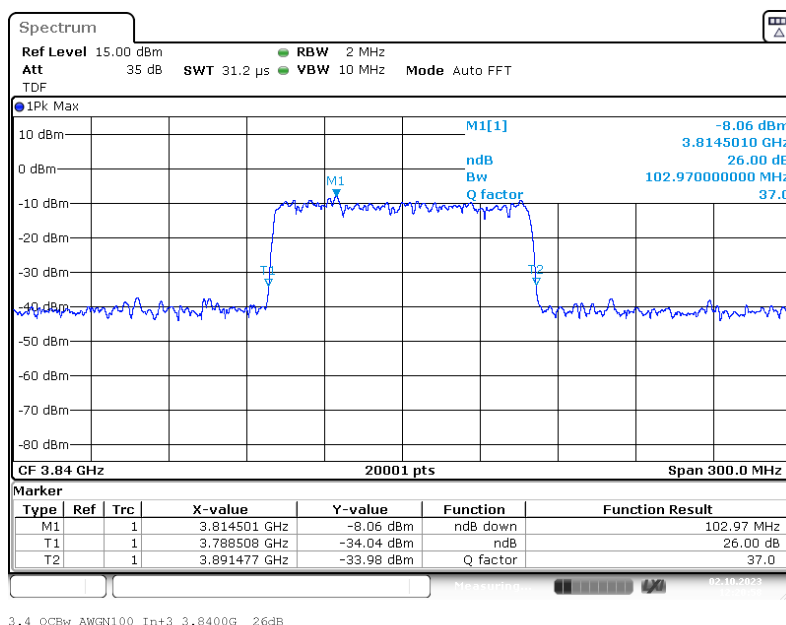


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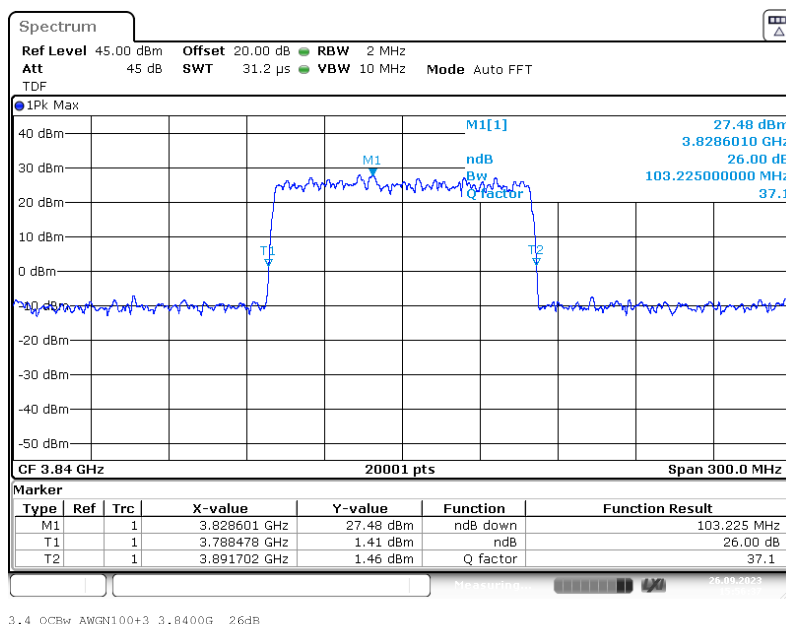
EMC Test Report No.: 23-0199

EMC tests on Andrew CAP M2 34T/37T/37T F-DC-F1 [37T]

Band: Band C mid A2; Frequency: 3.8400 GHz; Band Edge: mid; Mod: AWGN100;
Input OCBw 3 dB > AGC



Band: Band C mid A2; Frequency: 3.8400 GHz; Band Edge: mid; Mod: AWGN100;
Output OCBw 3 dB > AGC



The test results relate only to the tested item. The sample has been provided by the client.
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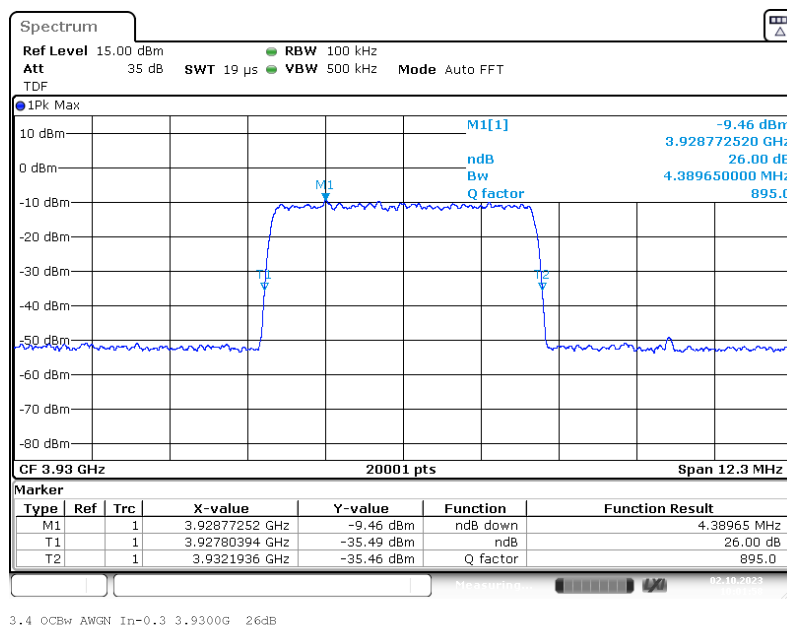


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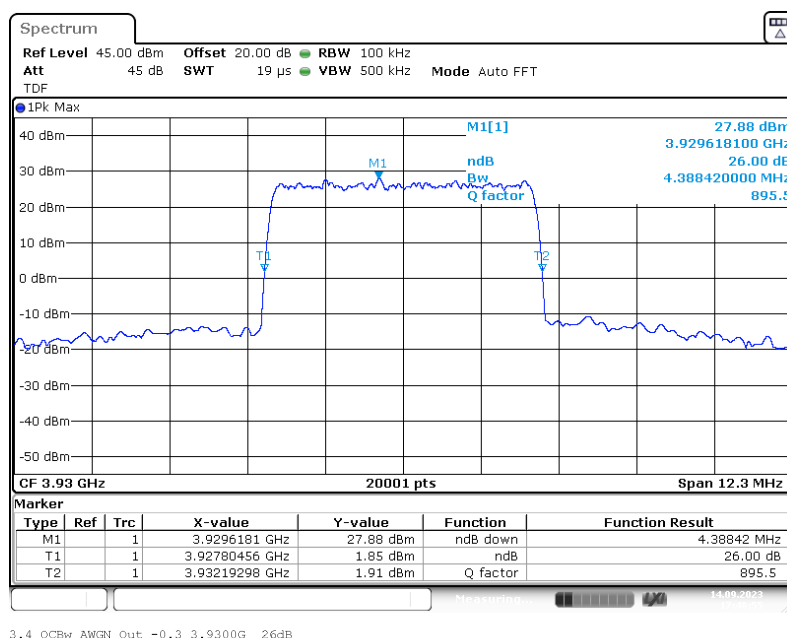
EMC Test Report No.: 23-0199

EMC tests on Andrew CAP M2 34T/37T/37T F-DC-F1 [37T]

Band: Band C high A2; Frequency: 3.9300 GHz; Band Edge: mid; Mod: AWGN;
Input OCBw 0.3 dB < AGC



Band: Band C high A2; Frequency: 3.9300 GHz; Band Edge: mid; Mod: AWGN;
Output OCBw 0.3 dB < AGC

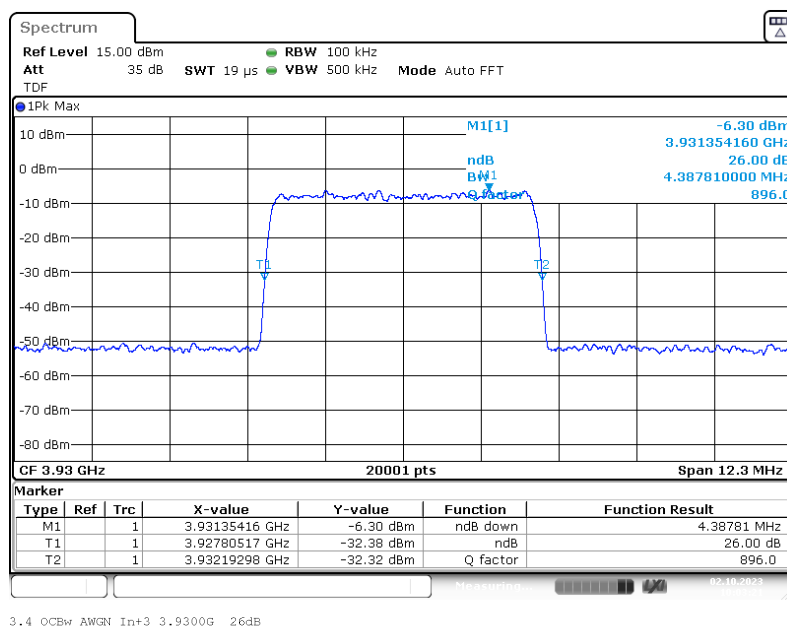


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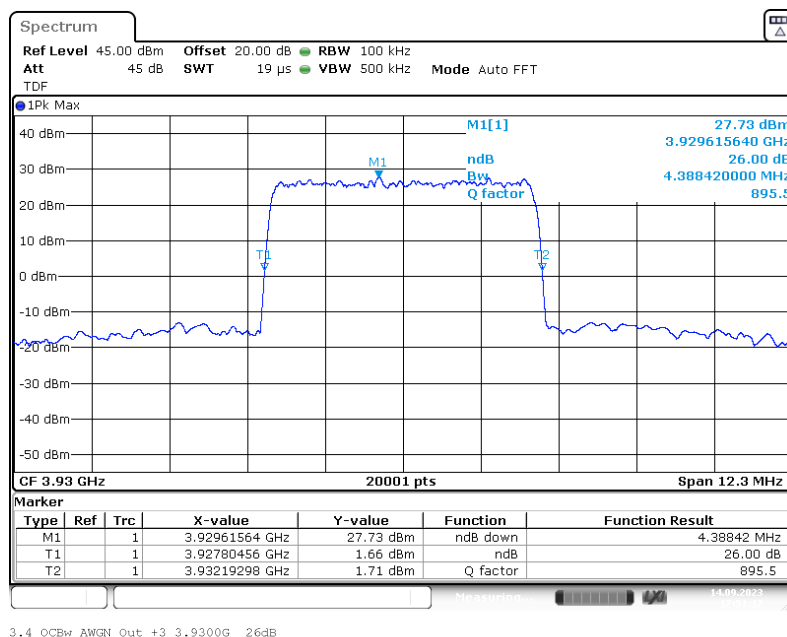
EMC Test Report No.: 23-0199

EMC tests on Andrew CAP M2 34T/37T/37T F-DC-F1 [37T]

Band: Band C high A2; Frequency: 3.9300 GHz; Band Edge: mid; Mod: AWGN;
Input OCBw 3 dB > AGC



Band: Band C high A2; Frequency: 3.9300 GHz; Band Edge: mid; Mod: AWGN;
Output OCBw 3 dB > AGC



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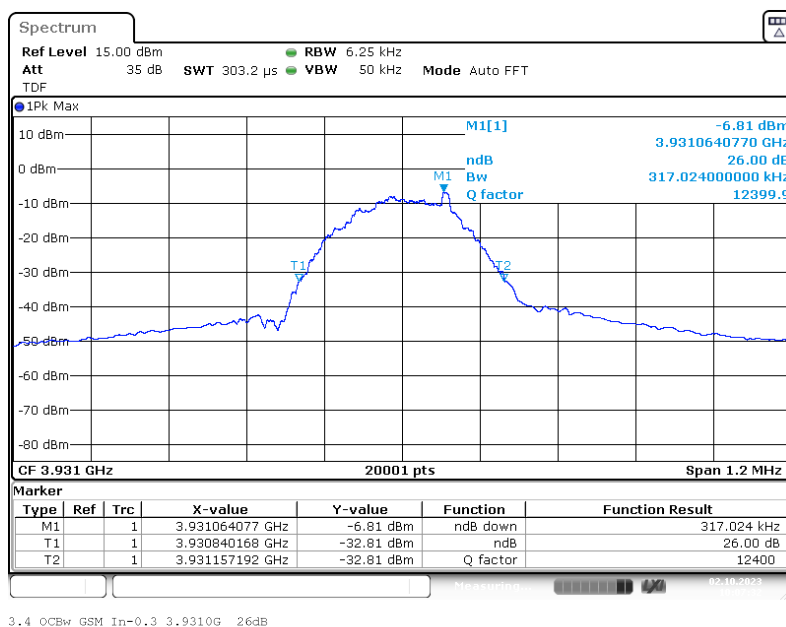


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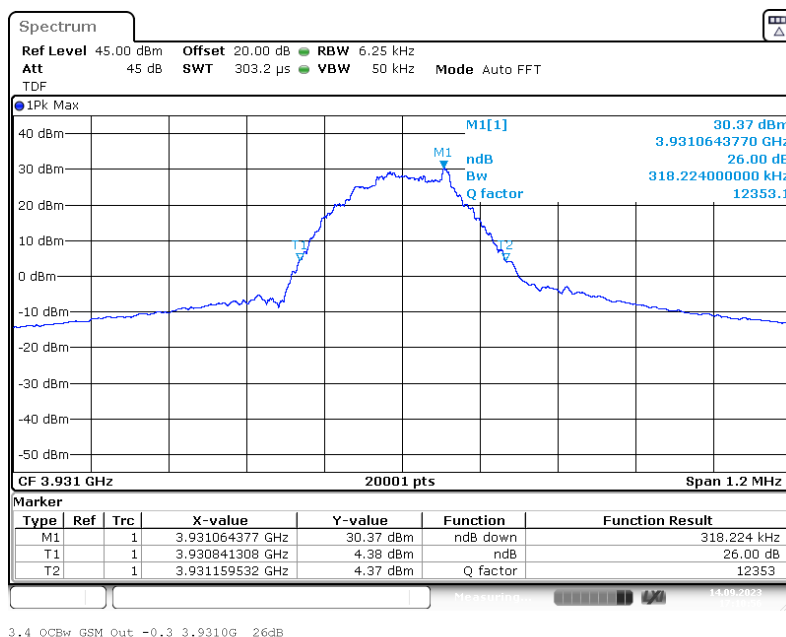
EMC Test Report No.: 23-0199

EMC tests on Andrew CAP M2 34T/37T/37T F-DC-F1 [37T]

Band: Band C high A2; Frequency: 3.9310 GHz; Band Edge: mid; Mod: GSM;
Input OCBw 0.3 dB < AGC



Band: Band C high A2; Frequency: 3.9310 GHz; Band Edge: mid; Mod: GSM;
Output OCBw 0.3 dB < AGC



The test results relate only to the tested item. The sample has been provided by the client.
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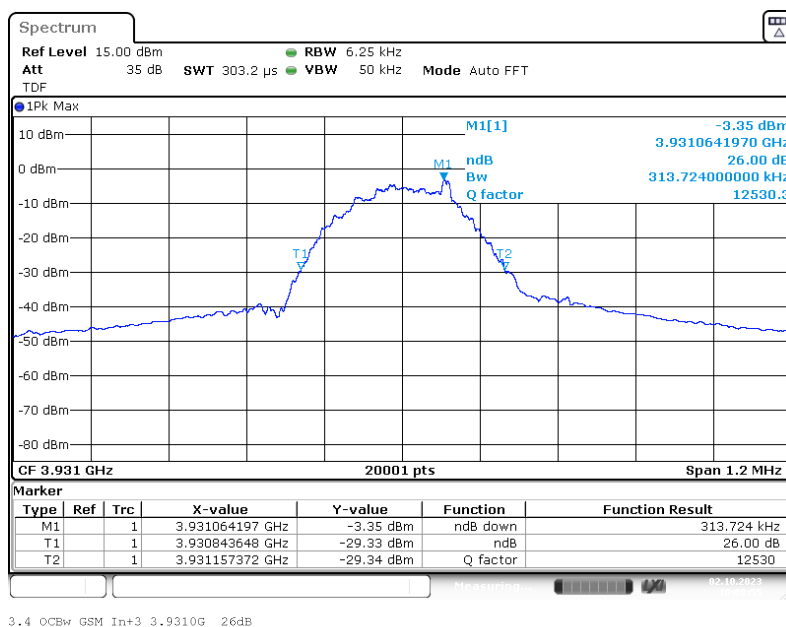


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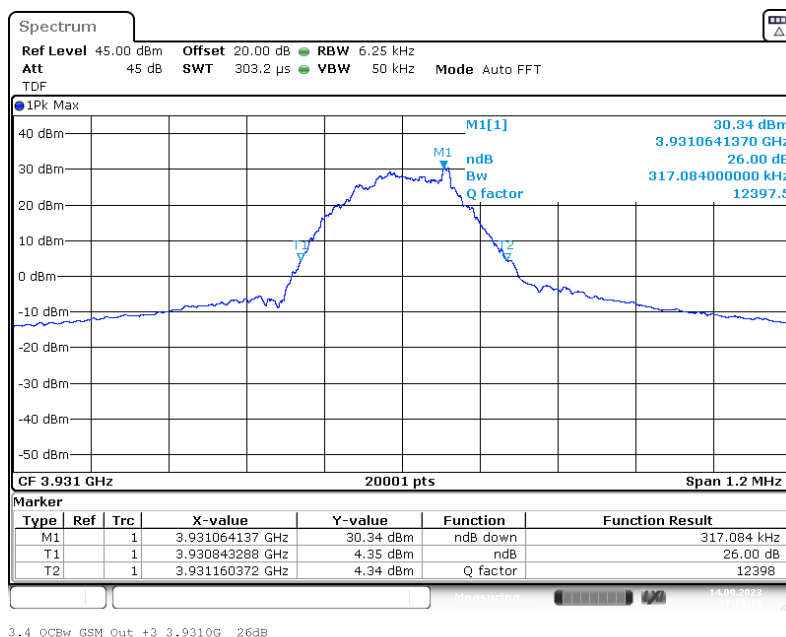
EMC Test Report No.: 23-0199

EMC tests on Andrew CAP M2 34T/37T/37T F-DC-F1 [37T]

Band: Band C high A2; Frequency: 3.9310 GHz; Band Edge: mid; Mod: GSM;
Input OCBw 3 dB > AGC



Band: Band C high A2; Frequency: 3.9310 GHz; Band Edge: mid; Mod: GSM;
Output OCBw 3 dB > AGC



The test results relate only to the tested item. The sample has been provided by the client.
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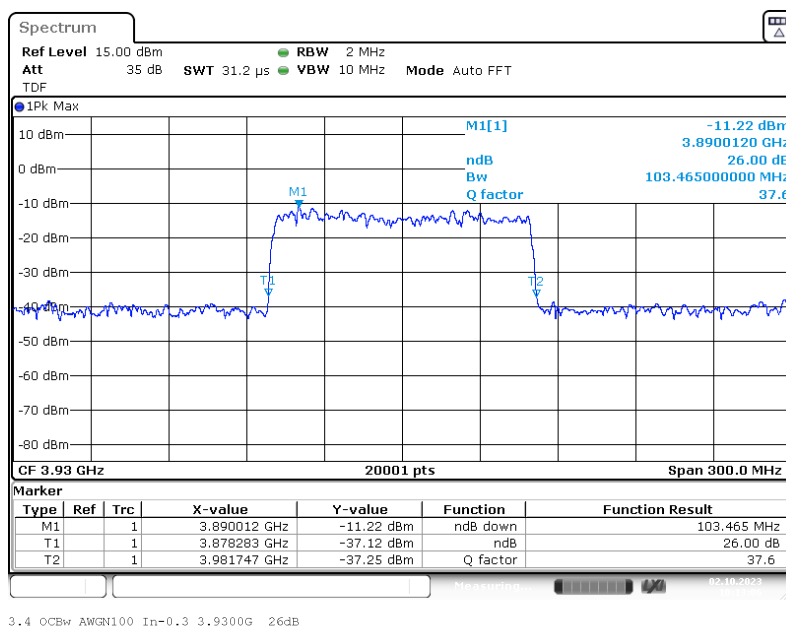


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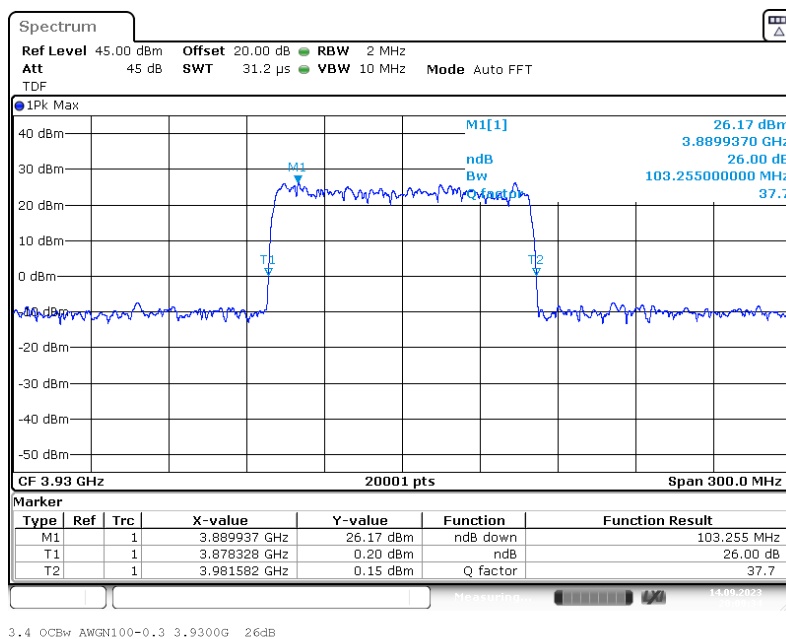
EMC Test Report No.: 23-0199

EMC tests on Andrew CAP M2 34T/37T/37T F-DC-F1 [37T]

Band: Band C high A2; Frequency: 3.9300 GHz; Band Edge: mid; Mod: AWGN100;
Input OCBw 0.3 dB < AGC



Band: Band C high A2; Frequency: 3.9300 GHz; Band Edge: mid; Mod: AWGN100;
Output OCBw 0.3 dB < AGC

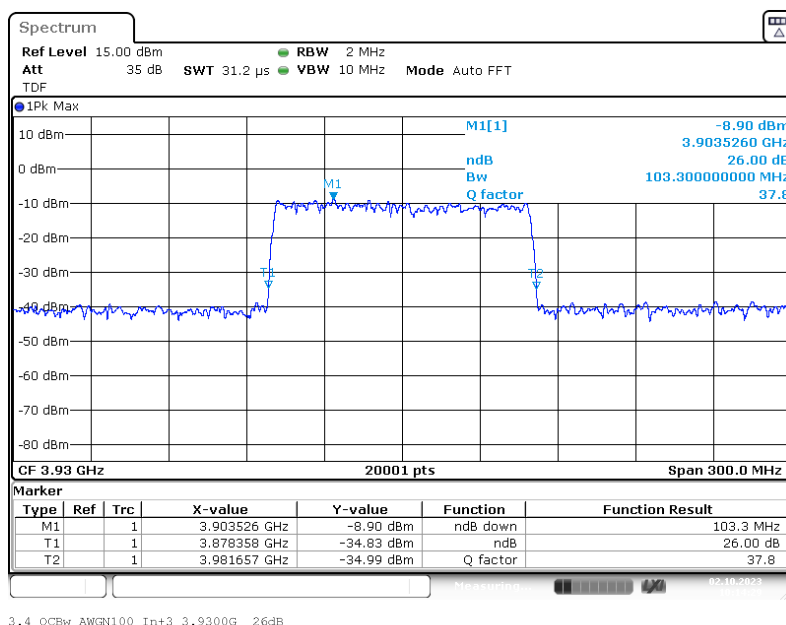


The test results relate only to the tested item. The sample has been provided by the client.
Without the written consent of Bureau Veritas Consumer Products Services Germany GmbH excerpts of this report shall not be reproduced.

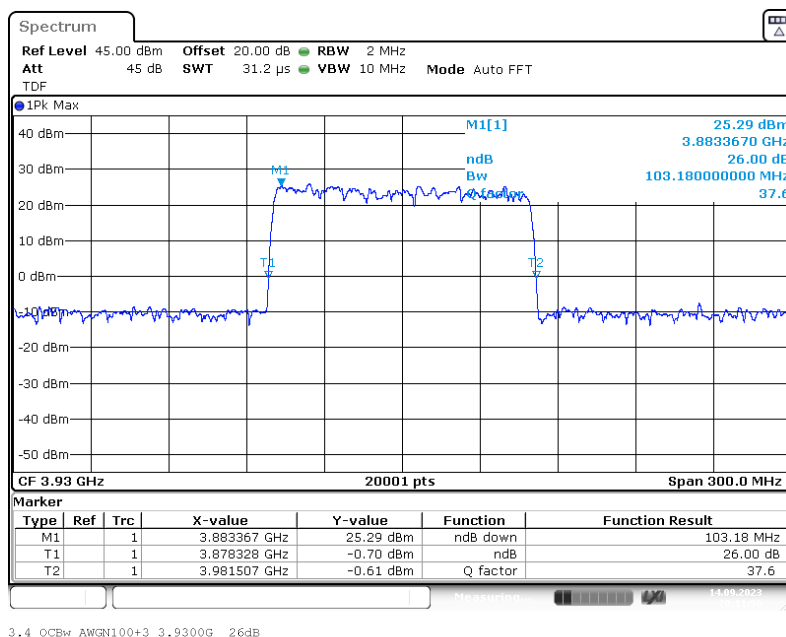
EMC Test Report No.: 23-0199

EMC tests on Andrew CAP M2 34T/37T/37T F-DC-F1 [37T]

Band: Band C high A2; Frequency: 3.9300 GHz; Band Edge: mid; Mod: AWGN100;
Input OCBw 3 dB > AGC



Band: Band C high A2; Frequency: 3.9300 GHz; Band Edge: mid; Mod: AWGN100;
Output OCBw 3 dB > AGC



The test results relate only to the tested item. The sample has been provided by the client.
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EMC Test Report No.: 23-0199

EMC tests on Andrew CAP M2 34T/37T/37T F-DC-F1 [37T]

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4.3.5 TEST EQUIPMENT USED

- Conducted

The test results relate only to the tested item. The sample has been provided by the client.
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2023-0313-EMC-TR-23-0199-V02

EMC Test Report No.: 23-0199

EMC tests on Andrew CAP M2 34T/37T/37T F-DC-F1 [37T]

4.4 CONDUCTED SPURIOUS EMISSIONS AT ANTENNA TERMINALS

Standard FCC Part §2.1051. §27.53

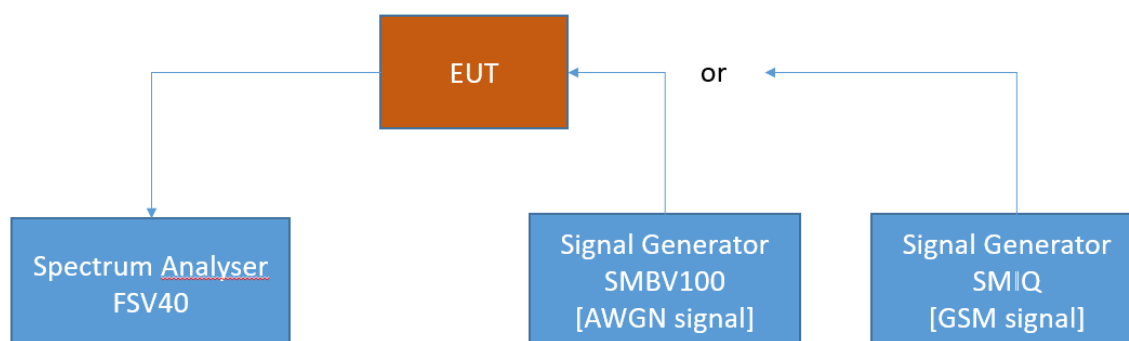
The test was performed according to:

ANSI C63.26

Test date: 2023-09-06 – 2023-11-14**Environmental conditions:** 23 ° C ± 5 K; 40 % r. F. ± 20 % r. F.**Test engineer:** Thomas Hufnagel**4.4.1 TEST DESCRIPTION**

This test case is intended to demonstrate compliance to the signal booster power and gain limits and requirements for industrial signal boosters.

The EUT was connected to the test setup according to the following diagram:



FCC Part 22/24/27/90 Industrial signal booster – Test Setup; RF Output Power / Gain

The attenuation of the measuring and stimulus path are known for each measured frequency and are considered.

The Spectrum Analyzer settings can be directly found in the measurement diagrams.



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4.4.2 TEST REQUIREMENTS/LIMITS

FCC Part 2.1051; Measurement required: Spurious emissions at antenna terminal:

The radio frequency voltage or powers generated within the equipment and appearing on a spurious frequency shall be checked at the equipment output terminals when properly loaded with a suitable artificial antenna. Curves or equivalent data shall show the magnitude of each harmonic and other spurious emission that can be detected when the equipment is operated under the conditions specified in §2.1049 as appropriate. The magnitude of spurious emissions which are attenuated more than 20 dB below the permissible value need not be specified.

The test results relate only to the tested item. The sample has been provided by the client.
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2023-0313-EMC-TR-23-0199-V02



Part 27; Miscellaneous Wireless Communication Services

Subpart C – Technical standards

§27.53 – Emission limits

- (I) **3.7 GHz Service.** The following emission limits apply to stations transmitting in the 3700-3980 MHz band:
- (1) For base station operations in the 3700-3980 MHz band. the conducted power of any emission outside the licensee's authorized bandwidth shall not exceed -13 dBm/MHz. Compliance with this paragraph (I)(1) is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater. However. in the 1 megahertz bands immediately outside and adjacent to the licensee's frequency block. a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. 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.
 - (2) For mobile operations in the 3700-3980 MHz band. the conducted power of any emission outside the licensee's authorized bandwidth shall not exceed -13 dBm/MHz. Compliance with this paragraph (I)(2) is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater. However. in the 1 megahertz bands immediately outside and adjacent to the licensee's frequency block. the minimum resolution bandwidth for the measurement shall be either one percent of the emission bandwidth of the fundamental emission of the transmitter or 350 kHz. In the bands between 1 and 5 MHz removed from the licensee's frequency block. the minimum resolution bandwidth for the measurement shall be 500 kHz. 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.



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4.4.3 TEST PROTOCOL

General considerations concerning the limits:

The measuring bandwidth of 1 MHz was chosen according the test requirements except at the band edges: At the band edges reducing of measurement bandwidth was necessary to prevent overlaying the RF-signal over the spurious emissions.

Also outside the downlink frequency band at lower frequencies the measurement bandwidths were reduced to have the possibility to record the spurious emissions at these lower frequencies.

At frequencies where measuring bandwidths were reduced also the limit lines were reduced according the given formula:

$$p_{RBWreduced} [dBm] = 10 * \log \left(RBWreduced [kHz] - 1000 kHz \right) + p_{RBW 1000 kHz} [dBm]$$

Hereby "p" are the limit lines' values.

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C-Band. segment 1. downlink							
Test Frequency	Signal Type	Spurious Freq. [MHz]	Spurious Level [dBm]	Detector	RBW [kHz]	Limit [dBm]	Margin to Limit [dB]
low	Wideband 1	0.00943	-57.0	RMS	1	-43.0	14
low	Wideband 1	27.68	-52.3	RMS	10	-33.0	19.3
low	Wideband 1	121.9	-40.2	RMS	1000	-13.0	27.2
low	Wideband 1	950.9	-38.1	RMS	1000	-13.0	25.1
low	Wideband 1	3682.2	-29.3	RMS	1000	-13.0	16.3
low	Wideband 1	3653.7	-32.9	RMS	100	-23.0	9.9
low	Wideband 1	3801.2	-37.9	RMS	100	-23.0	14.9
low	Wideband 1	6940.0	-25.0	RMS	1000	-13.0	12
low	Wideband 1	19979.3	-29.8	RMS	1000	-13.0	16.8
low	Wideband 1	20247.7	-29.9	RMS	1000	-13.0	16.9
low	Wideband 1	30834.9	-29.0	RMS	1000	-13.0	16
low	Wideband 1	39943.8	-19.2	RMS	1000	-13.0	6.2
mid	Wideband 1	0.010290	-56.4	RMS	1	-43.0	13.4
mid	Wideband 1	0.067497	-52.0	RMS	10	-33.0	19
mid	Wideband 1	121.6	-40.3	RMS	1000	-13.0	27.3
mid	Wideband 1	948.7	-38.7	RMS	1000	-13.0	25.7
mid	Wideband 1	3595.2	-29.3	RMS	1000	-13.0	16.3
mid	Wideband 1	3694.7	-38.8	RMS	100	-23.0	15.8
mid	Wideband 1	3801.5	-38.7	RMS	100	-23.0	15.7
mid	Wideband 1	6952.0	-24.9	RMS	1000	-13.0	11.9
mid	Wideband 1	19598.3	-29.5	RMS	1000	-13.0	16.5
mid	Wideband 1	20037.2	-29.9	RMS	1000	-13.0	16.9
mid	Wideband 1	30669.9	-29.1	RMS	1000	-13.0	16.1
mid	Wideband 1	39984.3	-19.6	RMS	1000	-13.0	6.6
high	Wideband 1	0.009020	-56.3	RMS	1	-43.0	13.3
high	Wideband 1	0.052500	-52.5	RMS	10	-33.0	19.5
high	Wideband 1	119.6	-39.7	RMS	1000	-13.0	26.7
high	Wideband 1	715.0	-38.8	RMS	1000	-13.0	25.8
high	Wideband 1	3689.8	-29.5	RMS	1000	-13.0	16.5
high	Wideband 1	3692.5	-38.2	RMS	100	-23.0	15.2
high	Wideband 1	3801.8	-37.5	RMS	100	-23.0	14.5
high	Wideband 1	6948.5	-24.7	RMS	1000	-13.0	11.7
high	Wideband 1	19959.3	-29.5	RMS	1000	-13.0	16.5
high	Wideband 1	20393.7	-29.6	RMS	1000	-13.0	16.6
high	Wideband 1	30954.4	-28.6	RMS	1000	-13.0	15.6
high	Wideband 1	39984.8	-19.8	RMS	1000	-13.0	6.8

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**EMC Test Report No.: 23-0199**

EMC tests on Andrew CAP M2 34T/37T/37T F-DC-F1 [37T]



C-Band. segment 1. downlink							
Test Frequency	Signal Type	Spurious Freq. [MHz]	Spurious Level [dBm]	Detector	RBW [kHz]	Limit [dBm]	Margin to Limit [dB]
mid	Wideband 2	0.010290	-56.7	RMS	1	-43.0	13.7
mid	Wideband 2	0.052500	-51.0	RMS	10	-33.0	18
mid	Wideband 2	122.1	-40.5	RMS	1000	-13.0	27.5
mid	Wideband 2	950.8	-38.5	RMS	1000	-13.0	25.5
mid	Wideband 2	3671.8	-29.8	RMS	1000	-13.0	16.8
mid	Wideband 2	3698.2	-37.7	RMS	100	-23.0	14.7
mid	Wideband 2	3802.6	-37.1	RMS	100	-23.0	14.1
mid	Wideband 2	6837.5	-24.5	RMS	1000	-13.0	11.5
mid	Wideband 2	19971.3	-29.9	RMS	1000	-13.0	16.9
mid	Wideband 2	20030.2	-29.6	RMS	1000	-13.0	16.6
mid	Wideband 2	30641.4	-28.8	RMS	1000	-13.0	15.8
mid	Wideband 2	39995.7	-19.2	RMS	1000	-13.0	6.2

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**EMC Test Report No.: 23-0199**

EMC tests on Andrew CAP M2 34T/37T/37T F-DC-F1 [37T]



C-Band. segment 1. downlink							
Test Frequency	Signal Type	Spurious Freq. [MHz]	Spurious Level [dBm]	Detector	RBW [kHz]	Limit [dBm]	Margin to Limit [dB]
low	Narrowband	0.013608	-56.4	RMS	1	-43.0	13.4
low	Narrowband	0.062498	-52.3	RMS	10	-33.0	19.3
low	Narrowband	70.0	-41.2	RMS	1000	-13.0	28.2
low	Narrowband	952.23	-38.2	RMS	1000	-13.0	25.2
low	Narrowband	3614.3	-29.5	RMS	1000	-13.0	16.5
low	Narrowband	3698.9	-38.4	RMS	100	-23.0	15.4
low	Narrowband	3804.3	-38.7	RMS	100	-23.0	15.7
low	Narrowband	6966.5	-24.8	RMS	1000	-13.0	11.8
low	Narrowband	19849.3	-29.5	RMS	1000	-13.0	16.5
low	Narrowband	20311.2	-29.5	RMS	1000	-13.0	16.5
low	Narrowband	30787.9	-28.9	RMS	1000	-13.0	15.9
low	Narrowband	39970.8	-19.4	RMS	1000	-13.0	6.4
mid	Narrowband	0.009102	-57.5	RMS	1	-43.0	14.5
mid	Narrowband	0.072496	-52.0	RMS	10	-33.0	19
mid	Narrowband	70.1	-40.8	RMS	1000	-13.0	27.8
mid	Narrowband	954.6	-38.3	RMS	1000	-13.0	25.3
mid	Narrowband	3406.3	-29.8	RMS	1000	-13.0	16.8
mid	Narrowband	3698.0	-39.0	RMS	100	-23.0	16
mid	Narrowband	3804.8	-37.8	RMS	100	-23.0	14.8
mid	Narrowband	6879.0	-24.8	RMS	1000	-13.0	11.8
mid	Narrowband	19563.3	-29.9	RMS	1000	-13.0	16.9
mid	Narrowband	19974.3	-30.0	RMS	1000	-13.0	17
mid	Narrowband	30844.9	-28.8	RMS	1000	-13.0	15.8
mid	Narrowband	39960.2	-19.8	RMS	1000	-13.0	6.8
high	Narrowband	0.009922	-56.6	RMS	1	-43.0	13.6
high	Narrowband	0.052500	-52.5	RMS	10	-33.0	19.5
high	Narrowband	120.0	-40.3	RMS	1000	-13.0	27.3
high	Narrowband	708.6	-38.4	RMS	1000	-13.0	25.4
high	Narrowband	3627.8	-29.7	RMS	1000	-13.0	16.7
high	Narrowband	3693.8	-38.8	RMS	100	-23.0	15.8
high	Narrowband	3801.3	-36.3	RMS	100	-23.0	13.3
high	Narrowband	6809.5	-24.9	RMS	1000	-13.0	11.9
high	Narrowband	19580.3	-29.7	RMS	1000	-13.0	16.7
high	Narrowband	20310.2	-29.5	RMS	1000	-13.0	16.5
high	Narrowband	30828.9	-29.0	RMS	1000	-13.0	16
high	Narrowband	39988.2	-19.2	RMS	1000	-13.0	6.2

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EMC Test Report No.: 23-0199

EMC tests on Andrew CAP M2 34T/37T/37T F-DC-F1 [37T]

C-Band. segment 2. downlink							
Test Frequency	Signal Type	Spurious Freq. [MHz]	Spurious Level [dBm]	Detector	RBW [kHz]	Limit [dBm]	Margin to Limit [dB]
low	Wideband 1	0.015082	-57.7	RMS	1	-43.0	14.7
low	Wideband 1	0.097492	-52.2	RMS	10	-33.0	19.2
low	Wideband 1	121.915224	-39.6	RMS	1000	-13.0	26.6
low	Wideband 1	952.429760	-38.3	RMS	1000	-13.0	25.3
low	Wideband 1	3780.750080	-29.3	RMS	1000	-13.0	16.3
low	Wideband 1	3788.308736	-32.2	RMS	100	-23.0	9.2
low	Wideband 1	3896.542464	-38.4	RMS	100	-23.0	15.4
low	Wideband 1	6915.502592	-24.5	RMS	1000	-13.0	11.5
low	Wideband 1	19528.273920	-29.5	RMS	1000	-13.0	16.5
low	Wideband 1	20015.249408	-29.6	RMS	1000	-13.0	16.6
low	Wideband 1	30778.935296	-29.1	RMS	1000	-13.0	16.1
low	Wideband 1	39974.752256	-18.7	RMS	1000	-13.0	5.7
mid	Wideband 1	0.012010	-56.4	RMS	1	-43.0	13.4
mid	Wideband 1	0.057499	-51.3	RMS	10	-33.0	18.3
mid	Wideband 1	119.50	-40.4	RMS	1000	-13.0	27.4
mid	Wideband 1	949.9	-38.4	RMS	1000	-13.0	25.4
mid	Wideband 1	3780.3	-28.2	RMS	1000	-13.0	15.2
mid	Wideband 1	3782.2	-38.2	RMS	100	-23.0	15.2
mid	Wideband 1	3892.6	-38.5	RMS	100	-23.0	15.5
mid	Wideband 1	6989.5	-24.4	RMS	1000	-13.0	11.4
mid	Wideband 1	19978.3	-29.9	RMS	1000	-13.0	16.9
mid	Wideband 1	20278.2	-29.6	RMS	1000	-13.0	16.6
mid	Wideband 1	30101.0	-28.6	RMS	1000	-13.0	15.6
mid	Wideband 1	39963.2	-19.2	RMS	1000	-13.0	6.2
high	Wideband 1	0.009758	-55.2	RMS	1	-43.0	12.2
high	Wideband 1	0.077495	-52.4	RMS	10	-33.0	19.4
high	Wideband 1	119.9	-40.4	RMS	1000	-13.0	27.4
high	Wideband 1	952.1	-38.3	RMS	1000	-13.0	25.3
high	Wideband 1	3771.8	-29.1	RMS	1000	-13.0	16.1
high	Wideband 1	3787.3	-38.3	RMS	100	-23.0	15.3
high	Wideband 1	3891.5	-36.7	RMS	100	-23.0	13.7
high	Wideband 1	6828.0	-25.2	RMS	1000	-13.0	12.2
high	Wideband 1	19561.3	-29.6	RMS	1000	-13.0	16.6
high	Wideband 1	20315.2	-29.6	RMS	1000	-13.0	16.6
high	Wideband 1	30125.0	-29.0	RMS	1000	-13.0	16
high	Wideband 1	39987.7	-19.3	RMS	1000	-13.0	6.3

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EMC tests on Andrew CAP M2 34T/37T/37T F-DC-F1 [37T]



C-Band. segment 2. downlink							
Test Frequency	Signal Type	Spurious Freq. [MHz]	Spurious Level [dBm]	Detector	RBW [kHz]	Limit [dBm]	Margin to Limit [dB]
mid	Wideband 2	0.011109	-56.0	RMS	1	-43.0	13
mid	Wideband 2	0.067497	-51.9	RMS	10	-33.0	18.9
mid	Wideband 2	118.7	-40.1	RMS	1000	-13.0	27.1
mid	Wideband 2	951.2	-38.7	RMS	1000	-13.0	25.7
mid	Wideband 2	3779.8	-28.4	RMS	1000	-13.0	15.4
mid	Wideband 2	3783.9	-37.3	RMS	100	-23.0	14.3
mid	Wideband 2	3896.3	-35.2	RMS	100	-23.0	12.2
mid	Wideband 2	6836.5	-24.6	RMS	1000	-13.0	11.6
mid	Wideband 2	19946.3	-29.9	RMS	1000	-13.0	16.9
mid	Wideband 2	20377.7	-29.5	RMS	1000	-13.0	16.5
mid	Wideband 2	30660.9	-29.2	RMS	1000	-13.0	16.2
mid	Wideband 2	39964.2	-19.1	RMS	1000	-13.0	6.1

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EMC tests on Andrew CAP M2 34T/37T/37T F-DC-F1 [37T]

C-Band. segment 2. downlink							
Test Frequency	Signal Type	Spurious Freq. [MHz]	Spurious Level [dBm]	Detector	RBW [kHz]	Limit [dBm]	Margin to Limit [dB]
low	Narrowband	0.020694	-57.2	RMS	1	-43.0	14.2
low	Narrowband	0.052500	-51.5	RMS	10	-33.0	18.5
low	Narrowband	122.0	-40.6	RMS	1000	-13.0	27.6
low	Narrowband	951.8	-38.3	RMS	1000	-13.0	25.3
low	Narrowband	3756.3	-29.1	RMS	1000	-13.0	16.1
low	Narrowband	3788.9	-36.3	RMS	100	-23.0	13.3
low	Narrowband	3895.6	-38.2	RMS	100	-23.0	15.2
low	Narrowband	6945.0	-24.8	RMS	1000	-13.0	11.8
low	Narrowband	19550.8	-29.5	RMS	1000	-13.0	16.5
low	Narrowband	20336.2	-29.5	RMS	1000	-13.0	16.5
low	Narrowband	30861.9	-29.0	RMS	1000	-13.0	16
low	Narrowband	39989.8	-19.8	RMS	1000	-13.0	6.8
mid	Narrowband	0.009430	-56.7	RMS	1	-43.0	13.7
mid	Narrowband	0.077495	-51.3	RMS	10	-33.0	18.3
mid	Narrowband	122.6	-40.5	RMS	1000	-13.0	27.5
mid	Narrowband	951.2	-38.3	RMS	1000	-13.0	25.3
mid	Narrowband	3719.3	-28.0	RMS	1000	-13.0	15
mid	Narrowband	3783.8	-38.3	RMS	100	-23.0	15.3
mid	Narrowband	3895.9	-38.6	RMS	100	-23.0	15.6
mid	Narrowband	6993.5	-24.8	RMS	1000	-13.0	11.8
mid	Narrowband	19576.2	-29.8	RMS	1000	-13.0	16.8
mid	Narrowband	20293.7	-29.4	RMS	1000	-13.0	16.4
mid	Narrowband	30837.9	-28.8	RMS	1000	-13.0	15.8
mid	Narrowband	39980.8	-19.6	RMS	1000	-13.0	6.6
high	Narrowband	0.010167	-56.8	RMS	1	-43.0	13.8
high	Narrowband	0.067497	-52.6	RMS	10	-33.0	19.6
high	Narrowband	120.3	-39.6	RMS	1000	-13.0	26.6
high	Narrowband	951.5	-38.2	RMS	1000	-13.0	25.2
high	Narrowband	3717.3	-29.0	RMS	1000	-13.0	16
high	Narrowband	3783.7	-39.2	RMS	100	-23.0	16.2
high	Narrowband	3891.0	-35.9	RMS	100	-23.0	12.9
high	Narrowband	6974.5	-24.6	RMS	1000	-13.0	11.6
high	Narrowband	19991.8	-30.0	RMS	1000	-13.0	17
high	Narrowband	20296.7	-30.0	RMS	1000	-13.0	17
high	Narrowband	30830.4	-29.0	RMS	1000	-13.0	16
high	Narrowband	39994.7	-19.4	RMS	1000	-13.0	6.4

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**EMC Test Report No.: 23-0199**

EMC tests on Andrew CAP M2 34T/37T/37T F-DC-F1 [37T]



C-Band. segment 3. downlink							
Test Frequency	Signal Type	Spurious Freq. [MHz]	Spurious Level [dBm]	Detector	RBW [kHz]	Limit [dBm]	Margin to Limit [dB]
low	Wideband 1	0.009020	-56.0	RMS	1	-43.0	13
low	Wideband 1	0.107490	-51.1	RMS	10	-33.0	18.1
low	Wideband 1	118.3	-40.6	RMS	1000	-13.0	27.6
low	Wideband 1	948.9	-38.4	RMS	1000	-13.0	25.4
low	Wideband 1	3867.8	-28.7	RMS	1000	-13.0	15.7
low	Wideband 1	3867.8	-28.7	RMS	100	-23.0	5.7
low	Wideband 1	3981.7	-37.7	RMS	100	-23.0	14.7
low	Wideband 1	6831.0	-24.8	RMS	1000	-13.0	11.8
low	Wideband 1	19549.8	-29.9	RMS	1000	-13.0	16.9
low	Wideband 1	20028.7	-29.7	RMS	1000	-13.0	16.7
low	Wideband 1	30686.4	-29.1	RMS	1000	-13.0	16.1
low	Wideband 1	39980.8	-19.4	RMS	1000	-13.0	6.4
mid	Wideband 1	0.009102	-55.0	RMS	1	-43.0	12
mid	Wideband 1	0.067497	-52.0	RMS	10	-33.0	19
mid	Wideband 1	117.9	-40.2	RMS	1000	-13.0	27.2
mid	Wideband 1	951.6	-38.6	RMS	1000	-13.0	25.6
mid	Wideband 1	3862.8	-28.4	RMS	1000	-13.0	15.4
mid	Wideband 1	3873.7	-38.4	RMS	100	-23.0	15.4
mid	Wideband 1	3984.3	-38.4	RMS	100	-23.0	15.4
mid	Wideband 1	6998.0	-24.7	RMS	1000	-13.0	11.7
mid	Wideband 1	19557.8	-30.1	RMS	1000	-13.0	17.1
mid	Wideband 1	20073.7	-29.6	RMS	1000	-13.0	16.6
mid	Wideband 1	30697.4	-29.0	RMS	1000	-13.0	16
mid	Wideband 1	39977.8	-19.7	RMS	1000	-13.0	6.7
high	Wideband 1	0.009430	-57.2	RMS	1	-43.0	14.2
high	Wideband 1	0.052500	-52.1	RMS	10	-33.0	19.1
high	Wideband 1	123.3	-40.3	RMS	1000	-13.0	27.3
high	Wideband 1	951.0	-38.9	RMS	1000	-13.0	25.9
high	Wideband 1	3770.3	-29.2	RMS	1000	-13.0	16.2
high	Wideband 1	3871.2	-38.9	RMS	100	-23.0	15.9
high	Wideband 1	3981.2	-30.9	RMS	100	-23.0	7.9
high	Wideband 1	6763.5	-24.7	RMS	1000	-13.0	11.7
high	Wideband 1	19984.8	-29.8	RMS	1000	-13.0	16.8
high	Wideband 1	20099.7	-29.6	RMS	1000	-13.0	16.6
high	Wideband 1	30726.9	-28.8	RMS	1000	-13.0	15.8
high	Wideband 1	39995.2	-19.2	RMS	1000	-13.0	6.2

The test results relate only to the tested item. The sample has been provided by the client.

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**EMC Test Report No.: 23-0199**

EMC tests on Andrew CAP M2 34T/37T/37T F-DC-F1 [37T]



C-Band. segment 3. downlink							
Test Frequency	Signal Type	Spurious Freq. [MHz]	Spurious Level [dBm]	Detector	RBW [kHz]	Limit [dBm]	Margin to Limit [dB]
mid	Wideband 2	0.009102	-57.1	RMS	1	-43.0	14.1
mid	Wideband 2	0.052500	-52.5	RMS	10	-33.0	19.5
mid	Wideband 2	117.8	-40.7	RMS	1000	-13.0	27.7
mid	Wideband 2	952.3	-38.2	RMS	1000	-13.0	25.2
mid	Wideband 2	3866.8	-25.8	RMS	1000	-13.0	12.8
mid	Wideband 2	3875.3	-37.7	RMS	100	-23.0	14.7
mid	Wideband 2	3985.2	-37.9	RMS	100	-23.0	14.9
mid	Wideband 2	6990.5	-24.8	RMS	1000	-13.0	11.8
mid	Wideband 2	19978.8	-29.8	RMS	1000	-13.0	16.8
mid	Wideband 2	20363.7	-29.7	RMS	1000	-13.0	16.7
mid	Wideband 2	30743.9	-28.8	RMS	1000	-13.0	15.8
mid	Wideband 2	39992.8	-19.1	RMS	1000	-13.0	6.1

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EMC Test Report No.: 23-0199

EMC tests on Andrew CAP M2 34T/37T/37T F-DC-F1 [37T]

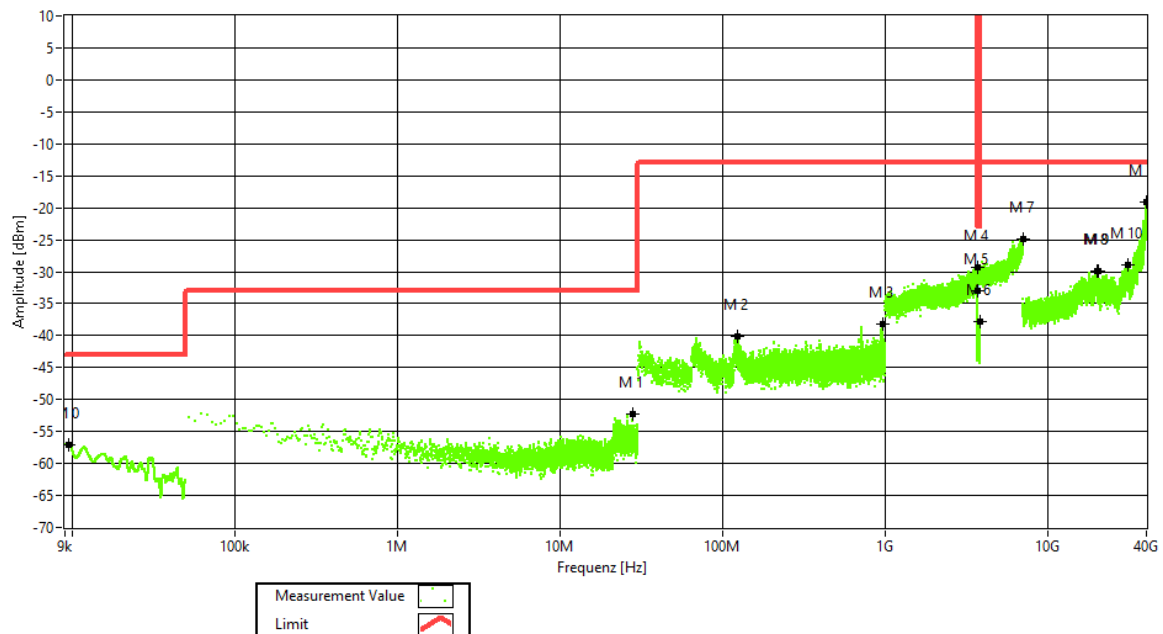
C-Band. segment 3. downlink							
Test Frequency	Signal Type	Spurious Freq. [MHz]	Spurious Level [dBm]	Detector	RBW [kHz]	Limit [dBm]	Margin to Limit [dB]
low	Narrowband	0.009758	-57.5	RMS	1	-43.0	14.5
low	Narrowband	0.082495	-52.6	RMS	10	-33.0	19.6
low	Narrowband	68.3	-40.5	RMS	1000	-13.0	27.5
low	Narrowband	951.7	-38.0	RMS	1000	-13.0	25
low	Narrowband	3870.7	-29.0	RMS	1000	-13.0	16
low	Narrowband	3879.0	-36.4	RMS	100	-23.0	13.4
low	Narrowband	3984.3	-38.6	RMS	100	-23.0	15.6
low	Narrowband	6982.0	-24.4	RMS	1000	-13.0	11.4
low	Narrowband	19574.8	-29.6	RMS	1000	-13.0	16.6
low	Narrowband	20307.2	-29.8	RMS	1000	-13.0	16.8
low	Narrowband	30764.4	-28.9	RMS	1000	-13.0	15.9
low	Narrowband	39983.8	-19.3	RMS	1000	-13.0	6.3
mid	Narrowband	0.011806	-56.3	RMS	1	-43.0	13.3
mid	Narrowband	0.052500	-52.2	RMS	10	-33.0	19.2
mid	Narrowband	117.9	-40.8	RMS	1000	-13.0	27.8
mid	Narrowband	952.3	-37.7	RMS	1000	-13.0	24.7
mid	Narrowband	3781.8	-28.9	RMS	1000	-13.0	15.9
mid	Narrowband	3878.1	-37.9	RMS	100	-23.0	14.9
mid	Narrowband	3981.5	-37.7	RMS	100	-23.0	14.7
mid	Narrowband	6962.0	-24.6	RMS	1000	-13.0	11.6
mid	Narrowband	19959.3	-29.6	RMS	1000	-13.0	16.6
mid	Narrowband	20275.7	-29.7	RMS	1000	-13.0	16.7
mid	Narrowband	30113.5	-29.0	RMS	1000	-13.0	16
mid	Narrowband	39998.3	-19.8	RMS	1000	-13.0	6.8
high	Narrowband	0.009020	-56.8	RMS	1	-43.0	13.8
high	Narrowband	0.057499	-51.5	RMS	10	-33.0	18.5
high	Narrowband	119.9	-40.5	RMS	1000	-13.0	27.5
high	Narrowband	948.8	-38.5	RMS	1000	-13.0	25.5
high	Narrowband	3748.8	-28.6	RMS	1000	-13.0	15.6
high	Narrowband	3871.4	-38.3	RMS	100	-23.0	15.3
high	Narrowband	3981.0	-37.3	RMS	100	-23.0	14.3
high	Narrowband	6869.0	-24.8	RMS	1000	-13.0	11.8
high	Narrowband	19988.3	-29.6	RMS	1000	-13.0	16.6
high	Narrowband	20281.7	-29.7	RMS	1000	-13.0	16.7
high	Narrowband	30761.4	-28.8	RMS	1000	-13.0	15.8
high	Narrowband	39965.3	-19.1	RMS	1000	-13.0	6.1

Remark: Please see next sub-clause for the measurement plot.

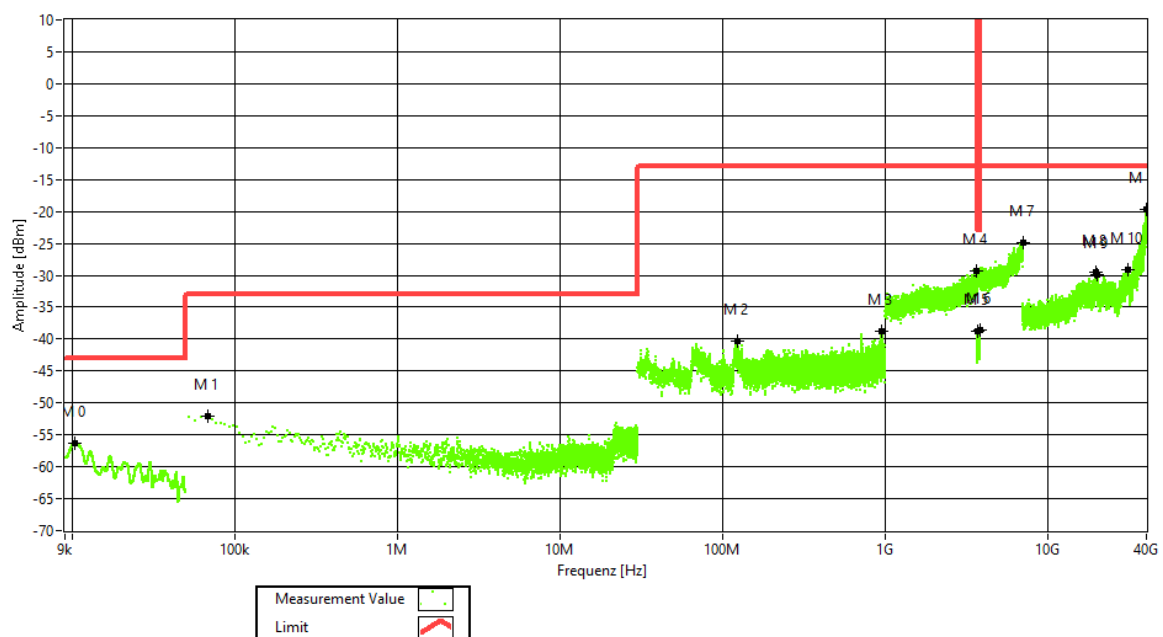
The test results relate only to the tested item. The sample has been provided by the client.
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4.4.4 MEASUREMENT PLOT (SHOWING THE HIGHEST VALUE. "WORST CASE")

Frequency Band = C-Band. Segment 1. Test Frequency = low. Direction = RF downlink.
Signal Type = Wideband 1

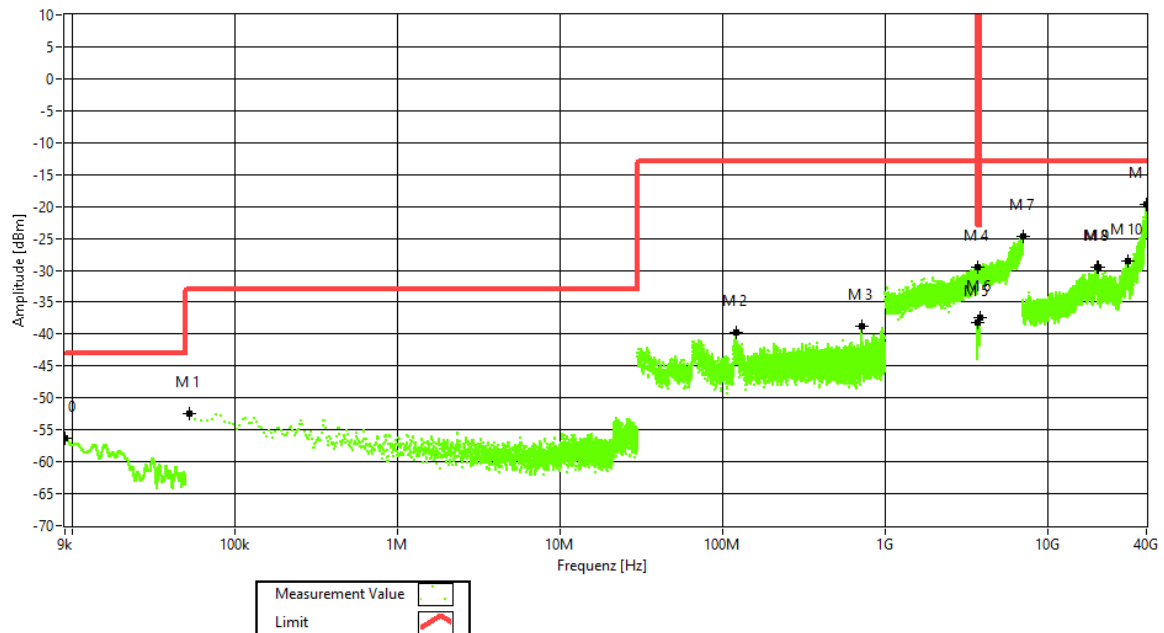


Frequency Band = C-Band. Segment 1. Test Frequency = mid. Direction = RF downlink.
Signal Type = Wideband 1



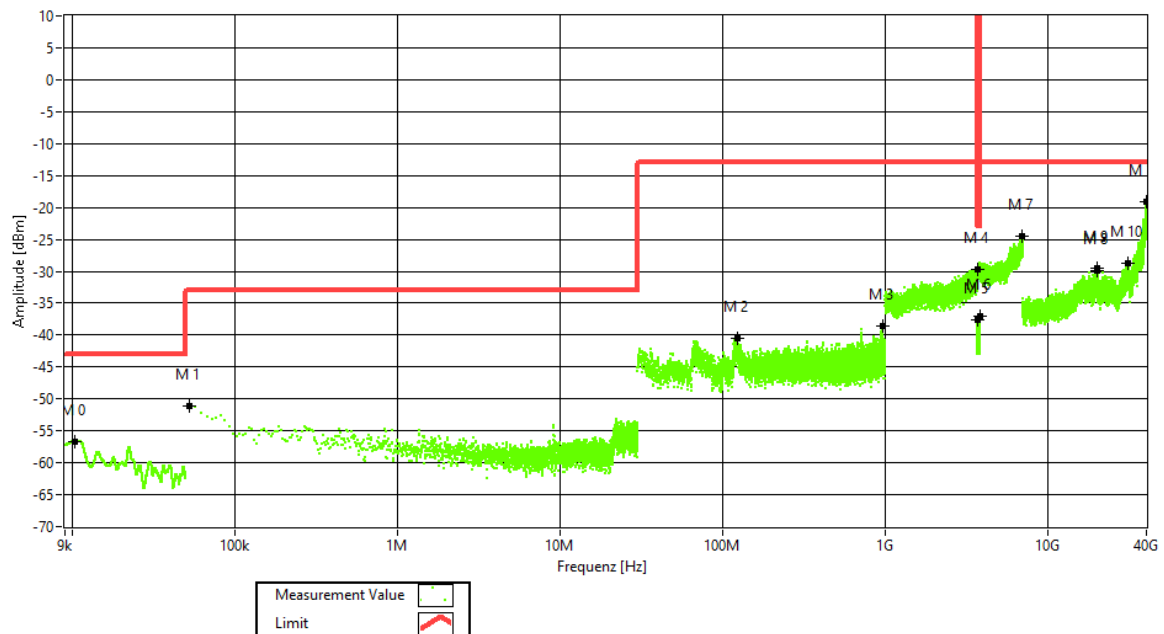
The test results relate only to the tested item. The sample has been provided by the client.
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Frequency Band = C-Band. Segment 1. Test Frequency = high. Direction = RF downlink.
Signal Type = Wideband 1



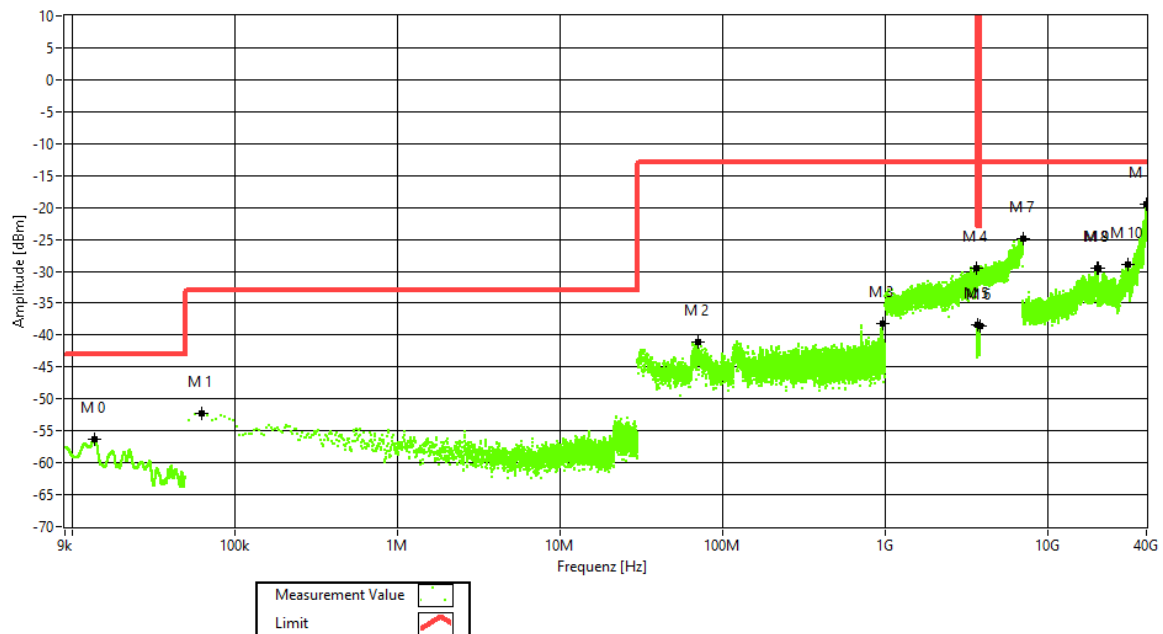
The test results relate only to the tested item. The sample has been provided by the client.
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Frequency Band = C-Band. Segment 1. Test Frequency = mid. Direction = RF downlink.
Signal Type = Wideband 2

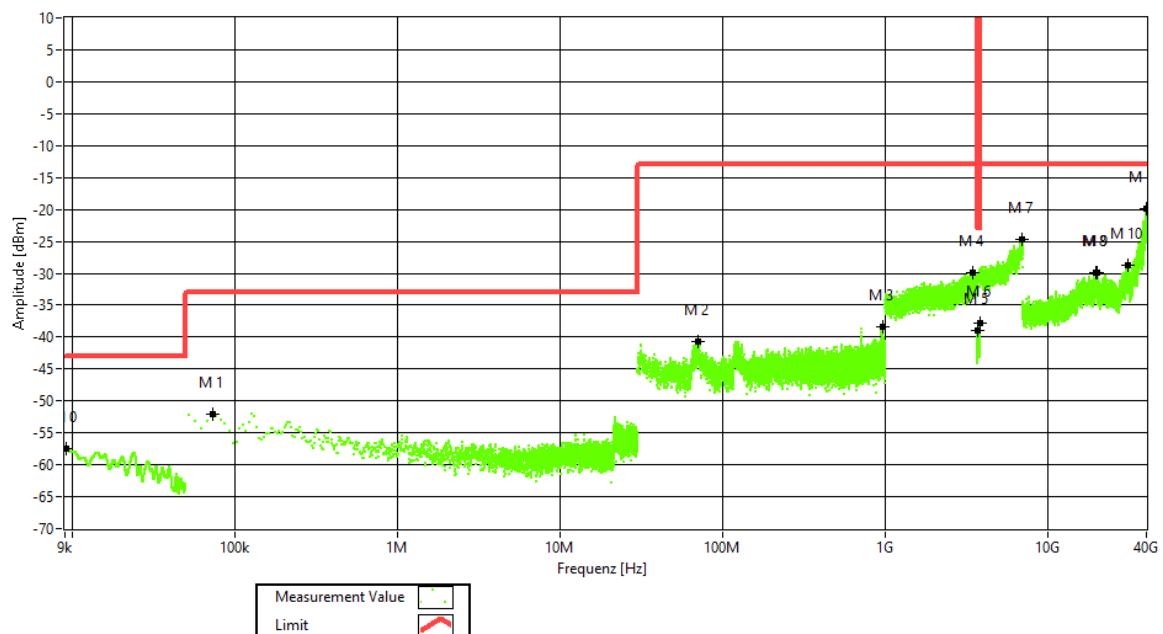


The test results relate only to the tested item. The sample has been provided by the client.
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Frequency Band = C-Band. Segment 1. Test Frequency = low. Direction = RF downlink.
Signal Type = Narrowband



Frequency Band = C-Band. Segment 1. Test Frequency = mid. Direction = RF downlink.
Signal Type = Narrowband

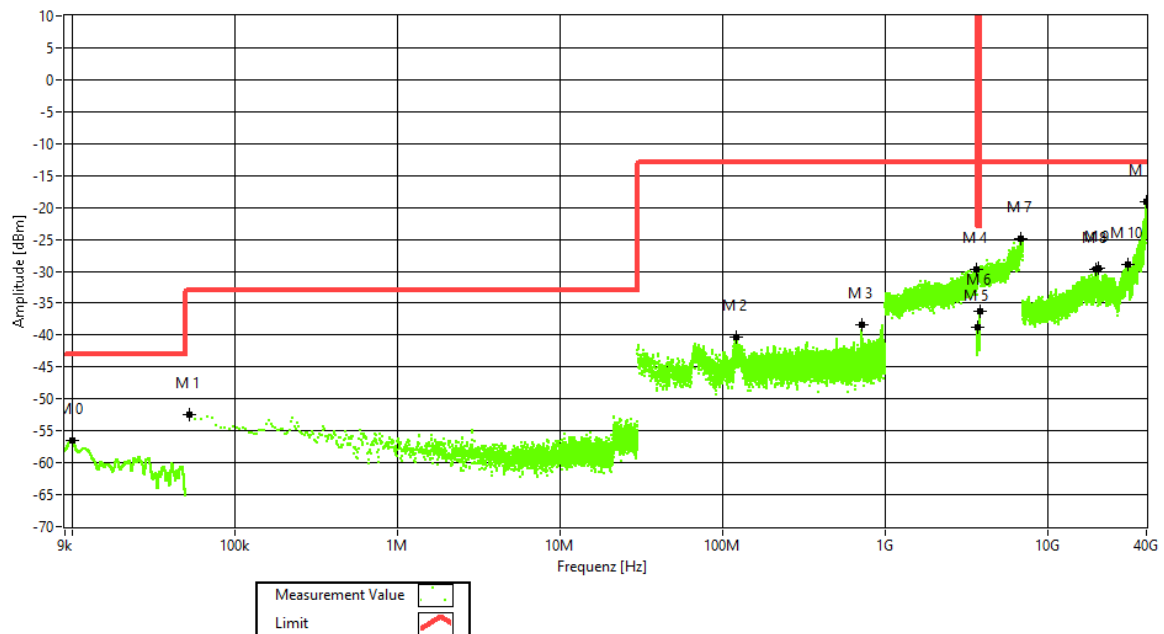


The test results relate only to the tested item. The sample has been provided by the client.
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EMC Test Report No.: 23-0199

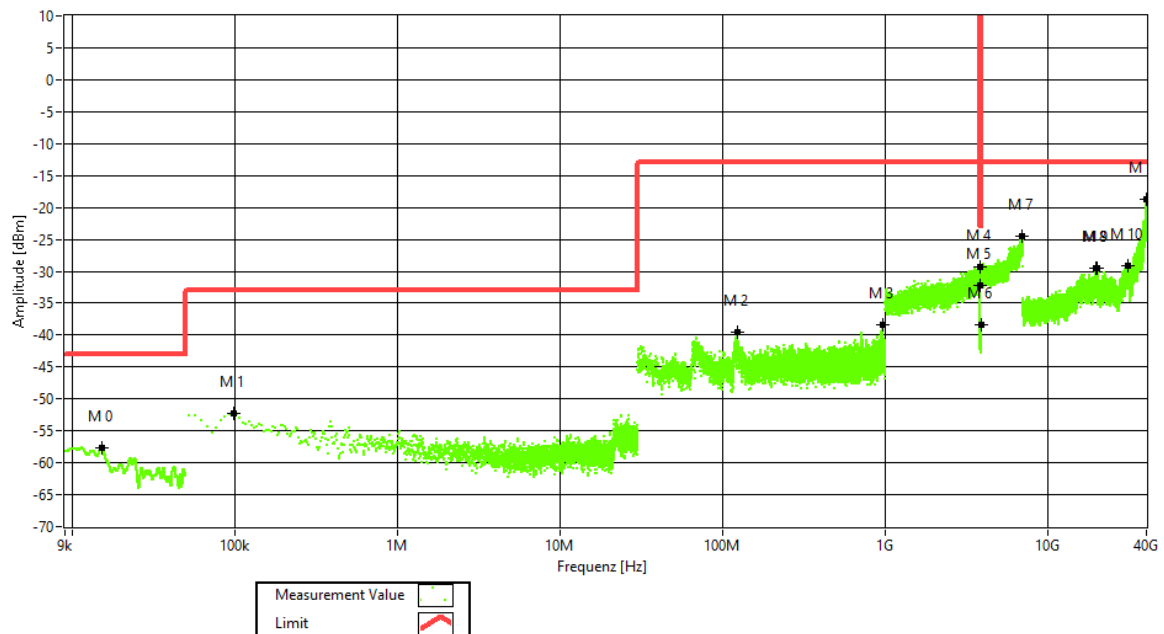
EMC tests on Andrew CAP M2 34T/37T/37T F-DC-F1 [37T]

Frequency Band = C-Band. Segment 1. Test Frequency = high. Direction = RF downlink.
Signal Type = Narrowband

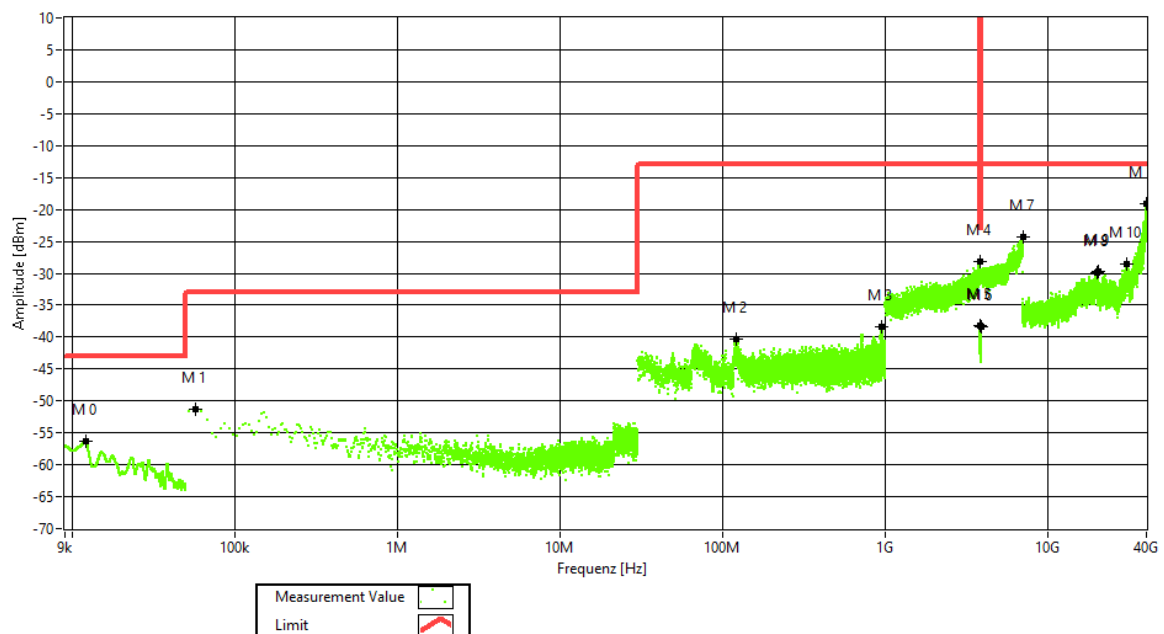


The test results relate only to the tested item. The sample has been provided by the client.
Without the written consent of Bureau Veritas Consumer Products Services Germany GmbH excerpts of this report shall not be reproduced.

Frequency Band = C-Band. Segment 2. Test Frequency = low. Direction = RF downlink.
Signal Type = Wideband 1

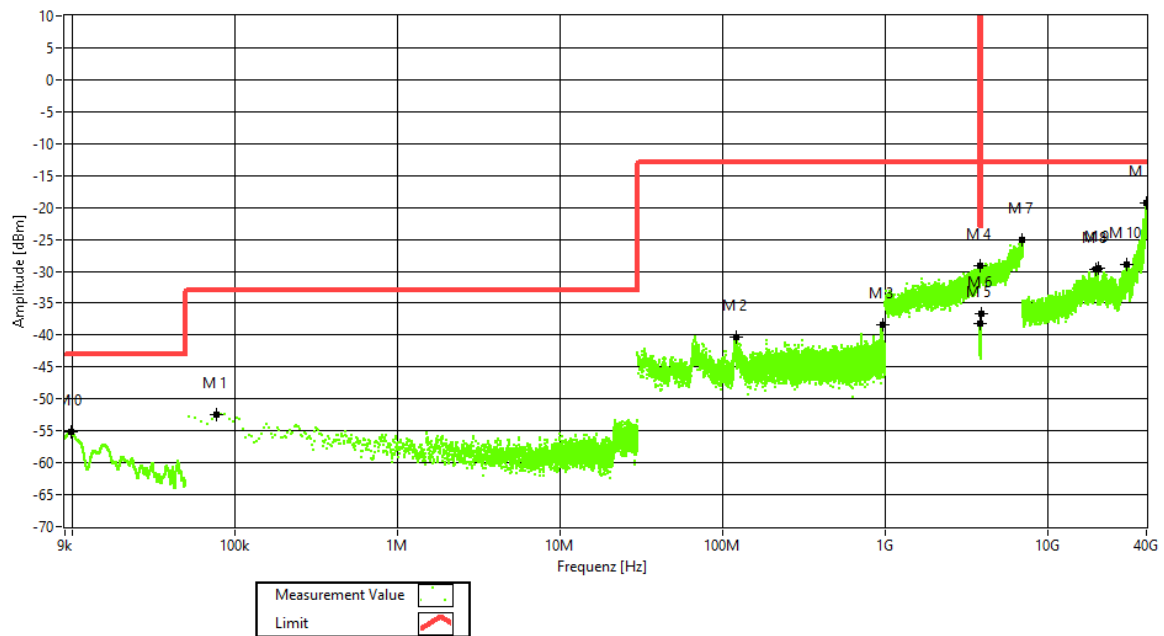


Frequency Band = C-Band. Segment 2. Test Frequency = mid. Direction = RF downlink.
Signal Type = Wideband 1



The test results relate only to the tested item. The sample has been provided by the client.
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Frequency Band = C-Band. Segment 2. Test Frequency = high. Direction = RF downlink.
Signal Type = Wideband 1

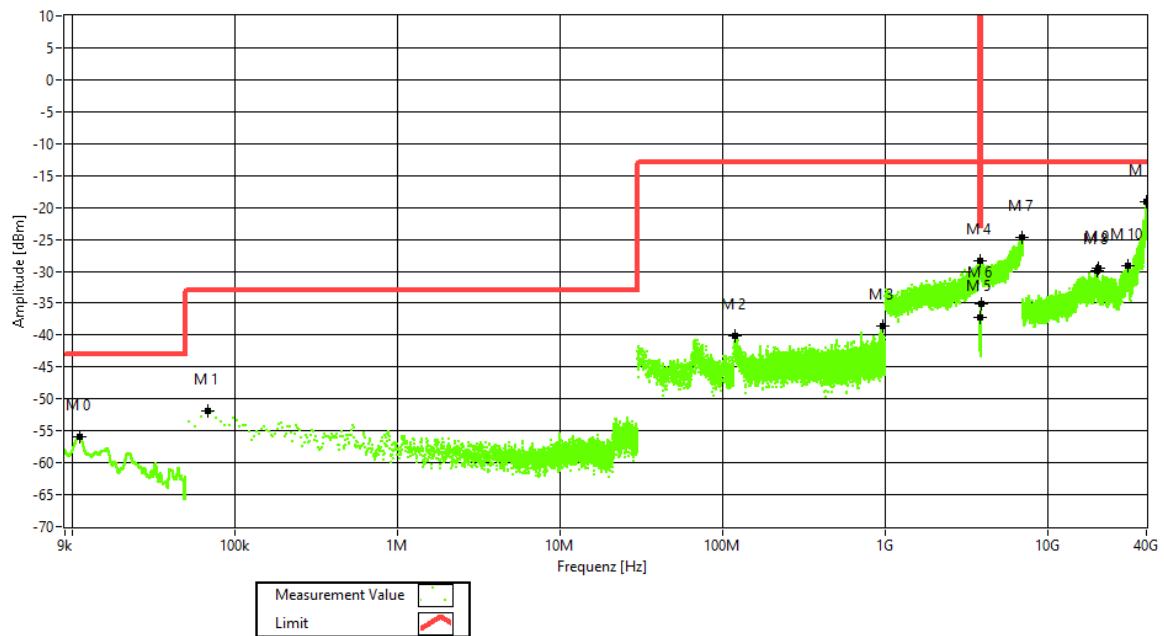


The test results relate only to the tested item. The sample has been provided by the client.
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EMC Test Report No.: 23-0199

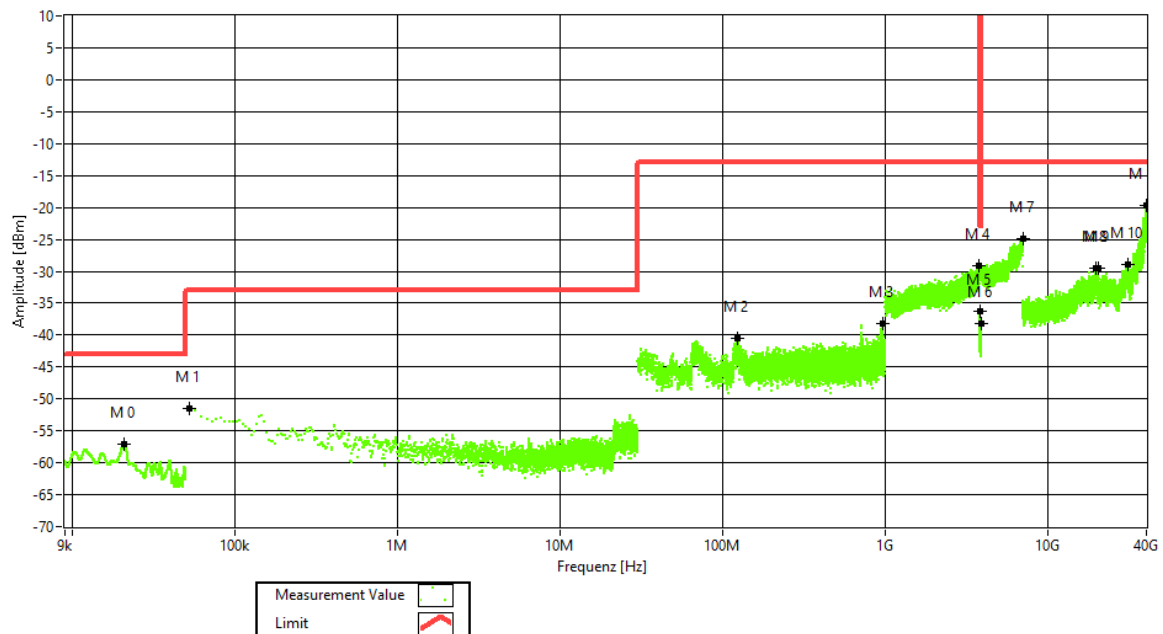
EMC tests on Andrew CAP M2 34T/37T/37T F-DC-F1 [37T]

Frequency Band = C-Band. Segment 2. Test Frequency = mid. Direction = RF downlink.
Signal Type = Wideband 2

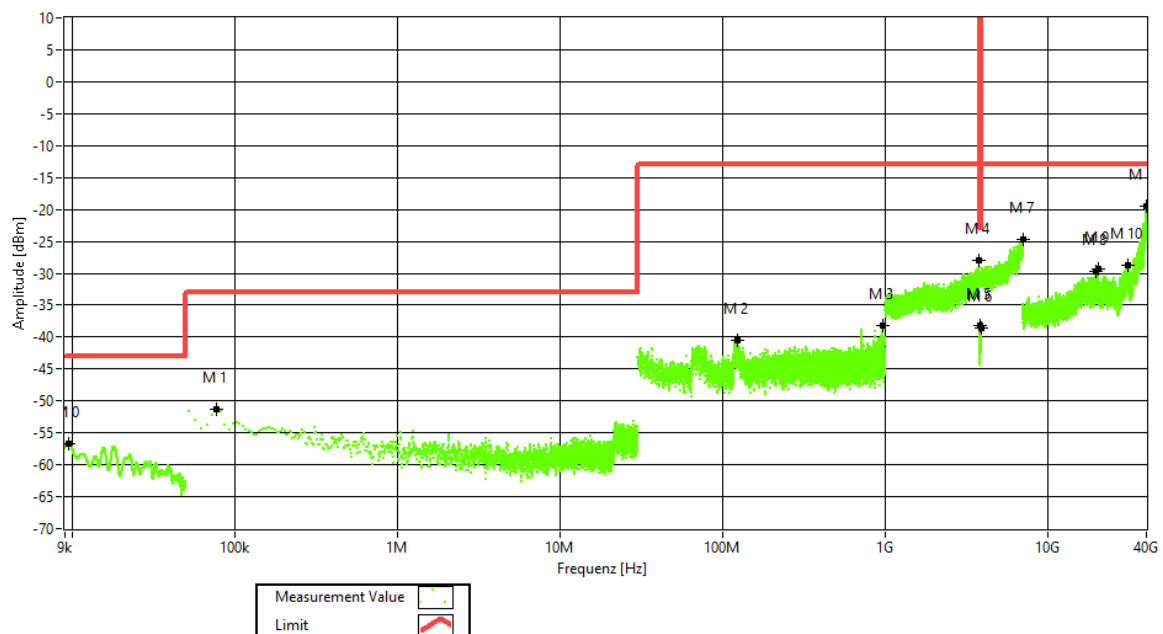


The test results relate only to the tested item. The sample has been provided by the client.
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Frequency Band = C-Band. Segment 2. Test Frequency = low. Direction = RF downlink.
Signal Type = Narrowband

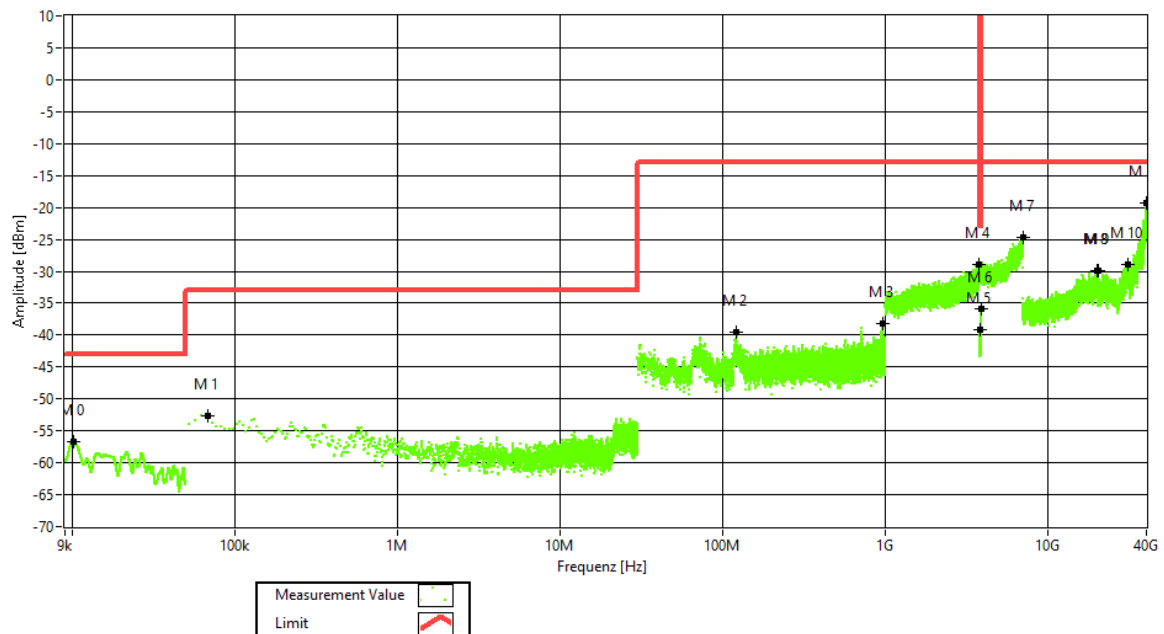


Frequency Band = C-Band. Segment 2. Test Frequency = mid. Direction = RF downlink.
Signal Type = Narrowband



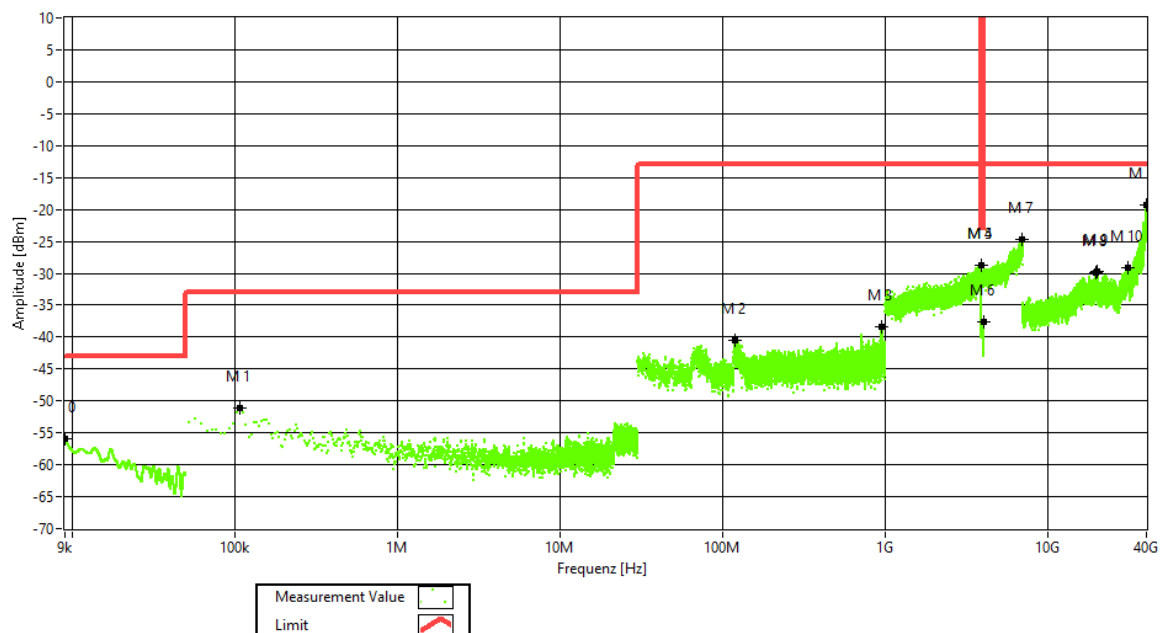
The test results relate only to the tested item. The sample has been provided by the client.
Without the written consent of Bureau Veritas Consumer Products Services Germany GmbH excerpts of this report shall not be reproduced.

Frequency Band = C-Band. Segment 2. Test Frequency = high. Direction = RF downlink.
Signal Type = Narrowband

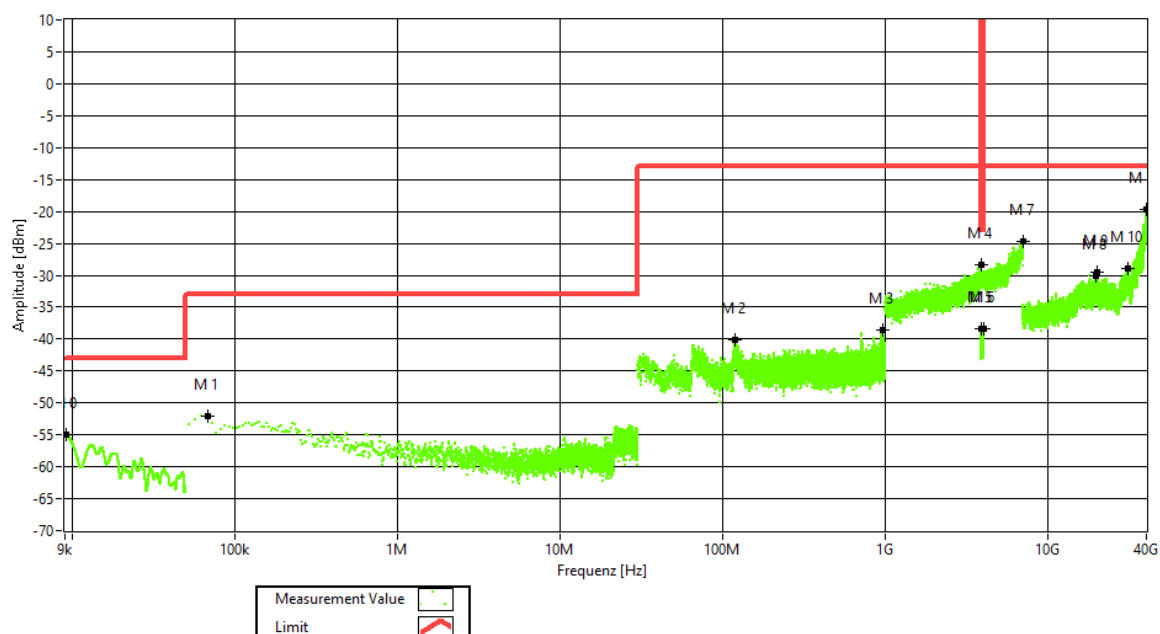


The test results relate only to the tested item. The sample has been provided by the client.
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Frequency Band = C-Band. Segment 3. Test Frequency = low. Direction = RF downlink.
Signal Type = Wideband 1



Frequency Band = C-Band. Segment 3. Test Frequency = mid. Direction = RF downlink.
Signal Type = Wideband 1

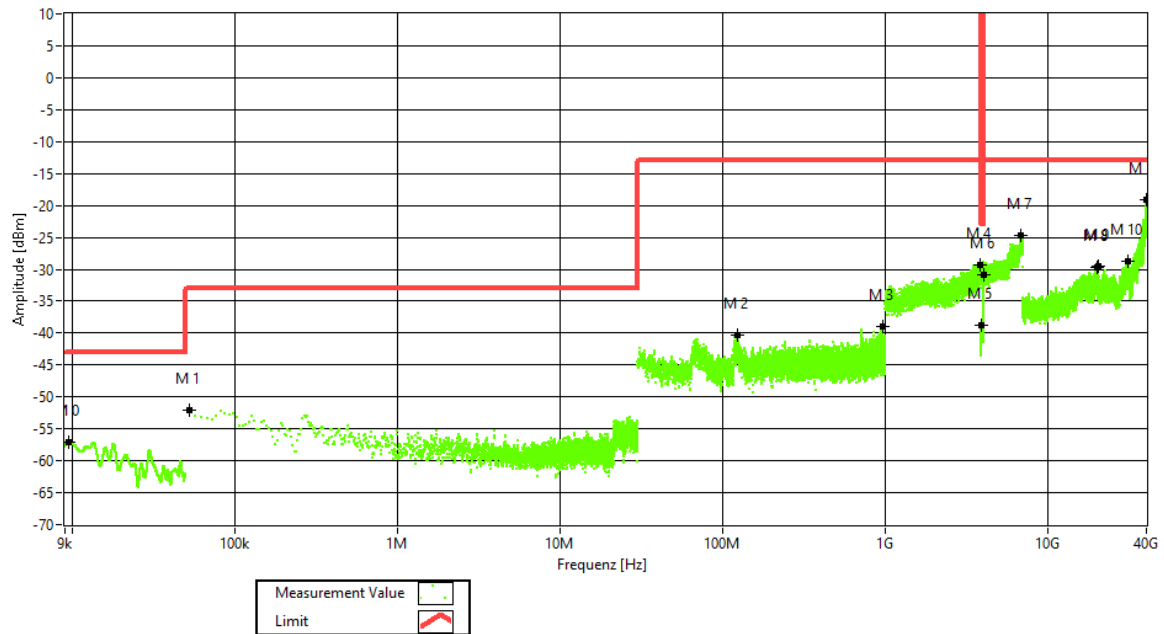


The test results relate only to the tested item. The sample has been provided by the client.
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EMC Test Report No.: 23-0199

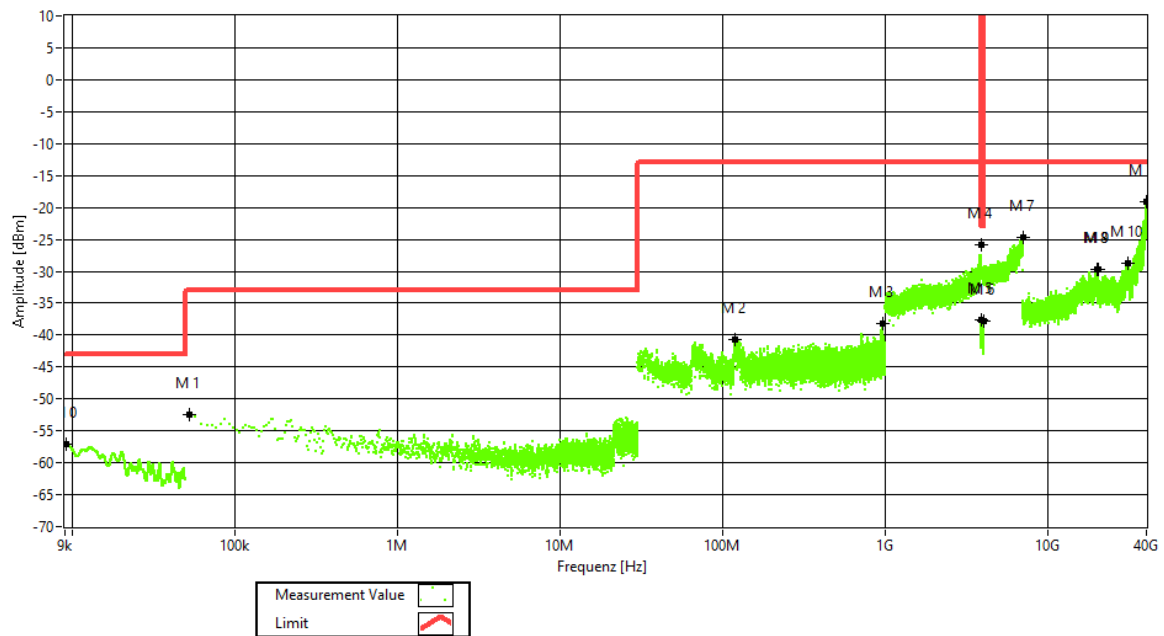
EMC tests on Andrew CAP M2 34T/37T/37T F-DC-F1 [37T]

Frequency Band = C-Band. Segment 3. Test Frequency = high. Direction = RF downlink.
Signal Type = Wideband 1



The test results relate only to the tested item. The sample has been provided by the client.
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Frequency Band = C-Band. Segment 3. Test Frequency = mid. Direction = RF downlink.
Signal Type = Wideband 2

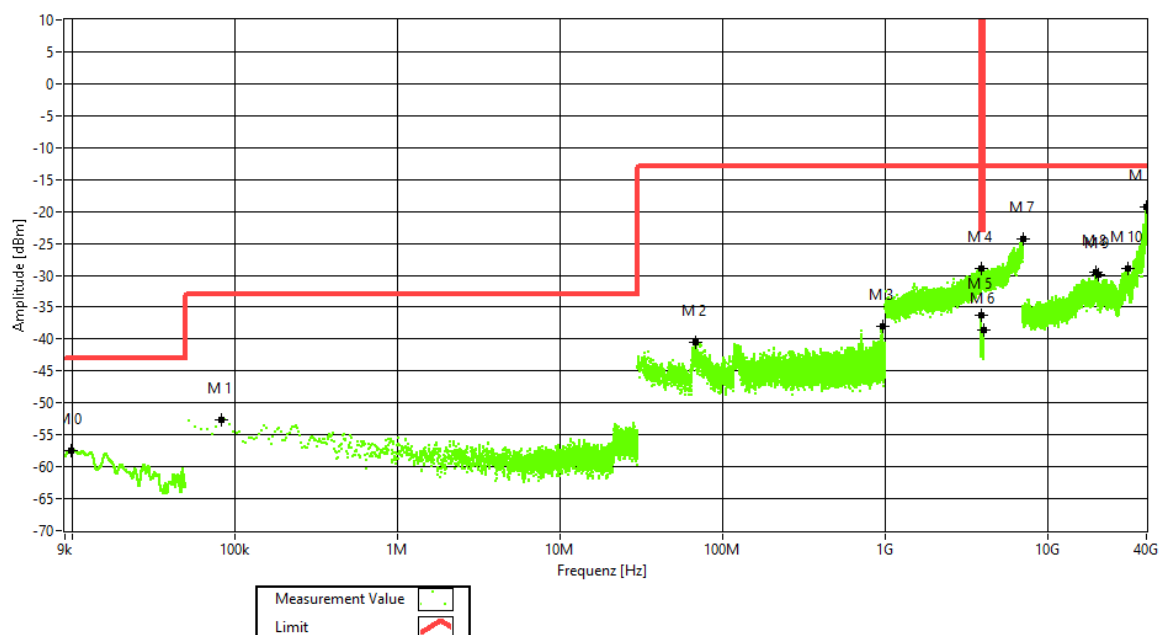


The test results relate only to the tested item. The sample has been provided by the client.
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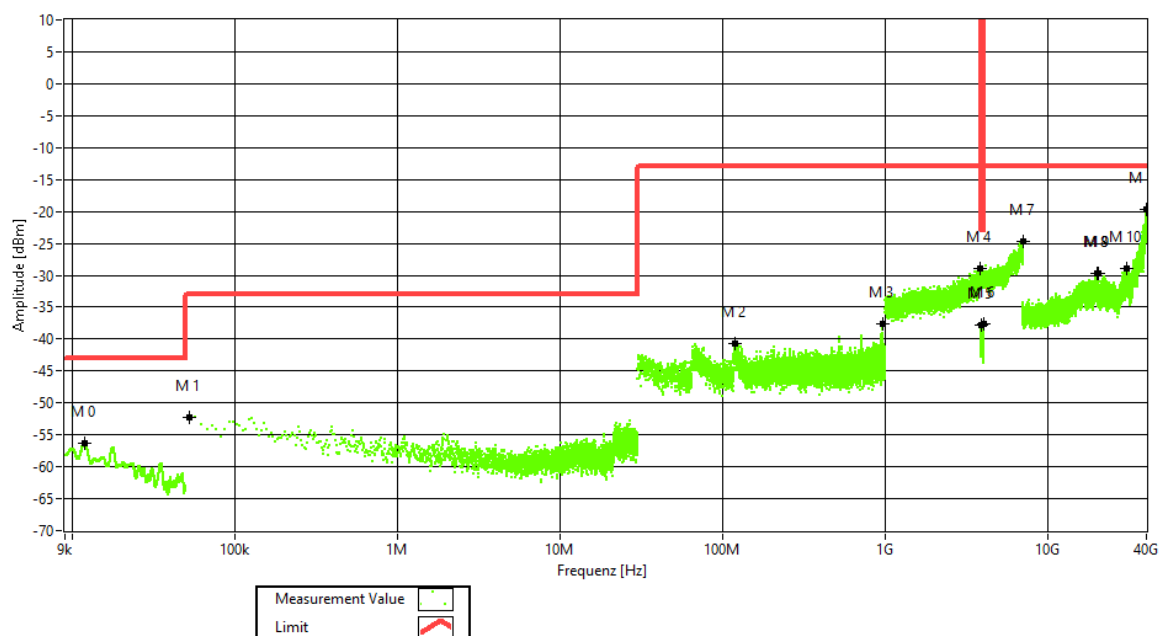
EMC Test Report No.: 23-0199

EMC tests on Andrew CAP M2 34T/37T/37T F-DC-F1 [37T]

Frequency Band = C-Band. Segment 3. Test Frequency = low. Direction = RF downlink.
Signal Type = Narrowband

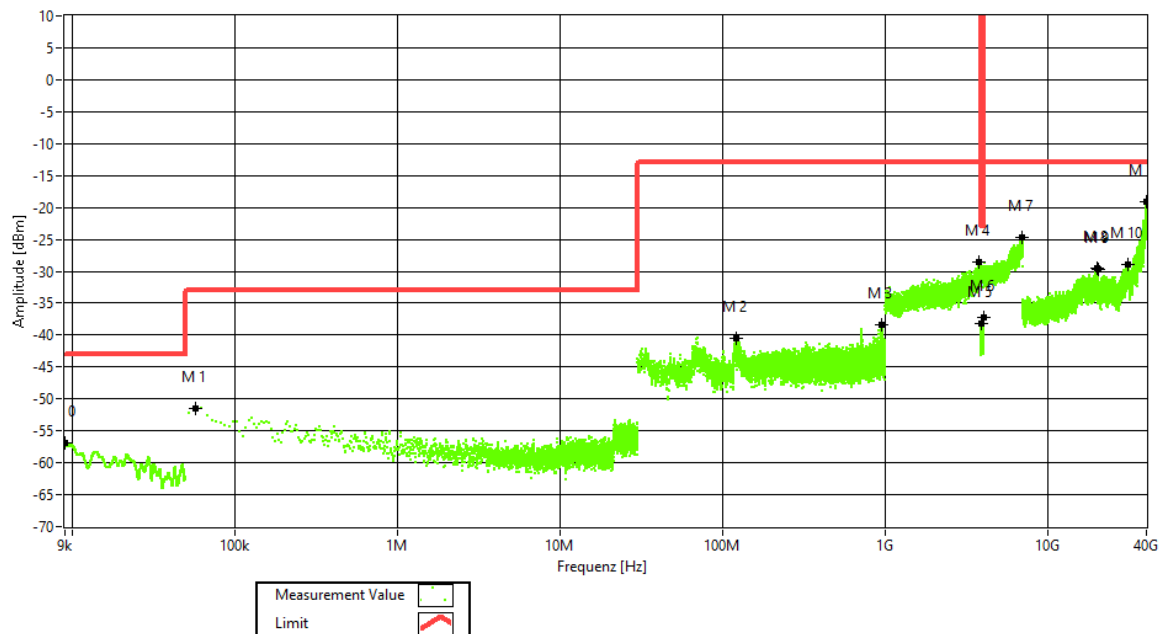


Frequency Band = C-Band. Segment 3. Test Frequency = mid. Direction = RF downlink.
Signal Type = Narrowband



The test results relate only to the tested item. The sample has been provided by the client.
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Frequency Band = C-Band. Segment 3. Test Frequency = high. Direction = RF downlink.
Signal Type = Narrowband



4.4.5 TEST EQUIPMENT USED

- Conducted

4.5 OUT-OF-BAND EMISSION LIMITS

Standard FCC Part §2.1051. §27.53

The test was performed according to:

ANSI C63.26. KDB KDB 935210 D05 v01r04: 3.6

Test date: 2023-09-06 – 2023-11-14

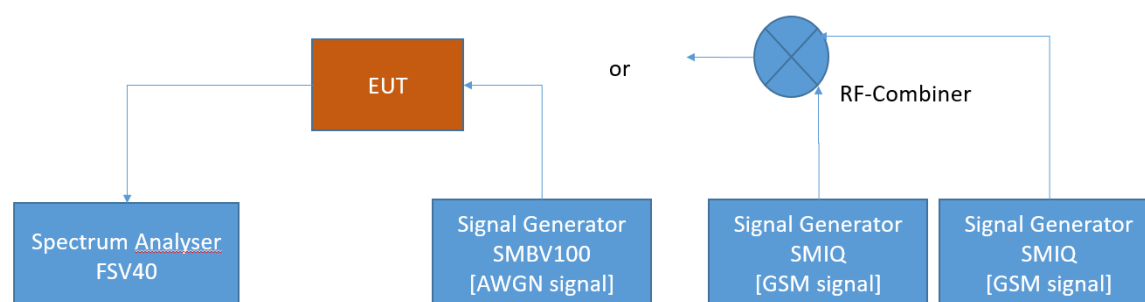
Environmental conditions: 23 ° C ± 5 K; 40 % r. F. ± 20 % r. F.

Test engineer: Thomas Hufnagel

4.5.1 TEST DESCRIPTION

This test case is intended to demonstrate compliance to the out-of-band emission limit for industrial signal boosters. The limits itself come from the applicable rule part for each operating band.

The EUT was connected to the test setup according to the following diagram:



FCC Part 22/24/27/90 Industrial signal booster – Test Setup; Out-of-band emissions

The attenuation of the measuring and stimulus path are known for each measured frequency and are considered.

The Spectrum Analyzer settings can be directly found in the measurement diagrams.

4.5.2 TEST REQUIREMENTS/LIMITS

Part 27; Miscellaneous Wireless Communication Services

Subpart C – Technical standards

§27.53 – Emission limits

(I) 3.7 GHz Service.

The following emission limits apply to stations transmitting in the 3700-3980 MHz band:

- (1) For base station operations in the 3700-3980 MHz band, the conducted power of any emission outside the licensee's authorized bandwidth shall not exceed -13 dBm/MHz. Compliance with this paragraph (I)(1) is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater. However, in the 1 megahertz bands immediately outside and adjacent to the licensee's frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. 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.
- (2) For mobile operations in the 3700-3980 MHz band, the conducted power of any emission outside the licensee's authorized bandwidth shall not exceed -13 dBm/MHz. Compliance with this paragraph (I)(2) is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater. However, in the 1 megahertz bands immediately outside and adjacent to the licensee's frequency block, the minimum resolution bandwidth for the measurement shall be either one percent of the emission bandwidth of the fundamental emission of the transmitter or 350 kHz. In the bands between 1 and 5 MHz removed from the licensee's frequency block, the minimum resolution bandwidth for the measurement shall be 500 kHz. 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.



EMC Test Report No.: 23-0199

EMC tests on Andrew CAP M2 34T/37T/37T F-DC-F1 [37T]

4.5.3 TEST PROTOCOL

General considerations concerning the limits:

The measuring bandwidth of 1 MHz is chosen for the wideband 1 and the narrowband. The limit here is at $p = -13$ dBm

For the wideband 2 a bandwidth of 100 kHz is necessary. Therefore the limit here is -23 dBm, according the given formula:

$$p_{RBWreduced} [dBm] = 10 * \log \left(RBWreduced [kHz] - 1000 kHz \right) + p_{RBW 1000 kHz} [dBm]$$

Hereby "p" are the limit lines' values.

**EMC Test Report No.: 23-0199**

EMC tests on Andrew CAP M2 34T/37T/37T F-DC-F1 [37T]



C-Band. segment 1 / low. downlink. Number of input signals = 1							
Signal Type	Input Power	Band Edge	Signal Frequency [MHz]	Input Power [dBm]	Maximum Out-of-band Power [dBm]	Limit Out-of-band Power [dBm]	Margin to Limit [dB]
Wideband 1	0.3 dB < AGC	upper	3797.50	-4.7	-31.9	-13	18.9
Wideband 1	3 dB > AGC	upper	3797.50	-1.4	-31.8	-13	18.8
Wideband 2	0.3 dB < AGC	upper	3750.00	-5.0	-29.9	-13	16.9
Wideband 2	3 dB > AGC	upper	3750.00	-2.0	-30.1	-13	17.1
Narrowband	0.3 dB < AGC	upper	3799.80	-3.7	-27.0	-13	14.0
Narrowband	3 dB > AGC	upper	3799.80	-0.4	-26.6	-13	13.6
Wideband 1	0.3 dB < AGC	lower	3702.50	-5.3	-32.4	-13	19.4
Wideband 1	3 dB > AGC	lower	3702.50	-2.0	-33.5	-13	20.5
Wideband 2	0.3 dB < AGC	lower	3750.00	-5.6	-30.8	-13	17.8
Wideband 2	3 dB > AGC	lower	3750.00	-2.6	-30.1	-13	17.1
Narrowband	0.3 dB < AGC	lower	3700.20	-5.3	-27.2	-13	14.2
Narrowband	3 dB > AGC	lower	3700.20	-2.0	-26.7	-13	13.7

C-Band. segment 1 / low. downlink. Number of input signals = 2								
Signal Type	Input Power	Band Edge	Signal Frequency f1 [MHz]	Signal Frequency f2 [MHz]	Input Power [dBm]	Maximum Out-of-band Power [dBm]	Limit Out-of-band Power [dBm]	Margin to Limit [dB]
WB	0.3 dB < AGC	upper	3797.50	3795.00	-4.7	-33.1	-13	20.1
WB	3 dB > AGC	upper	3797.50	3795.00	-1.4	-32.6	-13	19.6
NB	0.3 dB < AGC	upper	3799.80	3799.60	-4.7	-29.0	-13	16.0
NB	3 dB > AGC	upper	3799.80	3799.60	-1.4	-29.1	-13	16.1
WB	0.3 dB < AGC	lower	3702.50	3705.00	-5.1	-32.8	-13	19.8
WB	3 dB > AGC	lower	3702.50	3705.00	-1.8	-33.1	-13	20.1
NB	0.3 dB < AGC	lower	3700.20	3700.40	-4.9	-30.0	-13	17.0
NB	3 dB > AGC	lower	3700.20	3700.40	-1.6	-29.8	-13	16.8

The test results relate only to the tested item. The sample has been provided by the client.
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EMC Test Report No.: 23-0199

EMC tests on Andrew CAP M2 34T/37T/37T F-DC-F1 [37T]

C-Band. segment 2 / mid. downlink. Number of input signals = 1							
Signal Type	Input Power	Band Edge	Signal Frequency [MHz]	Input Power [dBm]	Maximum Out-of-band Power [dBm]	Limit Out-of-band Power [dBm]	Margin to Limit [dB]
Wideband 1	0.3 dB < AGC	upper	3887.50	-5.1	-30.7	-13	17.7
Wideband 1	3 dB > AGC	upper	3887.50	-1.8	-30.9	-13	17.9
Wideband 2	0.3 dB < AGC	upper	3840.00	-5.4	-30.0	-13	17.0
Wideband 2	3 dB > AGC	upper	3840.00	-2.4	-30.3	-13	17.3
Narrowband	0.3 dB < AGC	upper	3889.80	-4.3	-25.9	-13	12.9
Narrowband	3 dB > AGC	upper	3889.80	-1.0	-25.5	-13	12.5
Wideband 1	0.3 dB < AGC	lower	3792.50	-5.3	-32.3	-13	19.3
Wideband 1	3 dB > AGC	lower	3792.50	-2.0	-32.4	-13	19.4
Wideband 2	0.3 dB < AGC	lower	3840.00	-5.6	-30.2	-13	17.2
Wideband 2	3 dB > AGC	lower	3840.00	-2.6	-30.1	-13	17.1
Narrowband	0.3 dB < AGC	lower	3790.20	-5.5	-26.8	-13	13.8
Narrowband	3 dB > AGC	lower	3790.20	-2.2	-26.3	-13	13.3

C-Band. segment 2 / mid. downlink. Number of input signals = 2								
Signal Type	Input Power	Band Edge	Signal Frequency f1 [MHz]	Signal Frequency f2 [MHz]	Input Power [dBm]	Maximum Out-of-band Power [dBm]	Limit Out-of-band Power [dBm]	Margin to Limit [dB]
WB	0.3 dB < AGC	upper	3887.50	3885.00	-5.1	-32.4	-13	19.4
WB	3 dB > AGC	upper	3887.50	3885.00	-1.8	-32.2	-13	19.2
NB	0.3 dB < AGC	upper	3889.80	3889.60	-5.1	-28.5	-13	15.5
NB	3 dB > AGC	upper	3889.80	3889.60	-1.8	-28.6	-13	15.6
WB	0.3 dB < AGC	lower	3792.50	3795.00	-5.3	-32.6	-13	19.6
WB	3 dB > AGC	lower	3792.50	3795.00	-2.0	-32.5	-13	19.5
NB	0.3 dB < AGC	lower	3790.20	3790.40	-5.5	-29.2	-13	16.2
NB	3 dB > AGC	lower	3790.20	3790.40	-2.2	-28.8	-13	15.8

The test results relate only to the tested item. The sample has been provided by the client.
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EMC Test Report No.: 23-0199

EMC tests on Andrew CAP M2 34T/37T/37T F-DC-F1 [37T]

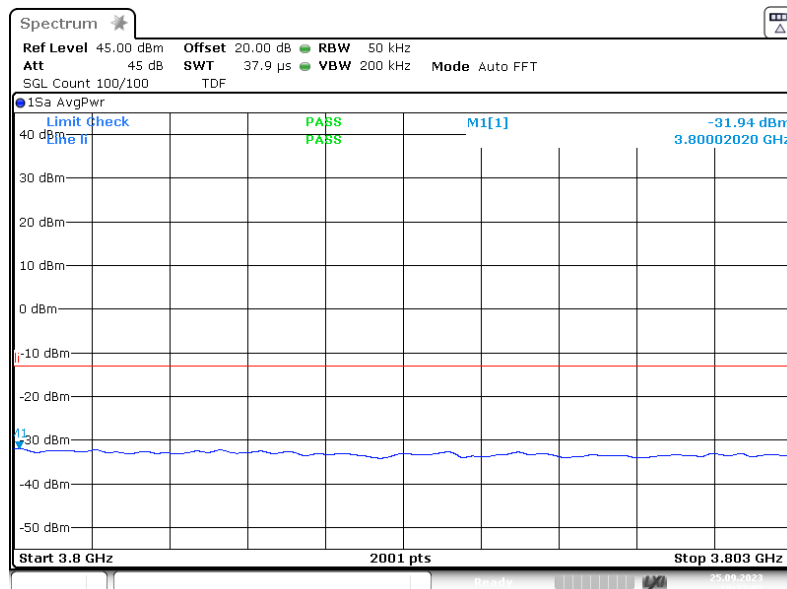
C-Band. segment 3. downlink. Number of input signals = 1							
Signal Type	Input Power	Band Edge	Signal Frequency [MHz]	Input Power [dBm]	Maximum Out-of-band Power [dBm]	Limit Out-of-band Power [dBm]	Margin to Limit [dB]
Wideband 1	0.3 dB < AGC	upper	3977.50	-4.1	-30.8	-13	17.8
Wideband 1	3 dB > AGC	upper	3977.50	-0.8	-30.5	-13	17.5
Wideband 2	0.3 dB < AGC	upper	3930.00	-4.4	-30.2	-13	17.2
Wideband 2	3 dB > AGC	upper	3930.00	-1.4	-30.2	-13	17.2
Narrowband	0.3 dB < AGC	upper	3979.80	-3.5	-28.4	-13	15.4
Narrowband	3 dB > AGC	upper	3979.80	-0.2	-29.4	-13	16.4
Wideband 1	0.3 dB < AGC	lower	3882.50	-4.3	-31.6	-13	18.6
Wideband 1	3 dB > AGC	lower	3882.50	-1.0	-32.9	-13	19.9
Wideband 2	0.3 dB < AGC	lower	3930.00	-4.6	-30.5	-13	17.5
Wideband 2	3 dB > AGC	lower	3930.00	-1.6	-30.5	-13	17.5
Narrowband	0.3 dB < AGC	lower	3880.20	-3.1	-27.4	-13	14.4
Narrowband	3 dB > AGC	lower	3880.20	0.2	-27.3	-13	14.3

C-Band. segment 3. downlink. Number of input signals = 2								
Signal Type	Input Power	Band Edge	Signal Frequency f1 [MHz]	Signal Frequency f2 [MHz]	Input Power [dBm]	Maximum Out-of-band Power [dBm]	Limit Out-of-band Power [dBm]	Margin to Limit [dB]
WB	0.3 dB < AGC	upper	3977.50	3975.00	-4.7	-32.9	-13	19.9
WB	3 dB > AGC	upper	3977.50	3975.00	-1.4	-32.7	-13	19.7
NB	0.3 dB < AGC	upper	3979.80	3979.60	-4.5	-30.6	-13	17.6
NB	3 dB > AGC	upper	3979.80	3979.60	-1.2	-30.6	-13	17.6
WB	0.3 dB < AGC	lower	3882.50	3885.00	-4.3	-32.9	-13	19.9
WB	3 dB > AGC	lower	3882.50	3885.00	-1.0	-32.2	-13	19.2
NB	0.3 dB < AGC	lower	3880.20	3880.40	-3.9	-29.3	-13	16.3
NB	3 dB > AGC	lower	3880.20	3880.40	-0.6	-29.7	-13	16.7

Remark: Please see next sub-clause for the measurement plot.

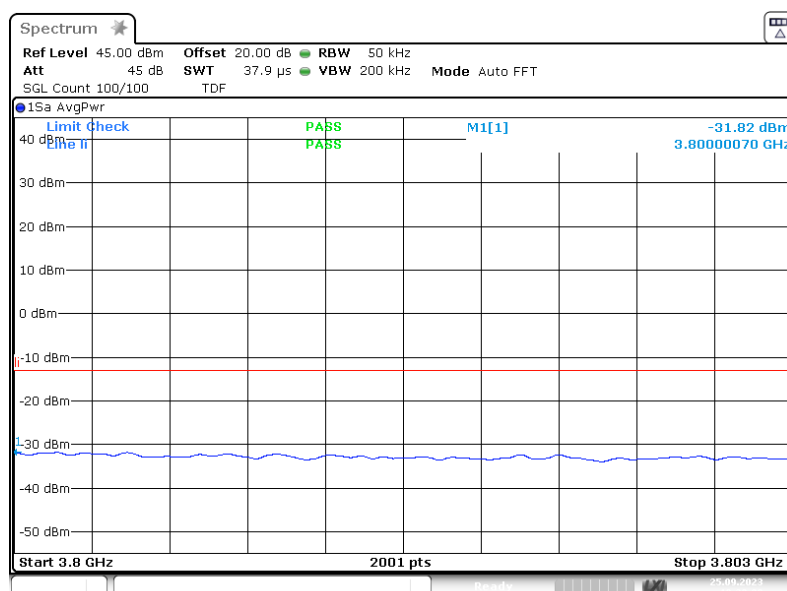
4.5.4 MEASUREMENT PLOT

Band: Band C low A2; Frequency: 3.7000 GHz to 3.8000 GHz; Band Edge: upper;
Mod: AWGN; Input Power = 0.3 dB < AGC; Number of signals 1



3.6.2 out of band emi Band C low A2 AWGN upper 1carrier -0.3
dB 3.800G 3.803G

Band: Band C low A2; Frequency: 3.7000 GHz to 3.8000 GHz; Band Edge: upper;
Mod: AWGN; Input Power = 3 dB > AGC; Number of signals 1



3.6.2 out of band emi Band C low A2 AWGN upper 1carrier +3.0
dB 3.800G 3.803G

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