



RF - TEST REPORT

- FCC Part 15.247, RSS-247 -

Type / Model Name : Compact Max+

Product Description : RFID LF Reader for PET animal identification

Applicant : Datamars SA

Address : Via Industria 16

Lamone 6814, SWITZERLAND

Manufacturer : Datamars SA

Address : Via Industria 16

Lamone 6814, SWITZERLAND

Test Result according to the standards listed in clause 1 test standards:

POSITIVE

Test Report No. : 80193276-03 Rev_1

06. June 2025
Date of issue



Deutsche
Akkreditierungsstelle
D-PL-12030-01-00

FCC ID: NDX-CMAX2

IC: 4678A-CMAX2

Contents

1	<u>TEST STANDARDS</u>	<u>3</u>
2	<u>EQUIPMENT UNDER TEST</u>	<u>4</u>
2.1	Information provided by the Client	4
2.2	Sampling	4
2.3	Photo documentation of the EUT – Detailed photos see ATTACHMENT A	4
2.4	General remarks	4
2.5	Equipment type	4
2.6	Short description of the equipment under test (EUT)	4
2.7	Variants of the EUT	4
2.8	Operation frequency and channel plan	5
2.9	Transmit operating modes	5
2.10	Antenna	5
2.11	Power supply system utilised	5
2.12	Peripheral devices and interface cables	6
2.13	Determination of worst case conditions for final measurement	6
3	<u>TEST RESULT SUMMARY</u>	<u>7</u>
3.1	Revision history of test report	7
3.2	Final assessment	7
4	<u>TEST ENVIRONMENT</u>	<u>8</u>
4.1	Address of the test laboratory	8
4.2	Environmental conditions	8
4.3	Statement of the measurement uncertainty	8
4.4	Conformity Decision Rule	9
4.5	Measurement protocol for FCC and ISSED	9
5	<u>TEST CONDITIONS AND RESULTS</u>	<u>13</u>
5.1	AC power line conducted emissions	13
5.2	Maximum peak radiated output power	18
5.3	EBW and OBW	24
5.4	Power spectral density	30
5.5	Unwanted emissions in restricted bands, radiated	34
5.6	Antenna application	50
6	<u>USED TEST EQUIPMENT AND ACCESSORIES</u>	<u>51</u>

ATTACHMENT A as separate supplement

The test report merely corresponds to the test sample. It is not permitted to copy extracts of these test results without the written permission of the test laboratory.

FCC ID: NDX-CMAX2

IC: 4678A-CMAX2

1 TEST STANDARDS

The tests were performed **partly** according to following standards:

FCC Rules and Regulations Part 15, Subpart A - General (February 2025)

Part 15, Subpart A, Section 15.31	Measurement standards
Part 15, Subpart A, Section 15.33	Frequency range of radiated measurements
Part 15, Subpart A, Section 15.35	Measurement detector functions and bandwidths

FCC Rules and Regulations Part 15, Subpart C - Intentional Radiators (February 2025)

Part 15, Subpart C, Section 15.203	Antenna requirement
Part 15, Subpart C, Section 15.204	External radio frequency power amplifiers and antenna modifications
Part 15, Subpart C, Section 15.205	Restricted bands of operation
Part 15, Subpart C, Section 15.207	Conducted limits
Part 15, Subpart C, Section 15.209	Radiated emission limits, general requirements
Part 15, Subpart C, Section 15.247	Operation within the bands 902 - 928 MHz, 2400 - 2483.5 MHz and 5725 - 5850 MHz

ANSI C63.10: 2020 Testing Unlicensed Wireless Devices

ETSI TR 100 028 V1.3.1: 2001-03 Electromagnetic Compatibility and Radio Spectrum Matters (ERM);
Uncertainties in the Measurement of Mobile Radio Equipment
Characteristics—Part 1 and Part 2

KDB 558074 D01 v05 Guidance for compliance measurements on DTS; FHSS and hybrid
system devices operating under Section 15.247 of the FCC rules,
April 2, 2019.

ISED Canada Rules and Regulations

RSS-Gen, issue 6 General Requirements for Compliance of Radio Apparatus

RSS-247, Issue 3 Digital Transmission Systems (DTSs), Frequency Hopping
Systems (FHSS) and Licence-Exempt Local Area Network
(LE-LAN) Devices

Ansi C63.10: 2020 Testing Unlicensed Wireless Devices

FCC ID: NDX-CMAX2

IC: 4678A-CMAX2

2 EQUIPMENT UNDER TEST

2.1 Information provided by the Client

Please note, we do not take any responsibility for information provided by the client or his representative which may have an influence on the validity of the test results.

2.2 Sampling

The customer is responsible for the choice of sample. Sample configuration, start-up and operation is carried out by the customer or according to his/her instructions.

2.3 Photo documentation of the EUT – Detailed photos see ATTACHMENT A

2.4 General remarks

This report covers the emissions of the IC “STM32WB55RGV6” in combination with the host device “Compact Max+”.

Performed tests:

- RF output power (radiated)
- Transmitter unwanted emissions, radiated

2.5 Equipment type

BLE device

2.6 Short description of the equipment under test (EUT)

The EUT is a RFID LF Reader for PET animal identification with a BLE IC for data communication.

Number of tested samples: 1
Serial number: SAMPLE-A0001

EUT configuration:

(The CDF filled by the applicant can be viewed at the test laboratory.)

2.7 Variants of the EUT

There are no variants.

FCC ID: NDX-CMAX2
IC: 4678A-CMAX2

2.8 Operation frequency and channel plan

The operating frequency is 2400 MHz to 2483.5 MHz.

Channel plan:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
37	2402	18	2442
0	2404	19	2444
1	2406	20	2446
2	2408	21	2448
3	2410	22	2450
4	2412	23	2452
5	2414	24	2454
6	2416	25	2456
7	2418	26	2458
8	2420	27	2460
9	2422	28	2462
10	2424	29	2464
38	2426	30	2466
11	2428	31	2468
12	2430	32	2470
13	2432	33	2472
14	2434	34	2474
15	2436	35	2476
16	2438	36	2478
17	2440	39	2480

Note: The marked frequencies are used for testing.

2.9 Transmit operating modes

The EUT uses GFSK modulation and may provide following data rates:

- 2000 kbps
- 1000 kbps

(kbps = *kilobits per second*)

2.10 Antenna

The following antennas shall be used with the EUT:

Number	Characteristic	Model number	Plug	Frequency range (GHz)	Gain (dBi)	Cable loss (dB)	Effective gain (dBi)
1	Omni	AN5129	-	2.4	1.95	0	1.95

2.11 Power supply system utilised

Power supply voltage, V_{nom} : 3.7V DC Polymer Li-ion battery

FCC ID: NDX-CMAX2
IC: 4678A-CMAX2

2.12 Peripheral devices and interface cables

The following peripheral devices and interface cables are connected during the measurements:

- _____ Model : _____

2.13 Determination of worst case conditions for final measurement

Measurements are made in all three orthogonal axes and the settings of the EUT are changed to locate at which position and at what setting of the EUT produce the maximum of the emissions. For the further measurement the EUT is set in X position.

The tests are carried out in the following frequency band:

2400 MHz – 2483.5 MHz

Preliminary tests are performed to find the worst case mode from all possible combinations between available modulations and data rates. The maximum output power depends on used data rate.

For the final test the following channels and test modes are selected:

BLE V5	Available channel	Tested channels	Power setting	Modulation	Modulation type	Data rate
802.15.1	0 - 39	37, 17, 39	Pmax	DSSS	GFSK	1.0 Mbps
802.15.1	0 - 39	37, 17, 39	Pmax	DSSS	GFSK	2.0 Mbps

2.13.1 Test jig

No test jig is used.

2.13.2 Test software

The test software for the EUT provides free power setting, the special test mode TX continuous mode, modulated. The EUT was set with test modulation to transmit data during the tests with a maximum duty cycle (x) from an internal packet generator.

FCC ID: NDX-CMAX2

IC: 4678A-CMAX2

3 TEST RESULT SUMMARY

FCC Rule Part	RSS Rule Part	Description	Result
15.207(a)	RSS-Gen, 8.8	AC power line conducted emissions	Passed
15.247(a)(2)	RSS-247, 5.2(a)	-6 dB EBW	Passed
15.247(b)(3)	RSS-247, 5.4(d)	Maximum peak radiated output power	Passed
15.247(d)	RSS-247, 5.5	Unwanted emission, radiated	Passed
15.247(d)	RSS-Gen, 8.10	Emissions in restricted bands	Passed
15.247(e)	RSS-247, 5.2(b)	PSD	Passed
15.35(c)	RSS-Gen, 6.10	Pulsed operation	N/A ⁽¹⁾
15.203	-	Antenna requirement	Passed
	RSS-Gen, 6.6	99 % Bandwidth	Passed

Notes:

1) not applicable because the EuT has no pulsed mode.

3.1 Revision history of test report

Test report No	Rev.	Issue Date	Changes
80193276-03	0	13 March 2025	Initial test report
80193276-03	1	06 June 2025	Plots for EBW 6dB and OBW99 added, SER1 added

The test report with the highest revision number replaces the previous test reports.

3.2 Final assessment

The equipment under test fulfills the requirements cited in clause 1 test standards.

Date of receipt of test sample : acc. to storage records

Testing commenced on : 19 April 2024

Testing concluded on : 31 January 2025

Checked by:

Tested by:

Jürgen Pessinger
Radio Team

Laurin Roth
Radio Team

4 TEST ENVIRONMENT

4.1 Address of the test laboratory

**CSA Group Bayern GmbH
Straubinger Straße 100
94447 PLATTILING
GERMANY**

**CSA Group Bayern GmbH
Ohmstrasse 1-4
94342 STRASSKIRCHEN
GERMANY**

4.2 Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature: 15 - 35 °C

Humidity: 30 - 60 %

Atmospheric pressure: 86 - 106 kPa

4.3 Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. It is noted that the expanded measurement uncertainty corresponds to the measurement results from the standard measurement uncertainty multiplied by the coverage factor $k = 2$. The true value is located in the corresponding interval with a probability of 95 %. The measurement uncertainty was calculated for all measurements listed in this test report on basis of the ETSI Technical Report TR 100 028 Electromagnetic compatibility and Radio spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics; Part 1 and Part 2. The results are documented in the quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

The test report merely corresponds to the test sample. It is not permitted to copy extracts of these test results without the written permission of the test laboratory.

FCC ID: NDX-CMAX2
IC: 4678A-CMAX2

Measurement Type	Range	Confidence Level	Calculated Uncertainty
AC power line conducted emissions	0.15 MHz to 30 MHz	95%	± 3.29 dB
EBW and OBW	2400 MHz to 30000 MHz	95%	$\pm 2.5 \times 10^{-7}$
Output power ERP, radiated	1000 MHz to 7000 MHz	95%	± 2.71 dB
Field strength of the fundamental	1000 MHz to 7000 MHz	95%	± 2.71 dB
Power spectral density	2400 MHz to 3000 MHz	95%	± 0.62 dB
Spurious Emissions, conducted	9 kHz to 10000 MHz	95%	± 2.15 dB
Spurious Emissions, conducted	10000 MHz to 40000 MHz	95%	± 3.47 dB
Spurious Emissions, radiated	9 kHz to 30 MHz	95%	± 3.53 dB
Spurious Emissions, radiated	30 MHz to 1000 MHz	95%	± 4.44 dB
Spurious Emissions, radiated	1000 MHz to 30000 MHz	95%	± 2.34 dB
Spurious Emissions, radiated	30000 MHz to 40000 MHz	95%	± 5.13 dB

4.4 Conformity Decision Rule

The applied conformity decision rule is based on ILAC G8:09/2019 clause 4.2.1 Binary Statement for Simple Acceptance Rule ($w = 0$).

Details can be found in the procedure CSA_B_V50_29.

4.5 Measurement protocol for FCC and ISED

4.5.1 General information

CSA Group Bayern GmbH is recognized as wireless testing laboratory under the CAB identifier:

FCC: DE 0011
ISED: DE0009

4.5.2 General Standard information

The test methods used comply with ANSI C63.10 - "Testing Unlicensed Wireless Devices".

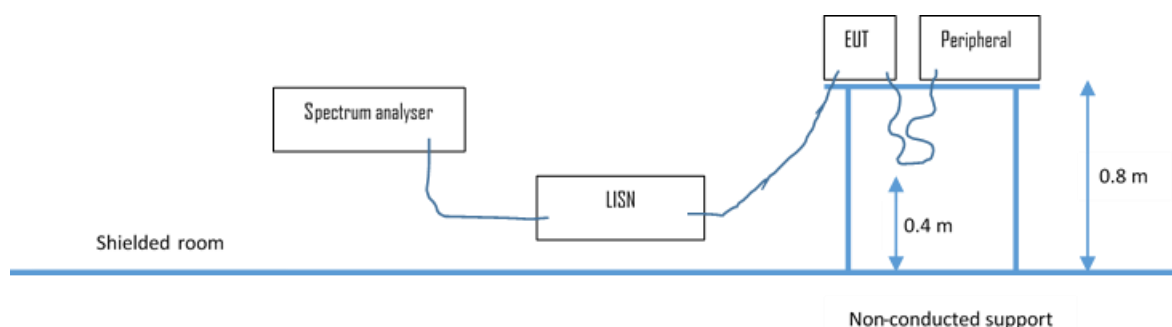
4.5.2.1 Justification

The equipment under test (EUT) is configured in a typical user arrangement in accordance with the manufacturer's instructions.

4.5.3 Details of test procedures

4.5.3.1 Conducted emission

Test setup according ANSI C63.10



FCC ID: NDX-CMAX2**IC: 4678A-CMAX2**

The final level, expressed in dB μ V, is arrived at by taking the reading directly from the Spectrum analyser. This level is compared to the limit.

To convert between dB μ V and μ V, the following conversions apply:

$$\text{dB}\mu\text{V} = 20(\log \mu\text{V})$$

$$\mu\text{V} = \text{Inverse log}(\text{dB}\mu\text{V}/20)$$

Conducted emissions on the 50 Hz and/or 60 Hz power interface of the EUT are measured in the frequency range of 150 kHz to 30 MHz. The measurements are performed using a receiver, which has CISPR characteristic bandwidth and quasi-peak detection and a Line Impedance Stabilization Network (LISN) with 50 Ω / 50 μ H (CISPR 16) characteristics. The receiver is protected by means of an impedance matched pulse limiter connected directly to the RF input. Table top equipment is placed on a non-conducting table 80 centimetres above the floor and is positioned 40 centimetres from the vertical ground plane (wall) of the screen room. If the minimum limit margin appears to be less than 20 dB with a peak mode measurement, the emission is re-measured using a tuned receiver with quasi-peak and average detection and recorded on the data sheets.

The test report merely corresponds to the test sample. It is not permitted to copy extracts of these test results without the written permission of the test laboratory.

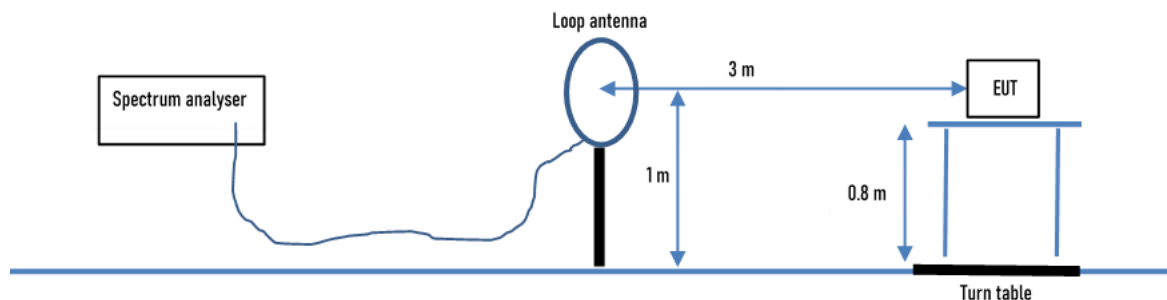
FCC ID: NDX-CMAX2

IC: 4678A-CMAX2

4.5.3.2 Radiated emission

4.5.3.2.1 OATS1 test site (9 kHz - 30 MHz):

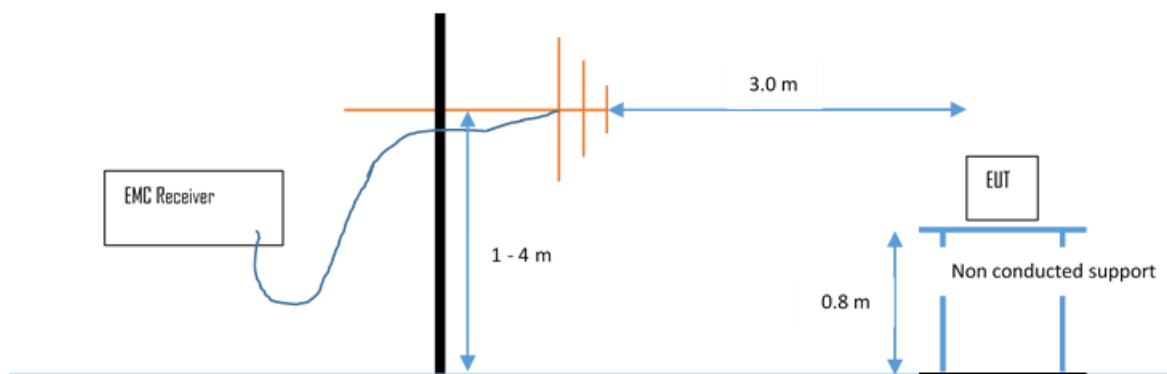
Test setup according ANSI C63.10



Emissions from the EUT are measured in the frequency range of 9 MHz to 30 MHz using a tuned receiver and a calibrated loop antenna. Table top equipment is placed on a 1.0 X 1.5 m non-conducting table 80 centimetres above the ground plane. Cables to simulators/testers (if used in this test) are routed through the centre of the table and to a screened room located outside the test area. The antenna is positioned 3, 10 or 30 metres horizontally from the EUT and is repeated vertically. To locate maximum emissions from the test sample the antenna is varied along the site axis and the EUT is rotated 360 degrees.

4.5.3.2.2 OATS1 test site (30 MHz - 1 GHz):

Test setup according ANSI C63.10.



Spurious emissions from the EUT are measured in the frequency range of 30 MHz to 1000 MHz using a tuned receiver and appropriate broadband linearly polarised antennas. Measurements between 30 MHz and 1000 MHz are made with 120 kHz/6 dB bandwidth and quasi-peak detection. Table top equipment is placed on a 1.0 X 1.5 m non-conducting table 80 centimetres above the ground plane. Floor standing equipment is placed directly on the turntable/ground plane. Cables to simulators/testers (if used in this test) are routed through the centre of the table and to a screened room located outside the test area. To locate maximum emissions from the test sample the antenna is varied in height from 1 to 4 metres and the EUT is rotated 360 degrees. The final level in dB μ V/m is calculated by taking the reading from the EMI receiver (Level dB μ V) and adding the correction factors and cable loss factor (dB). The FCC limit is subtracted from this result in order to provide the limit margin listed in the measurement protocol.

The resolution bandwidth setting:

30 MHz – 1000 MHz: RBW: 120 kHz

Example:

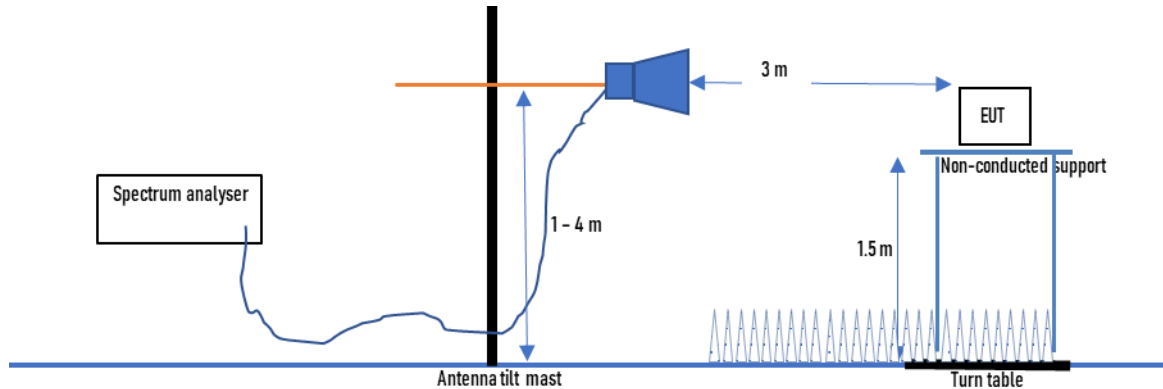
Frequency (MHz)	Level (dB μ V)	+	Factor (dB)	=	Level (dB μ V/m)	-	Limit (dB μ V/m)	=	Delta (dB)
719.0	75.0	+	32.6	=	107.6	-	110.0	=	-2.4

FCC ID: NDX-CMAX2

IC: 4678A-CMAX2

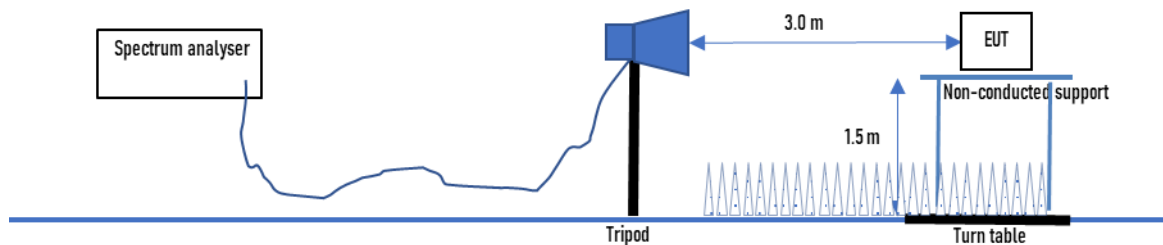
4.5.3.2.3 Anechoic chamber 1 (1000 MHz – 18000 MHz)

Test setup according ANSI C63.10.



Radiated emissions from the EUT are measured in the frequency range 1 GHz up to 18 GHz as specified in 47 CFR Part 15, Subpart A, Section 15.33, using a spectrum analyser and appropriate linearly polarized antennas. Table top equipment is placed on a non-conducting table, 1.5 metre above the ground plane. The turntable is fully covered with the appropriate absorber (Type VHP-12). Any controlling device is positioned such that it does not significantly influence the measurement results. Interconnecting cables that hang closer than 40 cm to the ground plane are folded back and forth in the centre, forming a bundle 30 cm to 40 cm long. Measurements are made in three orientations of the EUT and the horizontal and vertical polarization planes of measurement antenna in a fully anechoic room. The measurement antenna is adjusted and the EUT orientated to permit the measurement of the maximum emission from the EUT. The conditions determined as worst-case will then be used for the final measurements.

4.5.3.2.4 Anechoic chamber 1 (18 GHz – 40 GHz)



Emissions from the EUT are measured in the frequency range 18 GHz up to 40 GHz as specified in 47 CFR Part 15, Subpart A, Section 15.33, using a spectrum analyser and appropriate linearly polarized antennas. Table top equipment is placed on a non-conducting table, 1.5 metre above the ground plane. The turntable is fully covered with the appropriate absorber (Type VHP-12). Any controlling device is positioned such that it does not significantly influence the measurement results. Interconnecting cables that hang closer than 40 cm to the ground plane are folded back and forth in the centre, forming a bundle 30 cm to 40 cm long. Measurements are made in three orientations of the EUT and the horizontal and vertical polarization planes of measurement antenna in a fully anechoic room. The measurement antenna is adjusted and the EUT orientated to permit the measurement of the maximum emission from the EUT. The conditions determined as worst-case will then be used for the final measurements. Where appropriate, the test distance may be reduced in order to detect emissions under better uncertainty. The limit is adopted.

FCC ID: NDX-CMAX2

IC: 4678A-CMAX2

5 TEST CONDITIONS AND RESULTS

5.1 AC power line conducted emissions

For test instruments and accessories used see section 6 Part A 4.

5.1.1 Description of the test location

Test location: Shielded Room SR2

5.1.2 Photo documentation of the test set-up – see Attachment B

See Attachment B for detailed photo documentation of the test set-up.

5.1.3 Applicable standard

According to FCC Part 15, Section 15.207(a):

Except as shown in paragraphs (b) and (c) of this Section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the given limits.

5.1.4 Description of Measurement

The measurements are performed following the procedures set out in ANSI C63.10 described under item 4.4.3. If the minimum limit margin appears to be less than 20 dB with a peak mode measurement, the emissions are re-measured using a tuned receiver with quasi-peak and average detection and recorded on the data sheets.

5.1.5 Test result

Frequency range: 0.15 MHz - 30 MHz

Min. limit margin -10.4 dB at 27.6 MHz

Limit according to FCC Part 15, Section 15.207(a):

Frequency of Emission (MHz)	Conducted Limit (dBμV)	
	Quasi-peak	Average
0.15-0.5	66 to 56 *	56 to 46 *
0.5-5	56	46
5-30	60	50

* Decreases with the logarithm of the frequency

The requirements are **FULFILLED**.

Remarks: For detailed test result please refer to following test protocols.

AC/DC power supply Model FJ-SW1160501500UN

Laptop hp EliteBook 840 with AC/DC power supply Model PPP009D

FCC ID: NDX-CMAX2

IC: 4678A-CMAX2

5.1.6 Test protocol

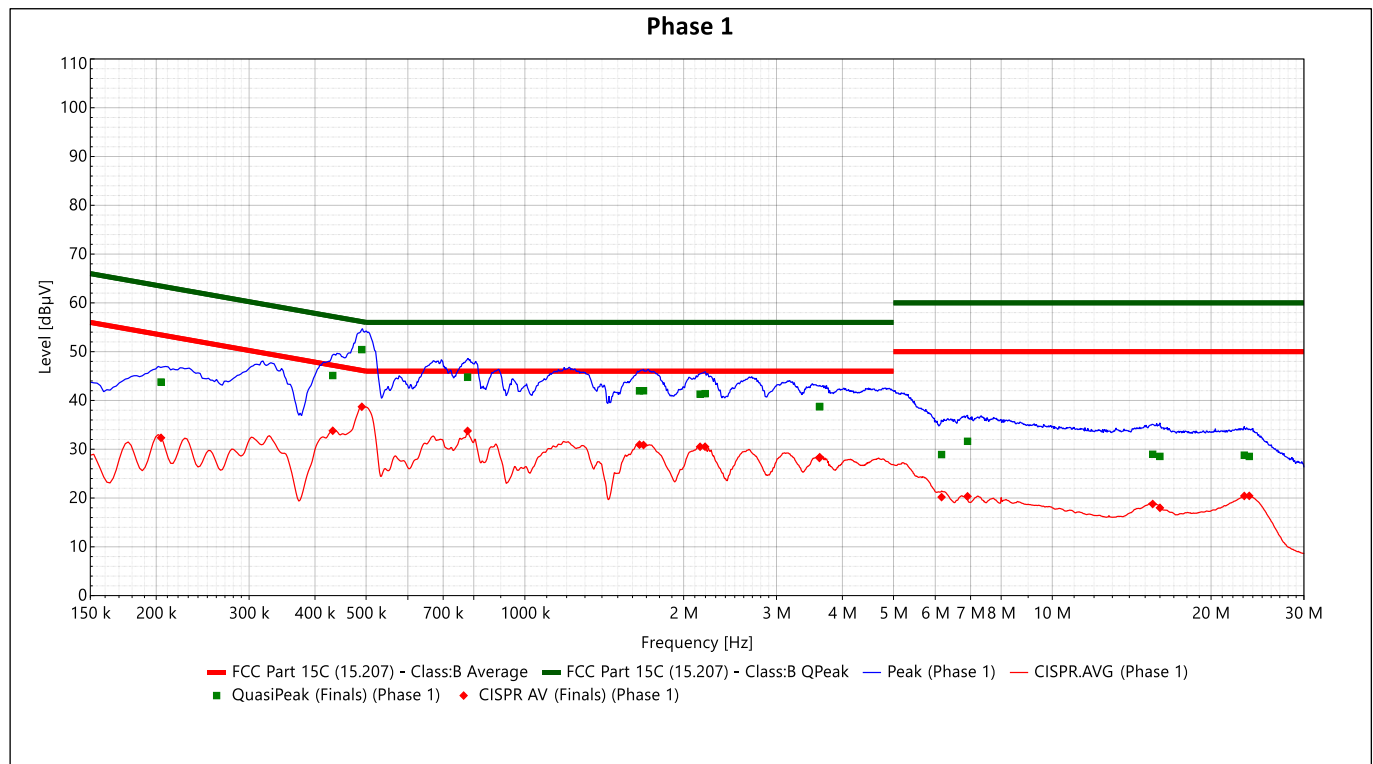
AC/DC power supply Model FJ-SW1160501500UN

Position	Phase 1		
Limit	FCC/FCC Part 15C (15.207)	Class	B

Finals

Frequency (Hz)	QuasiPeak (dBμV)	QP Margin	QP Limit (dBμV)	CISPR AV (dBμV)	CISPR AV Margin	AV Limit (dBμV)	RBW (Hz)	Correction (dB)
204.246 k	43.77	-19.67	63.45	32.34	-21.1	53.45	9000	10.34
432.292 k	45.11	-12.12	57.23	33.79	-13.44	47.23	9000	10.39
490.792 k	50.42	-5.75	56.17	38.71	-7.47	46.17	9000	10.39
778.792 k	44.8	-11.2	56	33.75	-12.25	46	9000	10.43
1.65 M	41.96	-14.04	56	30.94	-15.06	46	9000	10.56
1.679 M	41.99	-14.01	56	30.86	-15.14	46	9000	10.56
2.149 M	41.3	-14.7	56	30.51	-15.49	46	9000	10.61
2.196 M	41.39	-14.61	56	30.52	-15.48	46	9000	10.61
3.618 M	38.73	-17.27	56	28.21	-17.79	46	9000	10.65
3.623 M	38.76	-17.24	56	28.37	-17.63	46	9000	10.65
6.168 M	28.91	-31.09	60	20.18	-29.82	50	9000	10.55
6.908 M	31.63	-28.37	60	20.35	-29.65	50	9000	10.53
15.503 M	28.97	-31.03	60	18.78	-31.22	50	9000	10.83
16 M	28.53	-31.47	60	17.99	-32.01	50	9000	10.86
23.124 M	28.78	-31.22	60	20.42	-29.58	50	9000	11.23
23.63 M	28.53	-31.47	60	20.44	-29.56	50	9000	11.25

Graph



FCC ID: NDX-CMAX2

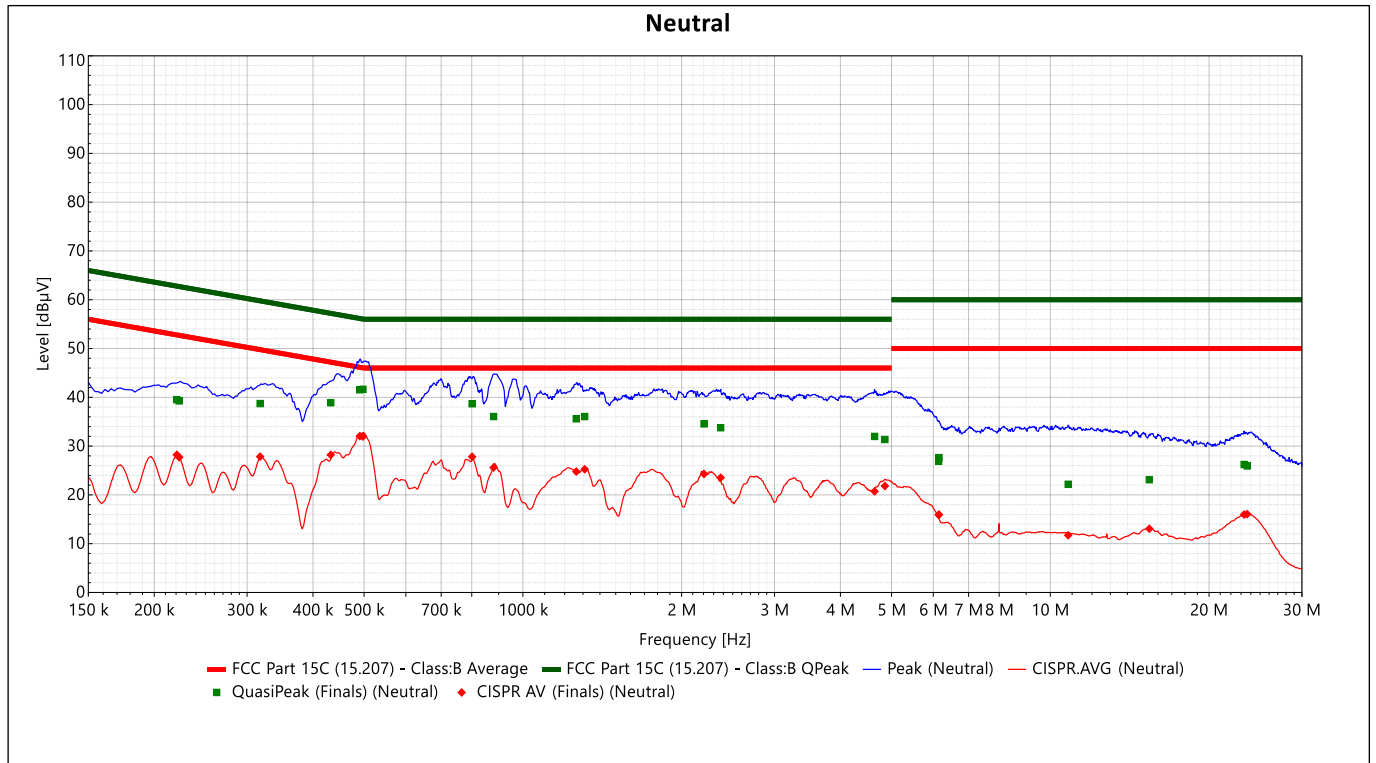
IC: 4678A-CMAX2

Position	Neutral		
Limit	FCC/FCC Part 15C (15.207)	Class	B

Finals

Frequency (Hz)	QuasiPeak (dBμV)	QP Margin	QP Limit (dBμV)	CISPR AV (dBμV)	CISPR AV Margin	AV Limit (dBμV)	RBW (Hz)	Correction (dB)
220.792 k	39.51	-23.31	62.83	28.22	-24.61	52.83	9000	10.37
223.042 k	39.27	-23.47	62.74	27.71	-25.04	52.74	9000	10.37
317.542 k	38.72	-21.08	59.8	27.85	-21.95	49.8	9000	10.37
432.292 k	38.89	-18.34	57.23	28.21	-19.02	47.23	9000	10.39
490.792 k	41.55	-14.62	56.17	32.04	-14.13	46.17	9000	10.39
497.542 k	41.64	-14.41	56.06	31.95	-14.11	46.06	9000	10.39
801.292 k	38.69	-17.31	56	27.82	-18.18	46	9000	10.45
880.042 k	36.06	-19.94	56	25.61	-20.39	46	9000	10.46
1.263 M	35.6	-20.4	56	24.79	-21.21	46	9000	10.52
1.31 M	36.06	-19.94	56	25.25	-20.75	46	9000	10.53
2.205 M	34.56	-21.44	56	24.28	-21.72	46	9000	10.63
2.372 M	33.77	-22.23	56	23.53	-22.47	46	9000	10.64
4.644 M	31.98	-24.02	56	20.72	-25.28	46	9000	10.64
4.858 M	31.35	-24.65	56	21.82	-24.18	46	9000	10.63
6.143 M	26.9	-33.1	60	15.91	-34.09	50	9000	10.6
6.152 M	27.64	-32.36	60	15.95	-34.05	50	9000	10.6
10.814 M	22.17	-37.83	60	11.72	-38.28	50	9000	10.76
15.408 M	23.11	-36.89	60	13.06	-36.94	50	9000	11.05
23.308 M	26.23	-33.77	60	15.97	-34.03	50	9000	11.58
23.625 M	25.94	-34.06	60	16.07	-33.93	50	9000	11.6

Graph



FCC ID: NDX-CMAX2

IC: 4678A-CMAX2

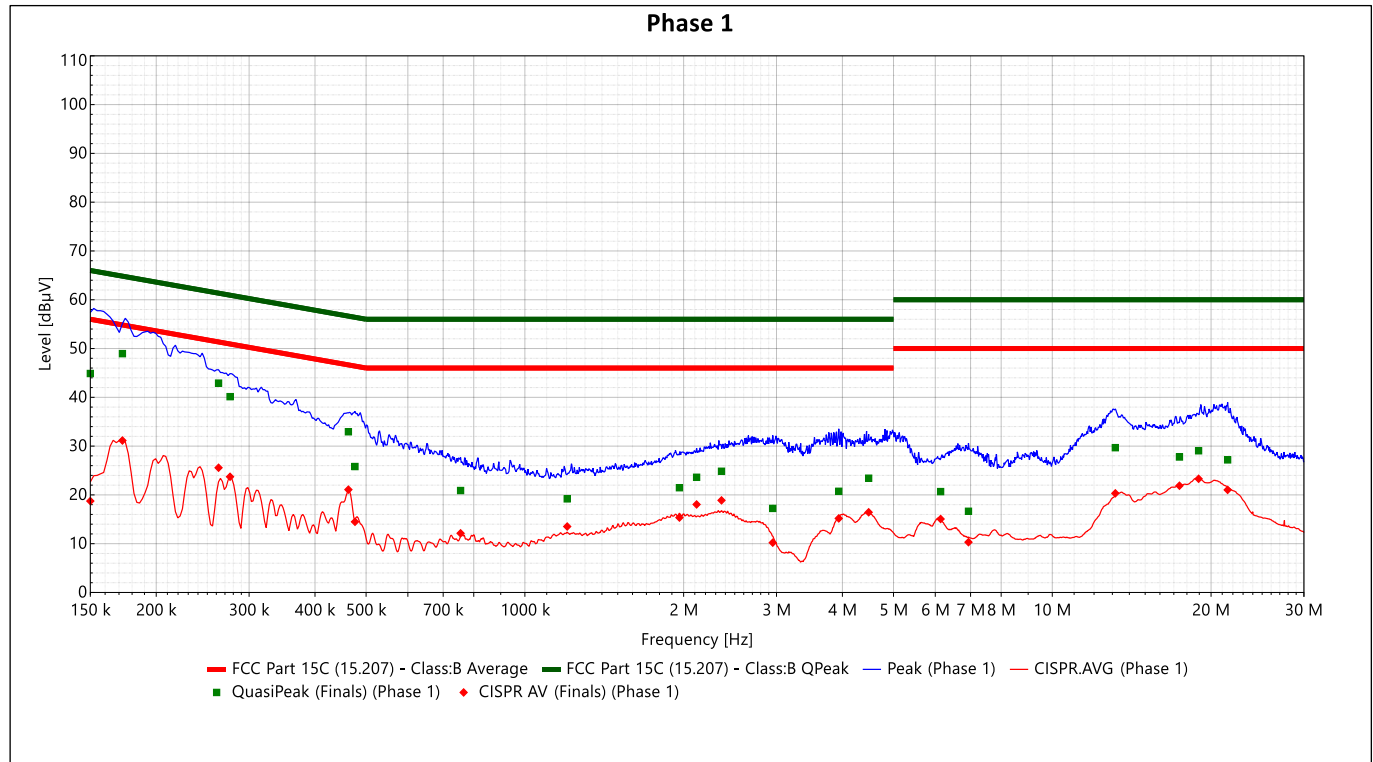
Connected to laptop with AC/DC power supply Model PPP009D

Position	Phase 1		
Limit	FCC/FCC Part 15C (15.207)	Class	B

Finals

Frequency (Hz)	QuasiPeak (dBµV)	QP Margin	QP Limit (dBµV)	CISPR AV (dBµV)	CISPR AV Margin	AV Limit (dBµV)	RBW (Hz)	Correction (dB)
150.004 k	44.88	-21.12	66	18.74	-37.26	56	9000	10.37
172.565 k	48.95	-15.88	64.84	31.15	-23.69	54.84	9000	10.35
262.565 k	42.91	-18.44	61.35	25.57	-25.79	51.35	9000	10.36
276.065 k	40.13	-20.8	60.94	23.72	-27.22	50.94	9000	10.36
462.815 k	32.94	-23.7	56.64	21.08	-25.56	46.64	9000	10.39
476.315 k	25.81	-30.59	56.4	14.49	-31.92	46.4	9000	10.39
755.315 k	20.89	-35.11	56	12.13	-33.87	46	9000	10.43
1.203 M	19.19	-36.81	56	13.52	-32.48	46	9000	10.5
1.964 M	21.47	-34.53	56	15.35	-30.65	46	9000	10.59
2.117 M	23.61	-32.39	56	18.04	-27.96	46	9000	10.61
2.36 M	24.84	-31.16	56	18.88	-27.12	46	9000	10.62
2.951 M	17.23	-38.77	56	10.21	-35.79	46	9000	10.64
3.937 M	20.74	-35.26	56	15.18	-30.82	46	9000	10.64
4.486 M	23.42	-32.58	56	16.44	-29.56	46	9000	10.63
6.142 M	20.68	-39.32	60	15.06	-34.94	50	9000	10.55
6.936 M	16.64	-43.36	60	10.31	-39.69	50	9000	10.53
13.169 M	29.68	-30.32	60	20.32	-29.68	50	9000	10.72
17.423 M	27.77	-32.23	60	21.88	-28.12	50	9000	10.96
18.942 M	29.05	-30.95	60	23.3	-26.7	50	9000	11.06
21.503 M	27.18	-32.82	60	21.03	-28.97	50	9000	11.18

Graph



FCC ID: NDX-CMAX2

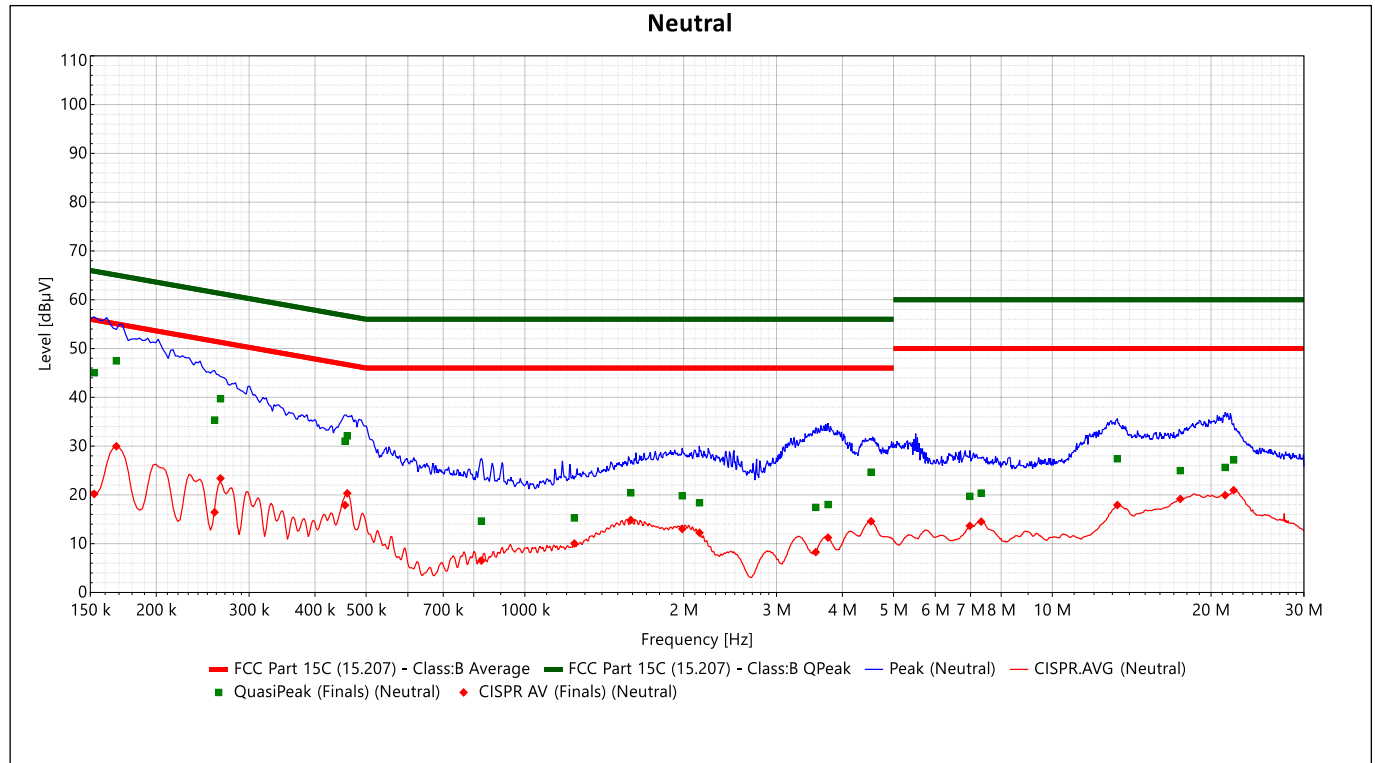
IC: 4678A-CMAX2

Position	Neutral		
Limit	FCC/FCC Part 15C (15.207)	Class	B

Finals

Frequency (Hz)	QuasiPeak (dBμV)	QP Margin	QP Limit (dBμV)	CISPR AV (dBμV)	CISPR AV Margin	AV Limit (dBμV)	RBW (Hz)	Correction (dB)
152.565 k	45.04	-20.83	65.88	20.17	-35.7	55.88	9000	10.37
168.065 k	47.48	-17.58	65.06	29.97	-25.09	55.06	9000	10.37
258.065 k	35.33	-26.17	61.5	16.45	-35.05	51.5	9000	10.37
264.815 k	39.71	-21.57	61.28	23.38	-27.9	51.28	9000	10.37
456.065 k	31.01	-25.76	56.77	17.9	-28.86	46.77	9000	10.39
460.565 k	32.1	-24.59	56.68	20.33	-26.36	46.68	9000	10.39
827.315 k	14.64	-41.36	56	6.53	-39.47	46	9000	10.45
1.241 M	15.28	-40.72	56	10.04	-35.96	46	9000	10.52
1.588 M	20.43	-35.57	56	14.85	-31.15	46	9000	10.56
1.988 M	19.82	-36.18	56	13.01	-32.99	46	9000	10.6
2.144 M	18.39	-37.61	56	12.24	-33.76	46	9000	10.62
3.561 M	17.44	-38.56	56	8.28	-37.72	46	9000	10.67
3.757 M	18.02	-37.98	56	11.25	-34.75	46	9000	10.67
4.533 M	24.65	-31.35	56	14.59	-31.41	46	9000	10.64
6.977 M	19.7	-40.3	60	13.65	-36.35	50	9000	10.6
7.332 M	20.37	-39.63	60	14.52	-35.48	50	9000	10.6
13.286 M	27.42	-32.58	60	17.92	-32.08	50	9000	10.91
17.489 M	24.97	-35.03	60	19.17	-30.83	50	9000	11.21
21.264 M	25.63	-34.37	60	19.93	-30.07	50	9000	11.46
22.072 M	27.17	-32.83	60	20.96	-29.04	50	9000	11.51

Graph



FCC ID: NDX-CMAX2**IC: 4678A-CMAX2**

5.2 Maximum peak radiated output power

For test instruments and accessories used see section 6 Part **CPR 3**.

5.2.1 Description of the test location

Test location: Anechoic chamber 1
Test distance: 3 m

5.2.2 Photo documentation of the test set-up

See Attachment B for detailed photo documentation of the test set-up.

5.2.3 Applicable standard

According to FCC Part 15, Section 15.247 (b)(3):

For systems using digital modulation in the 2400 – 2483.5 MHz and 5725 – 5850 MHz bands, the maximum peak output power of the transmitter shall not exceed 1 Watt. The limit is based on transmitting antennas of directional gain that do not exceed 6 dBi.

5.2.4 Description of Measurement

The maximum peak conducted output power is measured using a peak power meter following the procedure set out in ANSI C63-10, item 11.9.1.1. The EUT is set in TX continuous mode while measuring.

The test report merely corresponds to the test sample. It is not permitted to copy extracts of these test results without the written permission of the test laboratory.

FCC ID: NDX-CMAX2

IC: 4678A-CMAX2

5.2.5 Test result

802.15.1, 1000 kbps, TX		Test results radiated			
		Fieldstrength E (dBμV/m)	EIRP (dBm)	EIRP Limit (dBm)	Margin (dB)
Lowest frequency: CH37					
T_{nom}	V_{nom}	93,6	-1,7	36,0	-37,7
Middle frequency: CH17					
T_{nom}	V_{nom}	88,8	-6,4	36,0	-42,4
Highest frequency: CH39					
T_{nom}	V_{nom}	87,4	-7,9	36,0	-43,9

802.15.1, 2000 kbps, TX		Test results radiated			
		Fieldstrength E (dBμV/m)	EIRP (dBm)	EIRP Limit (dBm)	Margin (dB)
Lowest frequency: CH37					
T_{nom}	V_{nom}	93,1	-2,2	36,0	-38,2
Middle frequency: CH17					
T_{nom}	V_{nom}	88,7	-6,6	36,0	-42,6
Highest frequency: CH39					
T_{nom}	V_{nom}	87,6	-7,7	36,0	-43,7

Peak conducted output power:

1 Mbps:

DUT Frequency (MHz)	Peak Power (dBm)	Limit Max (dBm)	Result
2402.000000	-0.8	30.0	PASS
2440.000000	-0.7	30.0	PASS
2480.000000	-0.8	30.0	PASS

2 Mbps:

DUT Frequency (MHz)	Peak Power (dBm)	Limit Max (dBm)	Result
2402.000000	-0.7	30.0	PASS
2440.000000	-0.6	30.0	PASS
2480.000000	-0.7	30.0	PASS

Peak Power Limit according to FCC Part 15, Section 15.247 (b)(3):

Frequency (MHz)	Peak Power Limit	
	(dBm)	(Watt)
2400-2483.5	30	1.0

The requirements are **FULFILLED**.

Remarks: None.

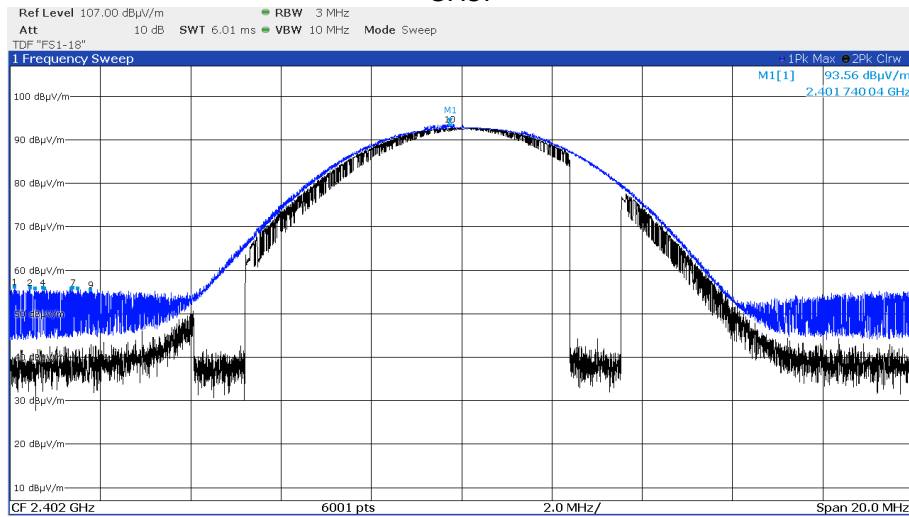
FCC ID: NDX-CMAX2

IC: 4678A-CMAX2

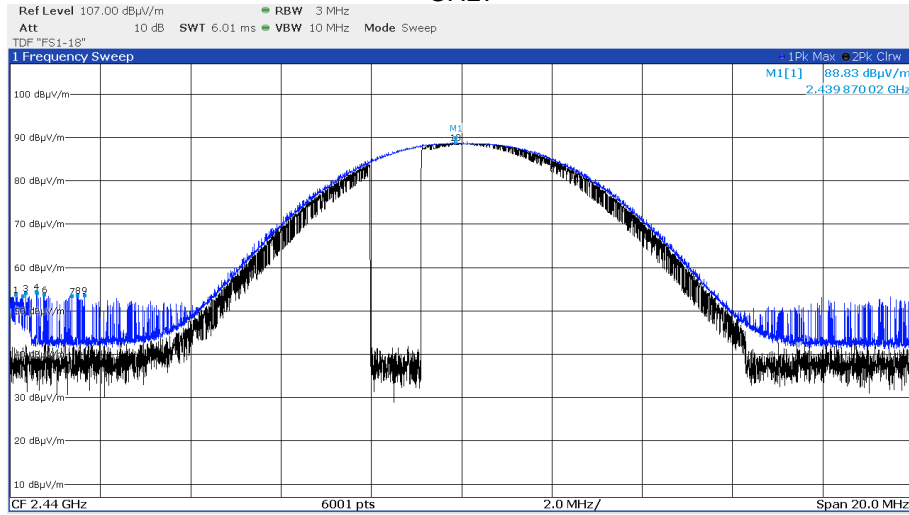
5.2.6 Test protocols

Radiated:
1Mbps

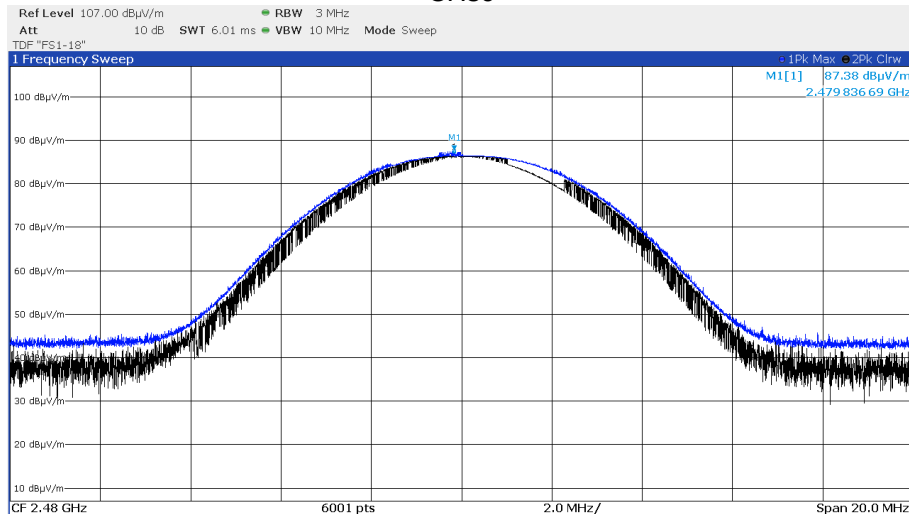
CH37



CH17



CH39

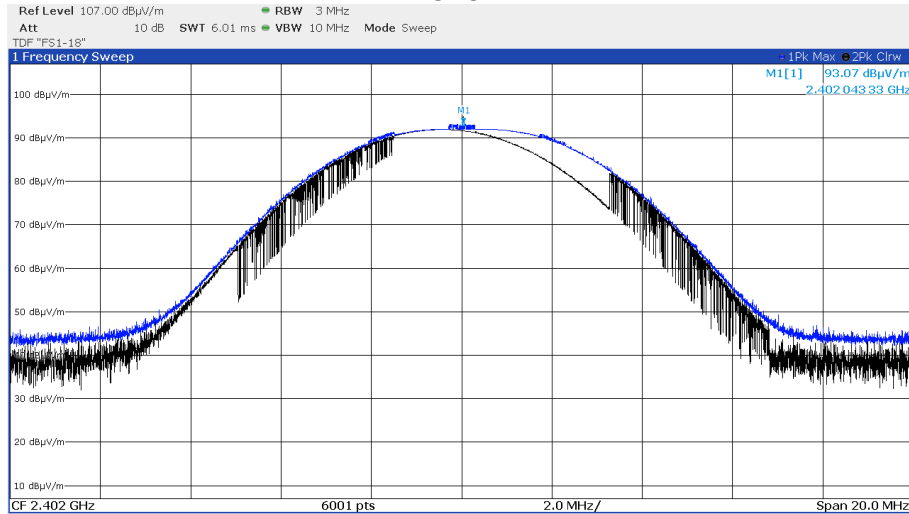


FCC ID: NDX-CMAX2

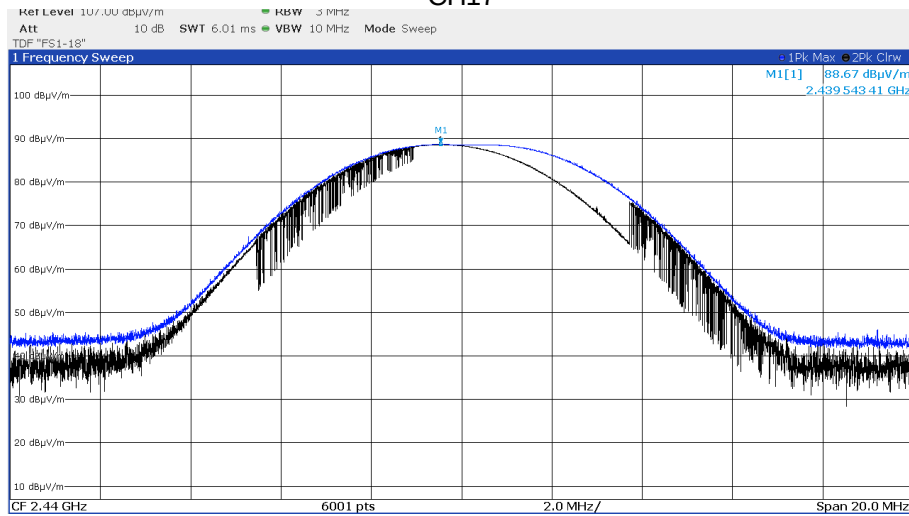
IC: 4678A-CMAX2

2Mbps

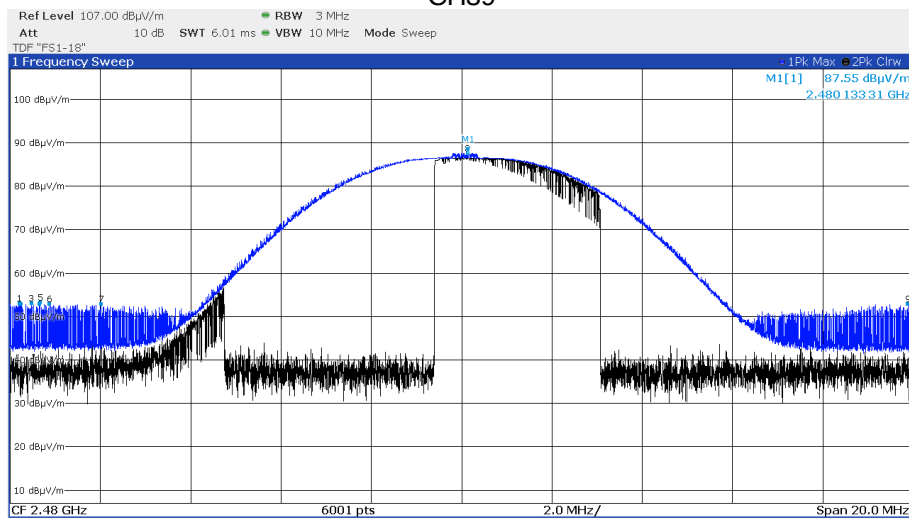
CH37



CH17



CH39



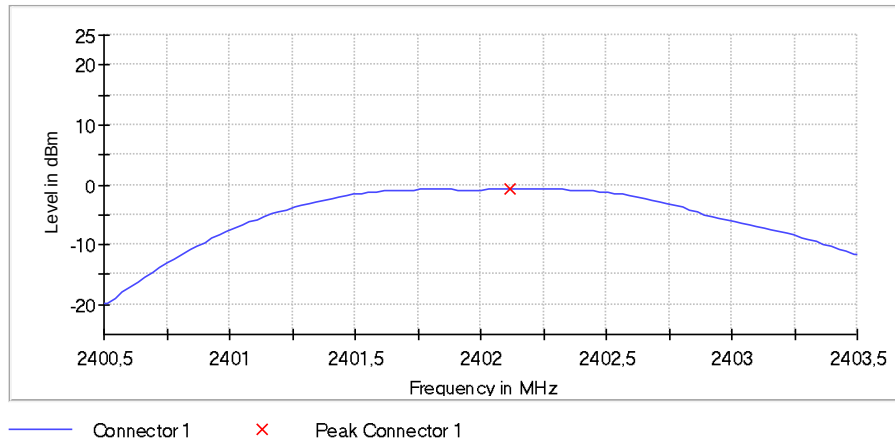
FCC ID: NDX-CMAX2

IC: 4678A-CMAX2

conducted:
1Mbps

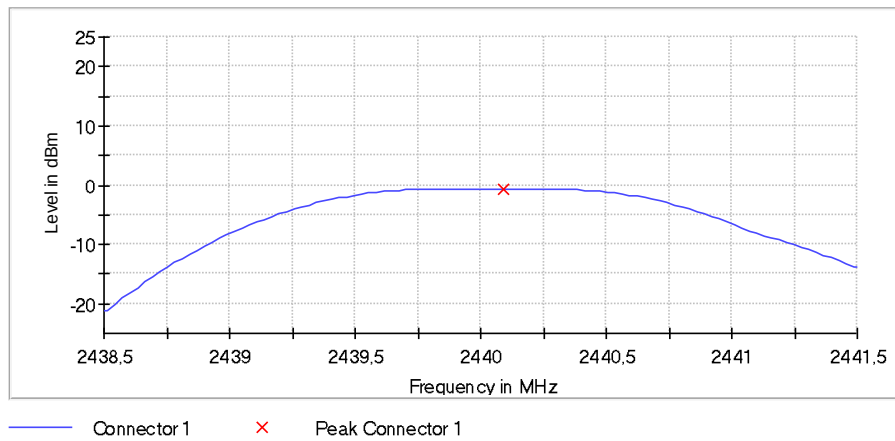
CH37

Peak Power



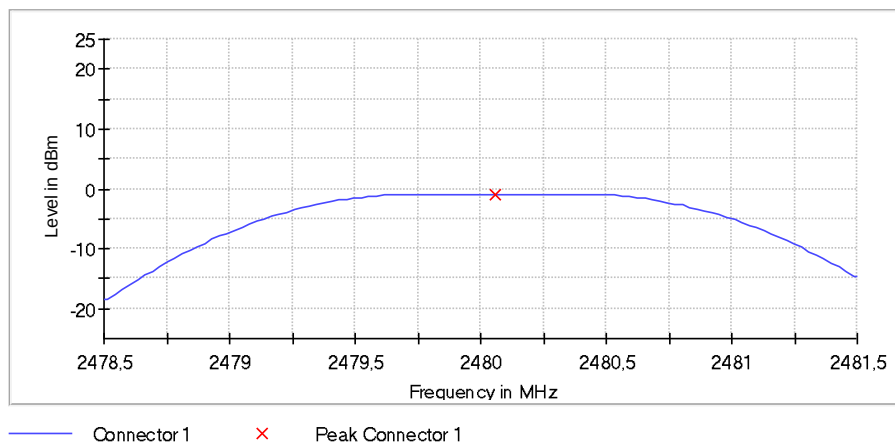
CH17

Peak Power



CH39

Peak Power



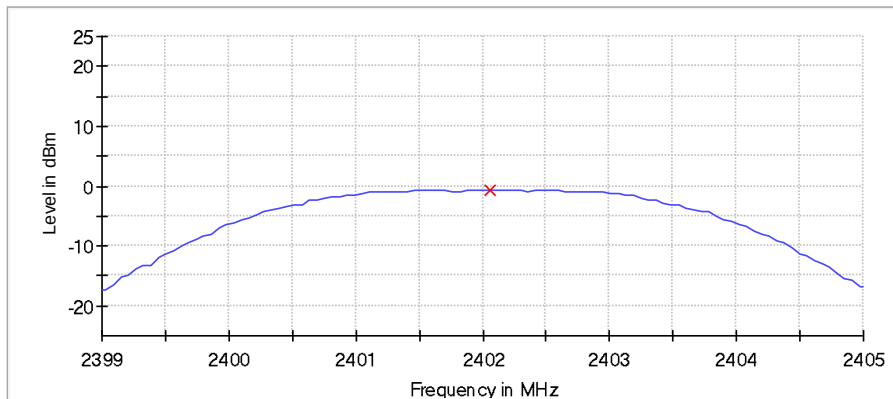
FCC ID: NDX-CMAX2

IC: 4678A-CMAX2

2Mbps

CH37

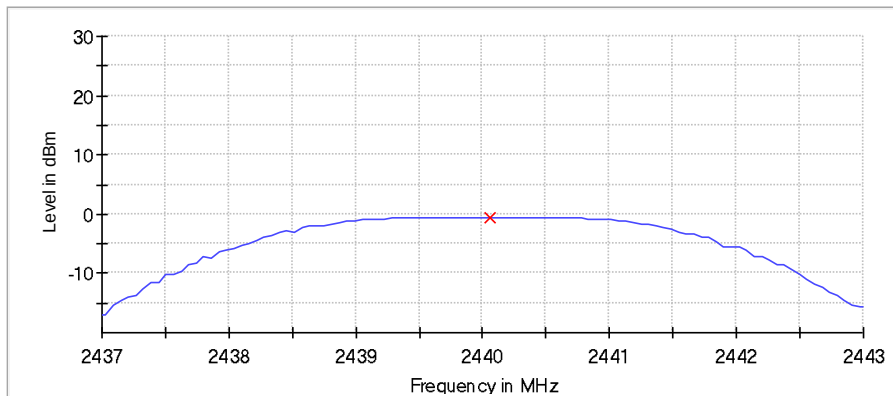
Peak Power



Connector 1 X Peak Connector 1

CH17

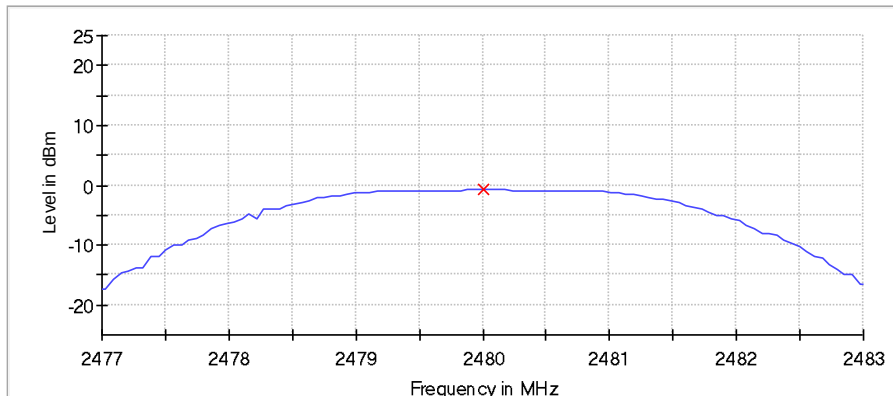
Peak Power



Connector 1 X Peak Connector 1

CH39

Peak Power



Connector 1 X Peak Connector 1

FCC ID: NDX-CMAX2**IC: 4678A-CMAX2**

5.3 EBW and OBW

For test instruments and accessories used see section 6 Part **CPC**.

5.3.1 Description of the test location

Test location: Shielded Room SR6

5.3.2 Photo documentation of the test set-up

See Attachment B for detailed photo documentation of the test set-up.

5.3.3 Applicable standard

According to FCC Part 15, Section 15.247(a)(2):

Systems using digital modulation techniques may operate in the 902 - 928 MHz, 2400 – 2483.5 MHz and 5725 – 5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

According to RSS-247 5.2(a):

DTSS include systems that employ digital modulation techniques resulting in spectral characteristics similar to direct sequence systems. The following applies to the bands 902-928 MHz and 2400-2483.5 MHz: The minimum 6 dB bandwidth shall be 500 kHz.

5.3.4 Description of Measurement

The bandwidth was measured at an amplitude level reduced from the reference level of a modulated channel by a ratio of -6 dB. The reference level is the level of the highest signal amplitude observed at the transmitter at either the fundamental frequency or the first order modulation products in all typical modes of operation, including the unmodulated carrier, even if atypical. An alternative is to use the bandwidth measurement of the analyser.

Spectrum analyser settings for EBW:

RBW: 100 kHz, VBW: 300 kHz, Detector: Max peak, Sweep time: 5 s, Span: 2 EBW;

Spectrum analyser settings for OBW:

RBW: 1-5% OBW, VBW: 3 RBW, Detector: Max peak, Sweep time: 5 s, Span: 2 OBW;

FCC ID: NDX-CMAX2

IC: 4678A-CMAX2

5.3.5 Test result

6dB bandwidth

1 Mbps

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2402.000000	0.752476	0.500000	---	2401.663366	2402.415842
2440.000000	0.752476	0.500000	---	2439.663366	2440.415842
2480.000000	0.752476	0.500000	---	2479.663366	2480.415842

2 Mbps

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2402.000000	1.425742	0.500000	---	2401.326733	2402.752475
2440.000000	1.425742	0.500000	---	2439.326733	2440.752475
2480.000000	1.425742	0.500000	---	2479.326733	2480.752475

99% bandwidth

1 Mbps

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2402.000000	1.030000	---	---	2401.532500	2402.562500
2440.000000	1.050000	---	---	2439.517500	2440.567500
2480.000000	1.050000	---	---	2479.517500	2480.567500

2 Mbps

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2402.000000	2.050000	---	---	2401.025000	2403.075000
2440.000000	2.040000	---	---	2439.035000	2441.075000
2480.000000	2.060000	---	---	2479.015000	2481.075000

Emission bandwidth limit according to FCC Part 15, Section 15.247(a)(2):

Frequency (MHz)	6dB EBW Limit
902-928	> 500 kHz
2400-2483.5	> 500 kHz
5725-5850	> 500 kHz

Emission bandwidth limit according to RSS-247 5.2(a):

Frequency (MHz)	6dB EBW Limit
902-928	> 500 kHz
2400-2483.5	> 500 kHz

The requirements are **FULFILLED**.

Remarks: For detailed test result please see the following test protocols

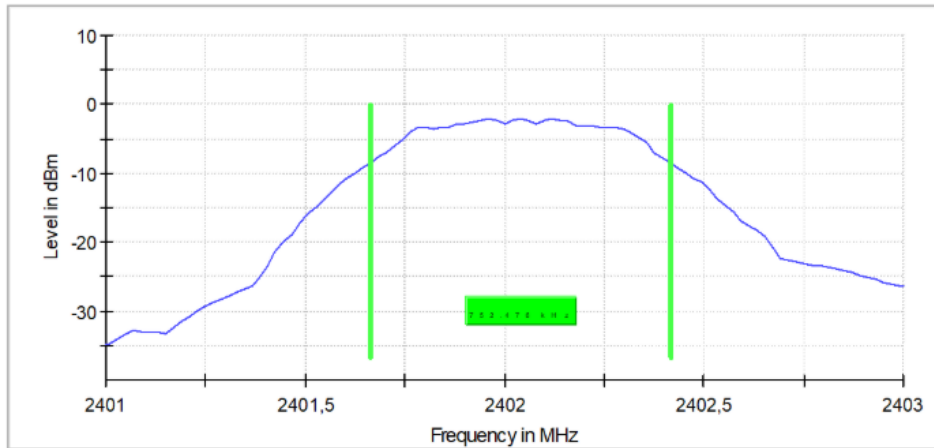
FCC ID: NDX-CMAX2

IC: 4678A-CMAX2

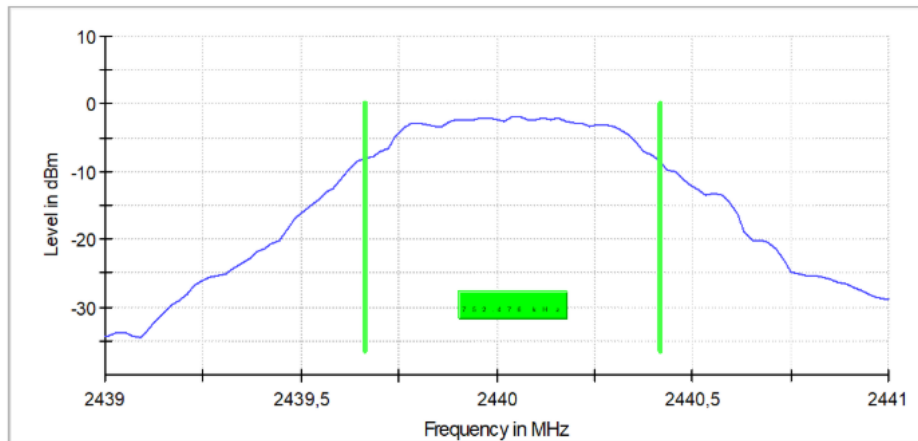
5.3.6 Test protocols

1 Mbps:

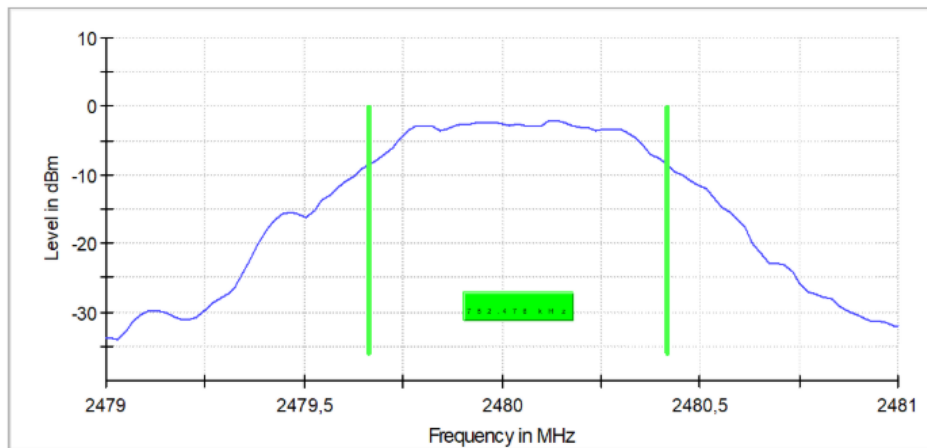
Channel 37 (2402 MHz)
6 dB Bandwidth



Channel 17 (2440 MHz)
6 dB Bandwidth



Channel 39 (2480 MHz)
6 dB Bandwidth

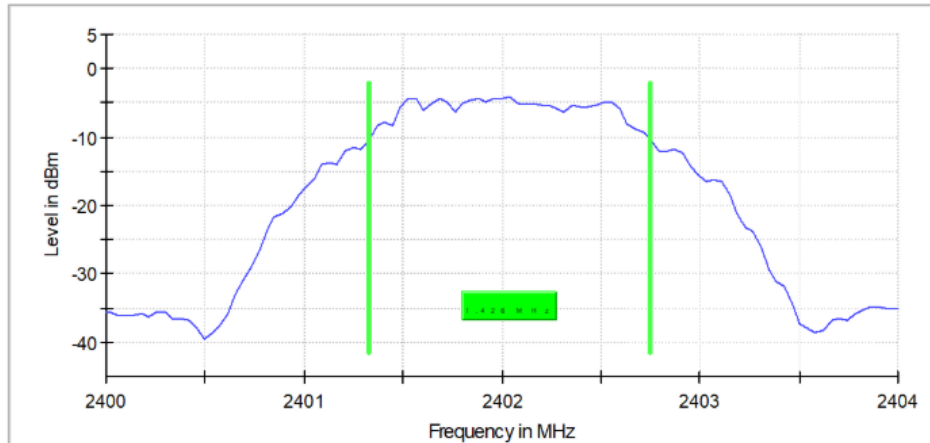


FCC ID: NDX-CMAX2

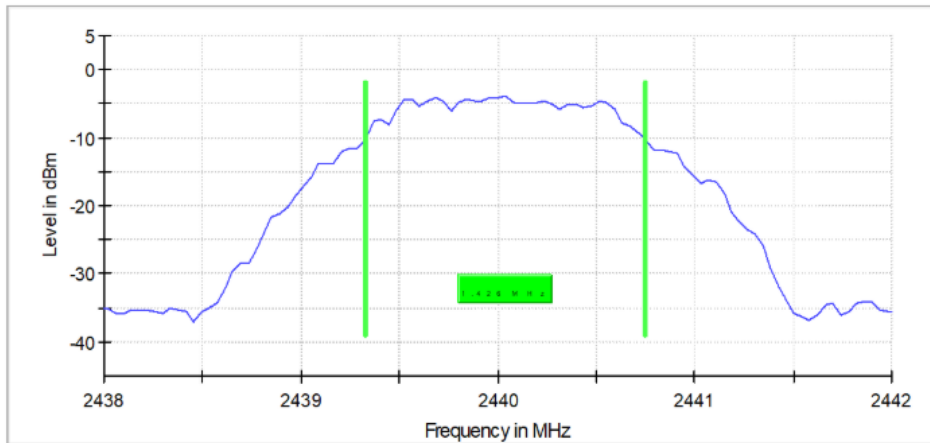
IC: 4678A-CMAX2

2 Mbps:

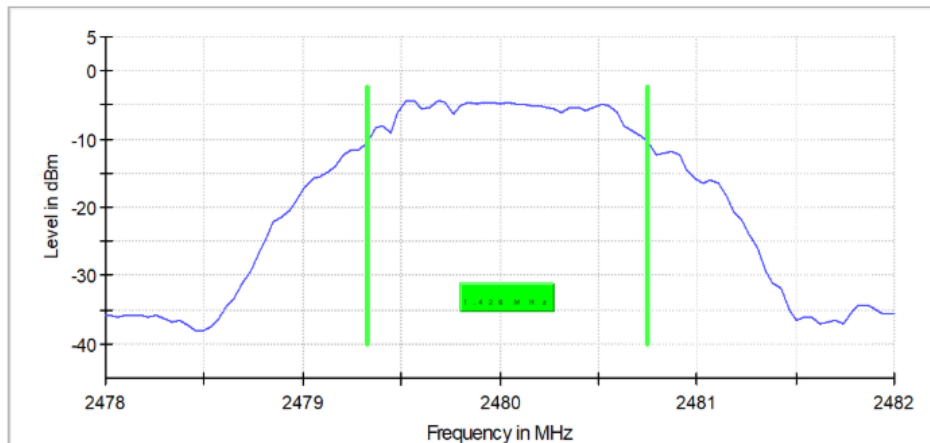
Channel 37 (2402 MHz)
6 dB Bandwidth



Channel 17 (2440 MHz)
6 dB Bandwidth



Channel 39 (2480 MHz)
6 dB Bandwidth



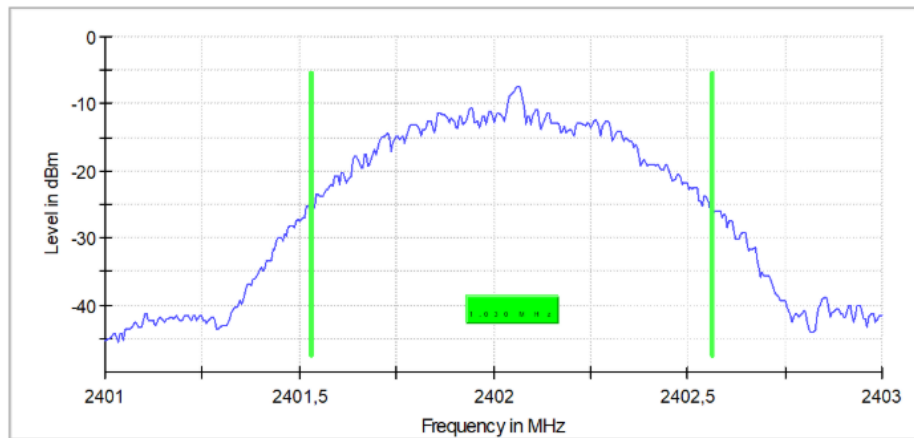
FCC ID: NDX-CMAX2

IC: 4678A-CMAX2

1 Mbps:

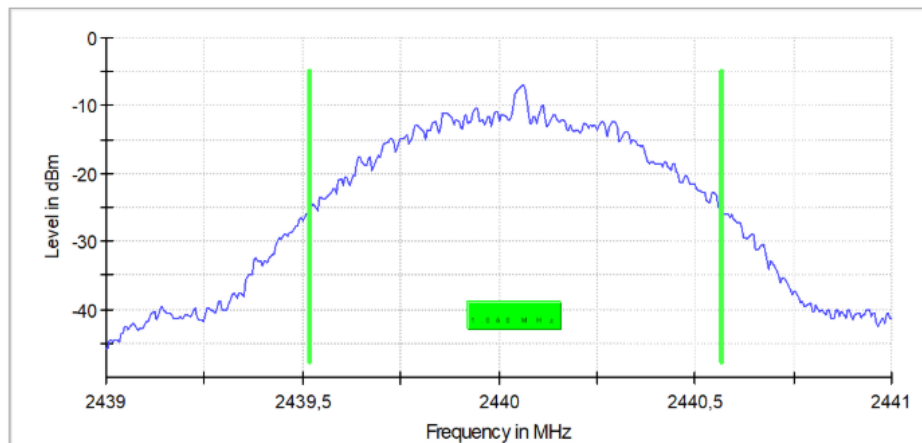
Channel 37 (2402 MHz)

99 % Bandwidth



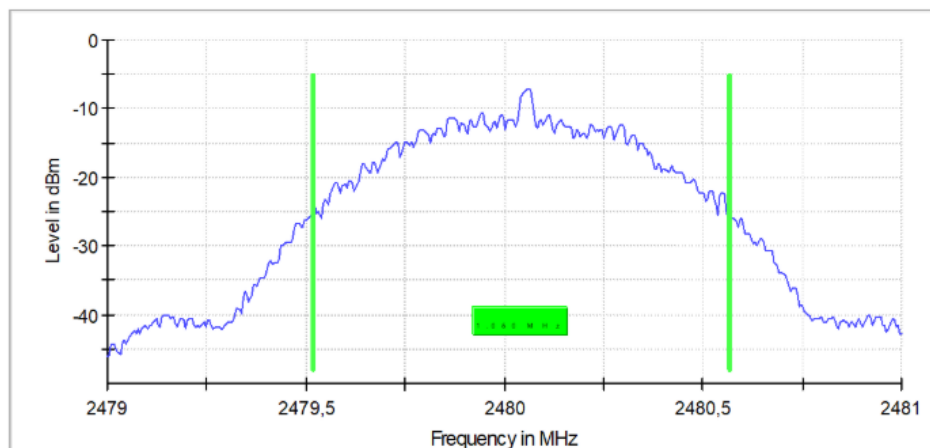
Channel 17 (2440 MHz)

99 % Bandwidth



Channel 39 (2480 MHz)

99 % Bandwidth

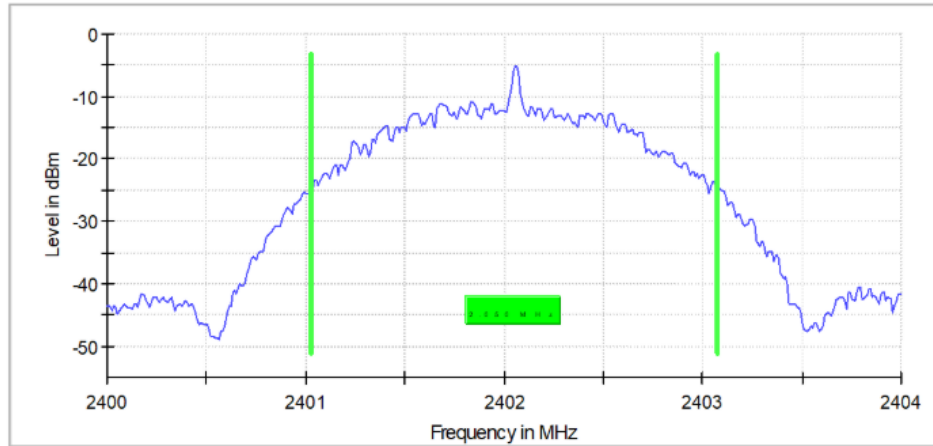


FCC ID: NDX-CMAX2

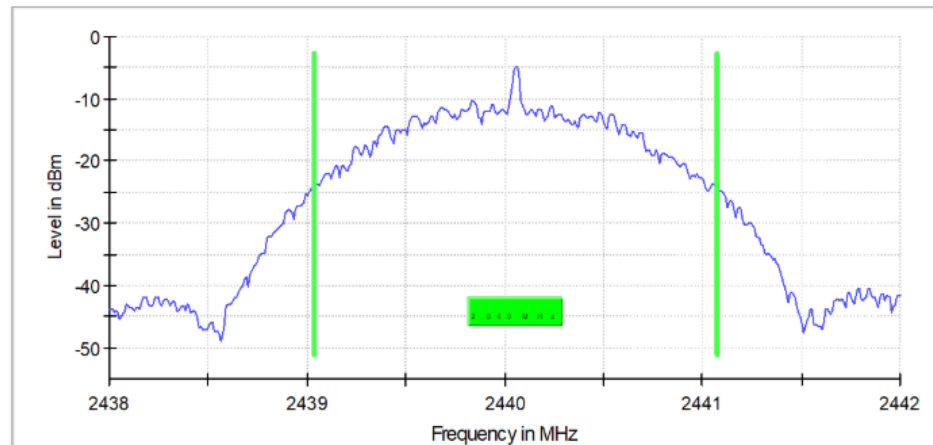
IC: 4678A-CMAX2

2 Mbps:

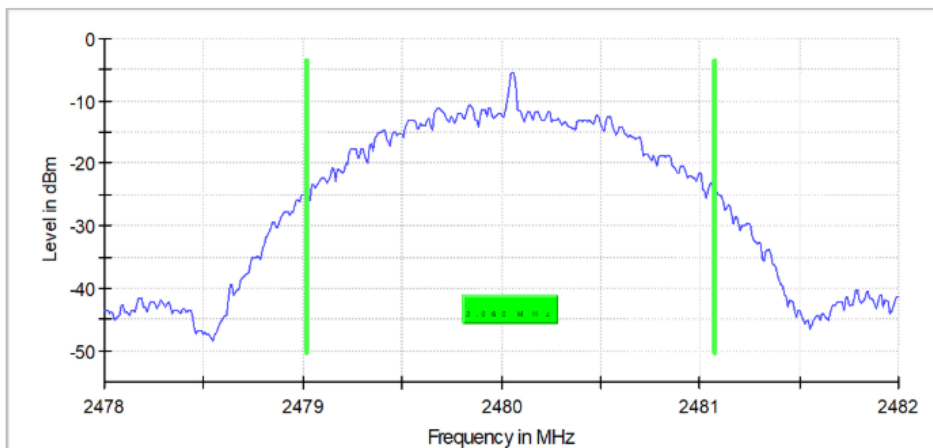
Channel 37 (2402 MHz)
99 % Bandwidth



Channel 17 (2440 MHz)
99 % Bandwidth



Channel 39 (2480 MHz)
99 % Bandwidth



FCC ID: NDX-CMAX2**IC: 4678A-CMAX2**

5.4 Power spectral density

For test instruments and accessories used see section 6 Part **CPC**.

5.4.1 Description of the test location

Test location: Shielded Room SR6

5.4.2 Photo documentation of the test set-up

See Attachment B for detailed photo documentation of the test set-up.

5.4.3 Applicable standard

According to FCC Part 15, Section 15.247(e):

For digitally modulated systems, the power spectral density radiated from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the radiated output power shall be used to determine the power spectral density.

According to RSS-247 5.2(b):

The transmitter power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of section 5.4(d), (i.e. the power spectral density shall be determined using the same method as is used to determine the conducted output power).

5.4.4 Description of Measurement

The measurement is performed using the procedure set out in 11.10 of ANSI C63.10. The power measurement was done as peak power measurement. Therefore, the PKPSD is measured. The max peak was located with the spectrum analyser and a marker set to peak.

Spectrum analyser settings:

RBW: 3 kHz, VBW: 10 kHz, Detector: Peak, Sweep time: Auto

The test report merely corresponds to the test sample. It is not permitted to copy extracts of these test results without the written permission of the test laboratory.

FCC ID: NDX-CMAX2
IC: 4678A-CMAX2

5.4.5 Test result

1 Mbps:

DUT Frequency (MHz)	Frequency (MHz)	PSD (dBm)	Limit Max (dBm)	Result
2402.000000	2402.062500	-7.268	8.0	PASS
2440.000000	2440.062500	-6.844	8.0	PASS
2480.000000	2480.057500	-6.936	8.0	PASS

2 Mbps:

DUT Frequency (MHz)	Frequency (MHz)	PSD (dBm)	Limit Max (dBm)	Result
2402.000000	2402.057500	-7.674	8.0	PASS
2440.000000	2440.057500	-6.858	8.0	PASS
2480.000000	2480.057500	-6.805	8.0	PASS

Power spectral density limit according to FCC Part 15, Section 15.247(e):

Frequency (MHz)	Power spectral density limit
	(dBm/3 kHz)
902-928	8
2400 - 2483.5	8
5725-5850	8

Power spectral density limit according to RSS-247 5.2(b):

Frequency (MHz)	Power spectral density limit
	(dBm/3 kHz)
902-928	8
2400 - 2483.5	8

The requirements are **FULFILLED**.

Remarks: For detailed test result please see the following test protocols.

FCC ID: NDX-CMAX2

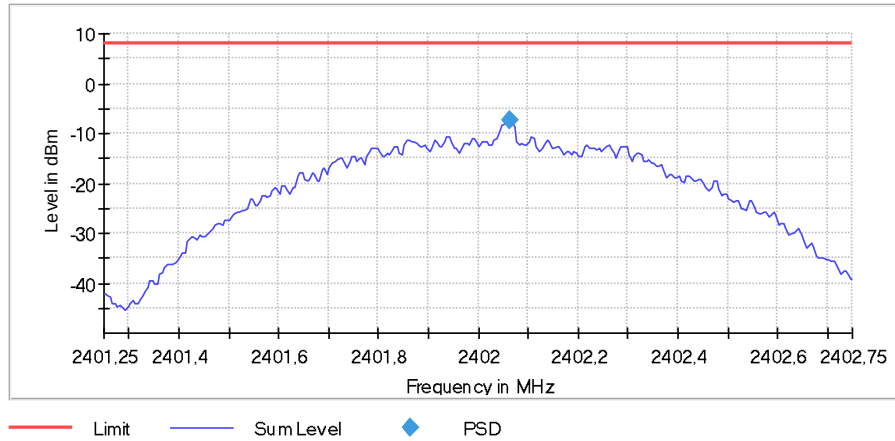
IC: 4678A-CMAX2

5.4.6 Test protocols

1 Mbps:

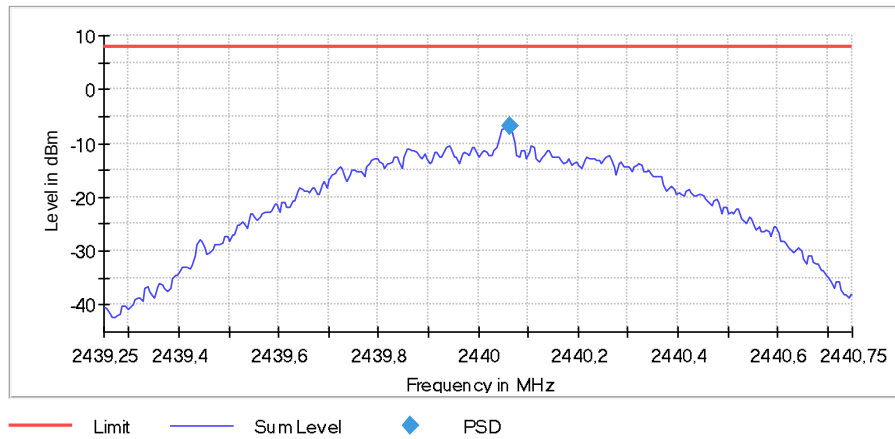
Channel 37 (2402 MHz)

Peak Power Spectral Density



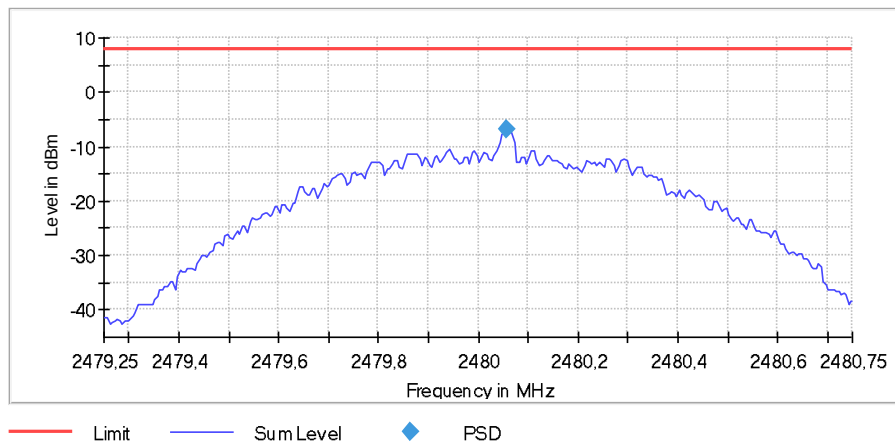
Channel 17 (2440 MHz)

Peak Power Spectral Density



Channel 39 (2480 MHz)

Peak Power Spectral Density

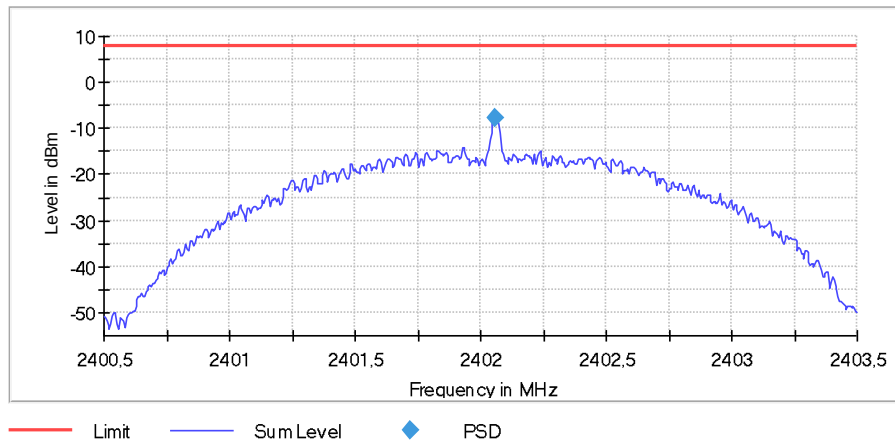


FCC ID: NDX-CMAX2
IC: 4678A-CMAX2

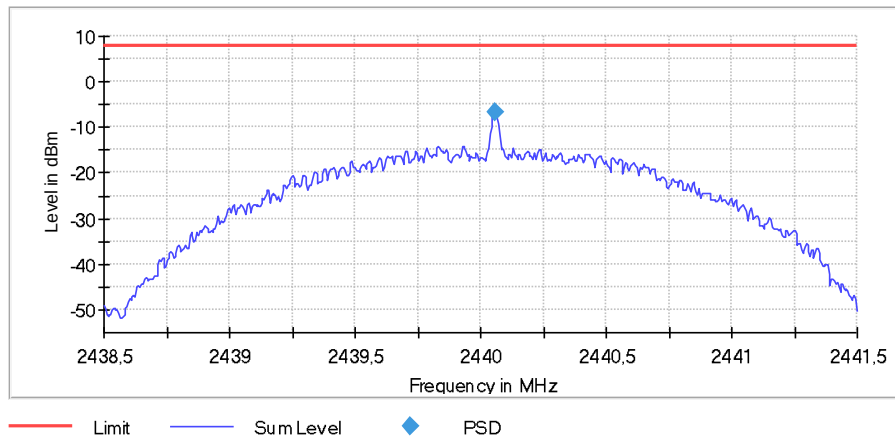
2 Mbps:

Channel 37 (2402 MHz)

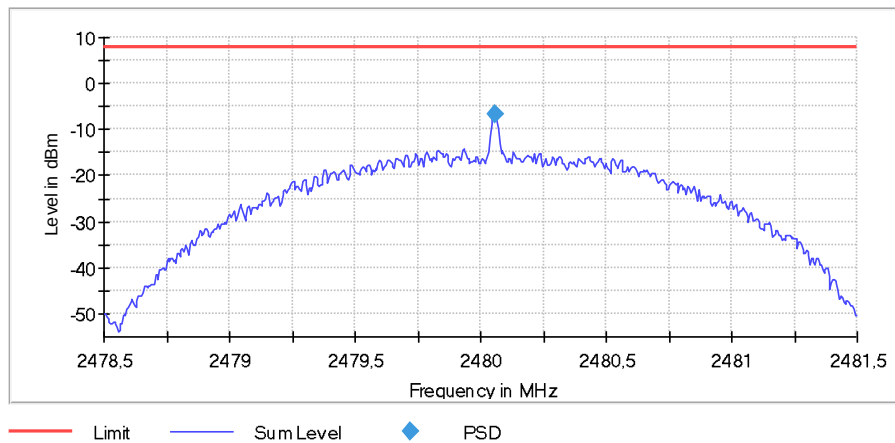
Peak Power Spectral Density


Channel 17 (2440 MHz)

Peak Power Spectral Density


Channel 39 (2480 MHz)

Peak Power Spectral Density



FCC ID: NDX-CMAX2

IC: 4678A-CMAX2

5.5 Unwanted emissions in restricted bands, radiated

For test instruments and accessories used see section 6 Part **SER1**, **SER 2**, **SER 3**.

5.5.1 Description of the test location

Test location: Anechoic chamber SAC2
Test location: Anechoic chamber SAC1
Test location: Anechoic chamber 1
Test distance: 3 m

5.5.2 Photo documentation of the test set-up

See Attachment B for detailed photo documentation of the test set-up.

5.5.3 Applicable standard

According to FCC Part 15, Section 15.205(a):

In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limit specified in Section 15.209(a).

5.5.4 Description of Measurement

The restricted bands are measured radiated. The span of the spectrum analyser is set wide enough to capture the restricted band and measure the peak level of the emission operating on the channel closest to the band edge, as well as any modulation products which fall outside of the authorized band of operation. The restricted bands are measured falling emissions into it and the nearest restricted band are checked for emissions also the restricted band for the harmonics of the carrier.

Spectrum analyser settings:

30 MHz – 1000 MHz: RBW: 120 kHz
1000 MHz – 26 GHz: RBW: 1 MHz, VBW: 3 MHz, Sweep: Auto, Detector function: Max Peak

FCC ID: NDX-CMAX2
IC: 4678A-CMAX2
5.5.1 Test result
f < 1000 MHz:

FCC Part 15.209 Radiated emission limits; general requirements (< 30 MHz)					
Frequency (kHz)	PK reading incl. Antenna factor (dBμV/m)	Distance corr. (dB)	corr. level (dBμV/m)	Limit (dBμV/m)	Dlimit (dB)
23.95	48.6	-80.0	-31.4	40.0	-71.4
129.66	47.1	-80.0	-32.9	25.3	-58.2
134.17	94.0	-80.0	14.0	25.1	-11.1
136.05	60.9	-80.0	-19.1	24.9	-44.1
141.39	58.6	-80.0	-21.4	24.6	-46.0
146.64	44.2	-80.0	-35.8	24.3	-60.0

Peak values below Average Limit

RSS-GEN

Frequency (kHz)	Level Pk @3m including antenna factor (dBμA/m)	Extrapolation factor @300m (dB)	Field strength level @300m dB(μA/m)	Limit 20log(6.37/f) dB(μA/m)	Delta (dB)
23.95	-2.9	-80.0	-82.9	-11.5	-71.4
129.66	-4.4	-80.0	-84.4	-26.2	-58.2
134.17	42.5	-80.0	-37.5	-26.5	-11.0
136.05	9.4	-80.0	-70.6	-26.6	-44.0
141.39	7.1	-80.0	-72.9	-26.9	-46.0
146.64	-7.3	-80.0	-87.3	-27.2	-60.1

Peak values below Average Limit

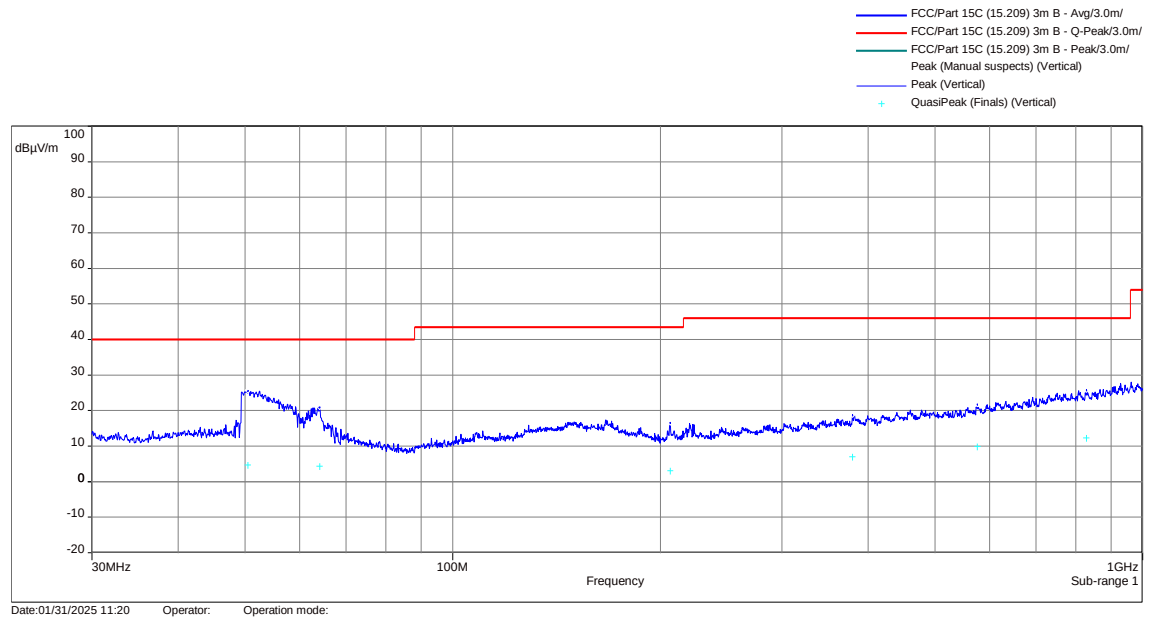
FCC ID: NDX-CMAX2

IC: 4678A-CMAX2

Finals

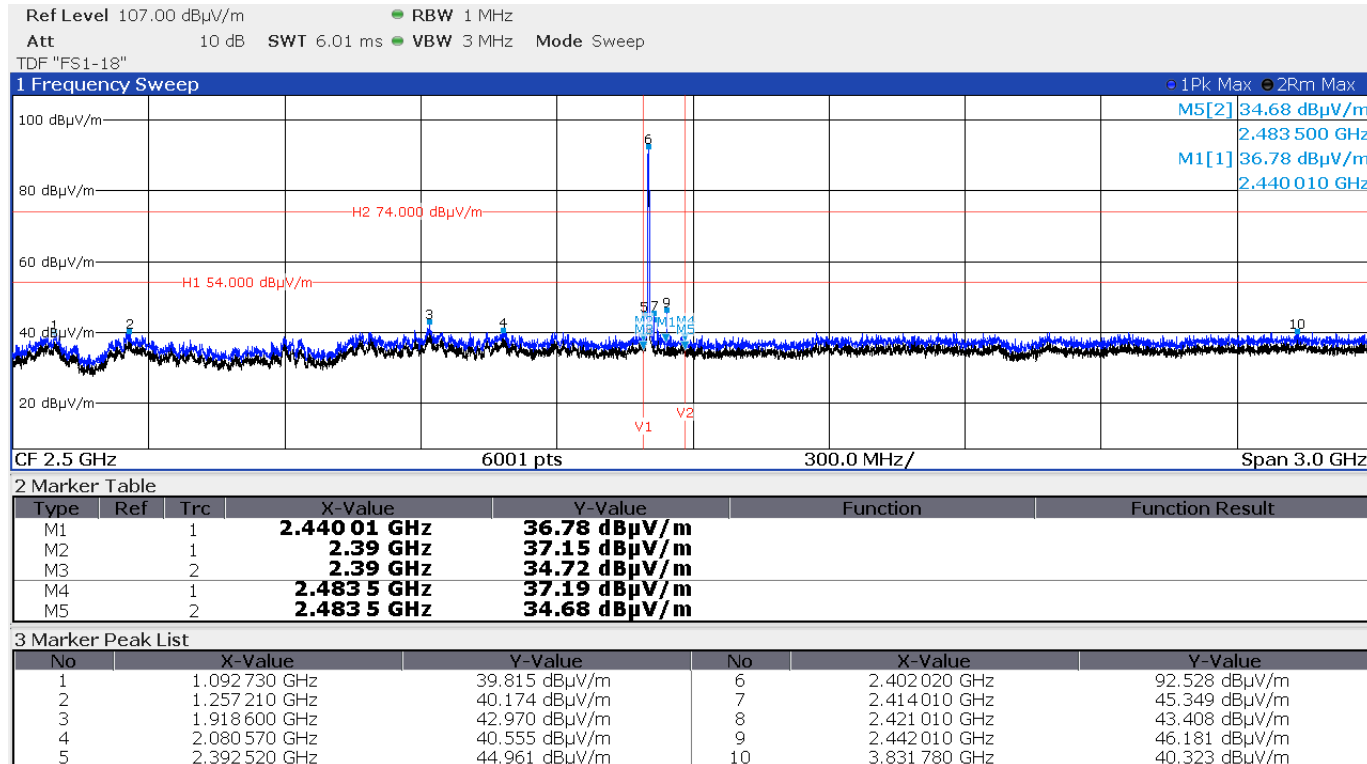
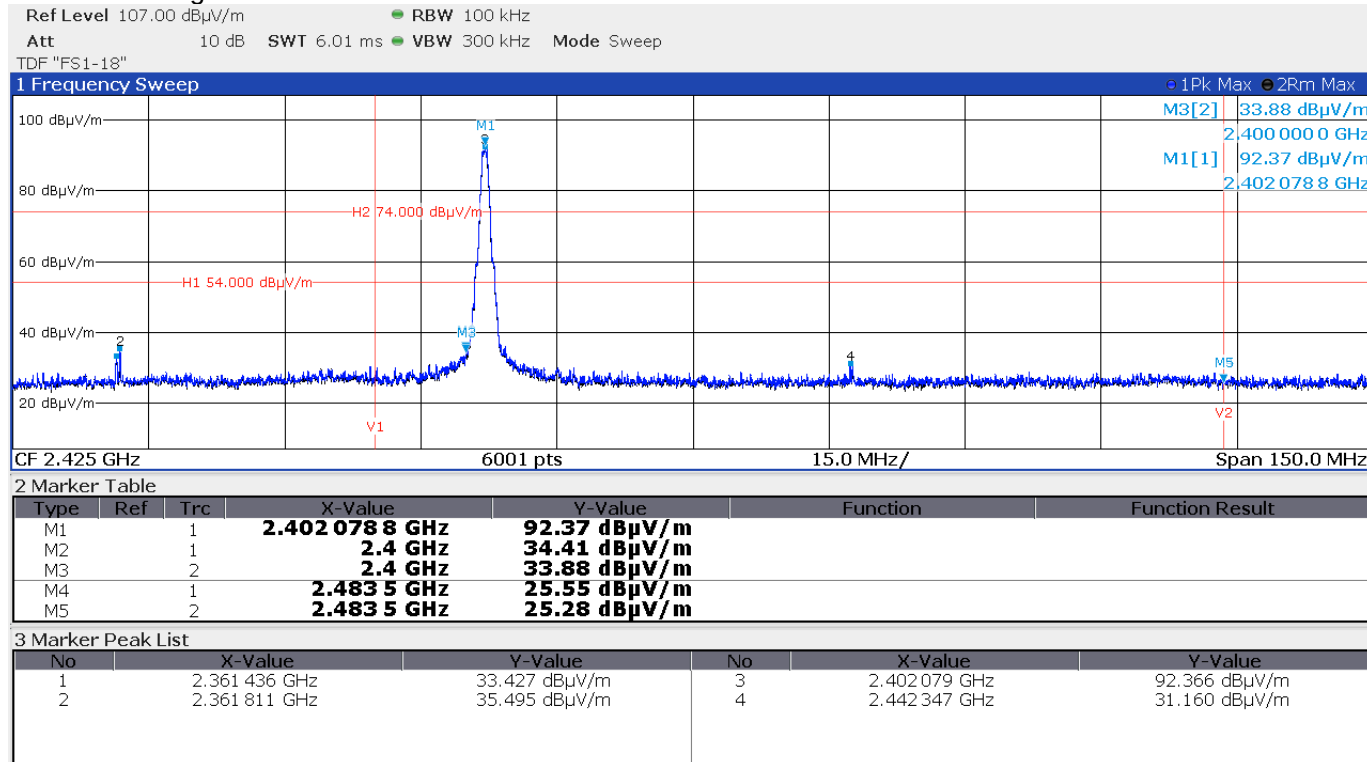
Frequency (Hz)	QuasiPeak (dBμV/m)	QP Margin	QP Limit (dBμV/m)	angle	height	polarization	RBW (Hz)	Meas.Time (s)	Correction (dB)
50.5442319 M	4.65	-35.35	40	5	1	Vertical	120000	0.01	-12.567
64.1550365 M	4.35	-35.65	40	5	1	Vertical	120000	0.01	-13.624
206.6232023 M	3.054	-40.446	43.5	29	1.5	Vertical	120000	0.01	-14.029
379.9210623 M	7.056	-38.944	46	188	4	Vertical	120000	0.01	-9.468
575.6012323 M	9.944	-36.056	46	236	4	Vertical	120000	0.01	-6.289
828.8057043 M	12.354	-33.646	46	246	1.5	Vertical	120000	0.01	-3.083

Graph



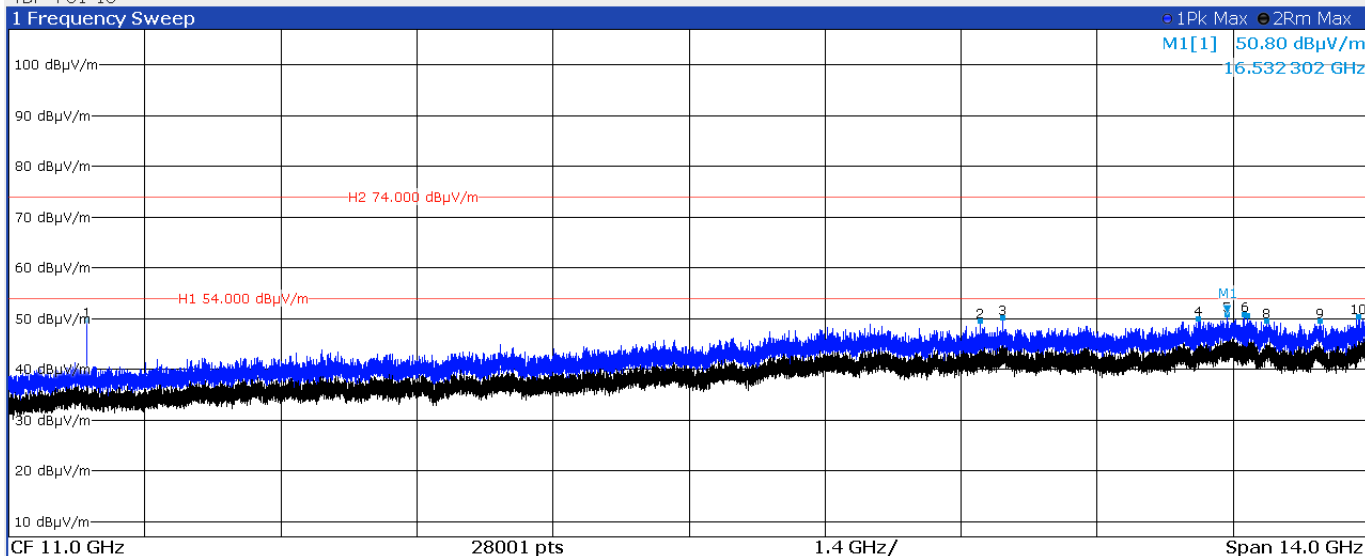
FCC ID: NDX-CMAX2

IC: 4678A-CMAX2

f > 1000 MHz:**5.5.1.1 1 Mbps****CH37****Lower Bandedge:**

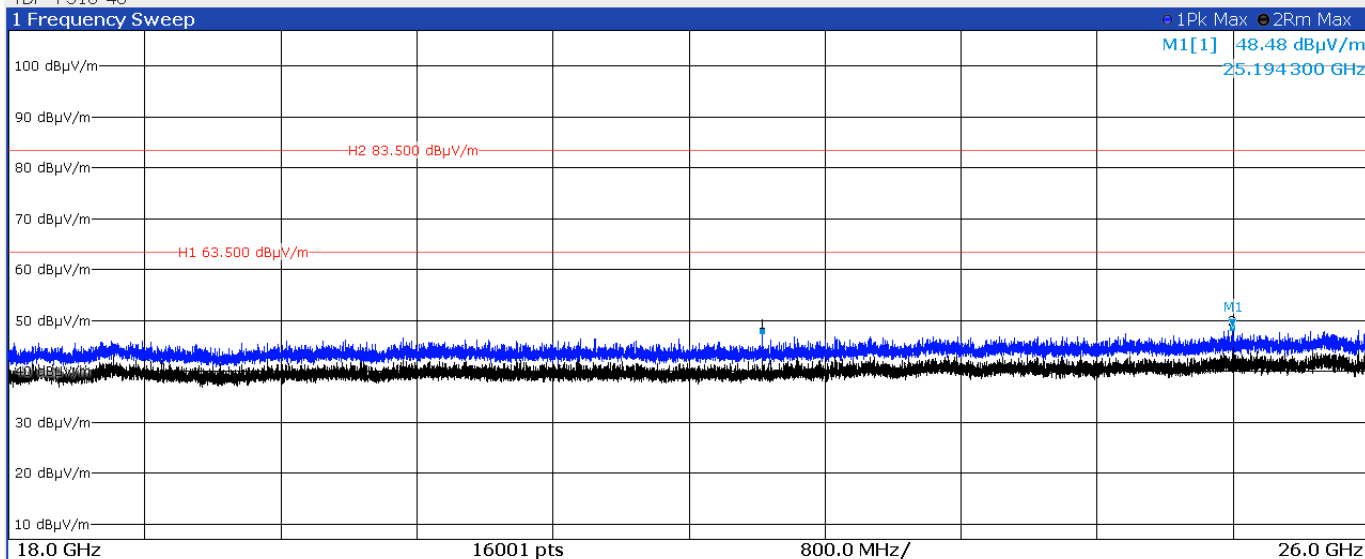
FCC ID: NDX-CMAX2
IC: 4678A-CMAX2

Ref Level 107.00 dBμV/m RBW 1 MHz
Att 10 dB SWT 56 ms VBW 3 MHz Mode Sweep
TDF "FS1-18"


3 Marker Peak List

No	X-Value	Y-Value	No	X-Value	Y-Value
1	4.804720 GHz	49.663 dBμV/m	6	16.717300 GHz	50.757 dBμV/m
2	13.991890 GHz	49.507 dBμV/m	7	16.750290 GHz	50.656 dBμV/m
3	14.224380 GHz	50.083 dBμV/m	8	16.943790 GHz	49.567 dBμV/m
4	16.243310 GHz	49.860 dBμV/m	9	17.491770 GHz	49.624 dBμV/m
5	16.532300 GHz	50.797 dBμV/m	10	17.887750 GHz	50.267 dBμV/m

Ref Level 107.00 dBμV/m RBW 1 MHz
Att 10 dB SWT 32 ms VBW 3 MHz Mode Auto Sweep
TDF "FS18-40"

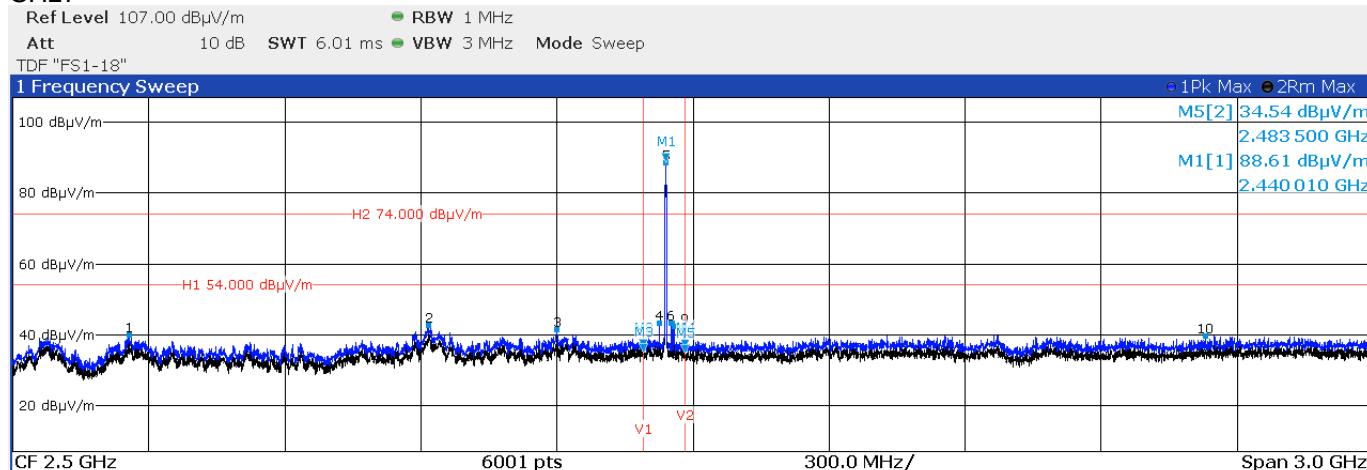

2 Marker Peak List

No	X-Value	Y-Value	No	X-Value	Y-Value
1	22.430970 GHz	47.857 dBμV/m	2	25.194300 GHz	48.475 dBμV/m

FCC ID: NDX-CMAX2

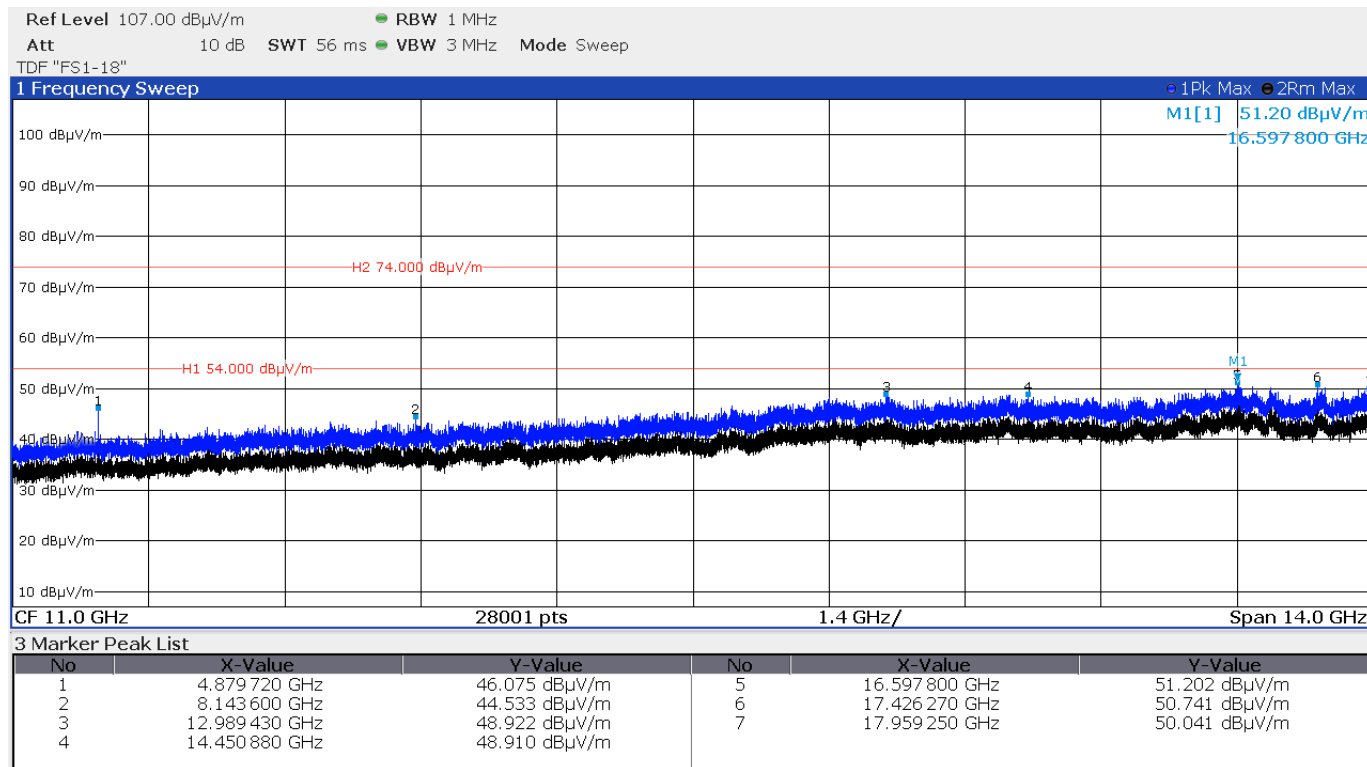
IC: 4678A-CMAX2

CH17



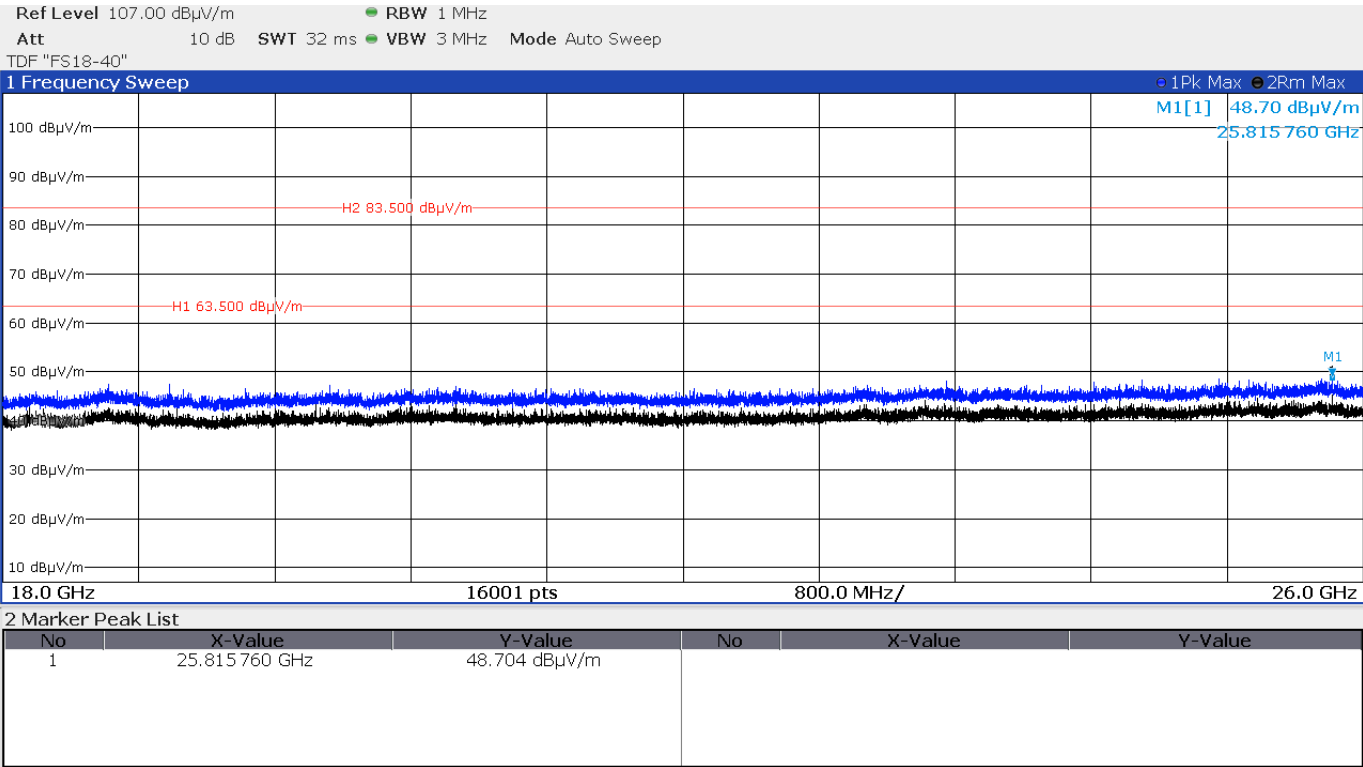
2 Marker Table						
Type	Ref	Trc	X-Value	Y-Value	Function	Function Result
M1		1	2.440 01 GHz	88.61 dBµV/m		
M2		1	2.39 GHz	36.04 dBµV/m		
M3		2	2.39 GHz	34.70 dBµV/m		
M4		1	2.483 5 GHz	35.93 dBµV/m		
M5		2	2.483 5 GHz	34.54 dBµV/m		

3 Marker Peak List							
No	X-Value		Y-Value	No	X-Value		Y-Value
1	1.256 210 GHz		40.028 dBµV/m	6	2.451 510 GHz		43.230 dBµV/m
2	1.917 100 GHz		42.625 dBµV/m	7	2.455 010 GHz		43.218 dBµV/m
3	2.200 050 GHz		41.293 dBµV/m	8	2.458 010 GHz		42.238 dBµV/m
4	2.425 010 GHz		43.243 dBµV/m	9	2.481 000 GHz		42.351 dBµV/m
5	2.440 010 GHz		88.609 dBµV/m	10	3.629 810 GHz		39.728 dBµV/m



3 Marker Peak List							
No	X-Value		Y-Value	No	X-Value		Y-Value
1	4.879 720 GHz		46.075 dBµV/m	5	16.597 800 GHz		51.202 dBµV/m
2	8.143 600 GHz		44.533 dBµV/m	6	17.426 270 GHz		50.741 dBµV/m
3	12.989 430 GHz		48.922 dBµV/m	7	17.959 250 GHz		50.041 dBµV/m
4	14.450 880 GHz		48.910 dBµV/m				

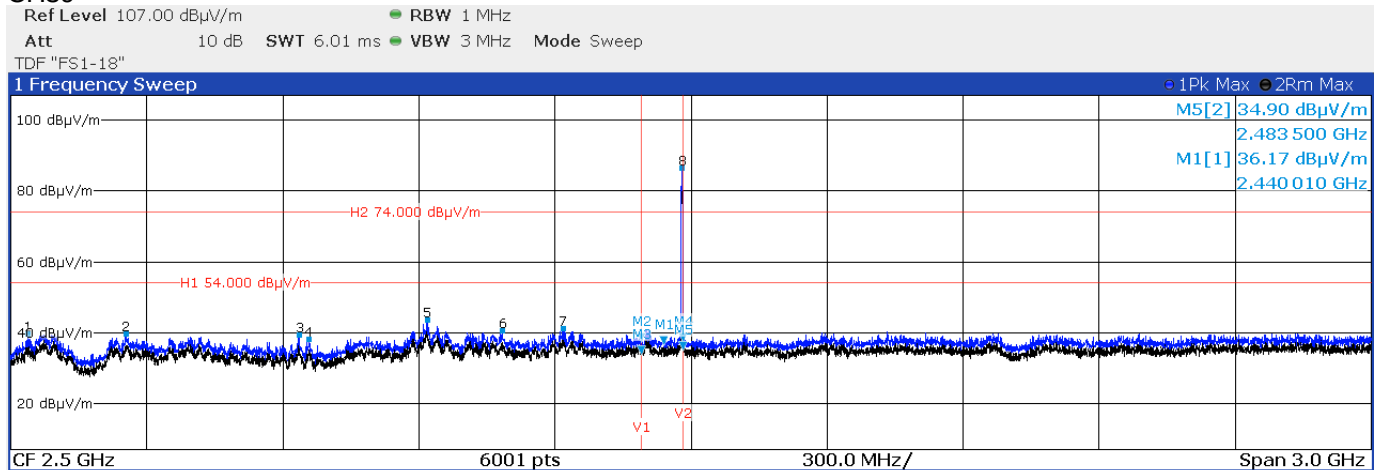
FCC ID: NDX-CMAX2 IC: 4678A-CMAX2



FCC ID: NDX-CMAX2

IC: 4678A-CMAX2

CH39

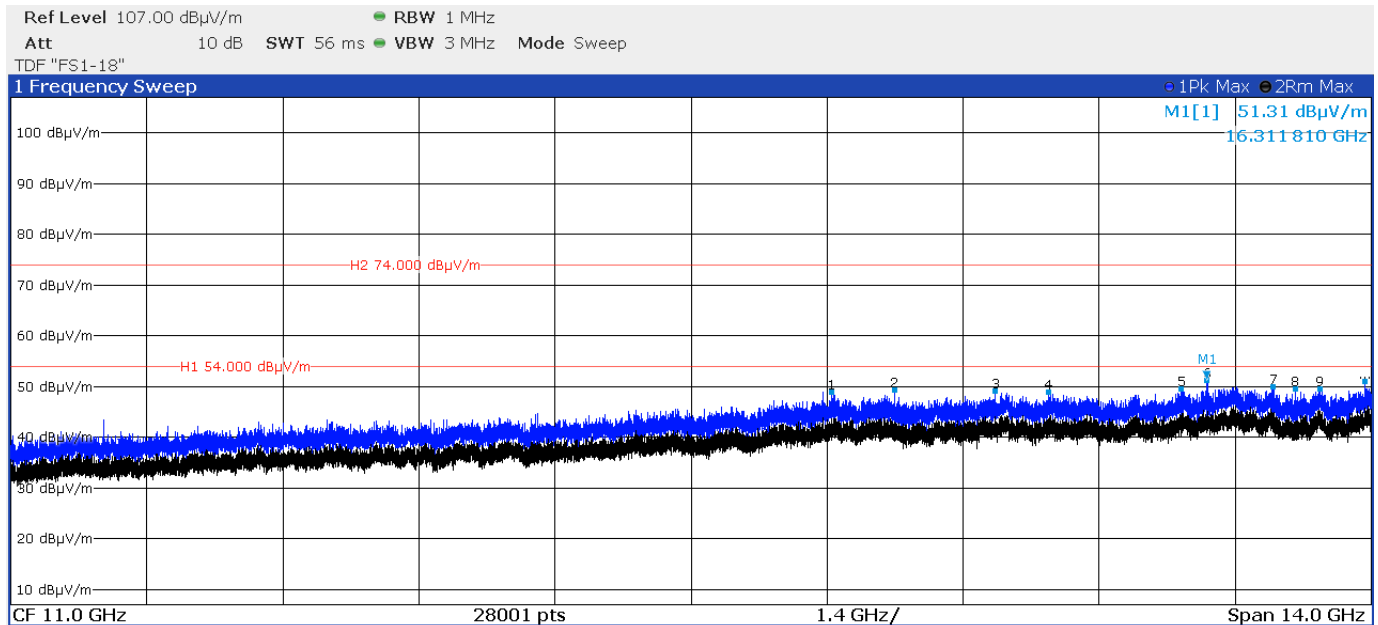


2 Marker Table

Type	Ref	Trc	X-Value	Y-Value	Function	Function Result
M1	1		2.44001 GHz	36.17 dBµV/m		
M2	1		2.39 GHz	37.10 dBµV/m		
M3	2		2.39 GHz	33.66 dBµV/m		
M4	1		2.4835 GHz	37.30 dBµV/m		
M5	2		2.4835 GHz	34.90 dBµV/m		

3 Marker Peak List

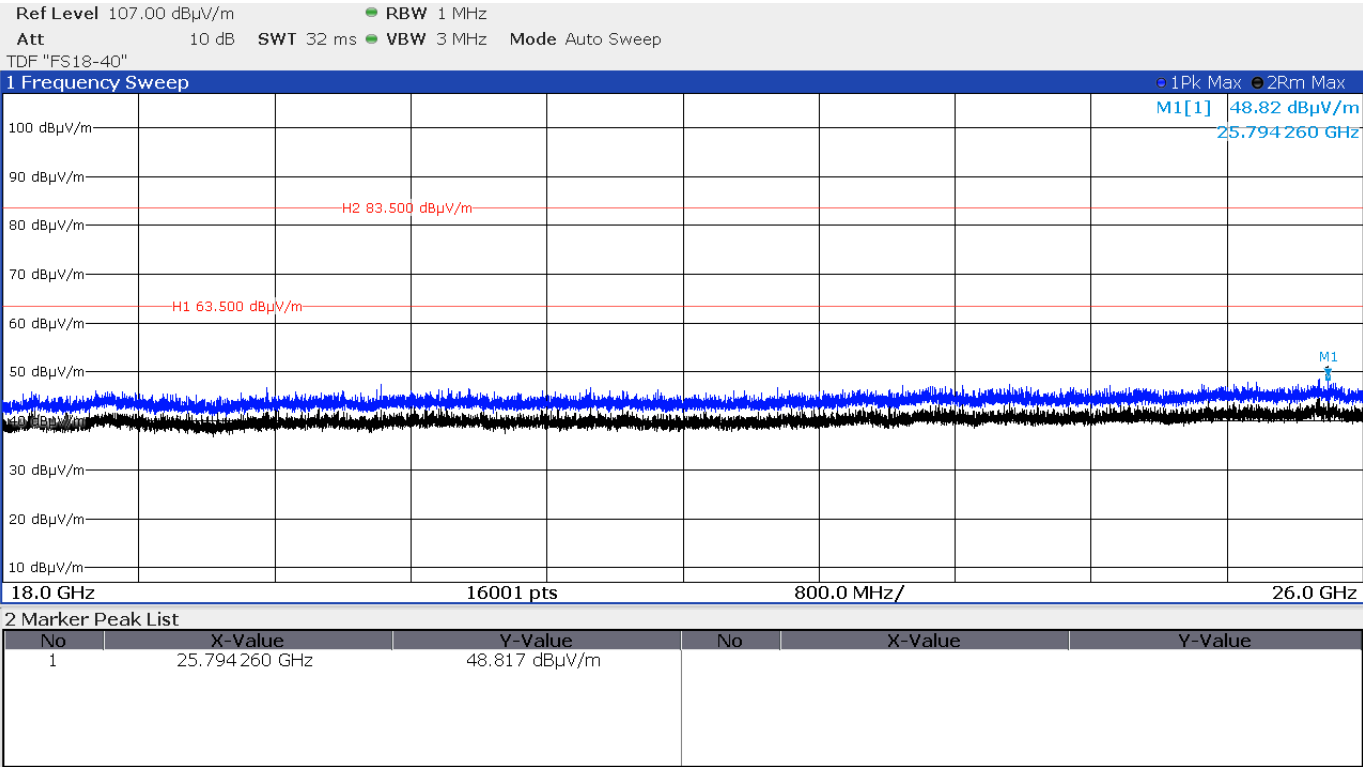
No	X-Value	Y-Value	No	X-Value	Y-Value
1	1.038740 GHz	39.633 dBµV/m	5	1.918100 GHz	43.411 dBµV/m
2	1.253710 GHz	39.608 dBµV/m	6	2.084070 GHz	40.523 dBµV/m
3	1.636640 GHz	39.182 dBµV/m	7	2.217550 GHz	41.056 dBµV/m
4	1.657640 GHz	38.007 dBµV/m	8	2.480000 GHz	86.371 dBµV/m



3 Marker Peak List

No	X-Value	Y-Value	No	X-Value	Y-Value
1	12.449450 GHz	48.899 dBµV/m	6	16.311810 GHz	51.312 dBµV/m
2	13.089930 GHz	49.274 dBµV/m	7	16.990290 GHz	49.910 dBµV/m
3	14.131390 GHz	49.070 dBµV/m	8	17.214780 GHz	49.452 dBµV/m
4	14.678370 GHz	48.990 dBµV/m	9	17.469270 GHz	49.441 dBµV/m
5	16.047320 GHz	49.477 dBµV/m	10	17.936750 GHz	51.078 dBµV/m

FCC ID: NDX-CMAX2 IC: 4678A-CMAX2



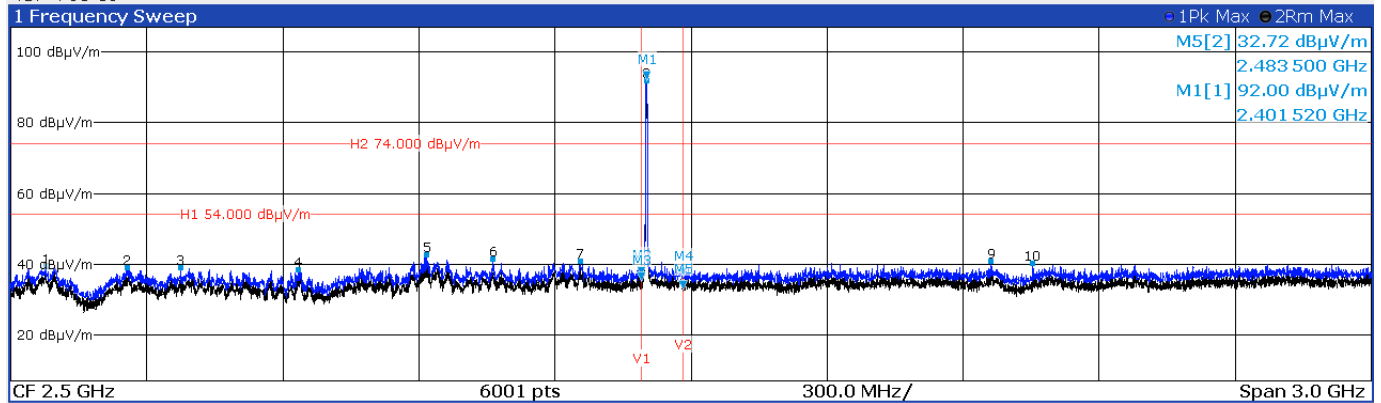
FCC ID: NDX-CMAX2

IC: 4678A-CMAX2

5.5.1.2 2 Mbps

CH37

Ref Level 107.00 dBµV/m RBW 1 MHz
Att 10 dB SWT 6.01 ms VBW 3 MHz Mode Sweep
TDF "FS1-18"

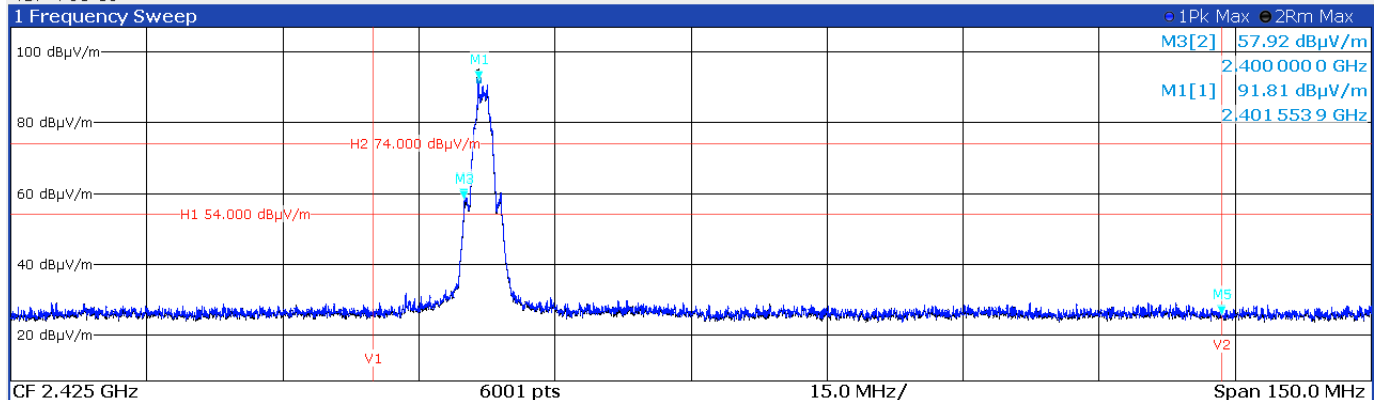


Type	Ref	Trc	X-Value	Y-Value	Function	Function Result
M1	1		2.401 52 GHz	92.00 dBµV/m		
M2	1		2.39 GHz	36.66 dBµV/m		
M3	2		2.39 GHz	35.03 dBµV/m		
M4	1		2.483 5 GHz	36.24 dBµV/m		
M5	2		2.483 5 GHz	32.72 dBµV/m		

No	X-Value	Y-Value	No	X-Value	Y-Value
1	1.076 740 GHz	39.362 dBµV/m	6	2.063 570 GHz	41.340 dBµV/m
2	1.256 710 GHz	38.876 dBµV/m	7	2.256 040 GHz	40.812 dBµV/m
3	1.374 190 GHz	39.098 dBµV/m	8	2.401 520 GHz	91.997 dBµV/m
4	1.633 640 GHz	38.269 dBµV/m	9	3.161 890 GHz	40.984 dBµV/m
5	1.917 100 GHz	42.601 dBµV/m	10	3.252 370 GHz	40.233 dBµV/m

Lower Bandedge:

Ref Level 107.00 dBµV/m RBW 100 kHz
Att 10 dB SWT 6.01 ms VBW 300 kHz Mode Sweep
TDF "FS1-18"

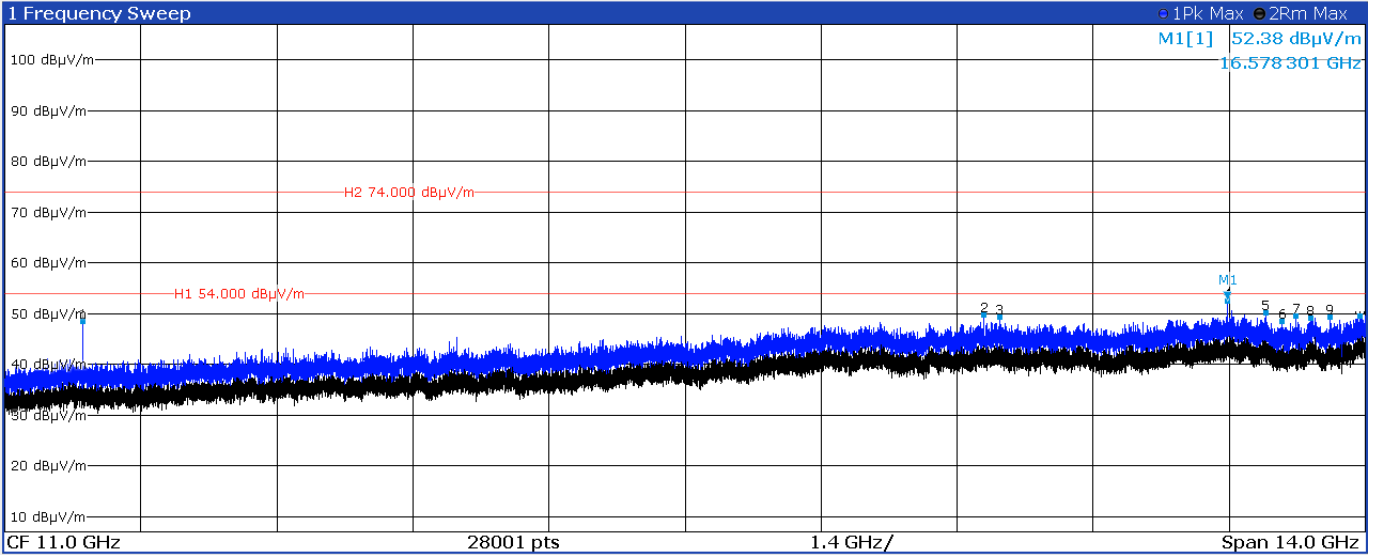


Type	Ref	Trc	X-Value	Y-Value	Function	Function Result
M1	1		2.401 553 9 GHz	91.81 dBµV/m		
M2	1		2.4 GHz	58.69 dBµV/m		
M3	2		2.4 GHz	57.92 dBµV/m		
M4	1		2.483 5 GHz	25.75 dBµV/m		
M5	2		2.483 5 GHz	25.53 dBµV/m		

No	X-Value	Y-Value	No	X-Value	Y-Value
1	2.401 554 GHz	91.813 dBµV/m			

FCC ID: NDX-CMAX2
IC: 4678A-CMAX2

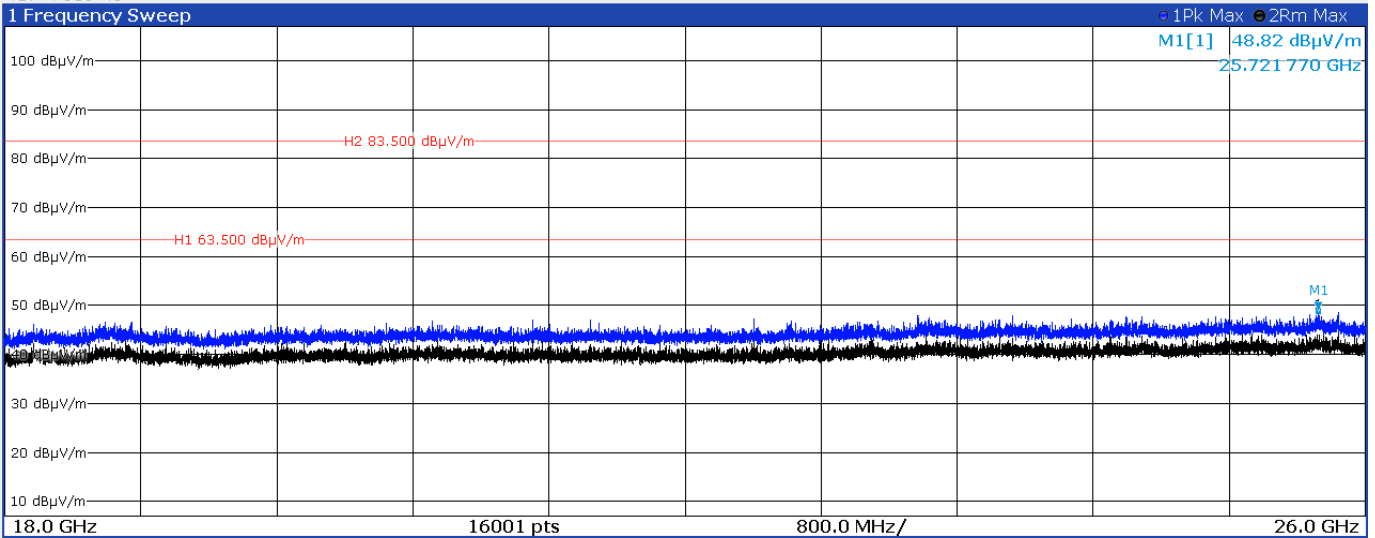
Ref Level 107.00 dBµV/m RBW 1 MHz
Att 10 dB SWT 56 ms VBW 3 MHz Mode Sweep
TDF "FS1-18"



3 Marker Peak List

No	X-Value	Y-Value	No	X-Value	Y-Value
1	4.803 220 GHz	48.511 dBµV/m	6	17.144 280 GHz	48.483 dBµV/m
2	14.077 390 GHz	49.689 dBµV/m	7	17.285 780 GHz	49.556 dBµV/m
3	14.236 880 GHz	49.295 dBµV/m	8	17.434 270 GHz	49.176 dBµV/m
4	16.578 300 GHz	52.385 dBµV/m	9	17.636 760 GHz	49.399 dBµV/m
5	16.971 790 GHz	50.103 dBµV/m	10	17.942 250 GHz	49.517 dBµV/m

Ref Level 107.00 dBµV/m RBW 1 MHz
Att 10 dB SWT 32 ms VBW 3 MHz Mode Auto Sweep
TDF "FS18-40"



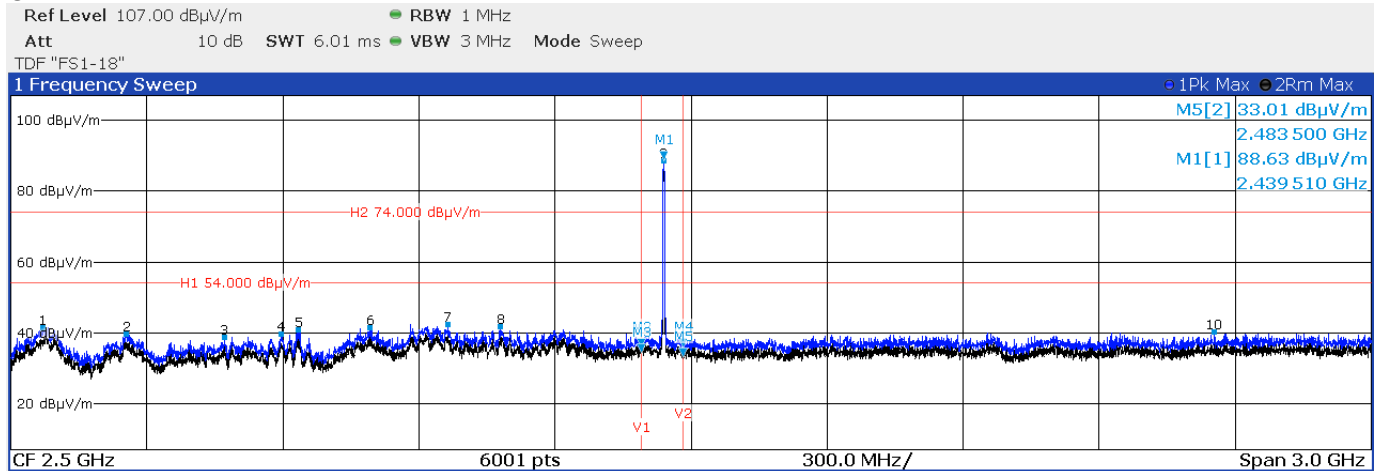
2 Marker Peak List

No	X-Value	Y-Value	No	X-Value	Y-Value
1	25.721 770 GHz	48.824 dBµV/m			

FCC ID: NDX-CMAX2

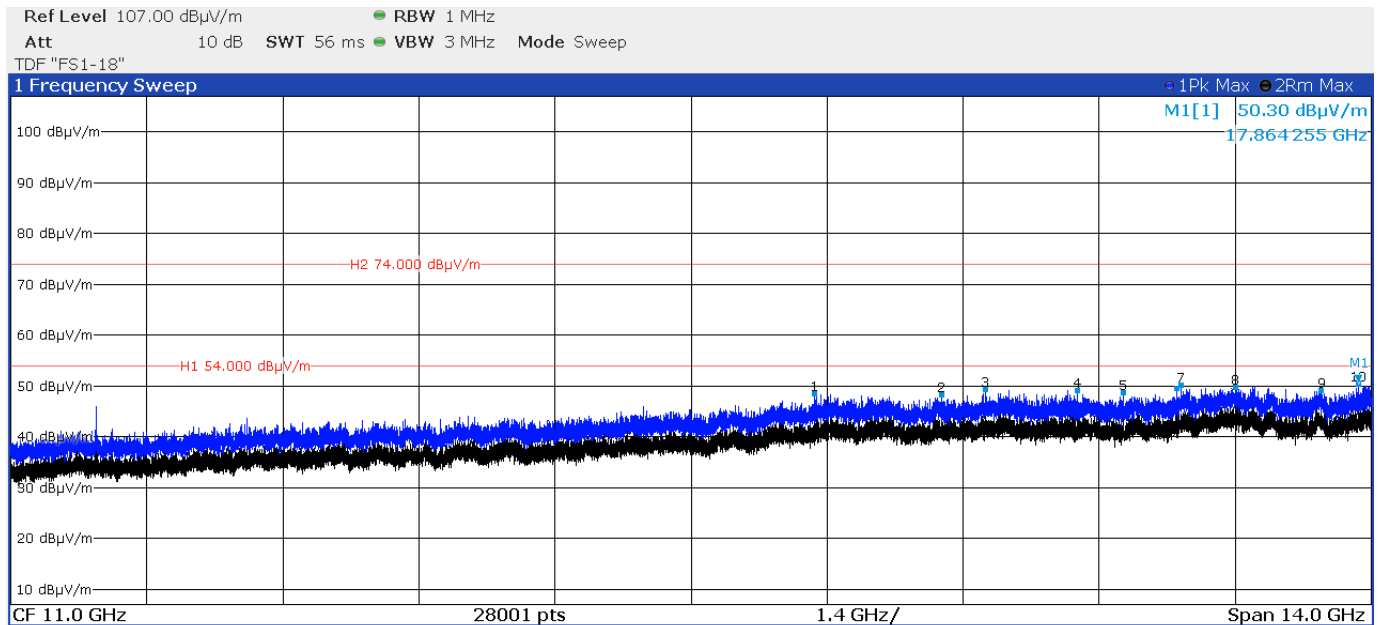
IC: 4678A-CMAX2

CH17



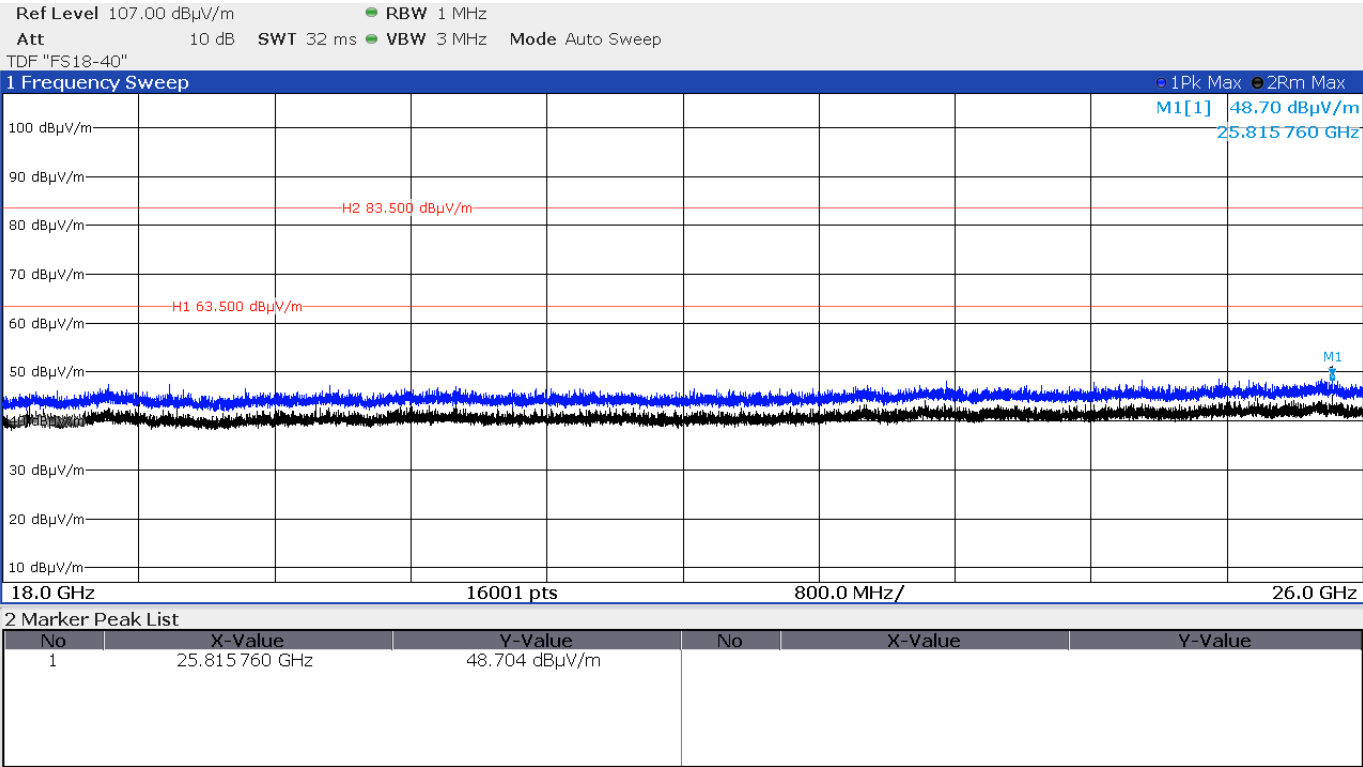
Type	Ref	Trc	X-Value	Y-Value	Function	Function Result
M1		1	2.439 51 GHz	88.63 dBµV/m		
M2		1	2.39 GHz	35.65 dBµV/m		
M3		2	2.39 GHz	34.05 dBµV/m		
M4		1	2.483 5 GHz	35.78 dBµV/m		
M5		2	2.483 5 GHz	33.01 dBµV/m		

No	X-Value	Y-Value	No	X-Value	Y-Value
1	1.071 740 GHz	41.475 dBµV/m	6	1.792 620 GHz	41.579 dBµV/m
2	1.254 710 GHz	39.779 dBµV/m	7	1.963 590 GHz	42.383 dBµV/m
3	1.471 170 GHz	38.790 dBµV/m	8	2.079 570 GHz	41.717 dBµV/m
4	1.597 150 GHz	39.663 dBµV/m	9	2.439 510 GHz	88.628 dBµV/m
5	1.634 640 GHz	40.726 dBµV/m	10	3.654 310 GHz	40.165 dBµV/m



No	X-Value	Y-Value	No	X-Value	Y-Value
1	12.273 450 GHz	48.401 dBµV/m	6	16.001 820 GHz	49.446 dBµV/m
2	13.575 410 GHz	48.233 dBµV/m	7	16.037 820 GHz	50.081 dBµV/m
3	14.025 890 GHz	49.385 dBµV/m	8	16.598 300 GHz	49.750 dBµV/m
4	14.977 860 GHz	49.123 dBµV/m	9	17.485 770 GHz	49.031 dBµV/m
5	15.446 340 GHz	48.617 dBµV/m	10	17.864 250 GHz	50.299 dBµV/m

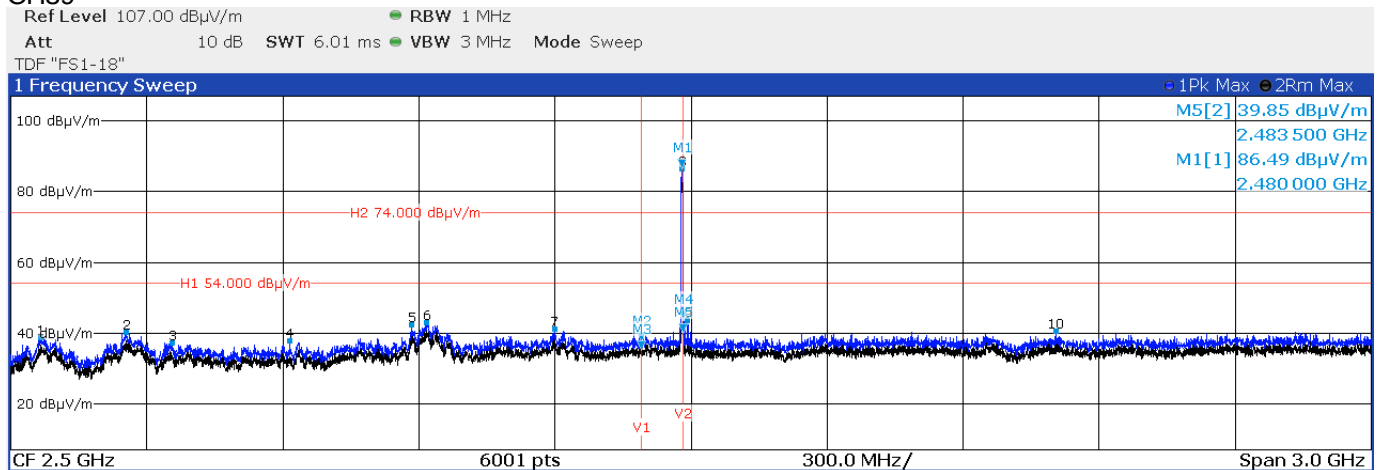
FCC ID: NDX-CMAX2 IC: 4678A-CMAX2



FCC ID: NDX-CMAX2

IC: 4678A-CMAX2

CH39

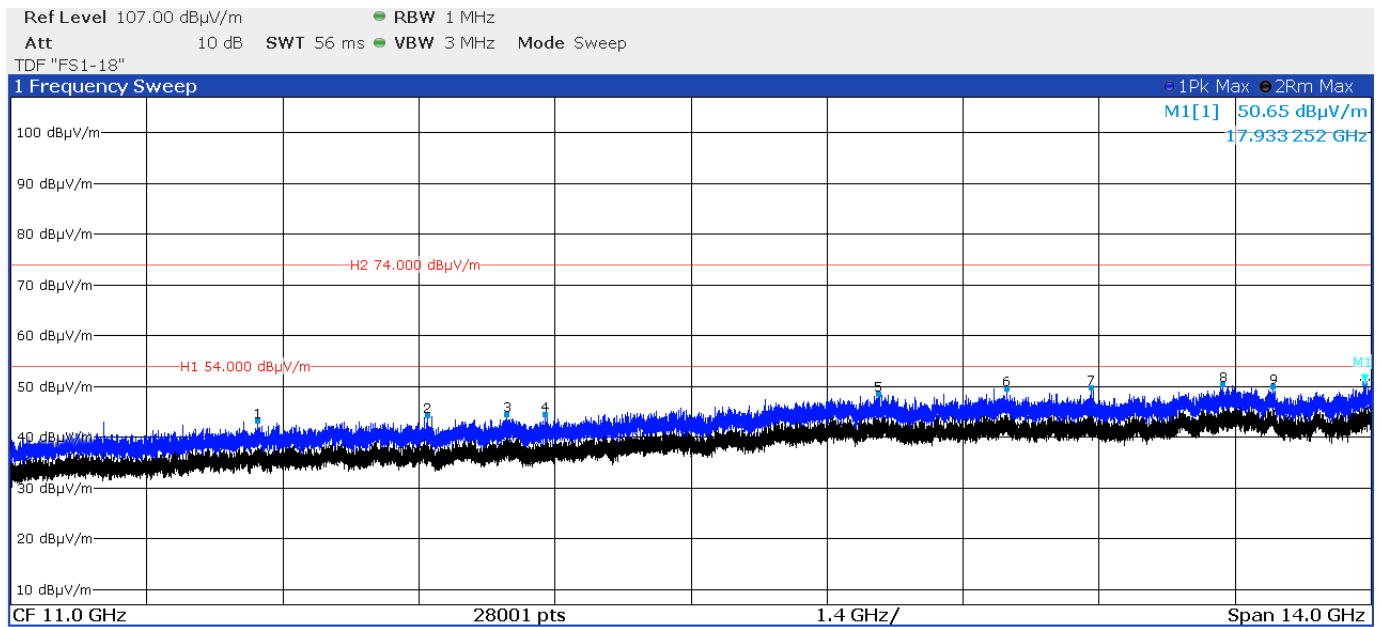


2 Marker Table

Type	Ref	Trc	X-Value	Y-Value	Function	Function Result
M1	1		2.48 GHz	86.49 dBµV/m		
M2	1		2.39 GHz	37.64 dBµV/m		
M3	2		2.39 GHz	34.96 dBµV/m		
M4	1		2.4835 GHz	43.63 dBµV/m		
M5	2		2.4835 GHz	39.85 dBµV/m		

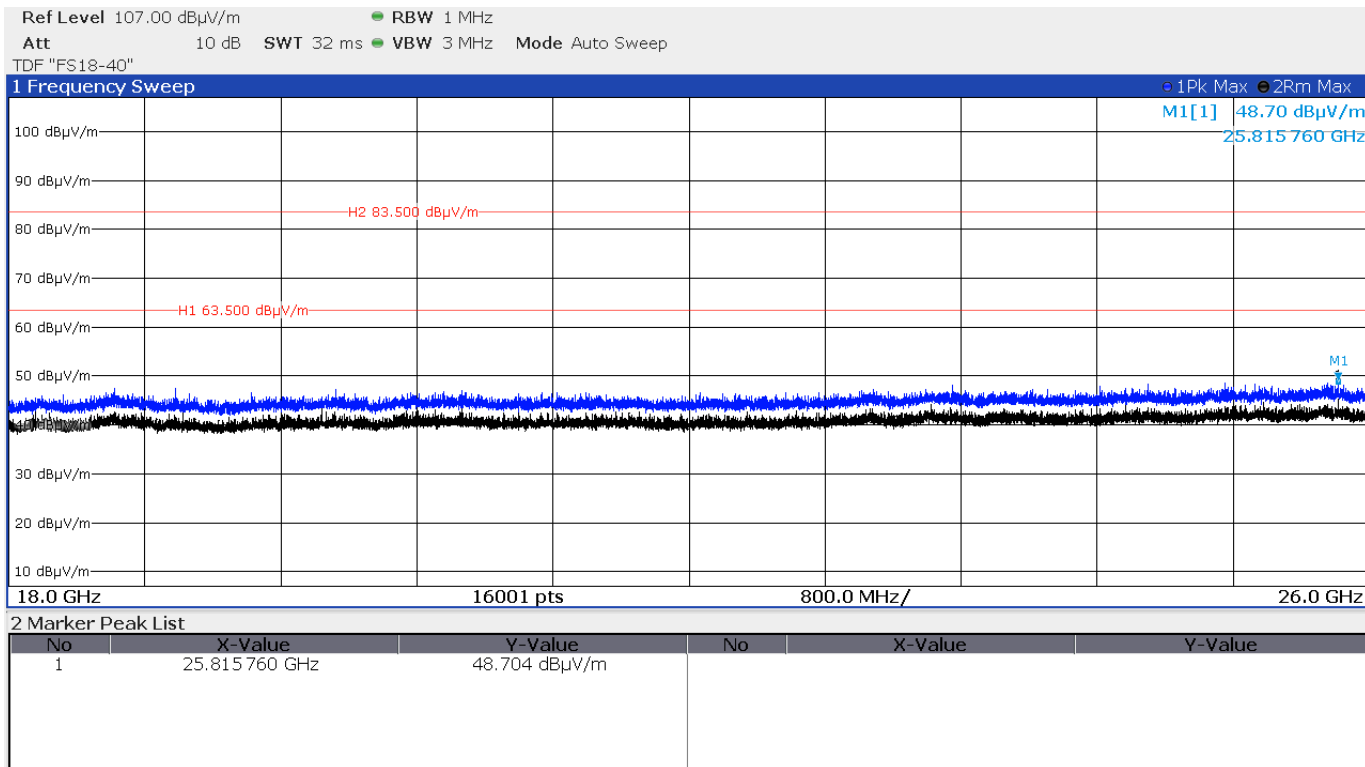
3 Marker Peak List

No	X-Value	Y-Value	No	X-Value	Y-Value
1	1.065240 GHz	38.623 dBµV/m	6	1.917600 GHz	43.000 dBµV/m
2	1.255210 GHz	40.194 dBµV/m	7	2.199050 GHz	41.201 dBµV/m
3	1.356190 GHz	37.204 dBµV/m	8	2.480000 GHz	86.486 dBµV/m
4	1.615150 GHz	37.725 dBµV/m	9	2.492000 GHz	43.619 dBµV/m
5	1.884100 GHz	42.448 dBµV/m	10	3.304870 GHz	40.537 dBµV/m



3 Marker Peak List

No	X-Value	Y-Value	No	X-Value	Y-Value
1	6.539660 GHz	43.232 dBµV/m	6	14.246880 GHz	49.582 dBµV/m
2	8.287100 GHz	44.214 dBµV/m	7	15.113350 GHz	49.641 dBµV/m
3	9.105570 GHz	44.564 dBµV/m	8	16.476800 GHz	50.332 dBµV/m
4	9.494550 GHz	44.374 dBµV/m	9	16.992290 GHz	49.962 dBµV/m
5	12.928430 GHz	48.518 dBµV/m	10	17.933250 GHz	50.649 dBµV/m

FCC ID: NDX-CMAX2
IC: 4678A-CMAX2


Radiated limits according to FCC Part 15 Section 15.209(a) for spurious emissions which fall in restricted bands:

Frequency (MHz)	Field strength of spurious emissions		Measurement distance
	(µV/m)	dB(µV/m)	(metres)
0.009-0.490	2400/F (kHz)		300
0.490-1.705	24000/F (kHz)		30
1.705-30	30	29.5	30
30-88	100	40	3
88-216	150	43.5	3
216-960	200	46	3
Above 960	500	54	3

FCC ID: NDX-CMAX2
IC: 4678A-CMAX2
Restricted bands of operation:

The field strength of emissions appearing within these frequency bands shall not exceed the limits shown in Section 15.209

MHz	MHz	MHz	GHz
0.090 – 0.110	16.42 – 16.423	399.9 – 410	4.5 – 5.15
0.495 – 0.505	16.69475 – 16.69525	608 – 614	5.35 – 5.46
2.1735 – 2.1905	16.80425 – 16.80475	960 – 1240	7.25 – 7.75
4.125 – 4.128	25.5 – 25.67	1300 – 1427	8.025 – 8.5
4.17725 – 4.17775	37.5 – 38.25	1435 – 1626.5	9.0 – 9.2
4.20725 – 4.20775	73 – 74.6	1645.5 – 1646.5	9.3 – 9.5
6.215 – 6.218	74.8 – 75.2	1660 – 1710	10.6 – 12.7
6.26775 – 6.26825	108 – 121.94	1718.8 – 1722.2	13.25 – 13.4
6.31175 – 6.31225	123 – 138	2200 – 2300	14.47 – 14.5
8.291 – 8.294	149.9 – 150.05	2310 – 2390	15.35 – 16.2
8.362 – 8.366	156.52475 – 156.52525	2483.5 – 2500	17.7 – 21.4
8.37625 – 8.38675	156.7 – 156.9	2690 – 2900	22.01 – 23.12
8.41425 – 8.41475	162.0125 – 167.17	3260 – 3267	23.6 – 24.0
12.29 – 12.293	167.72 – 173.2	3332 – 3339	31.2 – 31.8
12.51975 – 12.52025	240 – 285	3345.8 – 3358	36.43 – 36.5
12.57675 – 12.57725	322 – 335.4	3600 – 4400	Above 38.6

RSS-Gen, Table 6 – Restricted Frequency Bands

MHz	MHz	MHz	GHz
0.090 - 0.110	12.57675 - 12.57725	399.9 - 410	7.250 - 7.750
0.495 - 0.505	13.36 - 13.41	608 - 614	8.025 – 8.500
2.1735 - 2.1905	16.42 - 16.423	960 - 1427	9.0 - 9.2
3.020 - 3.026	16.69475 - 16.69525	1435 - 1626.5	9.3 - 9.5
4.125 - 4.128	16.80425 - 16.80475	1645.5 - 1646.5	10.6 - 12.7
4.17725 - 4.17775	25.5 - 25.67	1660 - 1710	13.25 - 13.4
4.20725 - 4.20775	37.5 - 38.25	1718.8 - 1722.2	14.47 - 14.5
5.677 - 5.683	73 - 74.6	2200 - 2300	15.35 - 16.2
6.215 - 6.218	74.8 - 75.2	2310 - 2390	17.7 - 21.4
6.26775 - 6.26825	108 – 138	2483.5 - 2500	22.01 - 23.12
6.31175 - 6.31225	149.9 - 150.05	2655 - 2900	23.6 - 24.0
8.291 - 8.294	156.52475 - 156.52525	3260 – 3267	31.2 - 31.8
8.362 - 8.366	156.7 - 156.9	3332 - 3339	36.43 - 36.5
8.37625 - 8.38675	162.0125 - 167.17	3345.8 - 3358	Above 38.6
8.41425 - 8.41475	167.72 - 173.2	3500 - 4400	
12.29 - 12.293	240 – 285	4500 - 5150	
12.51975 - 12.52025	322 - 335.4	5350 - 5460	

The requirements are **FULFILLED**.

Remarks: The measurement was performed up to the 10th harmonic. Only the worst-case plots are listed.

From 30 – 1000 MHz only noise was recorded. SER3 was measured on 24th of May 2024.

FCC ID: NDX-CMAX2

IC: 4678A-CMAX2

5.6 Antenna application

5.6.1 Applicable standard

According to FCC Part 15C, Section 15.203:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit that broken antennas can be replaced by the user, but the use of a standard antenna jack is prohibited.

The EUT has an integrated PCB antennas. No other antennas can be used with the device.

All supplied antennas meet the requirements of part 15.203.

Remarks: None.

The test report merely corresponds to the test sample. It is not permitted to copy extracts of these test results without the written permission of the test laboratory.

FCC ID: NDX-CMAX2

IC: 4678A-CMAX2

6 USED TEST EQUIPMENT AND ACCESSORIES

All test instruments used are calibrated and verified regularly. The calibration history is available on request.

Test ID	Model Type	Equipment No.	Next Calib.	Last Calib.	Next Verif.	Last Verif.
A 4	ESR3	09-02/03-21-001	03/07/2025	03/07/2024		
	ENV432	09-02/20-21-001	02/09/2026	02/09/2024	02/09/2025	02/09/2024
	KK-SPU195FR01-2X11N-3,	09-02/50-21-037				
	KK-SPU195FR01-2X11N-2M	09-02/50-21-040				
	CDB-10K-18-50V-NMF-I	09-02/50-22-033	17/07/2025	17/07/2024		
	BAT-EMC 2023.0.8.0	09-02/68-21-002				
CPR 3	ESW26	02-02/03-17-002	16/04/2025	16/04/2024		
	AMF-6D-01002000-22-10P	02-02/17-15-004				
	3117	02-02/24-20-007	20/11/2025	20/11/2024		
	BAM 4.5-P	02-02/50-17-024				
	KK-SF106-2X11N-6,5M	02-02/50-18-016				
	0_5 Meter DC-18GHz	09-16/50-23-003				
SER 1	ESR 7	02-02/03-17-001	22/10/2025	22/10/2024		
	HFH2-Z2E	09-02/24-21-001	05/08/2025	05/08/2024		
	IN600	09-02/50-21-015				
	KK-7.8F-2XNM_4.0M	09-02/50-21-018				
	KK-7.8F-2XNM_4.5M	09-02/50-21-023				
	KK-7.8F-2XNM_9.5M	09-02/50-21-025				
	50F-003 N 3dB	09-02/50-22-002				
	CDB-10K-18-50V-NMF-I	09-02/50-22-031			17/07/2025	17/07/2024
	KK-SF526S-2X11N-10.0M	09-02/50-25-002				
	BAT-EMC 2023.0.8.0	09-02/68-21-002				
SER 2	ESVS 30	02-02/03-05-006	02/08/2024	02/08/2023		
	VULB 9168	02-02/24-05-005	15/05/2025	15/05/2024	15/05/2025	15/05/2024
	NW-2000-NB	02-02/50-05-113				
	KK-EF393/U-16N-21N20 m	02-02/50-12-018				
	KK-SD_7/8-2X21N-33,0M	02-02/50-15-028				
	50F-003 N 3 dB	02-02/50-21-010				
SER 3	ESW26	02-02/03-17-002	16/04/2025	16/04/2024		
	AMF-6D-01002000-22-10P	02-02/17-15-004				
	3117	02-02/24-20-007	20/11/2025	20/11/2024		
	BAM 4.5-P	02-02/50-17-024				
	KK-SF106-2X11N-6,5M	02-02/50-18-016				
	0_5 Meter DC-18GHz	09-16/50-23-003				
CPC	ESW26	02-02/03-17-002	16/04/2025	16/04/2024		
	OSP-B157W8 with OSP120	02-02/30-13-002	05/07/2025	05/07/2024		
	OSP-B157WX with OSP120	02-02/30-18-007	08/07/2025	08/07/2024		
	Sucoflex N-1000-SMA	02-02/50-05-072				
	KMS116-GL140SE-KMS116-	02-02/50-16-010				
	2.4/5.2/5.8GHz Antenna + S	02-02/50-17-027				
	Semflex K-400-K	02-02/50-19-013				
	SMB-K27 PULSETRAIN	02-02/68-19-001				

The test report merely corresponds to the test sample. It is not permitted to copy extracts of these test results without the written permission of the test laboratory.