

Test Report



INTENTIONAL RADIATOR TESTS ACCORDING TO FCC PART 95 I

Equipment Under Test: Mobile Patient Monitor

Model: Portrait HUB01

Manufacturer: GE Healthcare Finland Oy
Kuortaneenkatu 2
FI-00510, Helsinki
Finland

Customer: GE Healthcare Finland Oy
Kuortaneenkatu 2
FI-00510, Helsinki
Finland

FCC Rule Part: 95: 2019
KDB: 550599 D01 Medical Body Area Network v01r01
Medical Body Area Network (MBAN) Measurement
Procedures
(December 8, 2017)

Date: 29 March 2021

Issued by:

A handwritten signature in blue ink, appearing to read 'Henri Mäki'.

Henri Mäki
Testing Engineer

Date: 29 March 2021

Checked by:

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Mikko Halonen
Development Engineer

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GENERAL REMARKS

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Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.

RELEASE HISTORY

Version	Changes	Issued
1.0	Initial release	29 March 2021

PRODUCT DESCRIPTION

Equipment Under Test

Trade mark: GE
Model: Portrait HUB01
Type: Mobile Patient Monitor
Serial no: Sample 1: SRW20440005SP (RF_HUB_RFV_1)
Sample 2: SRW20440013SP (RF_HUB_RFV_C1)
FCC ID: 2AO8L-HUB01
IC: 25821-HUB01

General Description

The Portrait HUB01 (later Hub) is a part of GE Healthcare's Portrait Mobile Monitoring Solution system. The Hub enables continuous monitoring of patients by acquiring signals from body-worn sensors through the GE proprietary Medical Body Area Network (MBAN) radio as well as displaying trends and events. The Hub further delivers the patient data to a hospital network through the WLAN (802.11a/b/g/n) radio. Pairing between a Hub and a sensor is made by using an NFC (ISO/IEC 14443) reader in the Hub. In addition to the active MBAN, WLAN and NFC radios, the Hub has a passive RFID tag (EPCglobal Gen-2) that is used for asset management. All Hub antennas are integrated in the mechanics. Besides the wireless interfaces the hub incorporates a 5-pin GE proprietary USB connector in the back of the Hub. The USB connector is used for charging the Hub battery and it enables the SW updates and device configuration.

This test report contains the results for MBAN operating in 2390-2400 MHz frequency band.

Classification

Fixed device ☐
Mobile Device (Human body distance > 20cm) ☒
Portable Device (Human body distance < 20cm) ☒

Samples and Modifications

No.	Name	Description
1	RF_HUB_RFV_1	Radiated sample
2	RF_HUB_RFV_C1	Conducted sample

In both samples the PWB RF is reworked to be mass production equivalent.

In conducted sample the RF test cables were plugged into existing production test connectors. The production test connectors locate on the PWB next to antenna inputs.

Ratings and declarations

Operating Frequency Range (OFR): 2392.8 – 2398.0 MHz
Channels: 3
Channel separation: 2.6 MHz
Transmission technique: Digital modulation
Modulation: GFSK
Antenna type: Integrated custom monopole antennas
Integral Antenna gain: bottom antenna: 2.2 dBi (highest gain in the frequency range)
top antenna: 4.3 dBi (highest gain in the frequency range)

Power Supply

Operating voltage range: 3.6 V_{DC} (nominal battery voltage)

Mechanical Size of the EUT

Height: 21 mm

Width: 63 mm

Length: 141 mm

SUMMARY OF TESTING

Test Specification	Description of Test	Result
§95.2565(b)	Frequency Stability	PASS
§95.2567(f)	Radiated Power	PASS
§95.2573(e)	Emission Bandwidth	PASS
§95.2579(a)(5), (b)	Unwanted Emissions	PASS
§95.2579(f)	Band-Edge Measurement	PASS

The decision rule applied for the tests results stated in this test report is according to the requirements of section 1.3 of ANSI C63.26-2015.

EUT Test Conditions during Testing

The EUT was in continuous transmit mode during all the tests. The EUT was configured into the wanted channel using software provided by the manufacturer (MBAN test mode 1.0.0.4.0.13-1116.1.20b2780).

Radiated measurements were performed with the transmit power set to the maximum level the equipment hardware is capable of. During all other tests the transmit power was set to the maximum level at which the final product is able to operate, limited by the software. The test conditions related to the transmit power levels were provided by the customer.

Table 1: Test frequencies

Channel	Frequency (MHz)
12 Low	2392.8
14 High	2398.0

Test Facility

Testing Laboratory / address: FCC designation number: FI0002 ISED CAB identifier: T004	SGS Fimko Ltd Takomotie 8 FI-00380, HELSINKI FINLAND
Test Site:	☐ K10LAB, ISED Canada registration number: 8708A-1 ☒ K5LAB, ISED Canada registration number: 8708A-2 ☐ T10LAB

TEST RESULTS**Frequency Stability**

Standard:	ANSI C63.26-2015
Tested by:	HEM
Date:	13 January 2021
Temperature:	22.1 °C
Humidity:	21.1 %RH
Barometric pressure:	1005.5 mbar
Measurement Uncertainty:	±5.380 ppm, level of confidence 95 % (k = 2)

FCC Rule: 95.2565(b)

All MBAN devices must maintain a frequency stability of ± 100 ppm over the applicable temperature range.

The equipment is placed inside a temperature chamber, and the chamber temperature is allowed to stabilize. The equipment is turned on, and the frequency is recorded at startup, and at 2 minutes, 5 minutes, and 10 minutes after the equipment is turned on. Four measurements in total are made at one temperature, and the highest deviation from the nominal frequency is reported.

Results

Table 2: Frequency Stability results, LOW channel (bottom antenna)

Temperature [°C]	Measured [MHz]	Deviation [ppm]	Result
+0	2392.8002400	+0.100	PASS
+10	2392.8013800	+0.577	PASS
+20	2392.8007050	+0.295	PASS
+30	2392.7992650	-0.307	PASS
+40	2392.7985900	-0.589	PASS

Table 3: Frequency Stability results, HIGH channel (bottom antenna)

Temperature [°C]	Measured [MHz]	Deviation [ppm]	Result
+0	2398.0003300	+0.138	PASS
+10	2398.0013950	+0.582	PASS
+20	2398.0006450	+0.269	PASS
+30	2397.9993100	-0.288	PASS
+40	2397.9986200	-0.575	PASS

Table 4: Frequency Stability results, LOW channel (top antenna)

Temperature [°C]	Measured [MHz]	Deviation [ppm]	Result
+0	2392.8002550	+0.107	PASS
+10	2392.8013800	+0.577	PASS
+20	2392.8007050	+0.295	PASS
+30	2392.7992800	-0.301	PASS
+40	2392.7986200	-0.577	PASS

Table 5: Frequency Stability results, HIGH channel (top antenna)

Temperature [°C]	Measured [MHz]	Deviation [ppm]	Result
+0	2398.0003300	+0.138	PASS
+10	2398.0014100	+0.588	PASS
+20	2398.0006450	+0.269	PASS
+30	2397.9992800	-0.300	PASS
+40	2397.9986200	-0.575	PASS

Radiated Power

Standard: ANSI C63.26-2015
Tested by: HEM
Date: 13 January 2021
Temperature: 22.1 °C
Humidity: 21.1 %RH
Barometric pressure: 1005.5 mbar
Measurement Uncertainty: ±0.349 dB, level of confidence 95 % (k = 2)

FCC Rule: 95.2567(f)

MBAN transmissions in the 2390-2400 MHz frequency band are limited to a maximum EIRP that shall not exceed the lesser of 13 dBm or $16 + 10 \log(\text{EBW})$ dBm, where EBW is the emission bandwidth expressed in MHz.

Results

Table 6: Radiated Power results

Antenna	Channel	EIRP [dBm]	Limit [dBm]	Result
bottom	LOW	10.65	13.00	PASS
	HIGH	10.62	13.00	PASS
top	LOW	10.81	13.00	PASS
	HIGH	10.79	13.00	PASS

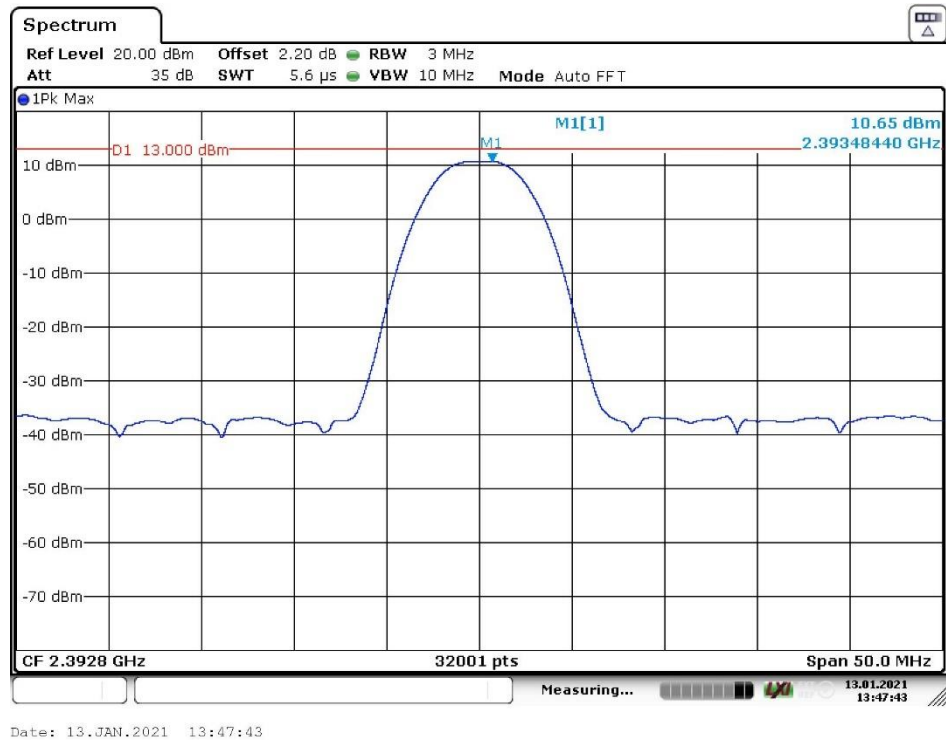


Figure 1: Radiated Power, LOW channel (bottom antenna)

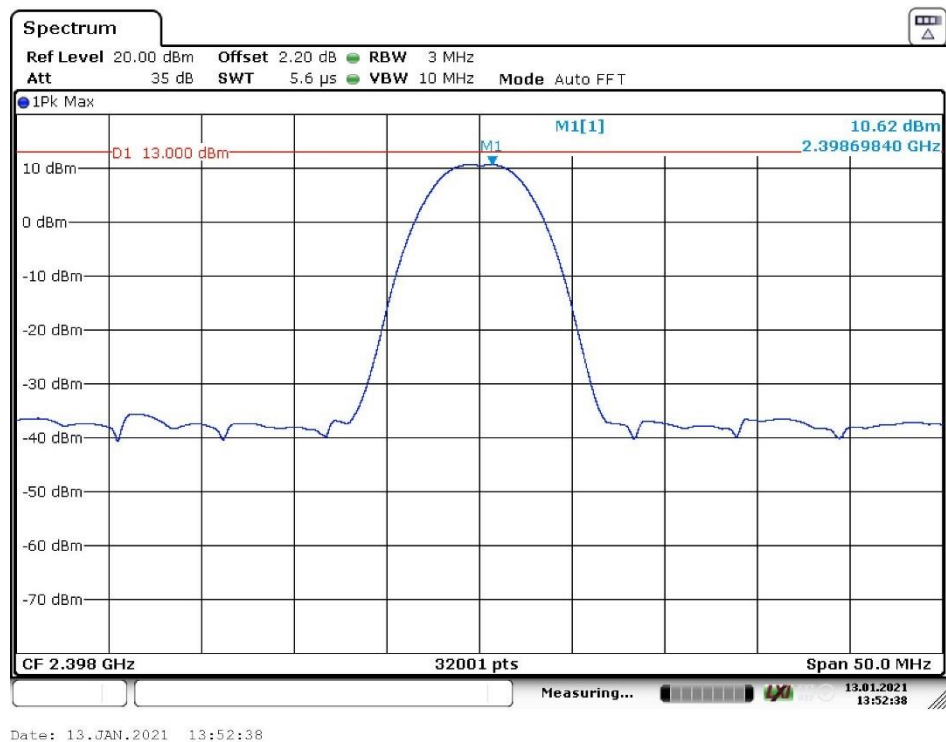


Figure 2: Radiated Power, HIGH channel (bottom antenna)

Note: The Offset in figures equals the antenna gain 2.2 dBi

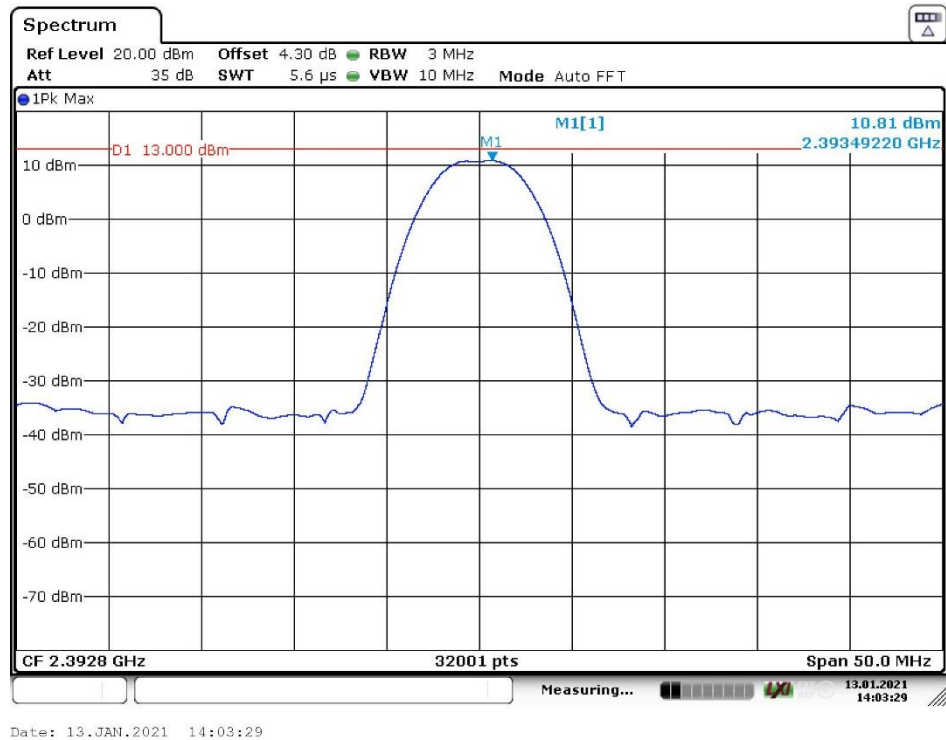


Figure 3: Radiated Power, LOW channel (top antenna)

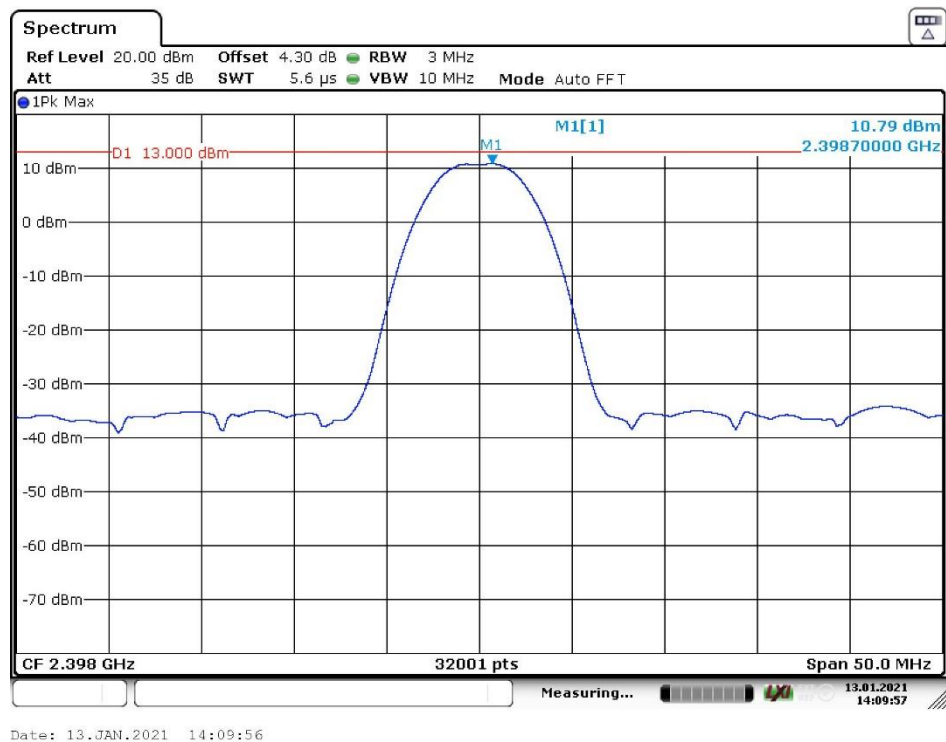


Figure 4: Radiated Power, HIGH channel (top antenna)

Note: The Offset in figures equals the antenna gain 4.3 dBi

Emission Bandwidth

Standard: ANSI C63.26-2015
Tested by: HEM
Date: 13 January 2021
Temperature: 22.1 °C
Humidity: 21.1 %RH
Barometric pressure: 1005.5 mbar
Measurement uncertainty 0.0005 %, level of confidence 95 % (k = 2)

FCC Rule: §95.2573(e)

All transmissions associated with an MBAN are limited to an emission bandwidth (EBW) of less than or equal to 5 MHz, where the EBW is determined by measuring the width of the signal between points, one below the carrier center frequency and one above the carrier center frequency, that are 20 dB down relative to the maximum level of the modulated carrier.

Results

Table 7: Emission Bandwidth results

Antenna	Channel	EBW [MHz]	Limit [MHz]	Result
bottom	LOW	2.40305	5.0	PASS
	HIGH	2.40274	5.0	PASS
top	LOW	2.40024	5.0	PASS
	HIGH	2.40024	5.0	PASS

Emission Bandwidth

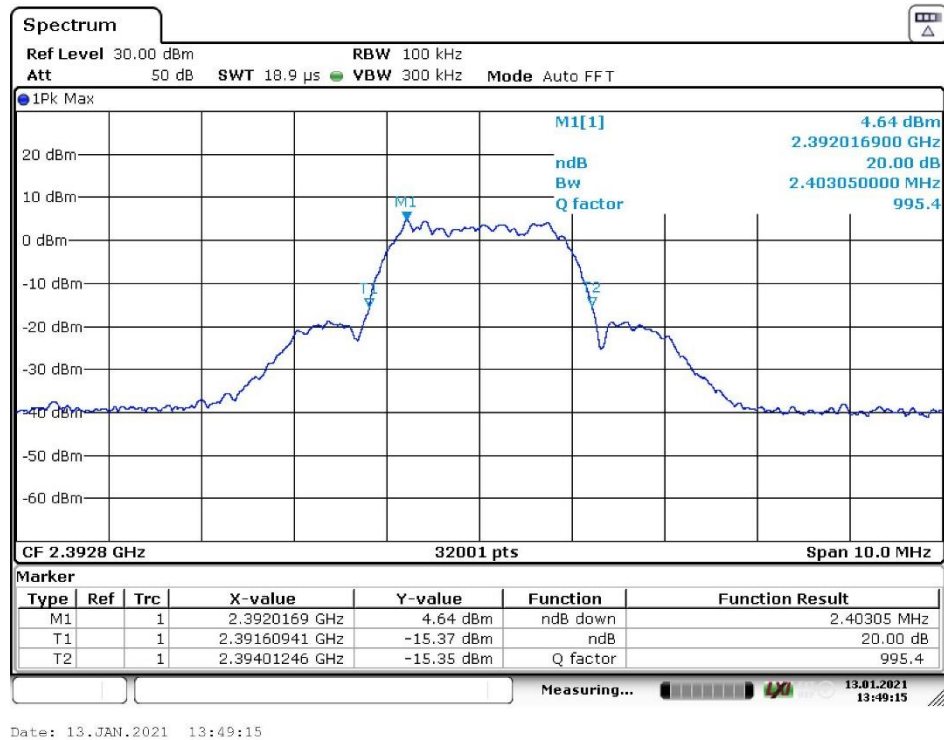


Figure 5: Emission Bandwidth, LOW channel (bottom antenna)

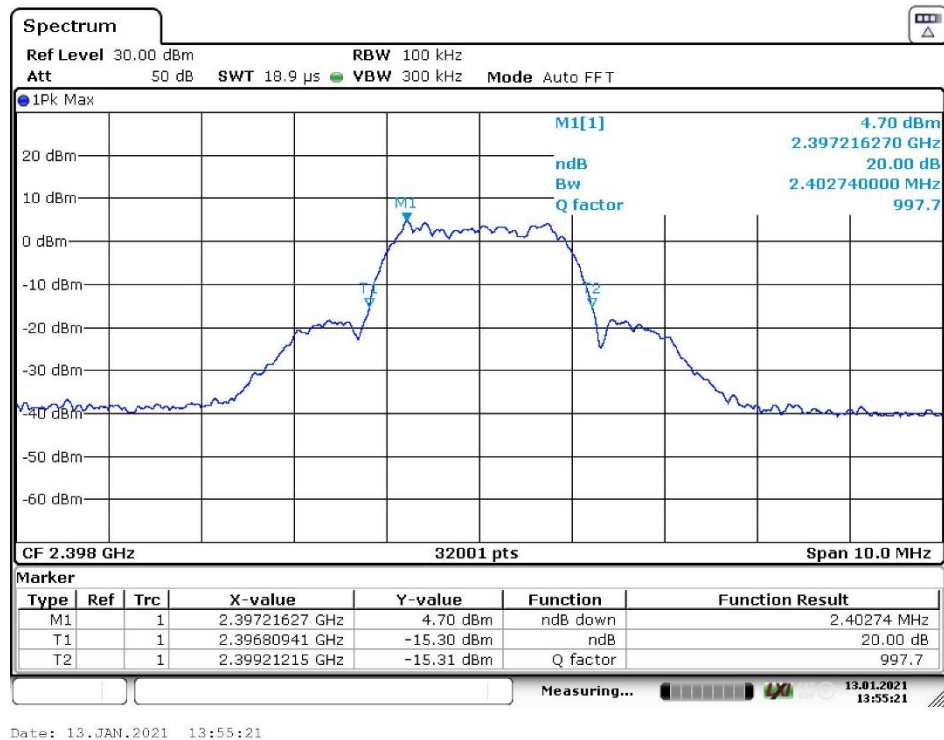


Figure 6: Emission Bandwidth, HIGH channel (bottom antenna)

Emission Bandwidth

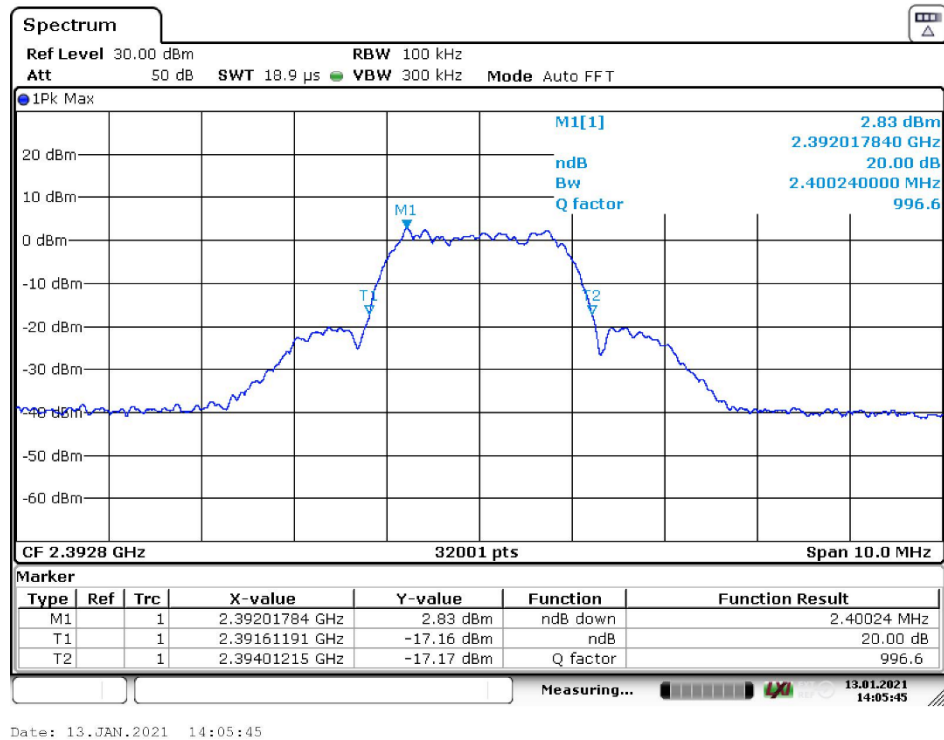


Figure 7: Emission Bandwidth, LOW channel (top antenna)

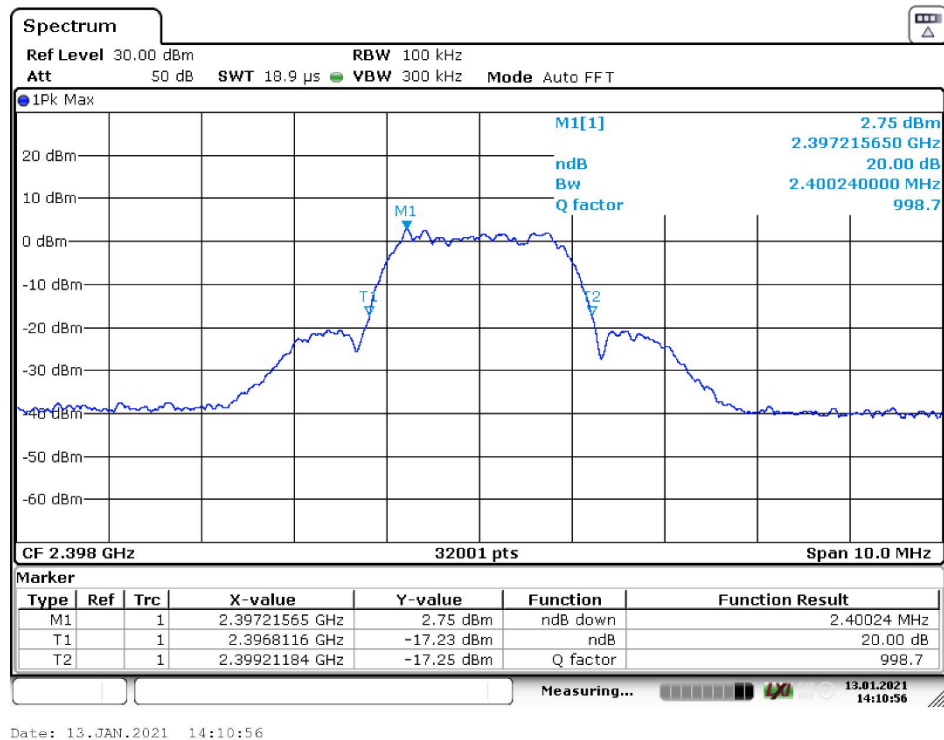


Figure 8: Emission Bandwidth, HIGH channel (top antenna)

Unwanted Emissions

Standard:	ANSI C63.26-2015	
Tested by:	HEM, PKA	HEM
Date:	26 January 2021	27 January 2021
Temperature:	23.4 °C	23.5 °C
Humidity:	24.2 %RH	24.6 %RH
Barometric pressure:	994.1 mbar	992.9 mbar
Measurement uncertainty:	±4.51 dB, level of confidence 95 % (k = 2)	

FCC Rule: §95.2579(a)(5), (b)

The field strength levels associated with all MBAN emissions on frequencies beyond the first 2.5 MHz relative the edges of the 2360-2400 MHz frequency band must be less than or equal to the relevant limits when measured at a distance of 3 meters.

The measurement was performed within a semi anechoic chamber. Additional floor absorbers were placed on the floor between the EUT and receiving antenna in radiated emission test above 1 GHz. The worst interferences were determined during measurements by rotating the turntable and adjusting the antenna height. The measurements were performed with horizontal and vertical antenna polarizations.

Investigative measurements were made to determine the worst EUT orientation. The presented final results are the results in the worst orientation.

Frequency [MHz]	Limit [µV/m]	Limit [dBµV/m]	Detector	RBW
30 - 88	100	40.0	Quasi-peak	100 kHz
88 - 216	150	43.5	Quasi-peak	100 kHz
216 - 960	200	46.0	Quasi-peak	100 kHz
960 - 1000	500	54.0	Quasi-peak	1 MHz
Above 1000	500	54.0	Average	1 MHz

The Peak values are measured for Band-Edge compliance and informative purposes. No final measurements were made below 1000 MHz with Quasi-Peak detector due to high margin to the relevant Quasi-Peak limit.

Results LOW channel (bottom antenna)

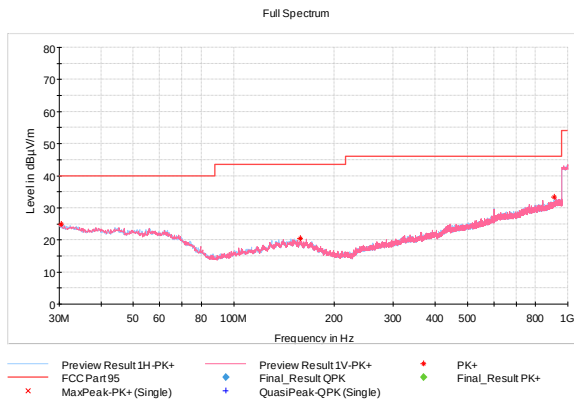


Figure 9: LOW channel (30 – 1000 MHz)

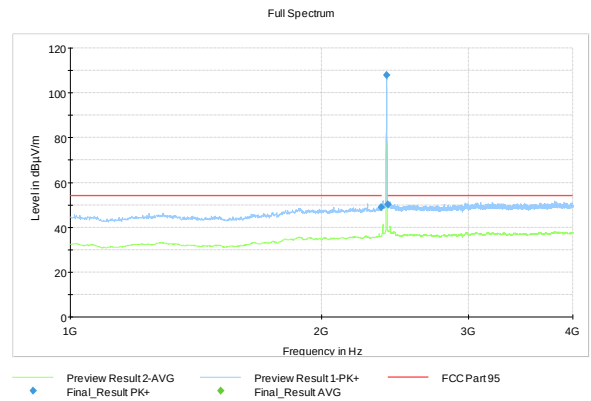


Figure 10: LOW channel (1 – 4 GHz)

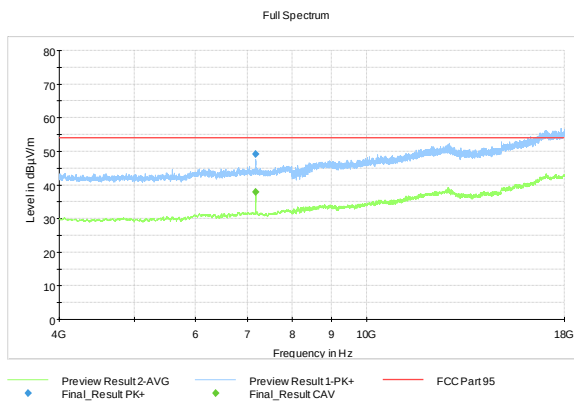


Figure 11: LOW channel (4 – 18 GHz)

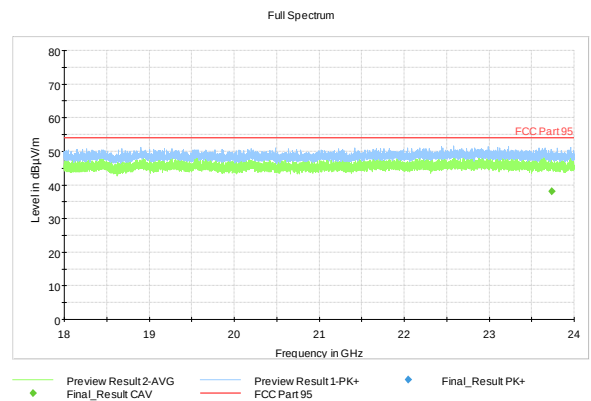


Figure 12: LOW channel (18 – 24 GHz)

Table 8: Peak results LOW channel (bottom antenna)

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
30.437500	24.95 *)	40.00	15.05	1000.0	100.000	100.0	V	135.0	16.8
157.937500	20.43 *)	43.50	23.07	1000.0	100.000	250.0	V	195.0	18.5
909.562500	33.34 *)	46.00	12.66	1000.0	100.000	100.0	H	45.0	31.4
2358.500000	48.98	-20 dBc	39.00	1000.0	1000.000	339.0	H	112.0	13.2
2393.450000	107.98	---	---	1000.0	1000.000	188.0	H	265.0	13.6
2400.800000	50.06	-20 dBc	37.92	1000.0	1000.000	212.0	H	331.0	13.8
7180.425000	49.08	---	---	1000.0	1000.000	137.0	H	158.0	10.5

*) Pre-measurement result

Table 9: Average results LOW channel (bottom antenna)

Frequency (MHz)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
7180.375000	37.93	54.00	16.07	1000.0	1000.000	126.0	H	153.0	10.5
23733.600000	38.10	54.00	15.90	1000.0	1000.000	139.0	H	140.0	5.0

Results HIGH channel (bottom antenna)

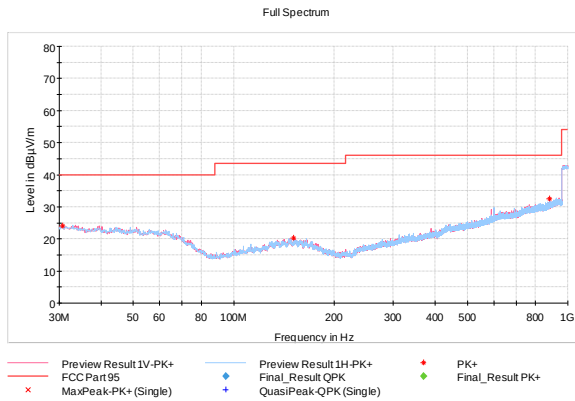


Figure 13: HIGH channel (30 – 1000 MHz)

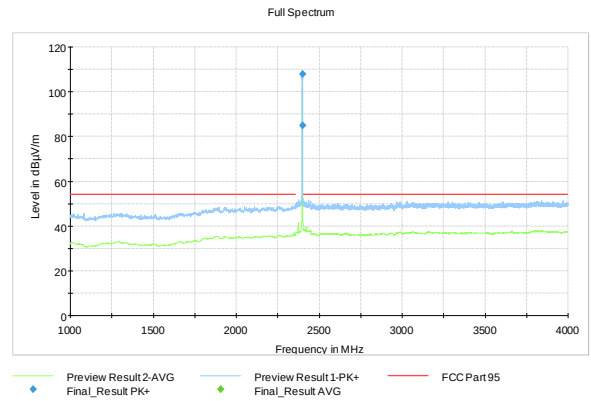


Figure 14: HIGH channel (1 – 4 GHz)

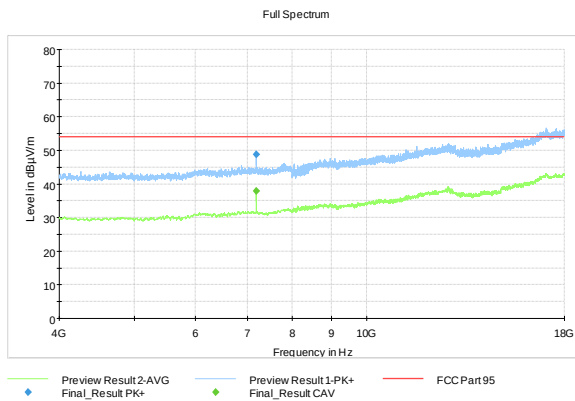


Figure 15: HIGH channel (4 – 18 GHz)

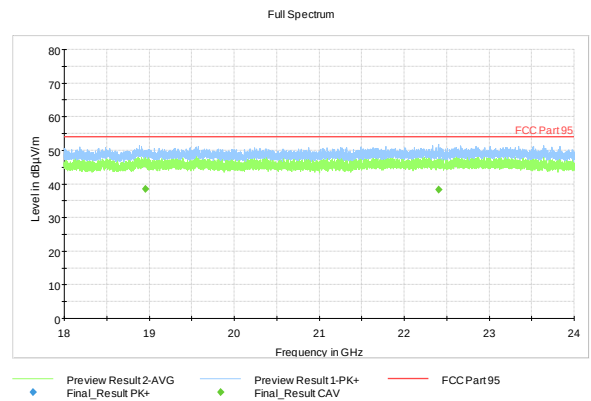


Figure 16: HIGH channel (18 – 24 GHz)

Table 10: Peak results HIGH channel (bottom antenna)

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
30.687500	24.11	40.00 *)	15.89	1000.0	100.000	250.0	V	315.0	16.8
151.187500	20.24	43.50 *)	23.26	1000.0	100.000	100.0	V	75.0	18.6
881.562500	32.44	46.00 *)	13.56	1000.0	100.000	100.0	H	165.0	31.0
2398.700000	107.78	---	---	1000.0	1000.000	148.0	H	257.0	13.8
2400.000000	85.03	-20 dBc	2.75	1000.0	1000.000	191.0	H	262.0	13.8
7191.825000	48.80	---	---	1000.0	1000.000	126.0	V	31.0	10.6

*) Pre-measurement result

Table 11: Average results HIGH channel (bottom antenna)

Frequency (MHz)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
7195.975000	37.80	54.00	16.20	1000.0	1000.000	127.0	H	151.0	10.7
18955.200000	38.47	54.00	15.53	1000.0	1000.000	176.0	H	285.0	7.5
22404.600000	38.28	54.00	15.72	1000.0	1000.000	162.0	H	0.0	8.7

Results LOW channel (top antenna)

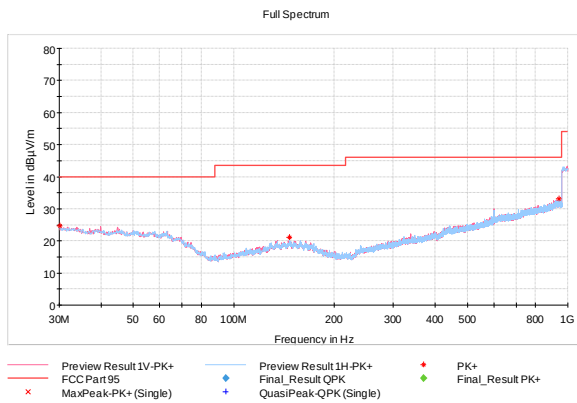


Figure 17: LOW channel (30 – 1000 MHz)

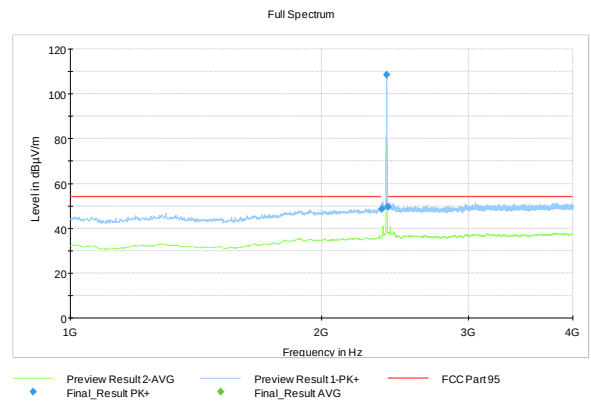


Figure 18: LOW channel (1 – 4 GHz)

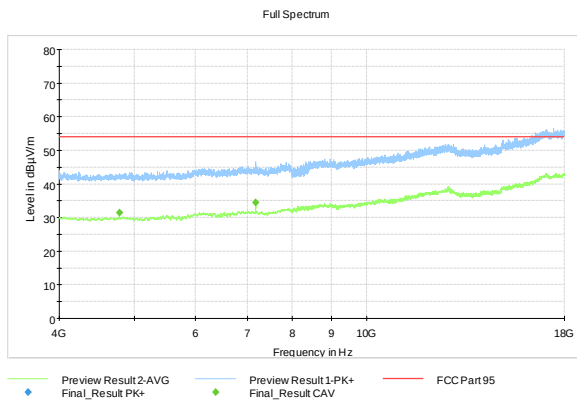


Figure 19: LOW channel (4 – 18 GHz)

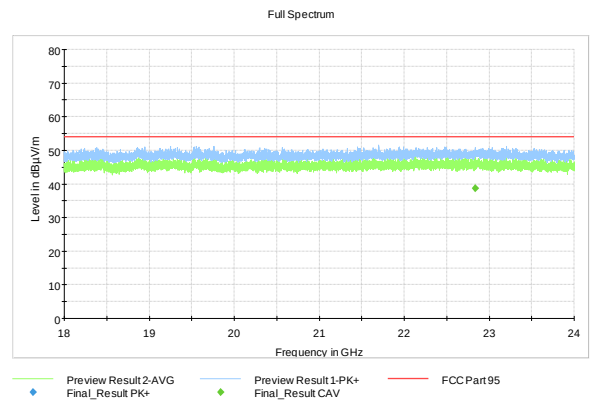


Figure 20: LOW channel (18 – 24 GHz)

Table 12: Peak results LOW channel (top antenna)

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
30.187500	24.69	40.00 *)	15.31	1000.0	100.000	100.0	H	255.0	16.8
146.812500	21.12	43.50 *)	22.38	1000.0	100.000	100.0	H	165.0	18.4
941.312500	33.05	46.00 *)	12.95	1000.0	100.000	100.0	V	345.0	31.9
2360.000000	48.57	-20 dBc	39.93	1000.0	1000.000	112.0	V	27.0	13.2
2393.450000	108.50	---	---	1000.0	1000.000	188.0	H	75.0	13.6
2402.000000	49.58	-20 dBc	38.92	1000.0	1000.000	287.0	H	235.0	13.8

*) Pre-measurement result

Table 13: Average results LOW channel (top antenna)

Frequency (MHz)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
4784.425000	31.53	54.00	22.47	1000.0	1000.000	105.0	H	0.0	7.4
7180.425000	34.41	54.00	19.59	1000.0	1000.000	142.0	H	0.0	10.5
22840.000000	38.65	54.00	15.35	1000.0	1000.000	171.0	H	40.0	7.9

Results HIGH channel (top antenna)

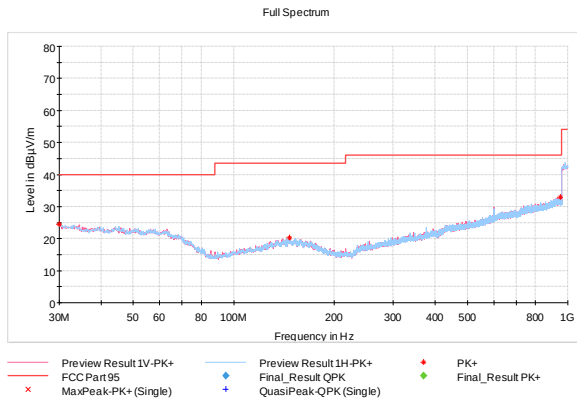


Figure 21: HIGH channel (30 – 1000 MHz)

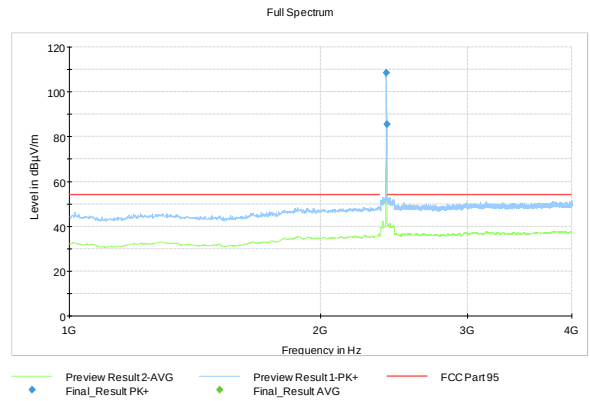


Figure 22: HIGH channel (1 – 4 GHz)

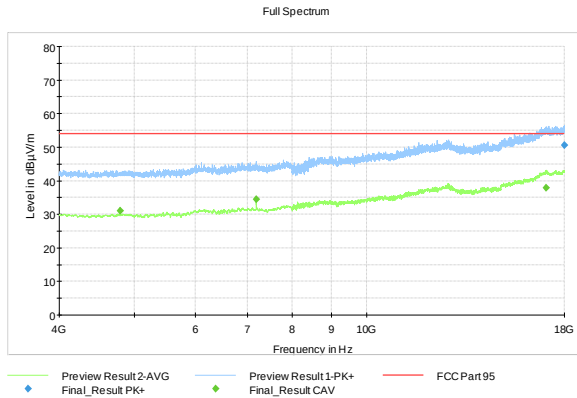


Figure 23: HIGH channel (4 – 18 GHz)



Figure 24: HIGH channel (18 – 24 GHz)

Table 14: Peak results HIGH channel (top antenna)

Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
30.000000	24.48	40.00 *)	15.52	1000.0	100.000	250.0	V	315.0	16.9
147.062500	20.20	43.50 *)	23.30	1000.0	100.000	250.0	H	285.0	18.5
950.687500	32.90	46.00 *)	13.10	1000.0	100.000	250.0	V	75.0	31.9
2398.700000	108.43	---	---	1000.0	1000.000	148.0	H	71.0	13.8
2400.000000	85.46	-20 dBc	2.97	1000.0	1000.000	191.0	H	73.0	13.8
17991.275000	50.60	---	---	1000.0	1000.000	199.0	V	45.0	24.6

*) Pre-measurement result

Table 15: Average results HIGH channel (top antenna)

Frequency (MHz)	CAverage (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
4797.225000	31.09	54.00	22.91	1000.0	1000.000	105.0	H	0.0	7.6
7191.975000	34.43	54.00	19.57	1000.0	1000.000	126.0	H	329.0	10.6
17057.675000	37.79	54.00	16.21	1000.0	1000.000	131.0	H	218.0	24.2
22579.400000	38.53	54.00	15.47	1000.0	1000.000	211.0	V	218.0	8.6

Band-Edge Measurement

Standard:	ANSI C63.26-2015		
Tested by:	HEM	HEM, PKA	HEM
Date:	13 January 2021	26 January 2021	27 January 2021
Temperature:	22.1 °C	23.5 °C	23.4 °C
Humidity:	21.1 %RH	24.6 %RH	20.4 %RH
Barometric pressure:	1005.5 mbar	994.1 mbar	992.9 mbar
Measurement uncertainty:	conducted:	±2.90 dB, level of confidence 95 % (k = 2)	
	radiated:	±4.51 dB, level of confidence 95 % (k = 2)	

FCC Rule: §95.2579 (f)

The EIRP levels (expressed within a 1 MHz bandwidth) associated with all MBAN emissions on frequencies within the first 2.5 MHz relative to the edges of the 2360-2400 MHz frequency band must be attenuated by at least 20 dB relative to the maximum EIRP level (within any 1 MHz) of the fundamental-frequency emission (i.e., 20 dBc).

Both conducted and radiated measurements were performed. During conducted measurements the upper band-edge was measured using a resolution bandwidth narrower than the specified 1 MHz, and the integration was performed over the 1 MHz bandwidth.

Conducted results (bottom antenna)

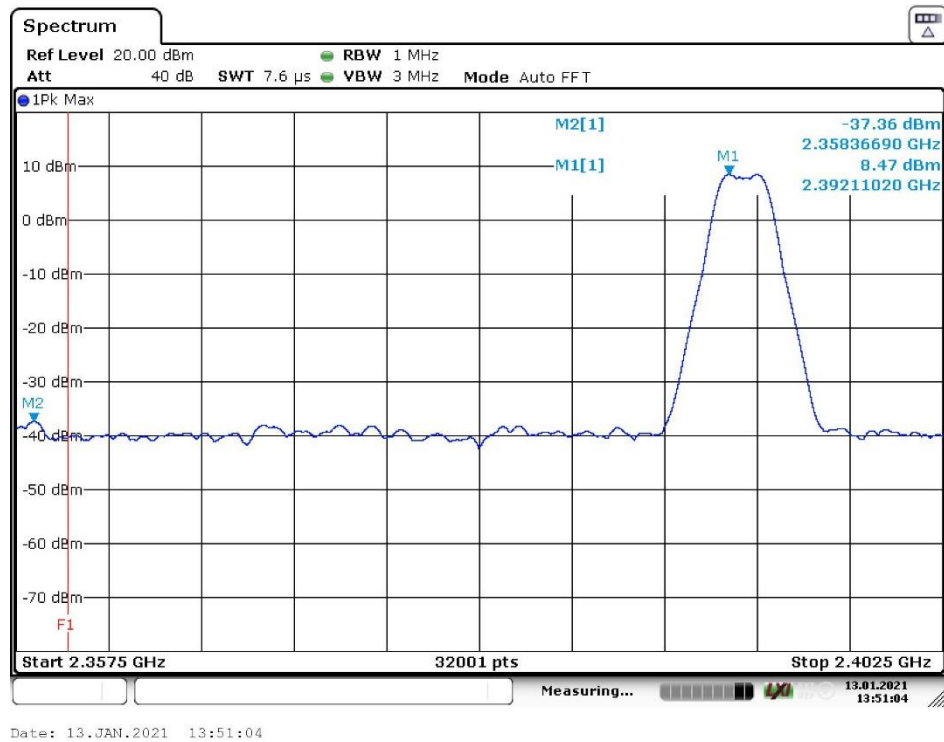


Figure 25: Lower band-edge (bottom antenna)

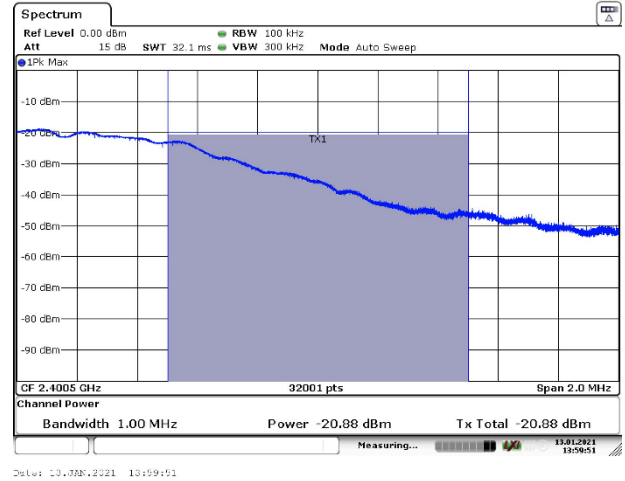
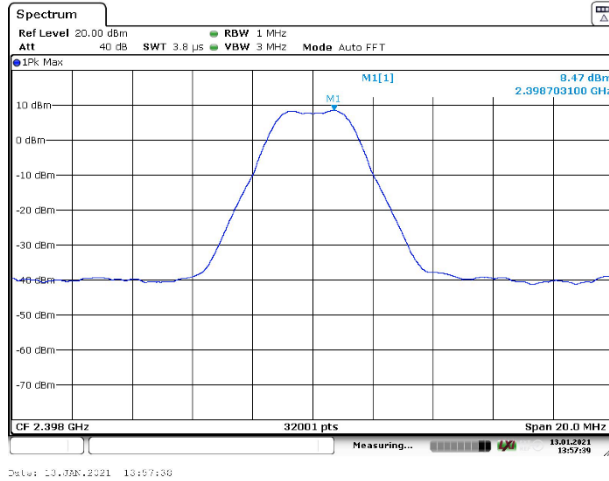


Figure 26: Upper band-edge (bottom antenna)

Table 16: Conducted lower and upper band-edge results (bottom antenna)

Frequency [MHz]	Measured [dBm]	EIRP *) [dBm]	Limit	Margin [dB]
2358.36690	-37.36	---	-9.33	28.03
2392.11020	8.47	10.67	---	---
2398.70310	8.47	10.67	---	---
2400.50000	-20.88	-18.68	-9.33	9.35

*) Antenna gain 2.2 dBi

Conducted results (top antenna)

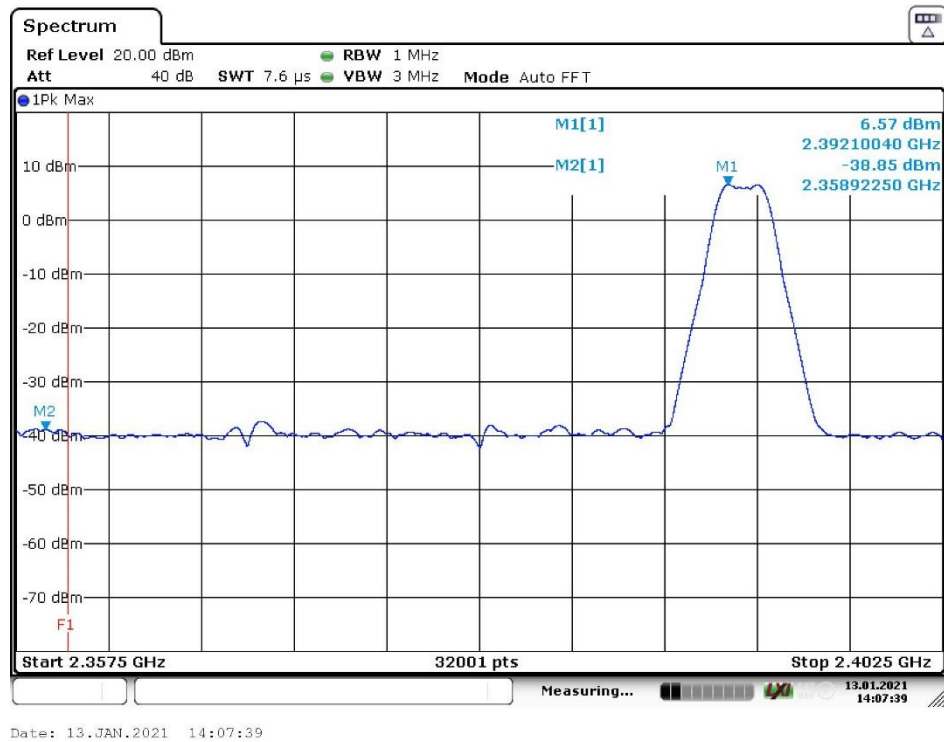


Figure 27: Lower band-edge (top antenna)

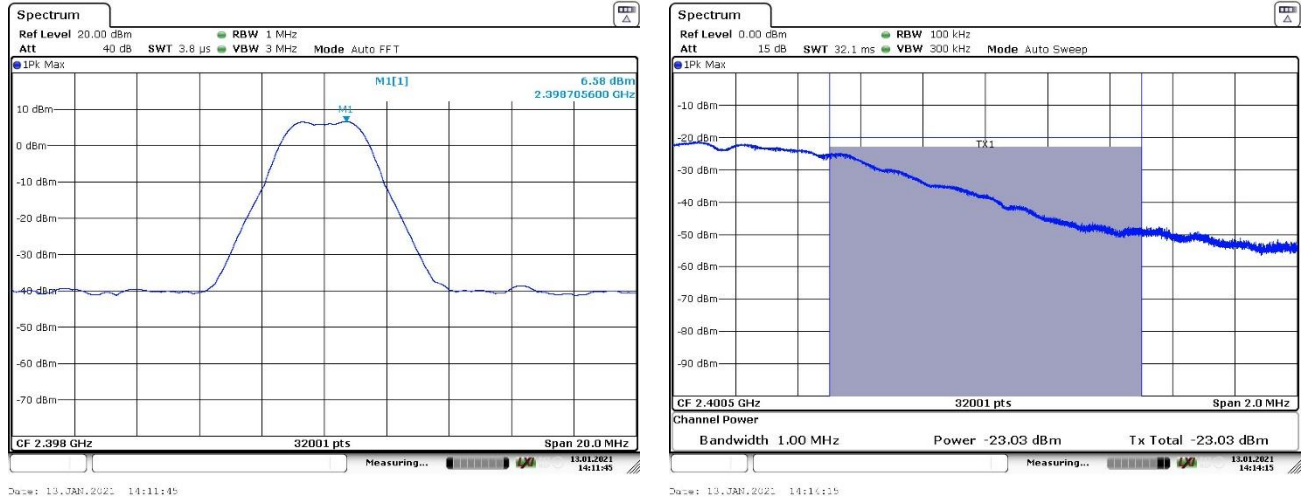


Figure 28: Upper band-edge (top antenna)

Table 17: Conducted lower and upper band-edge results (top antenna)

Frequency [MHz]	Measured [dBm]	EIRP *) [dBm]	Limit	Margin [dB]
2358.92250	-38.85	---	-9.13	29.72
2392.10040	6.57	10.87	---	---
2398.70560	6.58	10.88	---	---
2400.50000	-23.03	-18.73	-9.12	9.61

*) Antenna gain 4.3 dBi

Radiated results (bottom antenna)

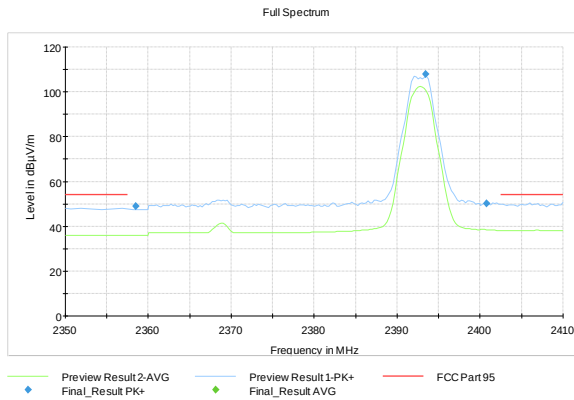


Figure 29: Lower band-edge (bottom antenna)

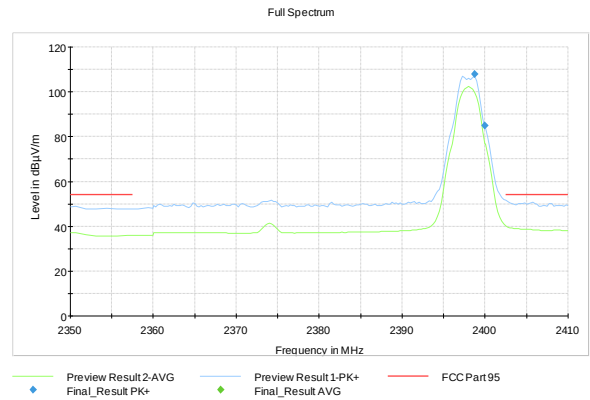


Figure 30: Upper band-edge (bottom antenna)

Table 18: Radiated lower and upper band-edge results (bottom antenna)

Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2358.500000	48.98	87.98 *)	39.00	1000.0	1000.000	339.0	H	112.0	13.2
2393.450000	107.98	---	---	1000.0	1000.000	188.0	H	265.0	13.6
2400.800000	50.06	87.98 *)	37.92	1000.0	1000.000	212.0	H	331.0	13.8
2398.700000	107.78	---	---	1000.0	1000.000	148.0	H	257.0	13.8
2400.000000	85.03	87.78 *)	2.75	1000.0	1000.000	191.0	H	262.0	13.8

*) -20 dBc

Radiated results (top antenna)

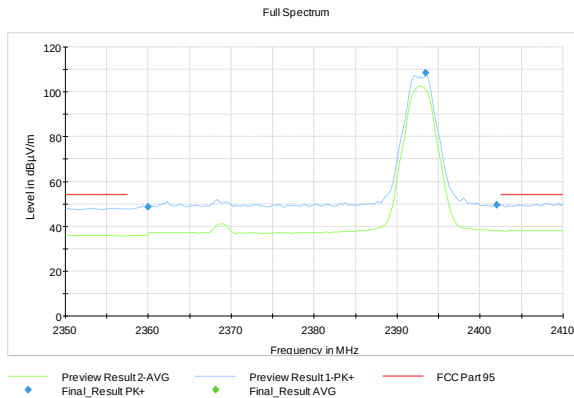


Figure 31: Lower band-edge (top antenna)

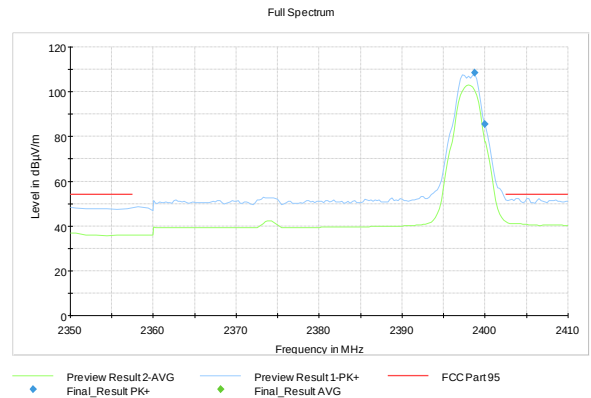


Figure 32: Upper band-edge (top antenna)

Table 19: Radiated lower and upper band-edge results (top antenna)

Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2360.000000	48.57	88.50 *)	39.93	1000.0	1000.000	112.0	V	27.0	13.2
2393.450000	108.50	---	---	1000.0	1000.000	188.0	H	75.0	13.6
2402.000000	49.58	88.50 *)	38.92	1000.0	1000.000	287.0	H	235.0	13.8
2398.700000	108.43	---	---	1000.0	1000.000	148.0	H	71.0	13.8
2400.000000	85.46	88.43 *)	2.97	1000.0	1000.000	191.0	H	73.0	13.8

*) -20 dBc

TEST EQUIPMENT

Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
ANTENNA	EMCO	3160-09, emi 18-26.5GHz	inv. 7294	2020-02-20	2021-02-20
ANTENNA	EMCO	3117, emi 1-18GHz	inv. 7293	2020-03-11	2022-03-11
ANTENNA	SCHWARZBECK	VULB 9168	inv. 8911	2020-11-04	2022-11-04
ANTENNA MAST	MATURO	TAM 4.0E	inv. 10181	NCR	NCR
ATTENUATOR	PASTERNAK	10 dB, DC-40 GHz	sn:A1	2019-04-01	2021-04-01
ATTENUATOR	PASTERNAK	PE 7004-4 (4dB)	inv. 10126	2019-04-01	2021-04-01
EMI TEST RECEIVER	ROHDE & SCHWARZ	ESW26	inv. 10679	2020-07-20	2021-07-20
FILTER	WAINWRIGHT	HP, WHKX4.0/18G-10SS	inv:10403	2019-04-01	2021-04-01
MAST & TURNTABLE CONTROLLER	MATURO	NCD	inv. 10183	NCR	NCR
RF PREAMPLIFIER	CIAO	CA118-3123	inv. 10278	2020-10-09	2021-10-09
RF PREAMPLIFIER	CIAO	CA1840-5019	inv. 10593	2020-10-09	2021-10-09
SPECTRUM ANALYZER	ROHDE & SCHWARZ	FSV40	inv:10881	2020-06-10	2021-09-06
TEST SOFTWARE	ROHDE & SCHWARZ	EMC-32	-	-	-
TURNTABLE	MATURO	DS430 UPGRADED	inv. 10182	NCR	NCR

NCR = No calibration required

END OF REPORT