

Number of pages:	43	Date of Report:	2020-Nov-23
Testing company:	CETECOM GmbH Im Teelbruch 116 45219 Essen Germany Tel. + 49 (0) 20 54 / 95 19-0 Fax: + 49 (0) 20 54 / 95 19-150	Applicant:	Bosch Healthcare Solutions GmbH
Test Object / Tested Device(s):	System for quantitative measurement of fractional nitric oxide (FeNO) in human breath, Vivatmo pro (Base Station)		
FCC ID:	2AVQ9VMPBS1	ISED:	25928-VMPBS1
Testing has been carried out in accordance with:	Title 47 CFR, Chapter I FCC Regulations, Subchapter A Subpart C: §15.247 (DTS) RSS-247, Issue 2 (DTS) RSS-Gen., Issue 5		

1 Measurement diagrams

Peak output power (Sweep)

Mode	DUT Frequency (MHz)	Peak Power (dBm)	Limit Max (dBm)	Result
BLE, GFSK, 1Mbps, ch low	2402.000000	5.9	30.0	PASS
BLE, GFSK, 1Mbps, ch mid	2442.000000	7.2	30.0	PASS
BLE, GFSK, 1Mbps, ch high	2480.000000	6.6	30.0	PASS

Minimum Emission Bandwidth 6 dB

Mode	DUT Frequency	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left	Band Edge Right
BLE, GFSK, 1Mbps, ch low	2402.0000	0.732674	0.500000	---	2401.6237	2402.3564
BLE, GFSK, 1Mbps, ch mid	2442.0000	0.752476	0.500000	---	2441.6237	2442.3762
BLE, GFSK, 1Mbps, ch high	2480.0000	0.712872	0.500000	---	2479.6435	2480.3564

RF output power

Mode	DUT Frequency	Gated RMS	Limit Max (dBm)	Gated EIRP	DutyCycle (%)	Result
BLE, GFSK, 1Mbps, ch low	2402.0000	5.7	30.0	5.7	62.694	PASS
BLE, GFSK, 1Mbps, ch mid	2442.0000	6.8	30.0	6.8	62.694	PASS
BLE, GFSK, 1Mbps, ch high	2480.0000	6.1	30.0	6.1	62.698	PASS

Peak Power Spectral Density

Mode	DUT Frequency	Frequency (MHz)	PSD (dBm)	Limit Max (dBm)	Result
BLE, GFSK, 1Mbps, ch low	2402.000000	2401.972500	-2.633	8.0	PASS
BLE, GFSK, 1Mbps, ch mid	2442.000000	2441.977500	-1.350	8.0	PASS
BLE, GFSK, 1Mbps, ch high	2480.000000	2479.982500	-2.149	8.0	PASS

Occupied Channel Bandwidth 99%

Mode	DUT Frequency	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left	Band Edge Right
BLE, GFSK, 1Mbps, ch low	2402.0000	1.050000	---	---	2401.4825	2402.5325
BLE, GFSK, 1Mbps, ch mid	2442.0000	1.055000	---	---	2441.4825	2442.5375
BLE, GFSK, 1Mbps, ch high	2480.0000	1.050000	---	---	2479.4875	2480.5375

Tx Spurious Emission

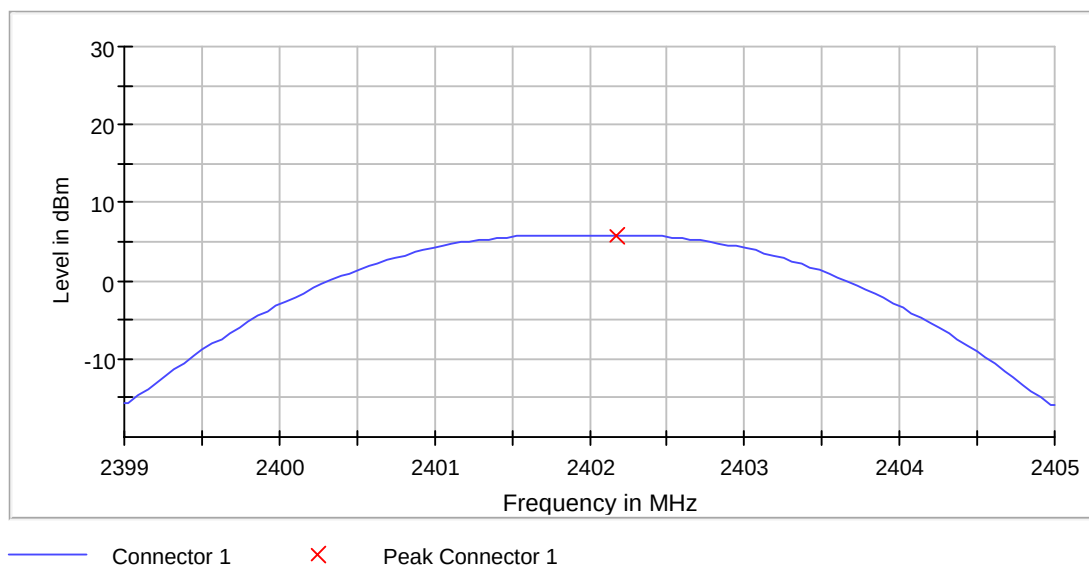
Mode	DUT Frequency (MHz)	Result
BLE, GFSK, 1Mbps, ch low	2402.000000	PASS
BLE, GFSK, 1Mbps, ch mid	2442.000000	PASS
BLE, GFSK, 1Mbps, ch high	2480.000000	PASS

Peak output power (Sweep) (2402 MHz; 10,000 dBm; 1 MHz)

Test according to FCC title 47 part 15 §15.247(b), KDB 558074 D01 DTS Meas Guidance v04 and ANSI C63.10-2013

Result

DUT Frequency (MHz)	Peak Power (dBm)	Limit Max (dBm)	Result
2402.000000	5.9	30.0	PASS



Measurement

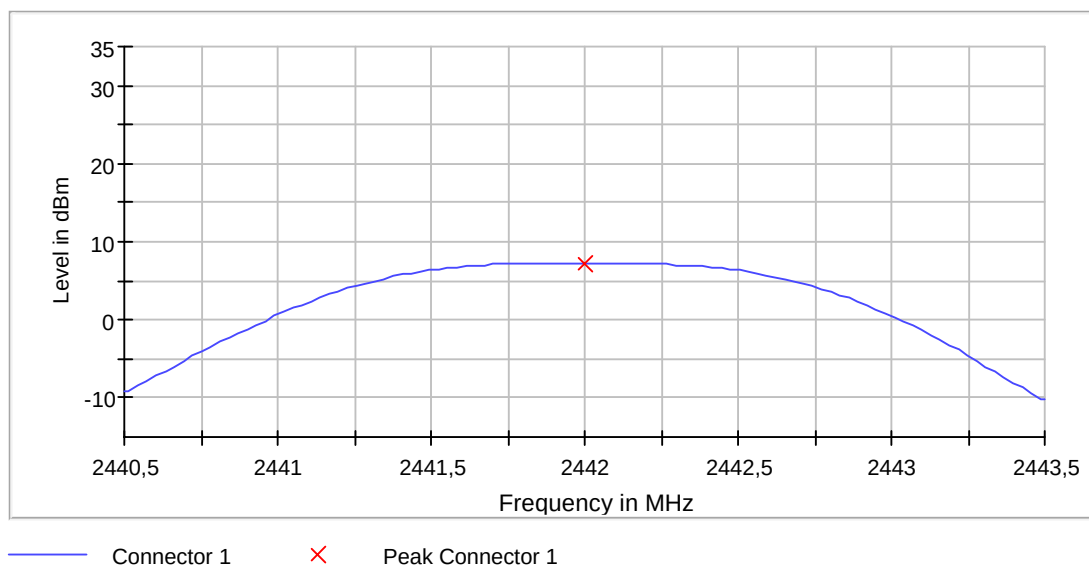
Setting	Instrument Value	Target Value
Start Frequency	2.39900 GHz	2.39900 GHz
Stop Frequency	2.40500 GHz	2.40500 GHz
Span	6.000 MHz	6.000 MHz
RBW	2.000 MHz	≥ 1.000 MHz
VBW	10.000 MHz	≥ 6.000 MHz
SweepPoints	101	~ 101
SweepTime	1.000 ms	AUTO
Reference Level	10.000 dBm	10.000 dBm
Attenuation	20.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	Sweep	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	4 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.03 dB	0.50 dB

Peak output power (Sweep) (2442 MHz; 10,000 dBm; 1 MHz)

Test according to FCC title 47 part 15 §15.247(b), KDB 558074 D01 DTS Meas Guidance v04 and ANSI C63.10-2013

Result

DUT Frequency (MHz)	Peak Power (dBm)	Limit Max (dBm)	Result
2442.000000	7.2	30.0	PASS



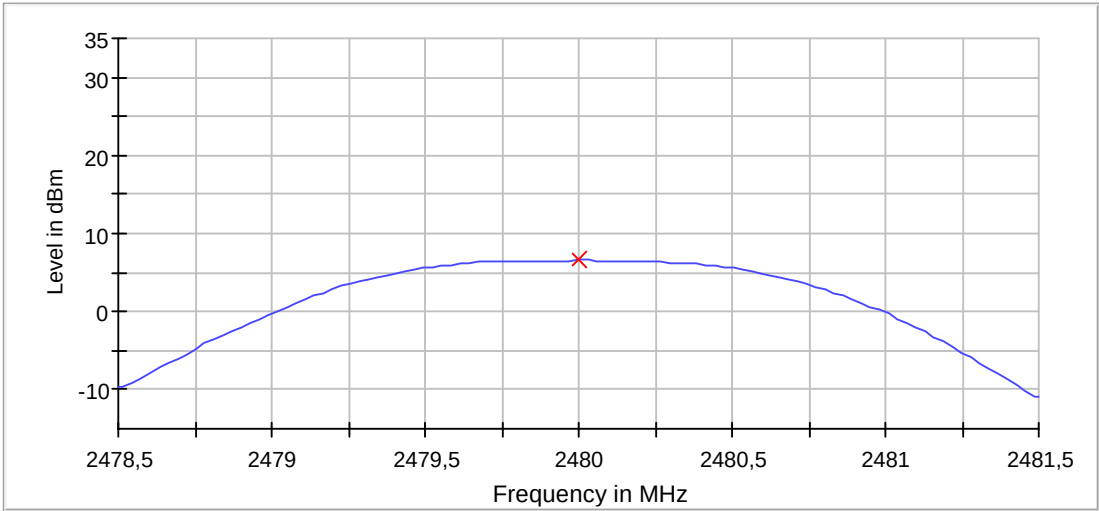
Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.44050 GHz	2.44050 GHz
Stop Frequency	2.44350 GHz	2.44350 GHz
Span	3.000 MHz	3.000 MHz
RBW	1.000 MHz	≥ 732.675 kHz
VBW	3.000 MHz	≥ 3.000 MHz
SweepPoints	101	~ 101
SweepTime	1.000 ms	AUTO
Reference Level	10.000 dBm	10.000 dBm
Attenuation	20.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	Sweep	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	4 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.03 dB	0.50 dB

Peak output power (Sweep) (2480 MHz; 10,000 dBm; 1 MHz)

Result

DUT Frequency (MHz)	Peak Power (dBm)	Limit Max (dBm)	Result
2480.000000	6.6	30.0	PASS



Connector 1 X Peak Connector 1

Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.47850 GHz	2.47850 GHz
Stop Frequency	2.48150 GHz	2.48150 GHz
Span	3.000 MHz	3.000 MHz
RBW	1.000 MHz	>= 752.477 kHz
VBW	3.000 MHz	>= 3.000 MHz
SweepPoints	101	~ 101
SweepTime	1.000 ms	AUTO
Reference Level	10.000 dBm	10.000 dBm
Attenuation	20.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	Sweep	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	4 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.04 dB	0.50 dB

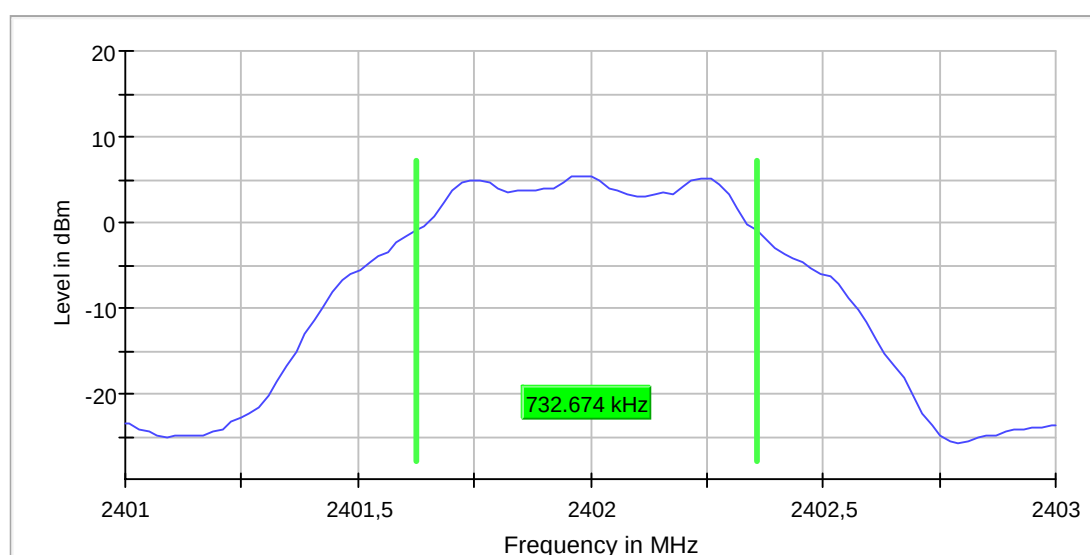
Minimum Emission Bandwidth 6 dB (2402 MHz; 10,000 dBm; 1 MHz)

6 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2402.000000	0.732674	0.500000	---	2401.623762	2402.356436

(continuation of the "6 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
2402.000000	5.3	PASS



Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.40100 GHz	2.40100 GHz
Stop Frequency	2.40300 GHz	2.40300 GHz
Span	2.000 MHz	2.000 MHz
RBW	100.000 kHz	~ 100.000 kHz
VBW	300.000 kHz	~ 300.000 kHz
SweepPoints	101	~ 40
SweepTime	1.000 ms	AUTO
Reference Level	0.000 dBm	0.000 dBm
Attenuation	10.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	Sweep	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	7 / max. 150	max. 150
Stable	5 / 5	5
Max Stable Difference	0.03 dB	0.50 dB

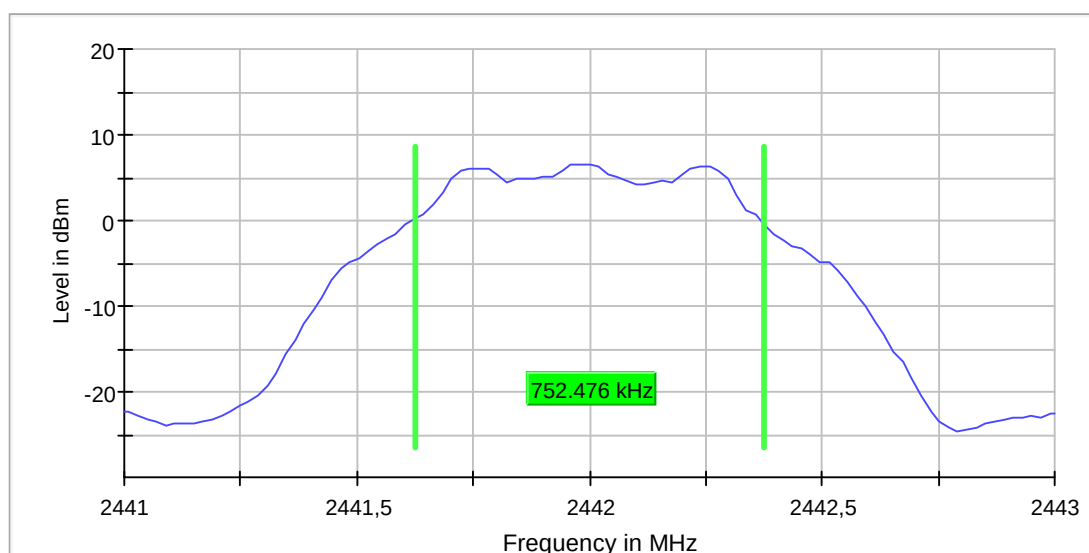
Minimum Emission Bandwidth 6 dB (2442 MHz; 10,000 dBm; 1 MHz)

6 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2442.000000	0.752476	0.500000	---	2441.623762	2442.376238

(continuation of the "6 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
2442.000000	6.6	PASS



Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.44100 GHz	2.44100 GHz
Stop Frequency	2.44300 GHz	2.44300 GHz
Span	2.000 MHz	2.000 MHz
RBW	100.000 kHz	~ 100.000 kHz
VBW	300.000 kHz	~ 300.000 kHz
SweepPoints	101	~ 40
SweepTime	1.000 ms	AUTO
Reference Level	0.000 dBm	0.000 dBm
Attenuation	10.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	Sweep	AUTO
Preamplifier	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	13 / max. 150	max. 150
Stable	5 / 5	5
Max Stable Difference	0.08 dB	0.50 dB

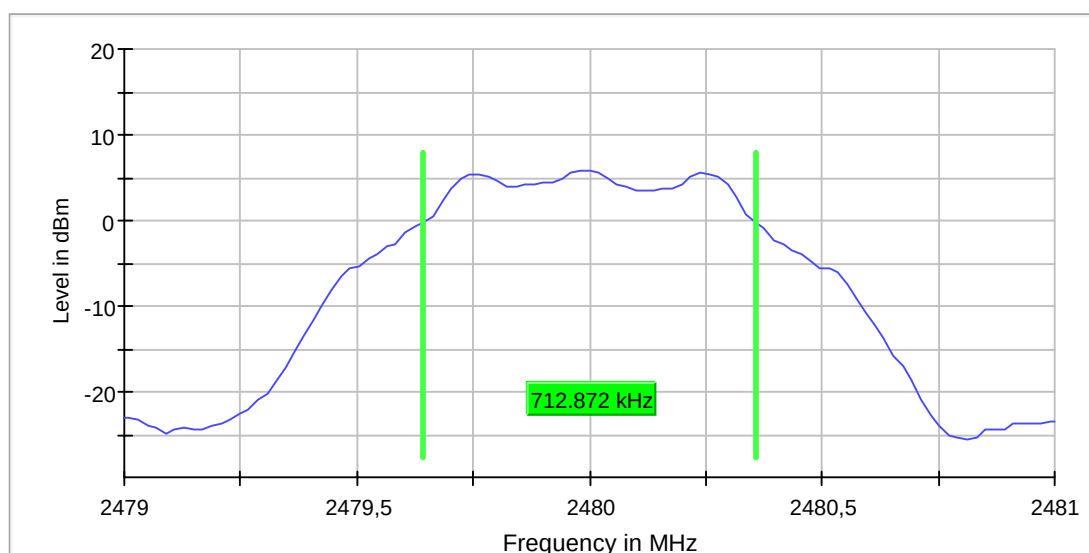
Minimum Emission Bandwidth 6 dB (2480 MHz; 10,000 dBm; 1 MHz)

6 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2480.000000	0.712872	0.500000	---	2479.643564	2480.356436

(continuation of the "6 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
2480.000000	5.9	PASS



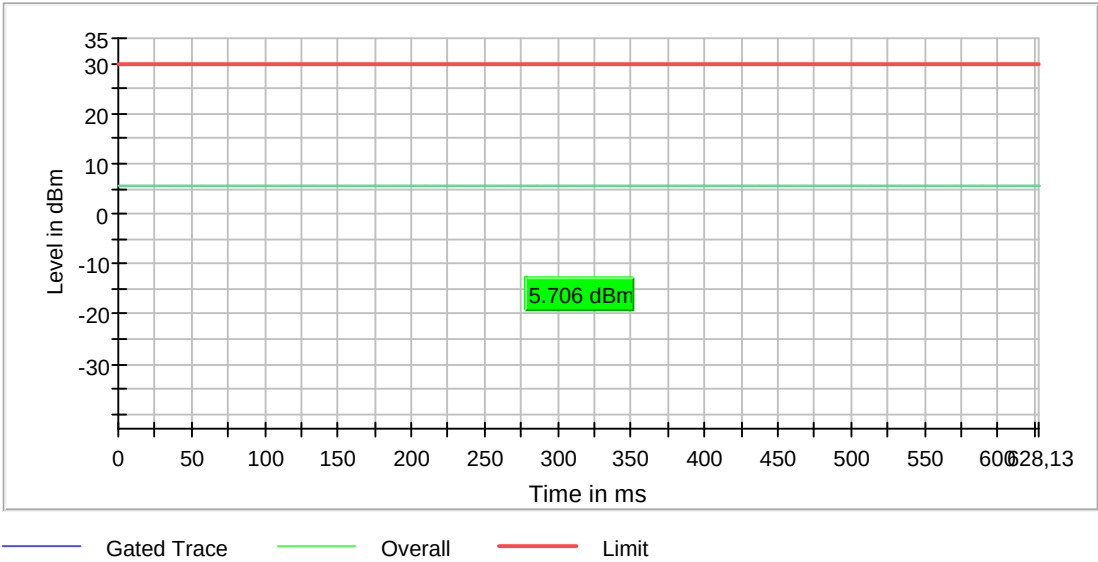
Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.47900 GHz	2.47900 GHz
Stop Frequency	2.48100 GHz	2.48100 GHz
Span	2.000 MHz	2.000 MHz
RBW	100.000 kHz	~ 100.000 kHz
VBW	300.000 kHz	~ 300.000 kHz
SweepPoints	101	~ 40
SweepTime	1.000 ms	AUTO
Reference Level	0.000 dBm	0.000 dBm
Attenuation	10.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	Sweep	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	6 / max. 150	max. 150
Stable	5 / 5	5
Max Stable Difference	0.08 dB	0.50 dB

RF output power (2402 MHz; 10,000 dBm; 1 MHz)

Result

DUT Frequency (MHz)	Gated RMS (dBm)	Limit Max (dBm)	Gated EIRP (dBm)	DutyCycle (%)	Result
2402.000000	5.7	30.0	5.7	62.694	PASS



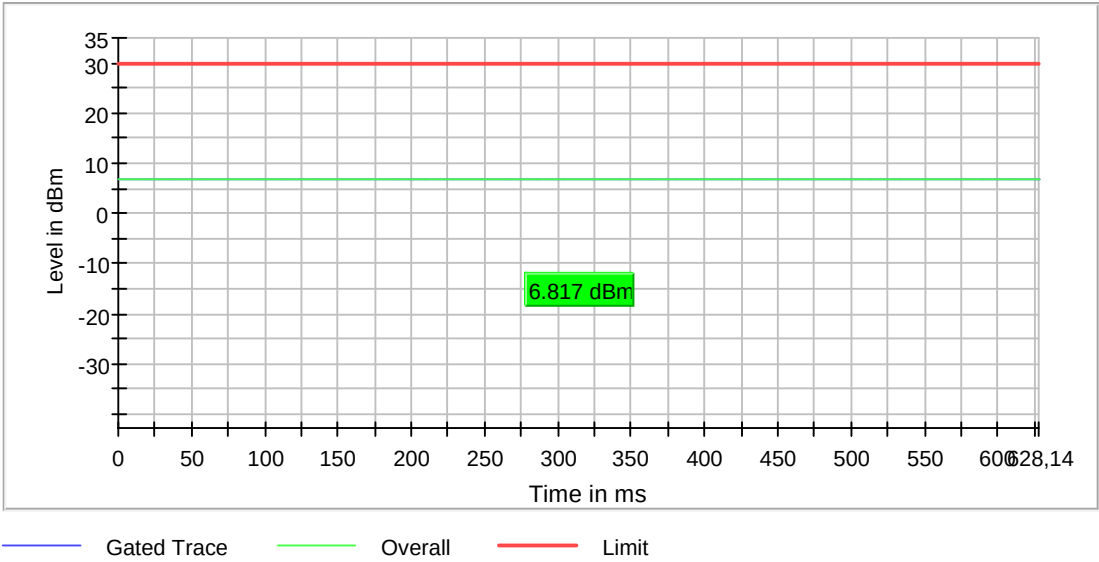
OSP PowerMeter settings

Setting	Instrument Value	Target Value
Measurement Time	1.000 s	1.000 s
Points	1000000	1000000
Time resolution	1.000 μ s	1.000 μ s

RF output power (2442 MHz; 10,000 dBm; 1 MHz)

Result

DUT Frequency (MHz)	Gated RMS (dBm)	Limit Max (dBm)	Gated EIRP (dBm)	DutyCycle (%)	Result
2442.000000	6.8	30.0	6.8	62.694	PASS



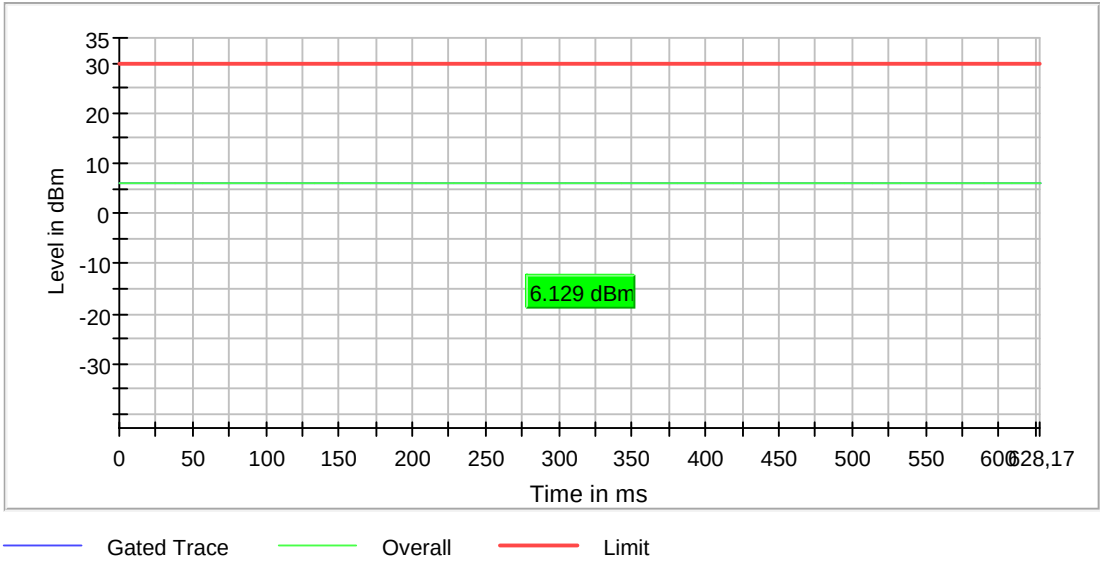
OSP PowerMeter settings

Setting	Instrument Value	Target Value
Measurement Time	1.000 s	1.000 s
Points	1000000	1000000
Time resolution	1.000 µs	1.000 µs

RF output power (2480 MHz; 10,000 dBm; 1 MHz)

Result

DUT Frequency (MHz)	Gated RMS (dBm)	Limit Max (dBm)	Gated EIRP (dBm)	DutyCycle (%)	Result
2480.000000	6.1	30.0	6.1	62.698	PASS



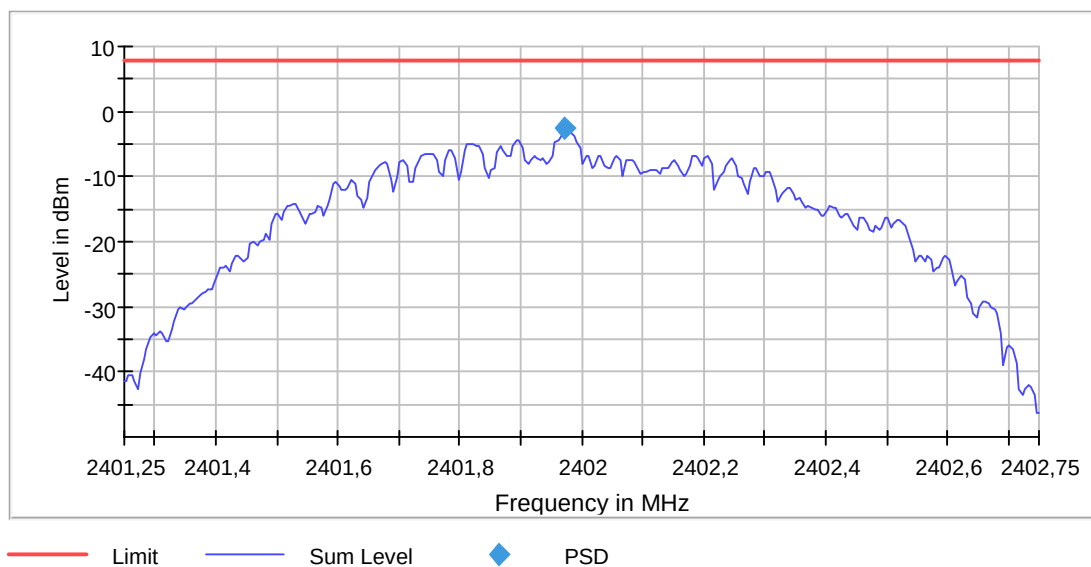
OSP PowerMeter settings

Setting	Instrument Value	Target Value
Measurement Time	1.000 s	1.000 s
Points	1000000	1000000
Time resolution	1.000 µs	1.000 µs

Peak Power Spectral Density (2402 MHz; 10,000 dBm; 1 MHz)

Result

DUT Frequency (MHz)	Frequency (MHz)	PSD (dBm)	Limit Max (dBm)	Result
2402.000000	2401.972500	-2.633	8.0	PASS



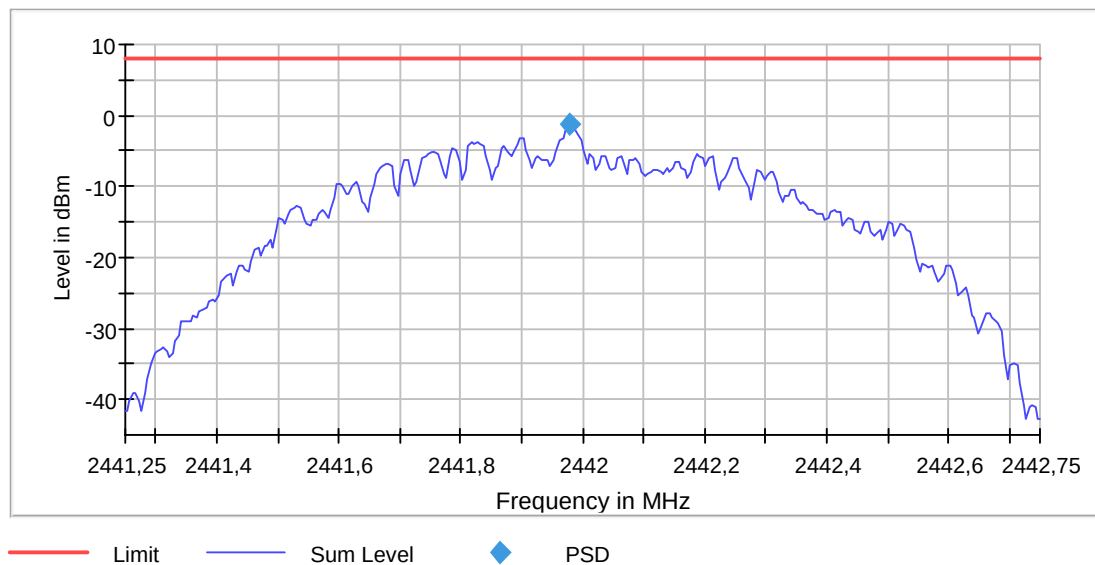
Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.40125 GHz	2.40125 GHz
Stop Frequency	2.40275 GHz	2.40275 GHz
Span	1.500 MHz	1.500 MHz
RBW	10.000 kHz	<= 10.000 kHz
VBW	30.000 kHz	>= 30.000 kHz
SweepPoints	300	~ 300
SweepTime	1.500 ms	AUTO
Reference Level	0.000 dBm	0.000 dBm
Attenuation	10.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	Sweep	Sweep
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	3 / max. 150	max. 150
Stable	2 / 2	2
Max Stable Difference	0.28 dB	0.50 dB

Peak Power Spectral Density (2442 MHz; 10,000 dBm; 1 MHz)

Result

DUT Frequency (MHz)	Frequency (MHz)	PSD (dBm)	Limit Max (dBm)	Result
2442.000000	2441.977500	-1.350	8.0	PASS



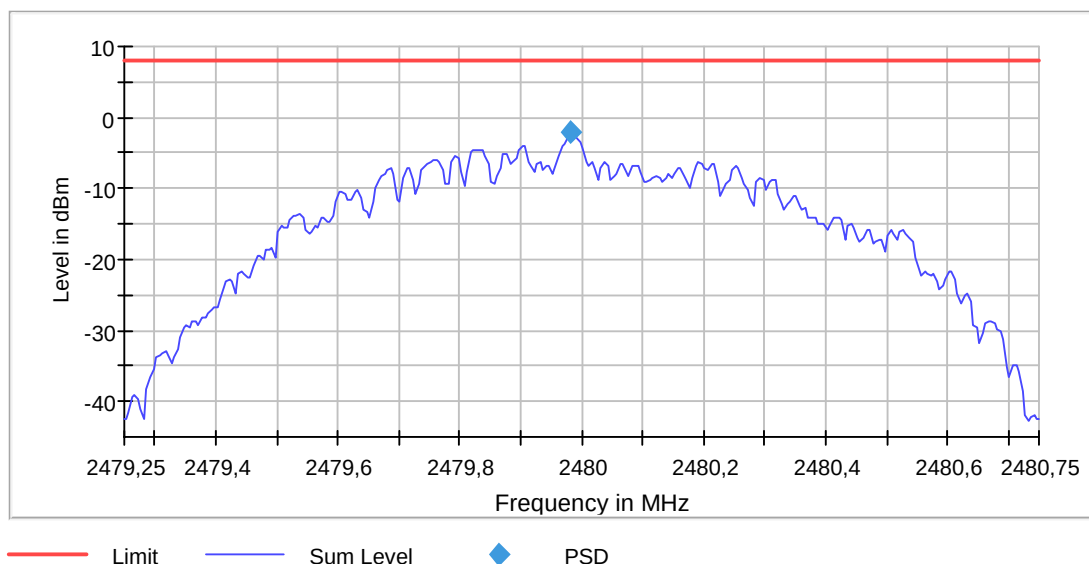
Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.44125 GHz	2.44125 GHz
Stop Frequency	2.44275 GHz	2.44275 GHz
Span	1.500 MHz	1.500 MHz
RBW	10.000 kHz	<= 10.000 kHz
VBW	30.000 kHz	>= 30.000 kHz
SweepPoints	300	~ 300
SweepTime	1.500 ms	AUTO
Reference Level	0.000 dBm	0.000 dBm
Attenuation	10.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	Sweep	Sweep
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	4 / max. 150	max. 150
Stable	2 / 2	2
Max Stable Difference	0.29 dB	0.50 dB

Peak Power Spectral Density (2480 MHz; 10,000 dBm; 1 MHz)

Result

DUT Frequency (MHz)	Frequency (MHz)	PSD (dBm)	Limit Max (dBm)	Result
2480.000000	2479.982500	-2.149	8.0	PASS



Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.47925 GHz	2.47925 GHz
Stop Frequency	2.48075 GHz	2.48075 GHz
Span	1.500 MHz	1.500 MHz
RBW	10.000 kHz	<= 10.000 kHz
VBW	30.000 kHz	>= 30.000 kHz
SweepPoints	300	~ 300
SweepTime	1.500 ms	AUTO
Reference Level	0.000 dBm	0.000 dBm
Attenuation	10.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	Sweep	Sweep
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	4 / max. 150	max. 150
Stable	2 / 2	2
Max Stable Difference	0.38 dB	0.50 dB

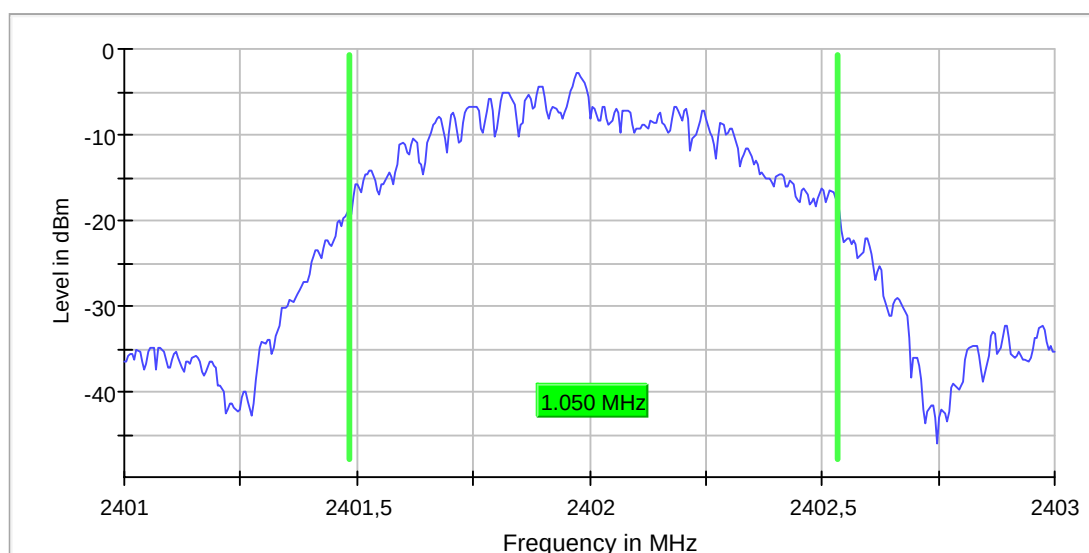
Occupied Channel Bandwidth 99% (2402 MHz; 10,000 dBm; 1 MHz)

99 % Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2402.000000	1.050000	---	---	2401.482500	2402.532500

(continuation of the "99 % Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Result
2402.000000	PASS



Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.40100 GHz	2.40100 GHz
Stop Frequency	2.40300 GHz	2.40300 GHz
Span	2.000 MHz	2.000 MHz
RBW	10.000 kHz	>= 10.000 kHz
VBW	30.000 kHz	>= 30.000 kHz
SweepPoints	400	~ 400
SweepTime	419.000 μ s	AUTO
Reference Level	0.000 dBm	0.000 dBm
Attenuation	10.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	FFT	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.30 dB	0.30 dB
Run	8 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.13 dB	0.30 dB

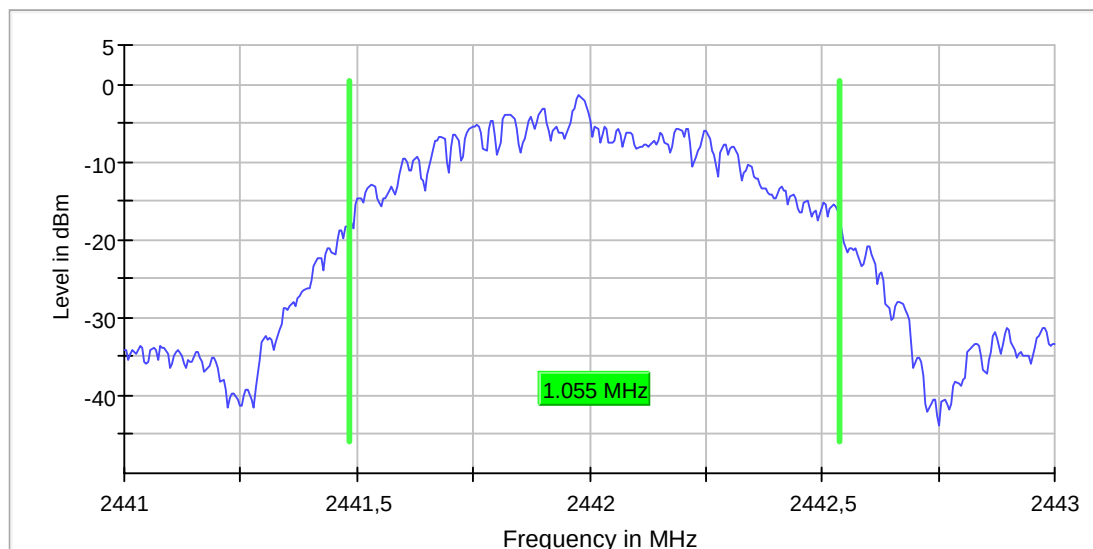
Occupied Channel Bandwidth 99% (2442 MHz; 10,000 dBm; 1 MHz)

99 % Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2442.000000	1.055000	---	---	2441.482500	2442.537500

(continuation of the "99 % Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Result
2442.000000	PASS



Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.44100 GHz	2.44100 GHz
Stop Frequency	2.44300 GHz	2.44300 GHz
Span	2.000 MHz	2.000 MHz
RBW	10.000 kHz	>= 10.000 kHz
VBW	30.000 kHz	>= 30.000 kHz
SweepPoints	400	~ 400
SweepTime	419.000 µs	AUTO
Reference Level	0.000 dBm	0.000 dBm
Attenuation	10.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	FFT	AUTO
Preamplifier	off	off
Stablemode	Trace	Trace
Stablevalue	0.30 dB	0.30 dB
Run	6 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.23 dB	0.30 dB

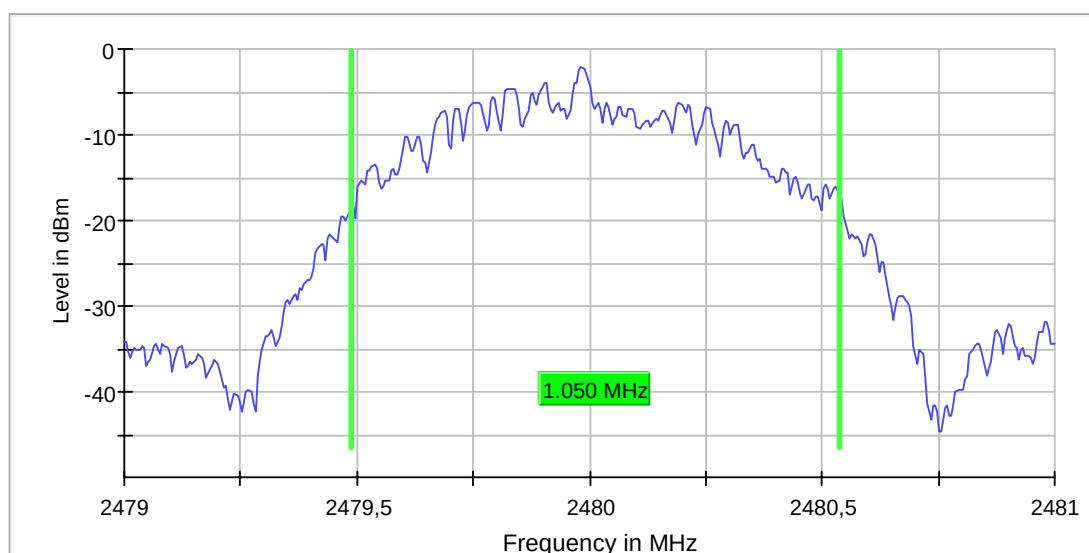
Occupied Channel Bandwidth 99% (2480 MHz; 10,000 dBm; 1 MHz)

99 % Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2480.000000	1.050000	---	---	2479.487500	2480.537500

(continuation of the "99 % Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Result
2480.000000	PASS



Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.47900 GHz	2.47900 GHz
Stop Frequency	2.48100 GHz	2.48100 GHz
Span	2.000 MHz	2.000 MHz
RBW	10.000 kHz	>= 10.000 kHz
VBW	30.000 kHz	>= 30.000 kHz
SweepPoints	400	~ 400
SweepTime	419.000 μ s	AUTO
Reference Level	0.000 dBm	0.000 dBm
Attenuation	10.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
Sweeptype	FFT	AUTO
Preamplifier	off	off
Stablemode	Trace	Trace
Stablevalue	0.30 dB	0.30 dB
Run	6 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.16 dB	0.30 dB

Tx Spurious Emission (2402 MHz; 10,000 dBm; 1 MHz)

Result

DUT Frequency (MHz)	Result
2402.000000	PASS

Final measurements

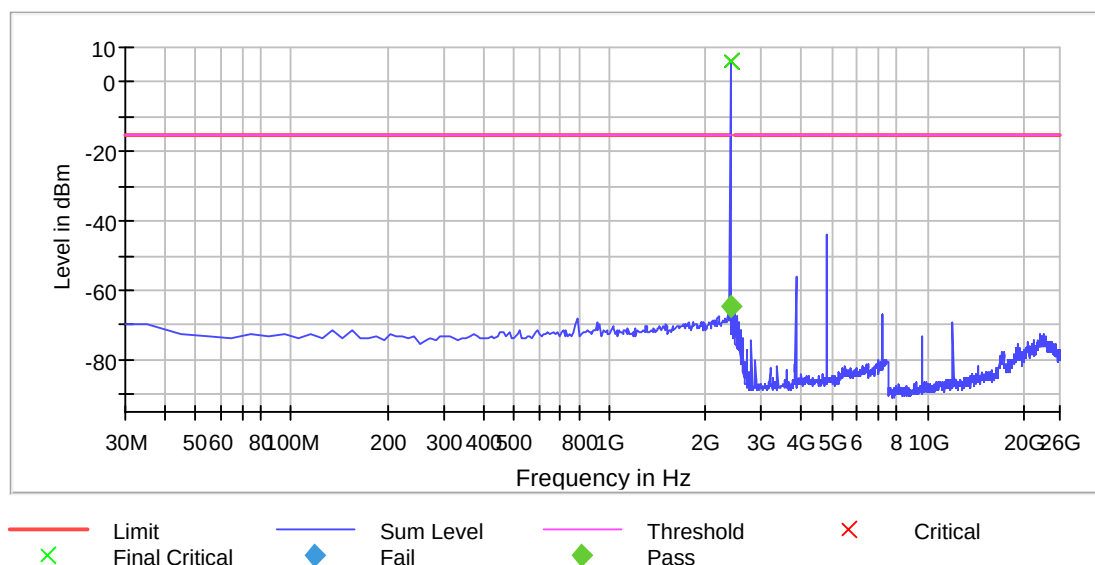
Frequency (MHz)	Level Pre Measurement (dBm)	level (dBm)	Limit (dBm)	Margin (dB)	Result
2399.958664	4.2	-64.5	-15.1	49.4	PASS

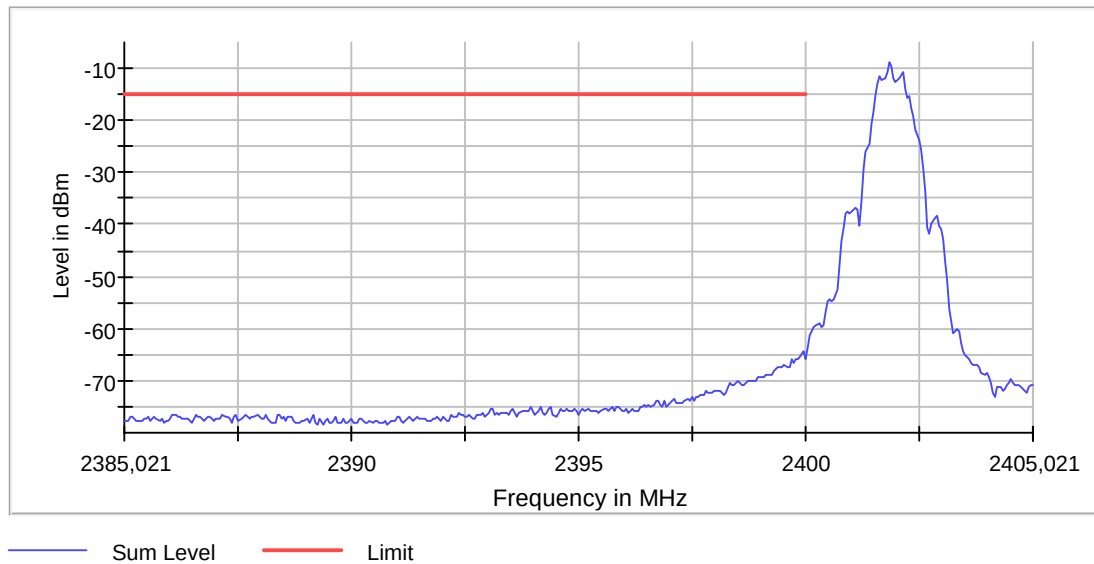
Pre Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)
2395.021008	6.1	-21.2	-15.1
4807.166065	-44.2	29.1	-15.1
3847.716851	-56.2	41.1	-15.1
2355.189076	-65.8	50.7	-15.1
7205.789099	-66.6	51.5	-15.1
2385.063025	-67.1	52.0	-15.1
2518.479919	-67.5	52.4	-15.1
2195.861345	-67.6	52.5	-15.1
2375.105042	-67.7	52.6	-15.1
791.785714	-67.9	52.8	-15.1
2315.357143	-68.3	53.2	-15.1
2185.903361	-68.3	53.2	-15.1
2265.567227	-68.4	53.3	-15.1
2295.441176	-68.4	53.3	-15.1
2146.071429	-68.5	53.4	-15.1

Measurement Settings

Start Frequency (MHz)	Stop Frequency (MHz)	Pre Measurement	Final Measurement
30.000000	2400.000000	1	1
2400.000000	2483.500000	1	1
2483.500000	26000.000000	1	1





Pre Measurement 1

Setting	Instrument Value	Target Value
RBW	100.000 kHz	≤ 100.000 kHz
VBW	300.000 kHz	≥ 300.000 kHz
SweepPoints	238	~ 238
SweepTime	23.700 ms	AUTO
Reference Level	-10.000 dBm	-30.000 dBm
Attenuation	20.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	3	3
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	Sweep	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	4 / max. 40	max. 40
Stable	3 / 3	3
Max Stable Difference	0.00 dB	0.50 dB

Final Measurement 1

Setting	Instrument Value	Target Value
RBW	100.000 kHz	≤ 100.000 kHz
VBW	300.000 kHz	≥ 300.000 kHz
SweepPoints	401	~ 401
SweepTime	1.010 ms	AUTO
Reference Level	10.000 dBm	10.000 dBm
Attenuation	20.000 dB	AUTO
Detector	Sample	Sample
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Average Linear	Average Linear
SweepType	Sweep	AUTO
Preamp	off	off

Tx Spurious Emission (2442 MHz; 10,000 dBm; 1 MHz)

Result

DUT Frequency (MHz)	Result
2442.000000	PASS

Final measurements

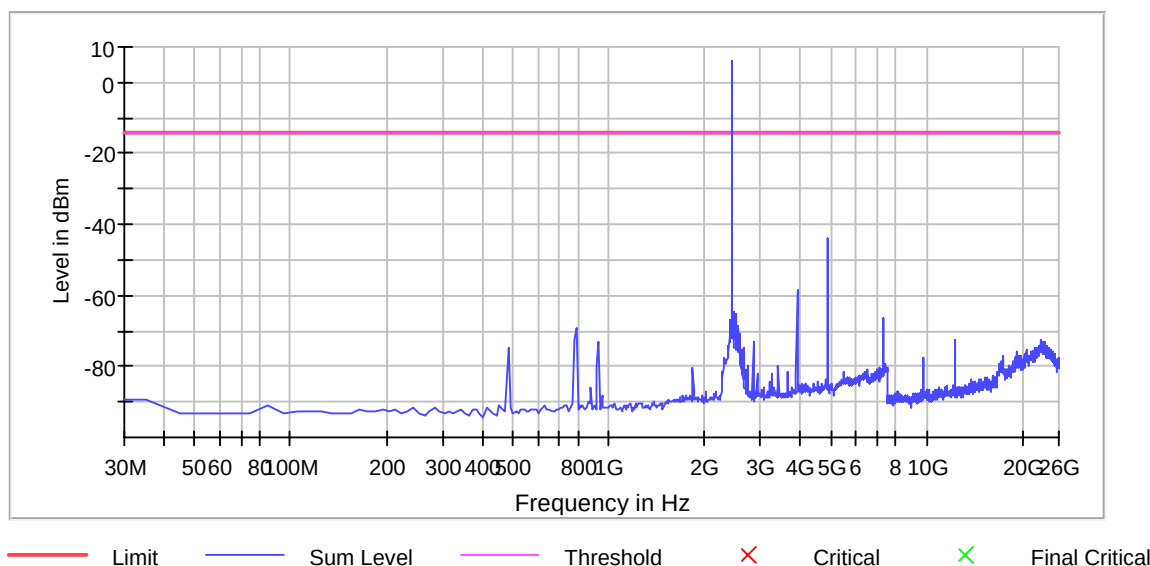
Frequency (MHz)	Level Pre Measurement (dBm)	level (dBm)	Limit (dBm)	Margin (dB)	Result
---	---	---	---	---	---

Pre Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)
4887.120166	-44.1	30.0	-14.1
3907.682427	-58.6	44.5	-14.1
2518.479919	-65.1	51.0	-14.1
7325.720251	-66.3	52.3	-14.1
2558.456970	-68.6	54.5	-14.1
791.785714	-69.2	55.1	-14.1
2588.439758	-70.9	56.8	-14.1
2395.021008	-71.3	57.2	-14.1
22916.769975	-72.5	58.5	-14.1
12212.914683	-72.6	58.6	-14.1
781.827731	-72.7	58.6	-14.1
2848.290586	-72.9	58.8	-14.1
2538.468445	-72.9	58.9	-14.1
931.197479	-73.0	59.0	-14.1
23616.368360	-73.2	59.1	-14.1

Measurement Settings

Start Frequency (MHz)	Stop Frequency (MHz)	Pre Measurement	Final Measurement
30.000000	2400.000000	1	1
2400.000000	2483.500000	1	1
2483.500000	26000.000000	1	1



Pre Measurement 1

Setting	Instrument Value	Target Value
RBW	100.000 kHz	≤ 100.000 kHz
VBW	300.000 kHz	≥ 300.000 kHz
SweepPoints	238	~ 238
SweepTime	23.700 ms	AUTO
Reference Level	-30.000 dBm	-30.000 dBm
Attenuation	0.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	3	3
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	Sweep	AUTO
Preamplifier	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	9 / max. 40	max. 40
Stable	3 / 3	3
Max Stable Difference	0.00 dB	0.50 dB

Tx Spurious Emission (2480 MHz; 10,000 dBm; 1 MHz)

Result

DUT Frequency (MHz)	Result
2480.000000	PASS

Final measurements

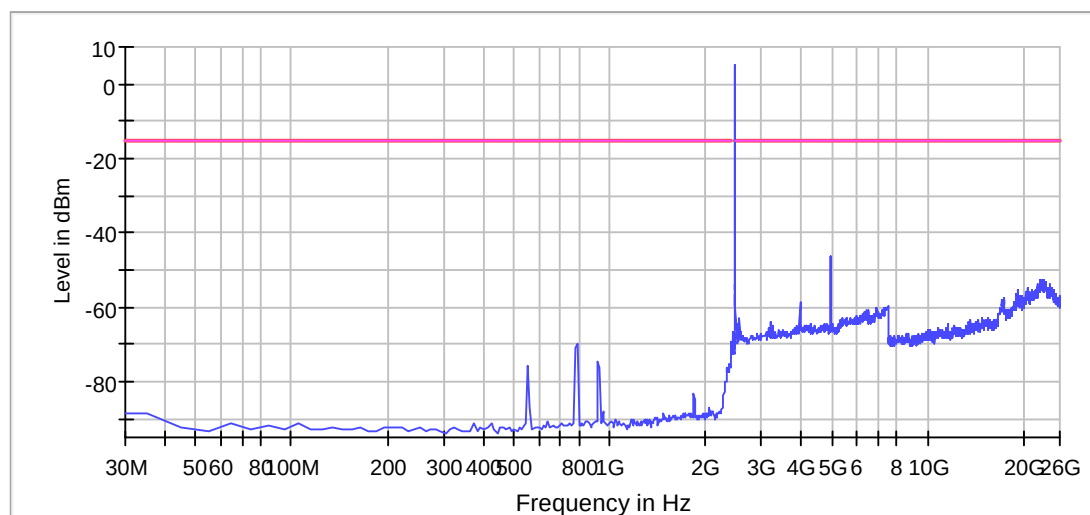
Frequency (MHz)	Level Pre Measurement (dBm)	level (dBm)	Limit (dBm)	Margin (dB)	Result
---	---	---	---	---	---

Pre Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)
4957.080004	-46.3	31.3	-14.9
22516.999469	-52.5	37.5	-14.9
23026.706864	-52.7	37.8	-14.9
22896.781449	-52.8	37.8	-14.9
23056.689652	-53.0	38.1	-14.9
23426.477369	-53.2	38.2	-14.9
23416.483107	-53.3	38.4	-14.9
22976.735550	-53.4	38.4	-14.9
23536.414258	-53.4	38.4	-14.9
22956.747025	-53.5	38.5	-14.9
22706.890459	-53.5	38.5	-14.9
22546.982257	-53.5	38.6	-14.9
23016.712601	-53.5	38.6	-14.9
22886.787187	-53.6	38.7	-14.9
22287.131428	-53.6	38.7	-14.9

Measurement Settings

Start Frequency (MHz)	Stop Frequency (MHz)	Pre Measurement	Final Measurement
30.000000	2400.000000	1	1
2400.000000	2483.500000	1	1
2483.500000	26000.000000	1	1



— Limit
 — Sum Level
 — Threshold
 × Critical
 × Final Critical

Pre Measurement 1

Setting	Instrument Value	Target Value
RBW	100.000 kHz	<= 100.000 kHz
VBW	300.000 kHz	>= 300.000 kHz
SweepPoints	238	~ 238
SweepTime	23.700 ms	AUTO
Reference Level	-30.000 dBm	-30.000 dBm
Attenuation	0.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	3	3
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	Sweep	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	13 / max. 40	max. 40
Stable	3 / 3	3
Max Stable Difference	0.00 dB	0.50 dB

1.04

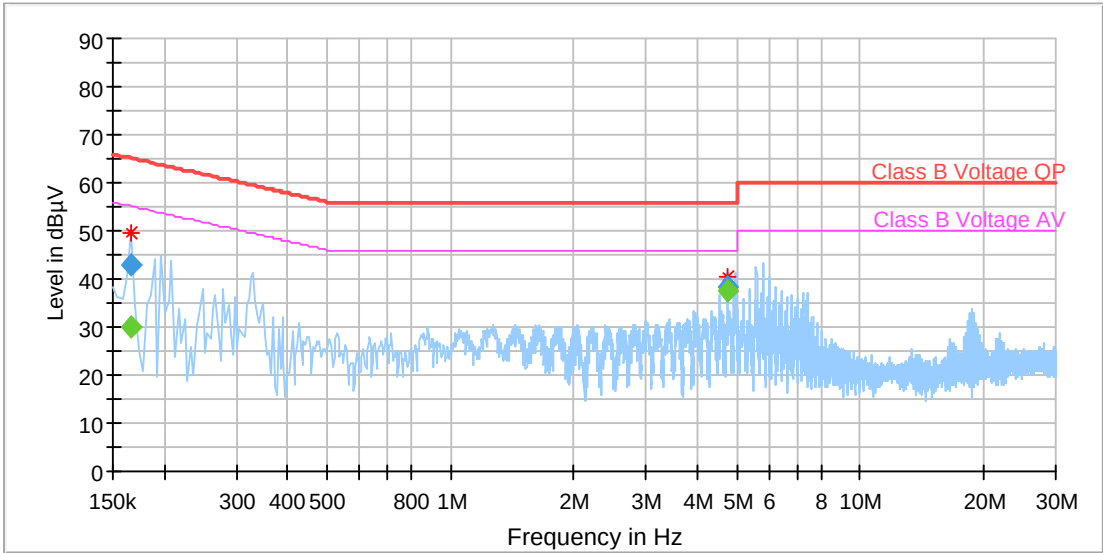
Common Information

Test Description:	Conducted Voltage Measurement Class B
Test Site Location:	Conducted Emission, CETECOM GmbH Essen
Test Software:	R&S EMC32 v9.15
Test Standard:	EN 55022
Operating Mode:	BLE TX, GFSK 2440 MHz
Measured on line:	N/L1
Diagram details:	Shows the peak values as a sum of measured ports in maxhold mode
Environmental Conditions:	Humidity : 50%rH; Temperature: 22°C
Operator:	npe
Comments:	
EUT Setup:	1
Verdict:	Passed

EUT Information

PMT number:	19-1-01765S03_C01
Date received:	--

Full Spectrum



Final Result

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	PE	Corr. (dB)
0.165625	---	29.90	55.18	25.28	15000.0	9.000	N	GND	0.1
0.165625	42.97	---	65.18	22.21	15000.0	9.000	N	GND	0.1
4.751563	---	37.38	46.00	8.62	15000.0	9.000	N	GND	0.3
4.751563	38.37	---	56.00	17.63	15000.0	9.000	N	GND	0.3

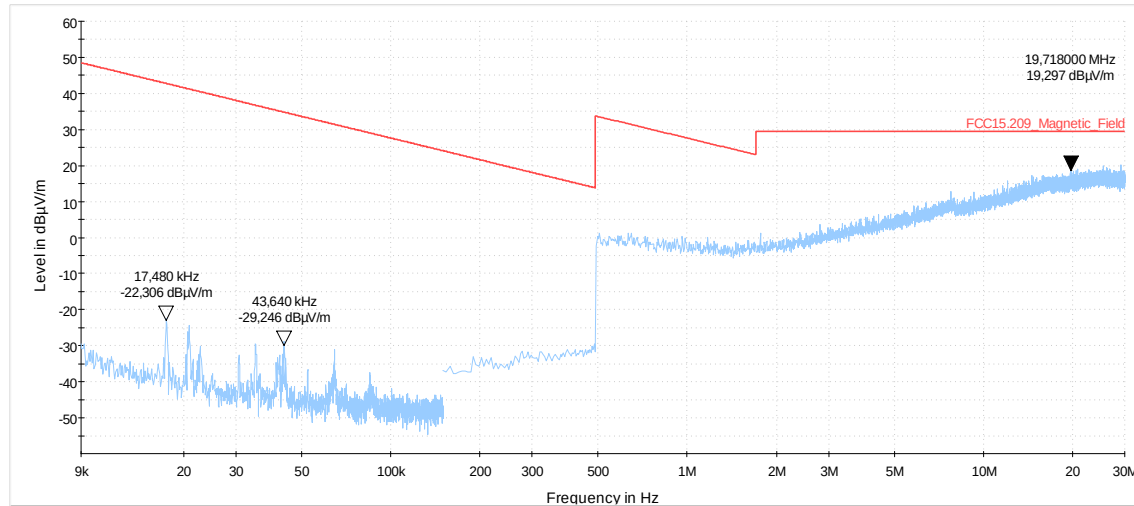
2.01a_BT_LE_low_standing

Common Information

Test Description:	Magnetic Field Strength Measurement related to 30/300 m distance
Test Site Location:	Ref.-Nr. 441 Semi Anechoic Chamber (SAC1) with 3 m measurement distance
Version of Testsoftware:	EMC32 V10.50.0
Distance correction:	used accord. table, pls. see test report
Technical Data:	Please see page 2 for detailed data of measurement setup
Rec. antenna (pre-scan):	height 1.00 m, parallel and 90° to EUT polarisation
Used Filter:	bypass
Test Standard:	FCC 15.205 § 15.209; RSS-Gen: Issue 4
Operator:	npe
Operating Mode:	BLE TX ch2402
Power during tests:	120V/60Hz
Environmental Conditions::	Humidity : 71%rH; Temperature: 21°C
EUT Setup:	1
Verdict:	Passed
Comment:	

EUT Information

PMT number:	19-1-01374S23_C01
Manufacturer:	Bosch Healthcare Solutions GmbH



2.01b_BT_LE_low_laying

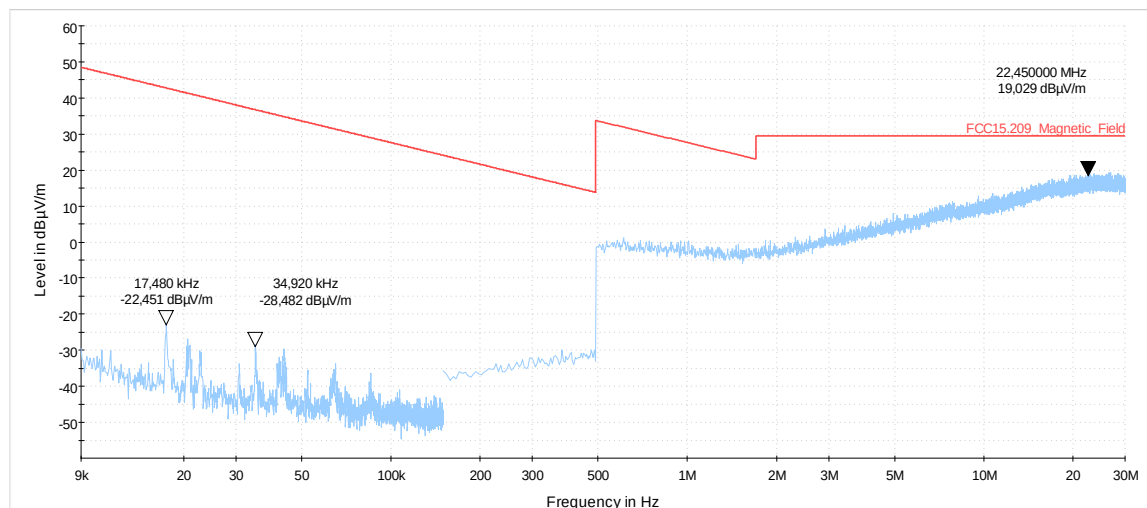
Common Information

Test Description:	Magnetic Field Strength Measurement related to 30/300 m distance
Test Site Location:	Ref.-Nr. 441 Semi Anechoic Chamber (SAC1) with 3 m measurement distance
Version of Testsoftware:	EMC32 V10.50.0
Distance correction:	used accord. table, pls. see test report
Technical Data:	Please see page 2 for detailed data of measurement setup
Rec. antenna (pre-scan):	height 1.00 m, parallel and 90° to EUT polarisation
Used Filter:	bypass
Test Standard:	FCC 15.205 § 15.209; RSS-Gen: Issue 4

Operator:	npe
Operating Mode:	BLE TX ch2402
Power during tests:	120V/60Hz
Environmental Conditions::	Humidity : 71%rH; Temperature: 21°C
EUT Setup:	1
Verdict:	Passed
Comment:	

EUT Information

PMT number:	19-1-01374S23_C01
Manufacturer:	Bosch Healthcare Solutions GmbH



2.02a_BT_LE_mid_standing

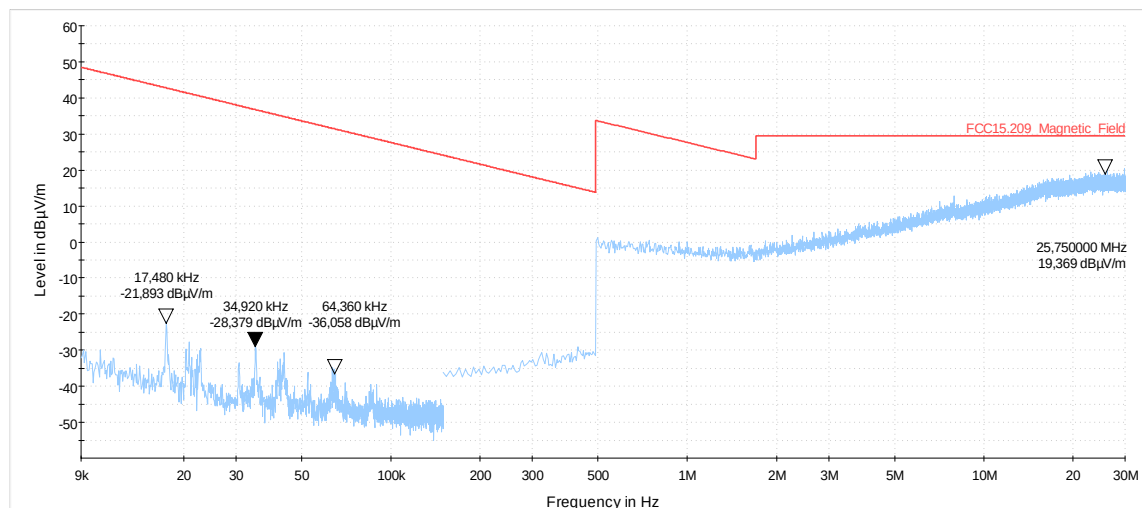
Common Information

Test Description:	Magnetic Field Strength Measurement related to 30/300 m distance
Test Site Location:	Ref.-Nr. 441 Semi Anechoic Chamber (SAC1) with 3 m measurement distance
Version of Testsoftware:	EMC32 V10.50.0
Distance correction:	used accord. table, pls. see test report
Technical Data:	Please see page 2 for detailed data of measurement setup
Rec. antenna (pre-scan):	height 1.00 m, parallel and 90° to EUT polarisation
Used Filter:	bypass
Test Standard:	FCC 15.205 § 15.209; RSS-Gen: Issue 4

Operator:	npe
Operating Mode:	BLE TX ch2440
Power during tests:	120V/60Hz
Environmental Conditions::	Humidity : 71%rH; Temperature: 21°C
EUT Setup:	1
Verdict:	Passed
Comment:	

EUT Information

PMT number:	19-1-01374S23_C01
Manufacturer:	Bosch Healthcare Solutions GmbH



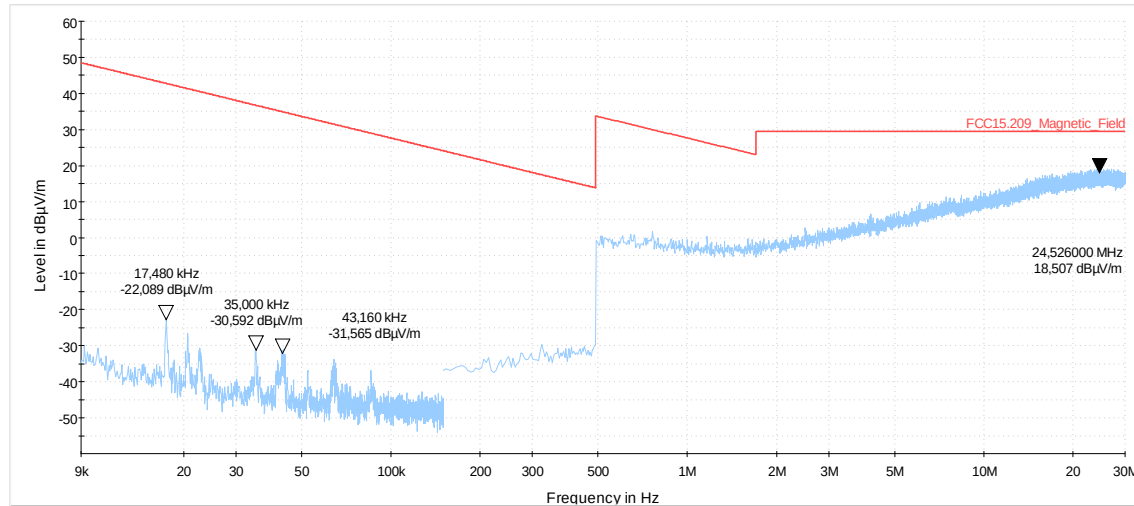
2.02b_BT_LE_mid_laying

Common Information

Test Description:	Magnetic Field Strength Measurement related to 30/300 m distance
Test Site Location:	Ref.-Nr. 441 Semi Anechoic Chamber (SAC1) with 3 m measurement distance
Version of Testsoftware:	EMC32 V10.50.0
Distance correction:	used accord. table, pls. see test report
Technical Data:	Please see page 2 for detailed data of measurement setup
Rec. antenna (pre-scan):	height 1.00 m, parallel and 90° to EUT polarisation
Used Filter:	bypass
Test Standard:	FCC 15.205 § 15.209; RSS-Gen: Issue 4
Operator:	npe
Operating Mode:	BLE TX ch2440
Power during tests:	120V/60Hz
Environmental Conditions::	Humidity : 71%rH; Temperature: 21°C
EUT Setup:	1
Verdict:	Passed
Comment:	

EUT Information

PMT number:	19-1-01374S23_C01
Manufacturer:	Bosch Healthcare Solutions GmbH



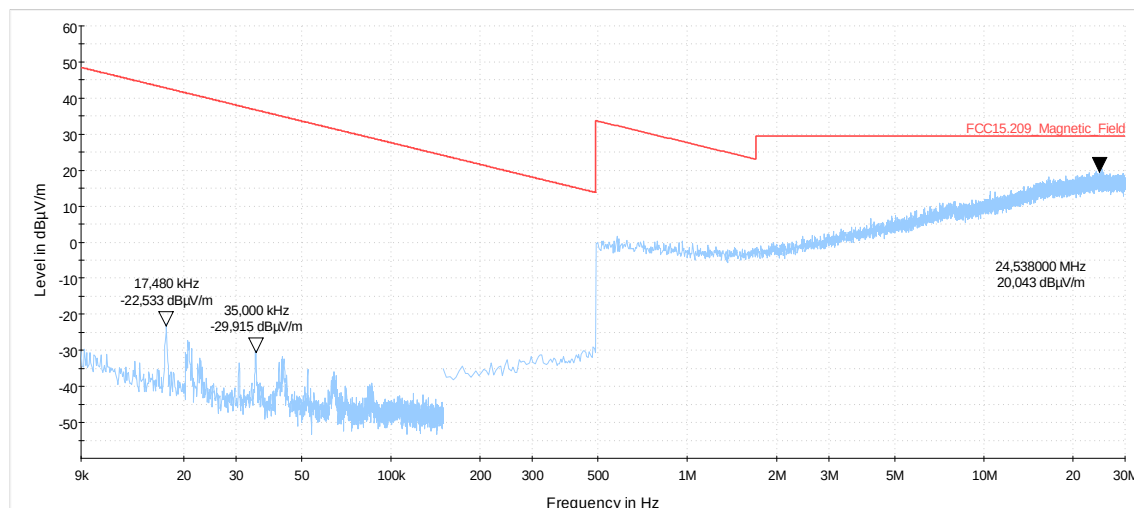
2.03a_BT_LE_high_standing

Common Information

Test Description:	Magnetic Field Strength Measurement related to 30/300 m distance
Test Site Location:	Ref.-Nr. 441 Semi Anechoic Chamber (SAC1) with 3 m measurement distance
Version of Testsoftware:	EMC32 V10.50.0
Distance correction:	used accord. table, pls. see test report
Technical Data:	Please see page 2 for detailed data of measurement setup
Rec. antenna (pre-scan):	height 1.00 m, parallel and 90° to EUT polarisation
Used Filter:	bypass
Test Standard:	FCC 15.205 § 15.209; RSS-Gen: Issue 4
Operator:	npe
Operating Mode:	BLE TX ch2440
Power during tests:	120V/60Hz
Environmental Conditions::	Humidity : 71%rH; Temperature: 21°C
EUT Setup:	1
Verdict:	Passed
Comment:	

EUT Information

PMT number:	19-1-01374S23_C01
Manufacturer:	Bosch Healthcare Solutions GmbH



2.03b_BT_LE_high_laying

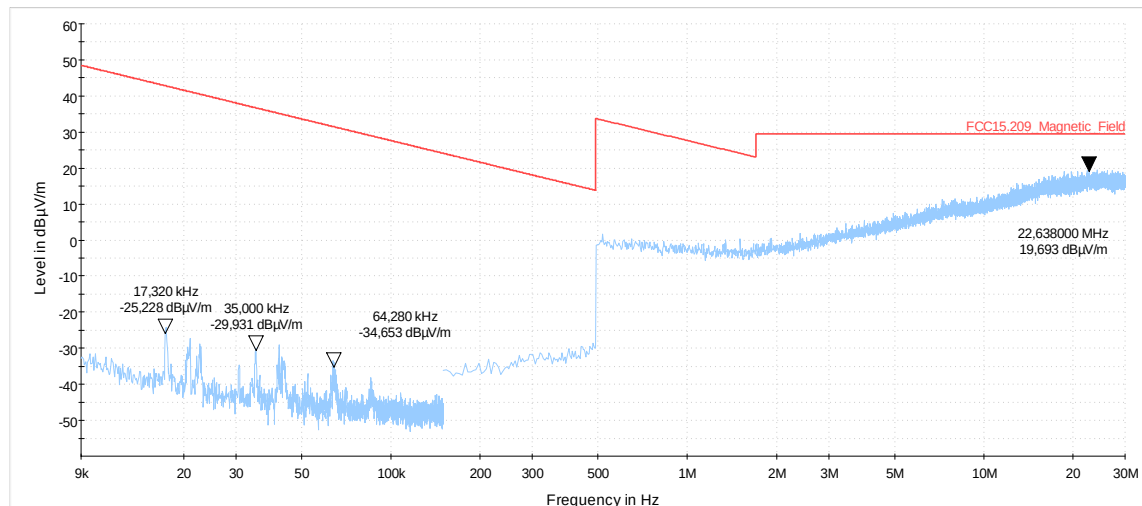
Common Information

Test Description:	Magnetic Field Strength Measurement related to 30/300 m distance
Test Site Location:	Ref.-Nr. 441 Semi Anechoic Chamber (SAC1) with 3 m measurement distance
Version of Testsoftware:	EMC32 V10.50.0
Distance correction:	used accord. table, pls. see test report
Technical Data:	Please see page 2 for detailed data of measurement setup
Rec. antenna (pre-scan):	height 1.00 m, parallel and 90° to EUT polarisation
Used Filter:	bypass
Test Standard:	FCC 15.205 § 15.209; RSS-Gen: Issue 4

Operator:	npe
Operating Mode:	BLE TX ch2480
Power during tests:	120V/60Hz
Environmental Conditions::	Humidity : 71%rH; Temperature: 21°C
EUT Setup:	1
Verdict:	Passed
Comment:	

EUT Information

PMT number:	19-1-01374S23_C01
Manufacturer:	Bosch Healthcare Solutions GmbH



3.01a_BT_LE_low_standing

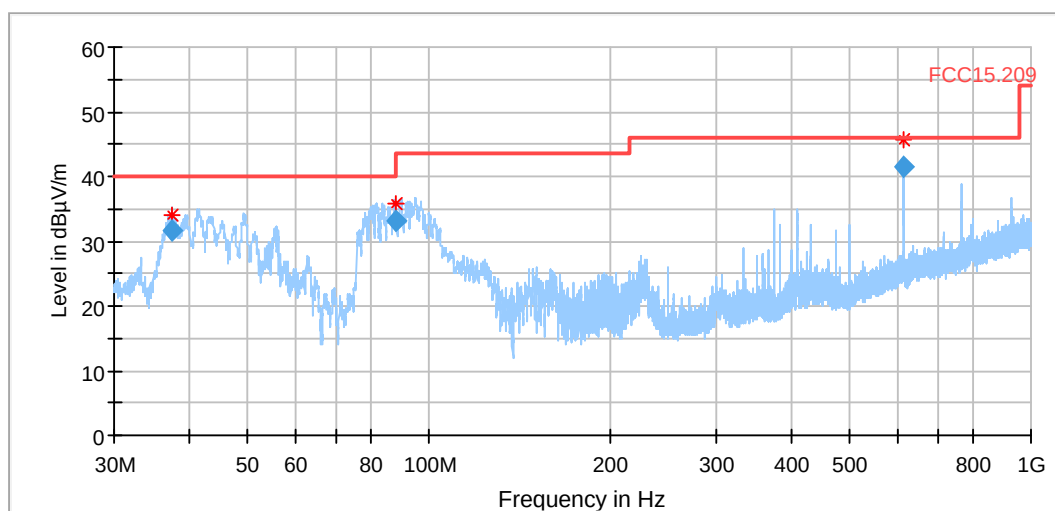
Common Information

Test Description:	Radiated field strength emission in 3m distance
Test Site:	CETECOM GmbH Essen
Test Standard:	FCC 15.205&15.209 RSS Gen Issue 5 Intentional Radiator
Antenna polarisation:	horizontal/vertical
Operation mode:	TX mode
Operating Mode:	BLE TX ch2400
Environmental Conditions:	Humidity : 71%rH; Temperature: 21°C
Operator:	npe
Verdict:	Passed

EUT Information

PMT number:	19-1-01374S23_C01
Manufacturer:	Bosch Healthcare Solutions GmbH

Full Spectrum



Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin	Meas. Time (ms)	Bandwidth (Hz)	Height (dB)	Pol	Azimuth (°)	Corr. (dB/m)
37.422000	31.64	40.00	8.36	1000.0	120.000	282.0	H	24.0	18.2
87.822000	33.19	40.00	6.81	1000.0	120.000	154.0	V	295.0	8.1
614.124000	41.61	46.00	4.39	1000.0	120.000	117.0	H	117.0	22.0

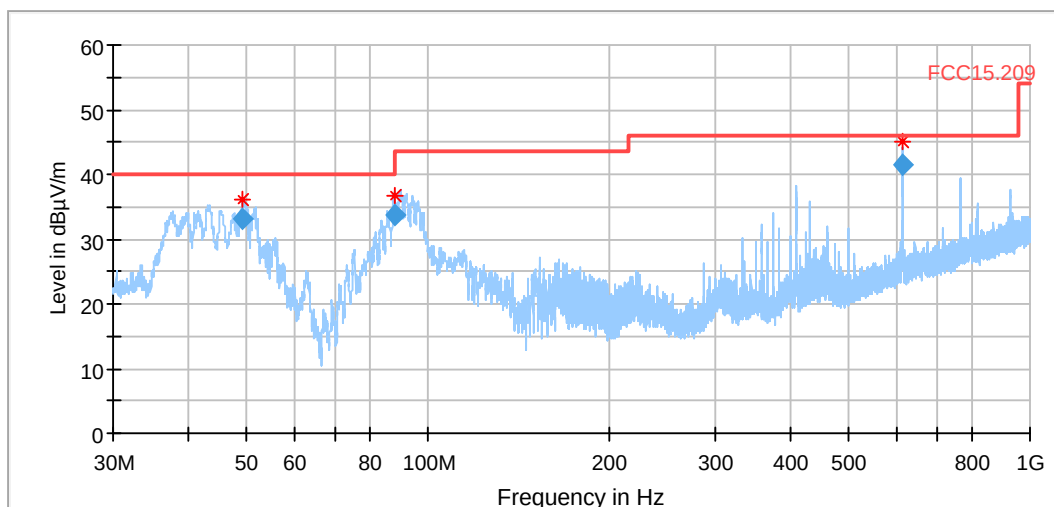
3.01b_BT_LE_low_laying

Common Information

Test Description:	Radiated field strength emission in 3m distance
Test Site:	CETECOM GmbH Essen
Test Standard:	FCC 15.205&15.209 RSS Gen Issue 5 Intentional Radiator
Antenna polarisation:	horizontal/vertical
Operation mode:	TX mode
Operating Mode:	BLE TX ch2400
Environmental Conditions:	Humidity : 71%rH; Temperature: 21°C
Operator:	npe
Verdict:	Passed

EUT Information

PMT number:	19-1-01374S23_C01
Manufacturer:	Bosch Healthcare Solutions GmbH
	Full Spectrum



Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin	Meas. Time (ms)	Bandwidth (Hz)	Height	Pol	Azimuth	Corr. (dB/m)
49.318000	33.19	40.00	6.81	1000.0	120.000	109.0	V	237.0	13.2
87.984000	33.68	40.00	6.32	1000.0	120.000	153.0	V	291.0	8.1
613.688000	41.48	46.00	4.52	1000.0	120.000	109.0	V	341.0	22.0

3.02a_BT_LE_mid_standing

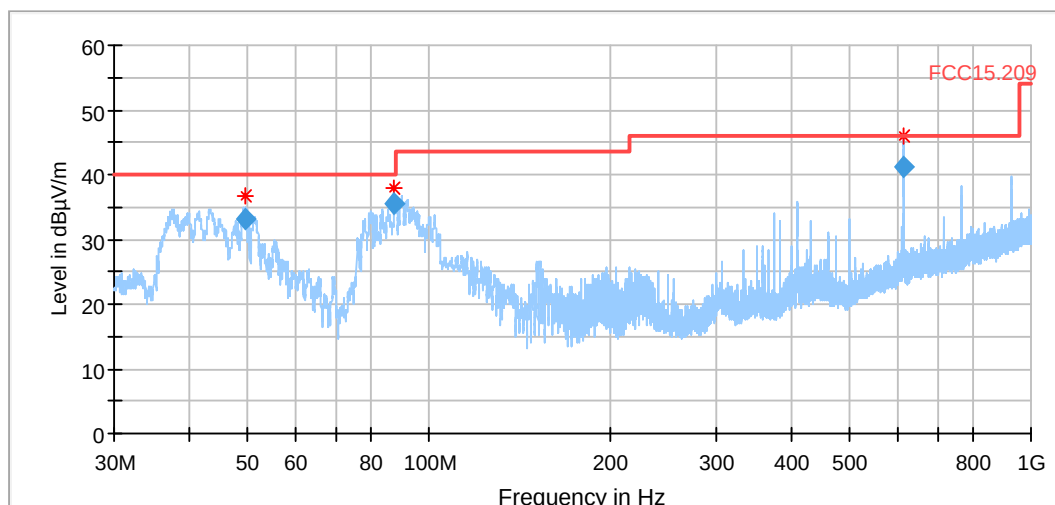
Common Information

Test Description:	Radiated field strength emission in 3m distance
Test Site:	CETECOM GmbH Essen
Test Standard:	FCC 15.205&15.209 RSS Gen Issue 5 Intentional Radiator
Antenna polarisation:	horizontal/vertical
Operation mode:	TX mode
Operating Mode:	BLE TX ch2440
Environmental Conditions:	Humidity : 71%RH; Temperature: 21°C
Operator:	npe
Verdict:	Passed

EUT Information

PMT number:	19-1-01374S23_C01
Manufacturer:	Bosch Healthcare Solutions GmbH

Full Spectrum



Final Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin	Meas. Time (ms)	Bandwidth (Hz)	Height	Pol	Azimuth	Corr. (dB/m)
49.458000	33.26	40.00	6.74	1000.0	120.000	105.0	V	250.0	13.1
87.810000	35.52	40.00	4.48	1000.0	120.000	368.0	H	217.0	8.1
614.082000	41.34	46.00	4.66	1000.0	120.000	111.0	H	103.0	22.0

3.02b_BT_LE_mid_laying

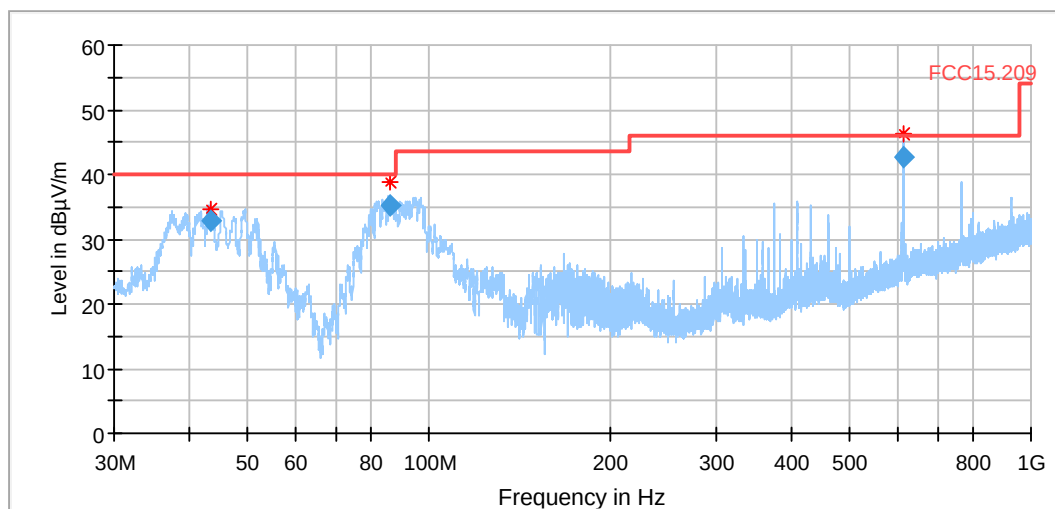
Common Information

Test Description:	Radiated field strength emission in 3m distance
Test Site:	CETECOM GmbH Essen
Test Standard:	FCC 15.205&15.209 RSS Gen Issue 5 Intentional Radiator
Antenna polarisation:	horizontal/vertical
Operation mode:	TX mode
Operating Mode:	BLE TX ch2440
Environmental Conditions:	Humidity : 71%rH; Temperature: 21°C
Operator:	npe
Verdict:	Passed

EUT Information

PMT number:	19-1-01374S23_C01
Manufacturer:	Bosch Healthcare Solutions GmbH

Full Spectrum



Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin	Meas. Time (ms)	Bandwidth (Hz)	Height	Pol	Azimuth	Corr. (dB/m)
43.346000	32.71	40.00	7.29	1000.0	120.000	105.0	V	214.0	15.7
86.162000	35.19	40.00	4.81	1000.0	120.000	368.0	H	214.0	7.9
614.068000	42.73	46.00	3.27	1000.0	120.000	105.0	V	351.0	22.0

3.03a_BT_LE_high_standing

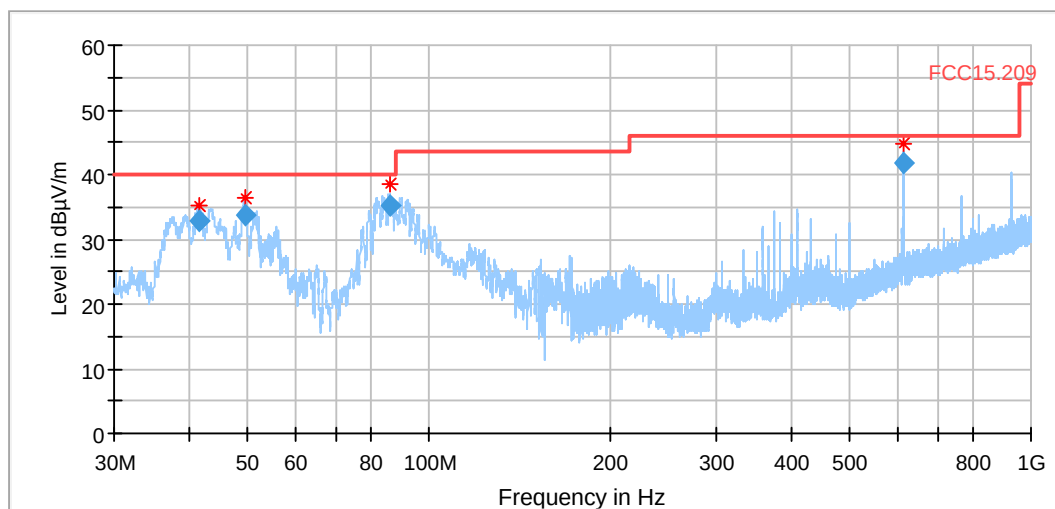
Common Information

Test Description:	Radiated field strength emission in 3m distance
Test Site:	CETECOM GmbH Essen
Test Standard:	FCC 15.205&15.209 RSS Gen Issue 5 Intentional Radiator
Antenna polarisation:	horizontal/vertical
Operation mode:	TX mode
Operating Mode:	BLE TX ch2480
Environmental Conditions:	Humidity : 71%rH; Temperature: 21°C
Operator:	npe
Verdict:	Passed

EUT Information

PMT number:	19-1-01374S23_C01
Manufacturer:	Bosch Healthcare Solutions GmbH

Full Spectrum



Final Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin	Meas. Time (ms)	Bandwidth (Hz)	Height	Pol	Azimuth	Corr. (dB/m)
41.444000	32.72	40.00	7.28	1000.0	120.000	105.0	V	228.0	16.5
49.382000	33.62	40.00	6.38	1000.0	120.000	105.0	V	229.0	13.1
86.070000	35.17	40.00	4.83	1000.0	120.000	368.0	H	211.0	7.9
613.640000	41.87	46.00	4.13	1000.0	120.000	117.0	H	106.0	22.0

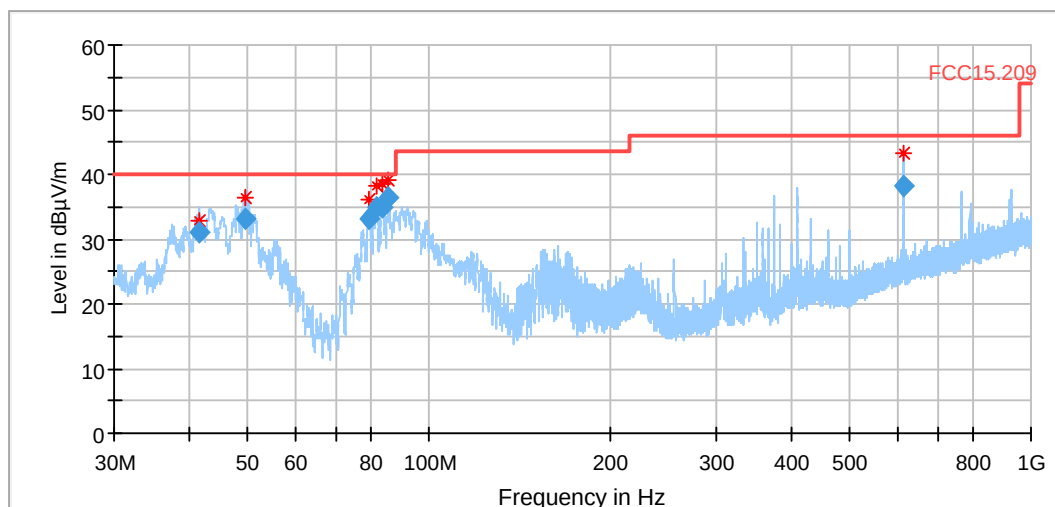
3.03b_BT_LE_high_laying

Common Information

Test Description:	Radiated field strength emission in 3m distance
Test Site:	CETECOM GmbH Essen
Test Standard:	FCC 15.205&15.209 RSS Gen Issue 5 Intentional Radiator
Antenna polarisation:	horizontal/vertical
Operation mode:	TX mode
Operating Mode:	BLE TX ch2480
Environmental Conditions:	Humidity : 71%rH; Temperature: 21°C
Operator:	npe
Verdict:	Passed

EUT Information

PMT number:	19-1-01374S23_C01
Manufacturer:	Bosch Healthcare Solutions GmbH
	Full Spectrum



Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
41.502000	30.95	40.00	9.05	1000.0	120.000	105.0	V	223.0	16.5
49.568000	33.09	40.00	6.91	1000.0	120.000	105.0	V	236.0	13.1
79.632000	33.06	40.00	6.94	1000.0	120.000	239.0	H	195.0	6.9
81.742000	34.88	40.00	5.12	1000.0	120.000	237.0	H	215.0	7.3
83.906000	34.92	40.00	5.08	1000.0	120.000	221.0	H	204.0	7.6
85.760000	36.38	40.00	3.62	1000.0	120.000	368.0	H	208.0	7.9
614.270000	38.34	46.00	7.66	1000.0	120.000	162.0	V	207.0	22.0

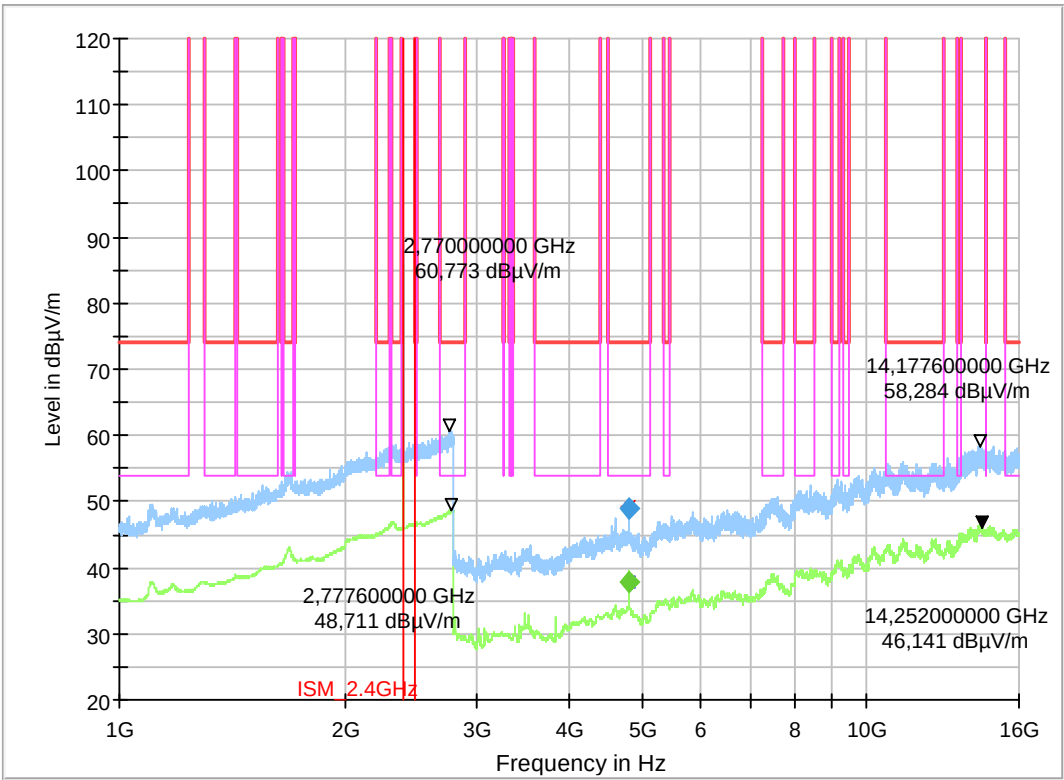
4.01_BT_LE_low

Common Information

Test Description:	Radiated field strength emission in 3m distance
Test Site:	Fully Anechoic Chamber (FAC1) - EMC32 V10.50.0
Test Standard:	FCC 15.247&15.209 Intentional Radiator / RSS-Gen, Issue 4
Antenna polarisation:	horizontal/vertical
Operating Mode:	BLE TX
Operator:	TFA
Comment:	Channel no. low
EUT Setup:	1
Verdict:	Passed

EUT Information

PMT number:	19-1-01374S23_C01
Manufacturer:	Bosch Healthcare Solutions GmbH
Full Spectrum	



Final Result

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Elevation (deg)
4803.600000	48.81	---	74.00	25.19	100.0	1000.000	155.0	H	89.0	0.0
4803.600000	---	41.82	54.00	16.24	100.0	1000.000	155.0	H	87.0	0.0

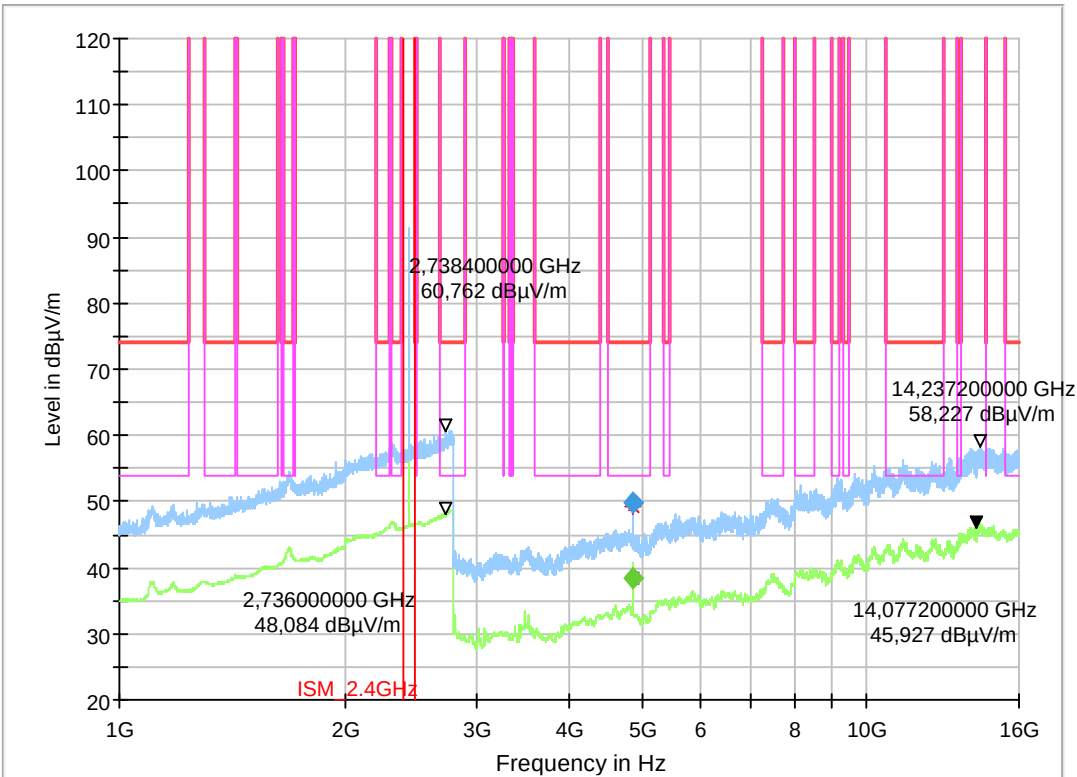
4.02_BT_LE_mid

Common Information

Test Description:	Radiated field strength emission in 3m distance
Test Site:	Fully Anechoic Chamber (FAC1) - EMC32 V10.50.0
Test Standard:	FCC 15.247&15.209 Intentional Radiator / RSS-Gen, Issue 4
Antenna polarisation:	horizontal/vertical
Operating Mode:	BLE TX
Operator:	TFA
Comment:	Ch: 19 (2440MHz)
EUT Setup:	1
Verdict:	Passed

EUT Information

PMT number:	19-1-01374S23_C01
Manufacturer:	Bosch Healthcare Solutions GmbH
Full Spectrum	



Final Result

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Elevation (deg)
4879.600000	49.87	---	74.00	24.13	100.0	1000.000	155.0	H	88.0	90.0
4879.600000	---	42.60	54.00	15.46	100.0	1000.000	155.0	H	88.0	90.0

➤ AV value @ 4879 MHz corrected with DC correction Factor for details see chapter 4.1

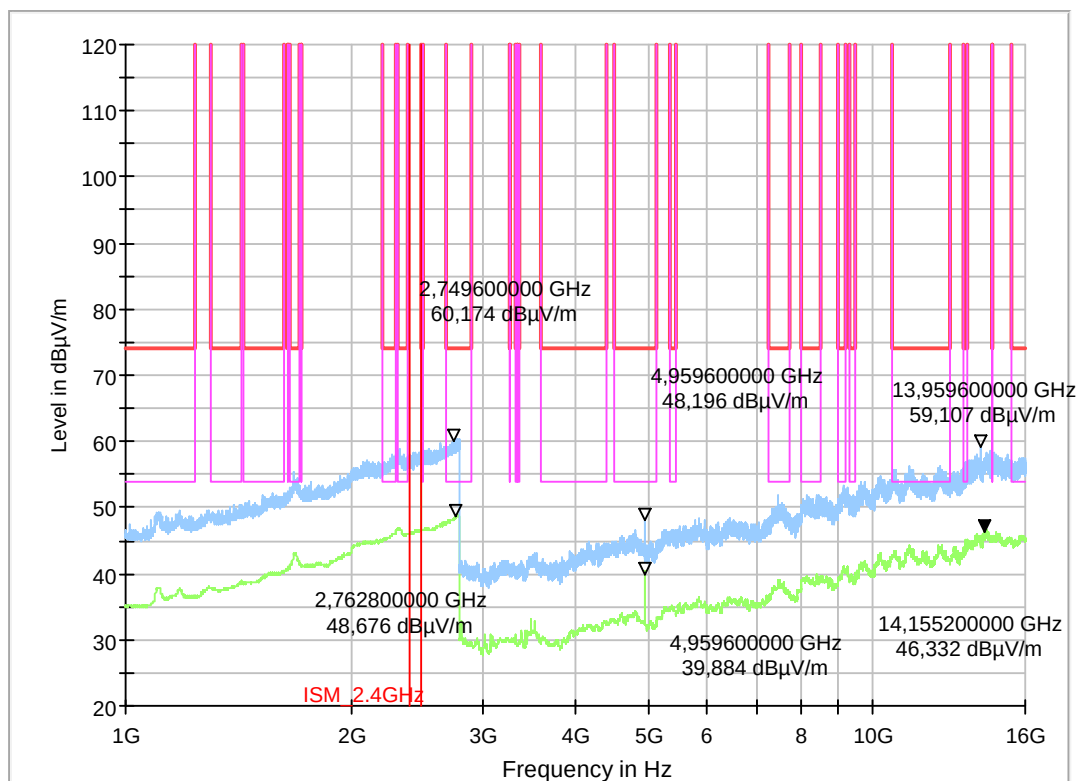
4.03_BT_LE_high

Common Information

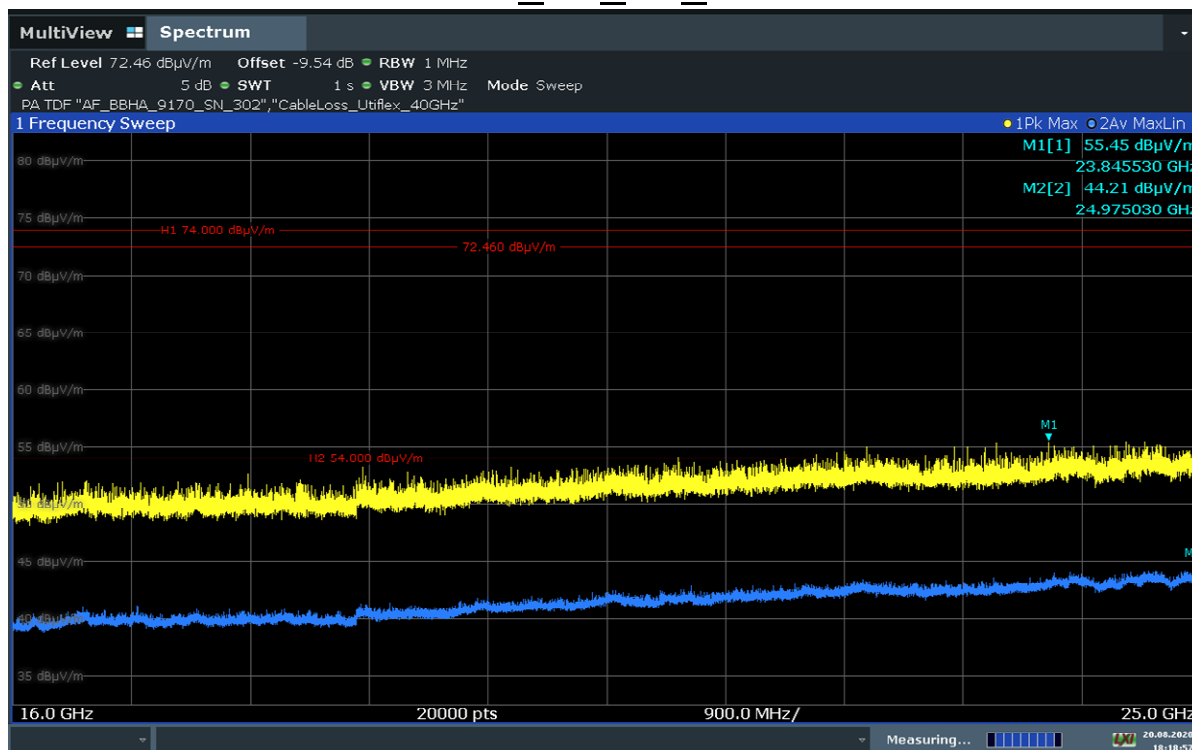
Test Description:	Radiated field strength emission in 3m distance
Test Site:	Fully Anechoic Chamber (FAC1) - EMC32 V10.50.0
Test Standard:	FCC 15.247&15.209 Intentional Radiator / RSS-Gen, Issue 4
Antenna polarisation:	horizontal/vertical
Operating Mode:	BLE TX
Operator:	TFA
Comment:	Ch: 39 (2480MHz)
EUT Setup:	1
Verdict:	Passed

EUT Information

PMT number:	19-1-01374S23_C01
Manufacturer:	Bosch Healthcare Solutions GmbH
	Full Spectrum

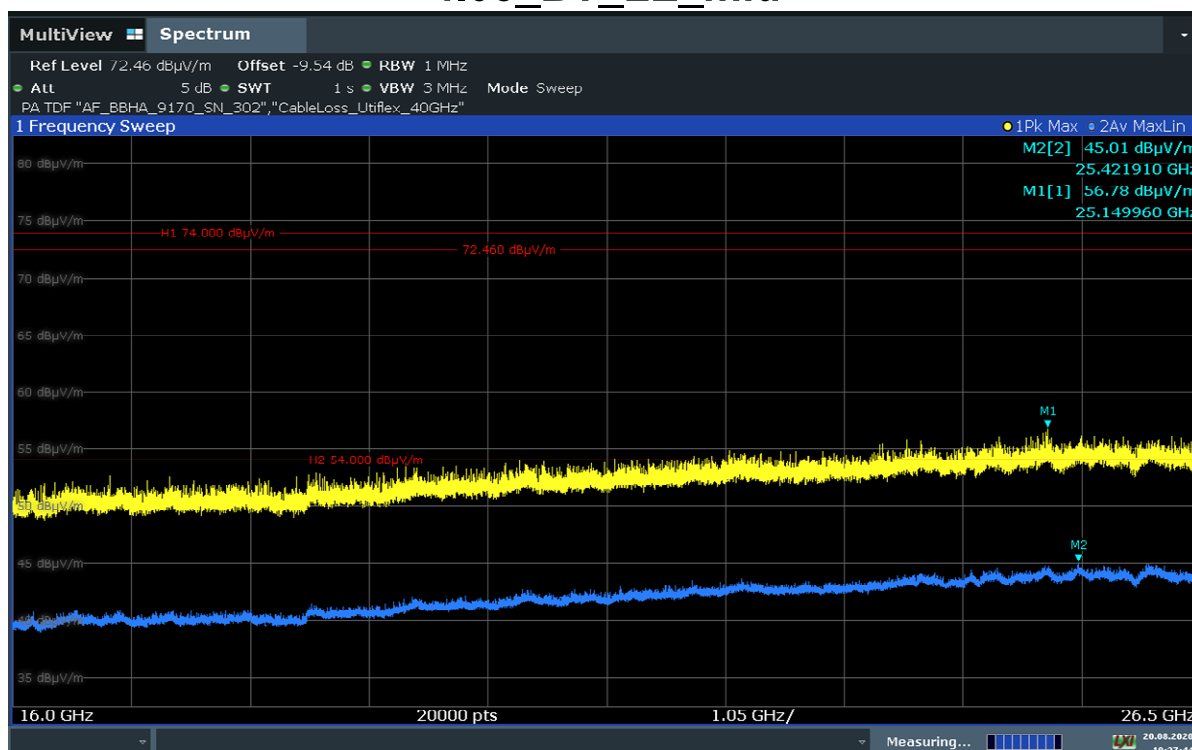


4.04_BT_LE_low



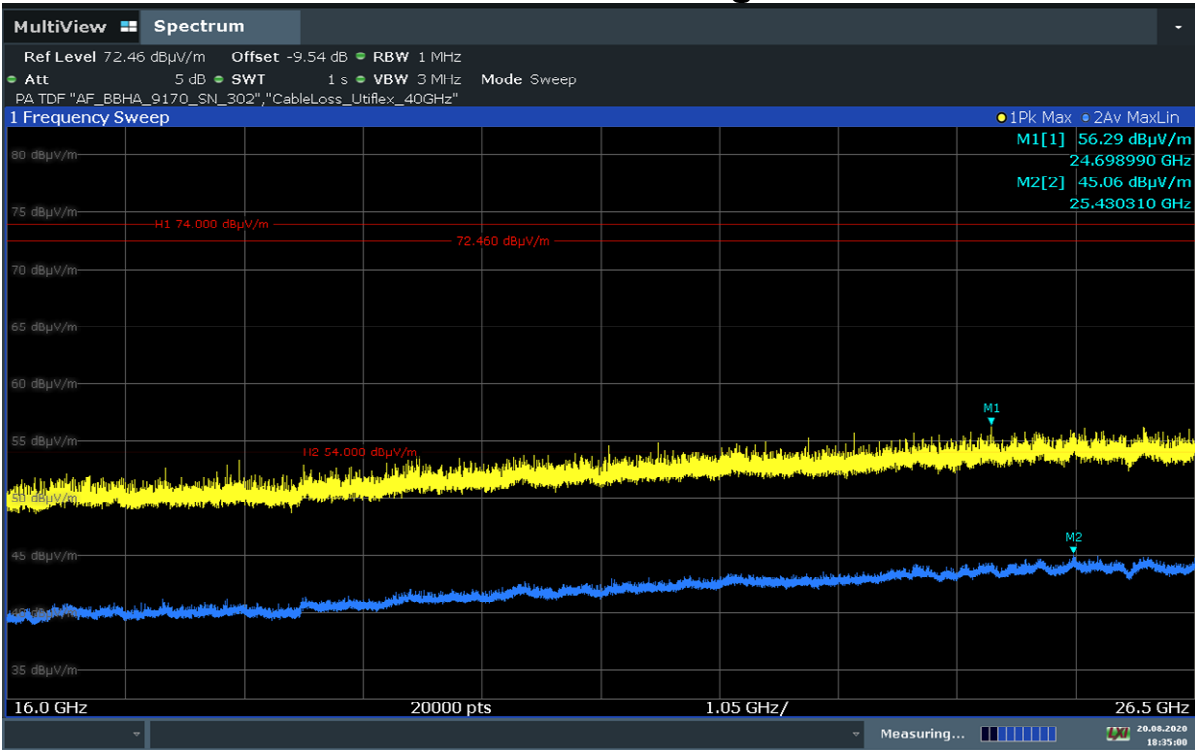
18:18:58 20.08.2020

4.05_BT_LE_mid



18:27:45 20.08.2020

4.06_BT_LE_high



18:35:01 20.08.2020

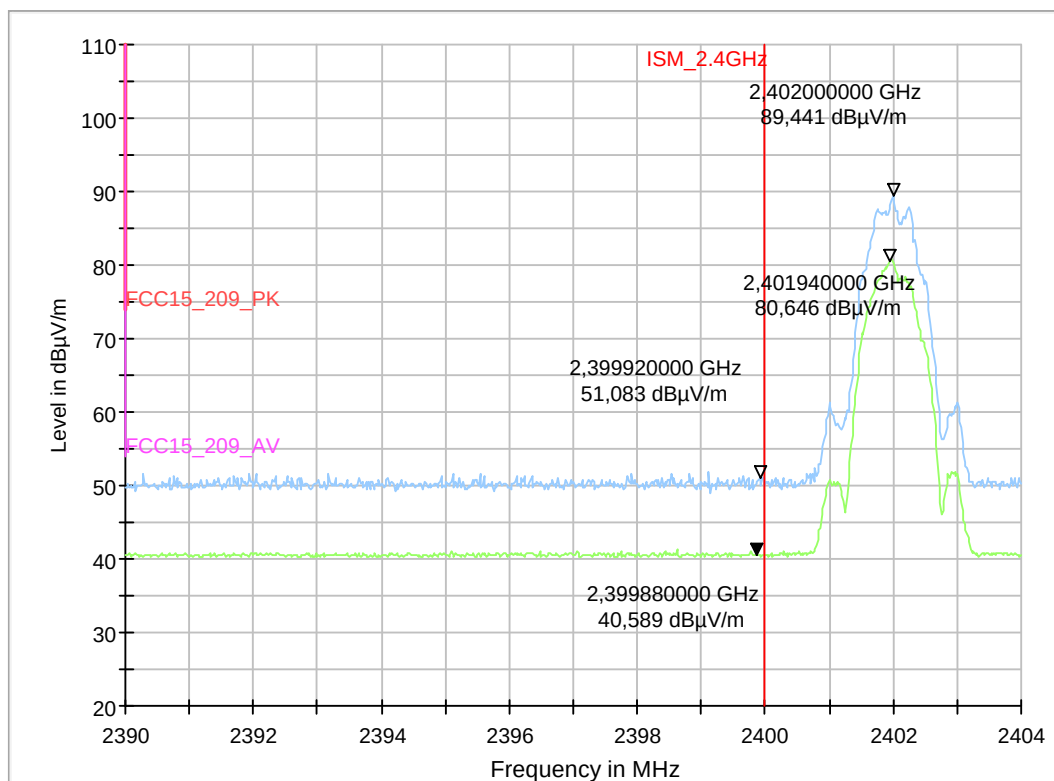
9.01_BE_BT_LE_low

Common Information

Test Description:	Band-Edge: Radiated Field Strength Emissions Emissions in 3m distance
Test Site:	Fully Anechoic Chamber (FAC1) - EMC32 V10.50.0
Test Standard:	FCC 15.247&15.209 Intentional Radiator / RSS-Gen, Issue 4
Antenna polarisation:	horizontal/vertical
Operating Mode:	BLE TX
Operator:	TFA
Comment:	Channel no. low
EUT Setup:	1
Verdict:	Passed

EUT Information

PMT number:	19-1-01374S23_C01
Manufacturer:	Bosch Healthcare Solutions GmbH
	Full Spectrum



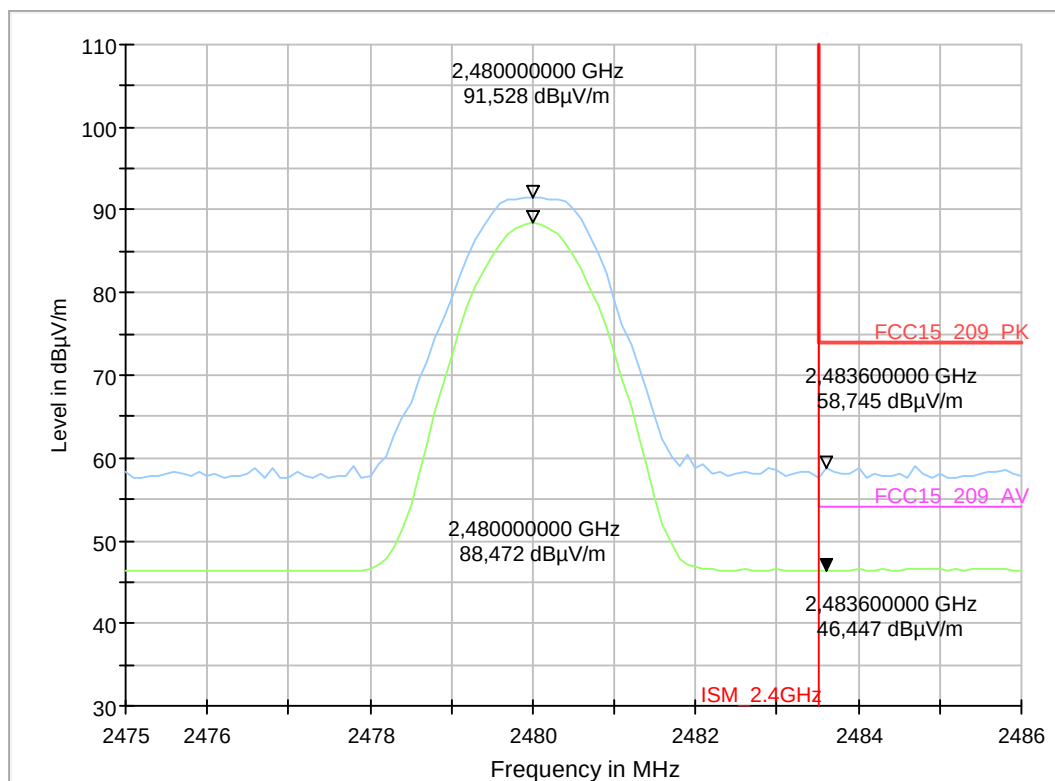
9.02_BE_BT_LE_high

Common Information

Test Description:	Band-Edge: Radiated Field Strength Emissions Emissions in 3m distance
Test Site:	Fully Anechoic Chamber (FAC1) - EMC32 V10.50.0
Test Standard:	FCC 15.247&15.209 Intentional Radiator / RSS-Gen, Issue 4
Antenna polarisation:	horizontal/vertical
Operating Mode:	BLE TX
Operator:	TFA
Comment:	Ch: 39 (2480MHz)
EUT Setup:	1
Verdict:	Passed

EUT Information

PMT number:	19-1-01374S23_C01
Manufacturer:	Bosch Healthcare Solutions GmbH
	Full Spectrum



End Of Annex