Annex 1: Measurement diagrams to
T E S T R E P O R T
No.: 18-1-0020401T08a

According to:

FCC Regulations
Part 15.205
Part 15.249

ISED-Regulations
RSS-Gen, Issue 5
RSS-210, Issue 9

for
SRM GmbH

EXAKT Pedal PowerMeter

FCC ID: WCS - EXAKT
ISED: 7761A - EXAKT

HVIN: EXAKT
PMN: EXAKT

Laboratory Accreditation and Listings	
ilac-MRA DAkkS Deutsche Akkreditierungsstelle D-PL-12047-01-01 D-PL-12047-01-03 D-PL-12047-01-04 Accredited EMC-Test Laboratory	
Wi Fi ALLIANCE AUTHORIZED RF LABORATORY	ctia Authorized™ Test Lab Lab Code: 20011130-00
accredited according to DIN EN ISO/IEC 17025	

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TABLE OF CONTENTS:

1. Radiated Field Strength Measurements

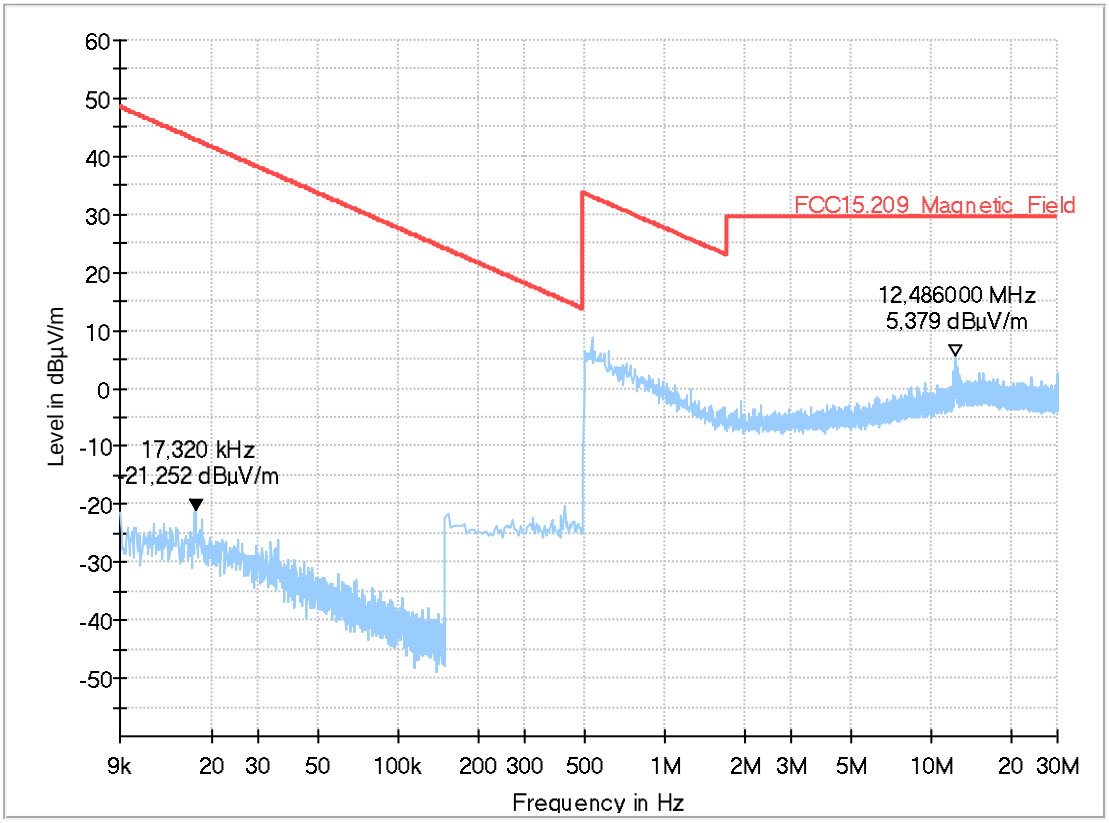
1.1. Radiated Field Strength Emissions – 9 kHz to 30 MHz

2.01a_MODE_channel_low_laying

Date: 16.04.2018 Page 1 of 3

Test description:	Magnetic Field Strength Measurement related to 30/300 m distance
Test site and distance:	Ref.-Nr. 441 Semi Anechoic Room (SAR) with 3 m measurement distance
Version of Testsoftware:	EMC32 V9.25.0
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 specification:	FCC 15.205 § 15.209; RSS-Gen: Issue 5
Operator:	MBe
Operating conditions:	TX-MODE_low_laying
Power during tests:	charging
Comment 1:	Channel low
Comment 2:	DUT Laying

Full Spectrum

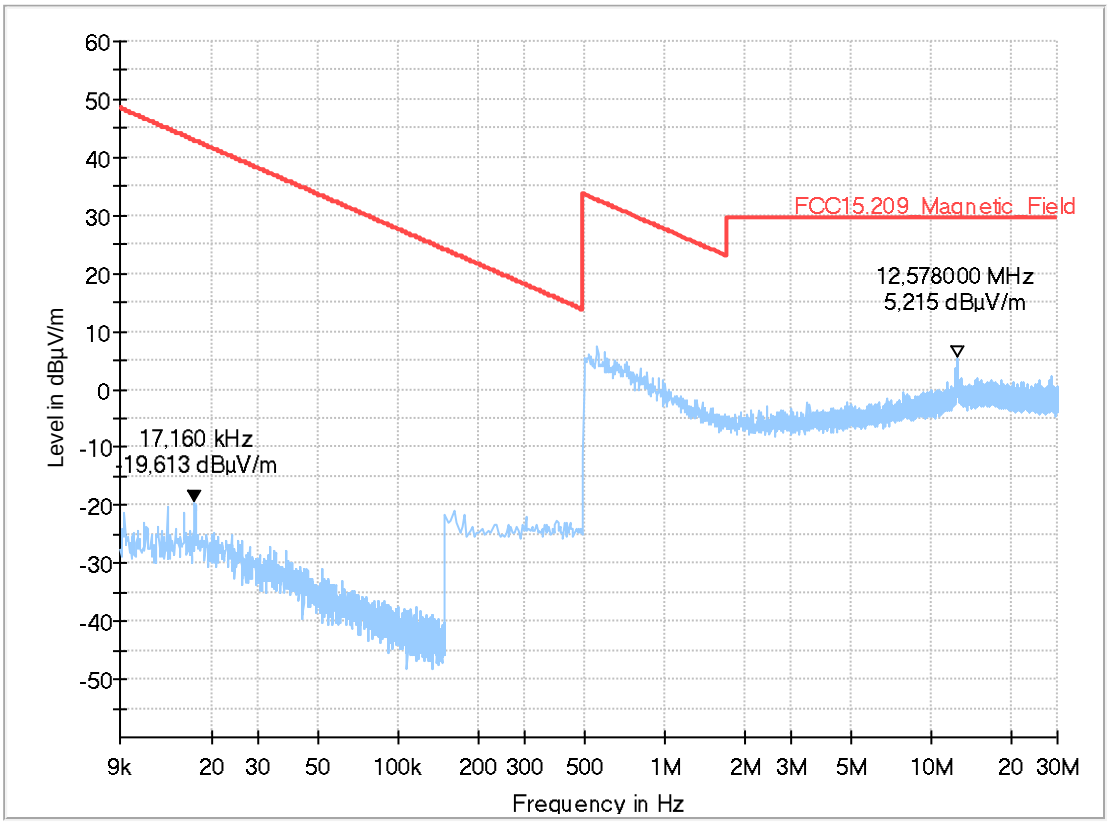


2.01b_MODE_low_standing

Date: 16.04.2018 Page 1 of 2

Test description:	Magnetic Field Strength Measurement related to 30/300 m distance
Test site and distance:	Ref.-Nr. 441 Semi Anechoic Room (SAR) with 3 m measurement distance
Version of Testsoftware:	EMC32 V9.25.0
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 specification:	FCC 15.205 § 15.209; RSS-Gen: Issue 5
Operator:	TFra
Operating conditions:	TX-MODE_low_standing
Power during tests:	charging
Comment 1:	Channel low
Comment 2:	DUT Standing

Full Spectrum

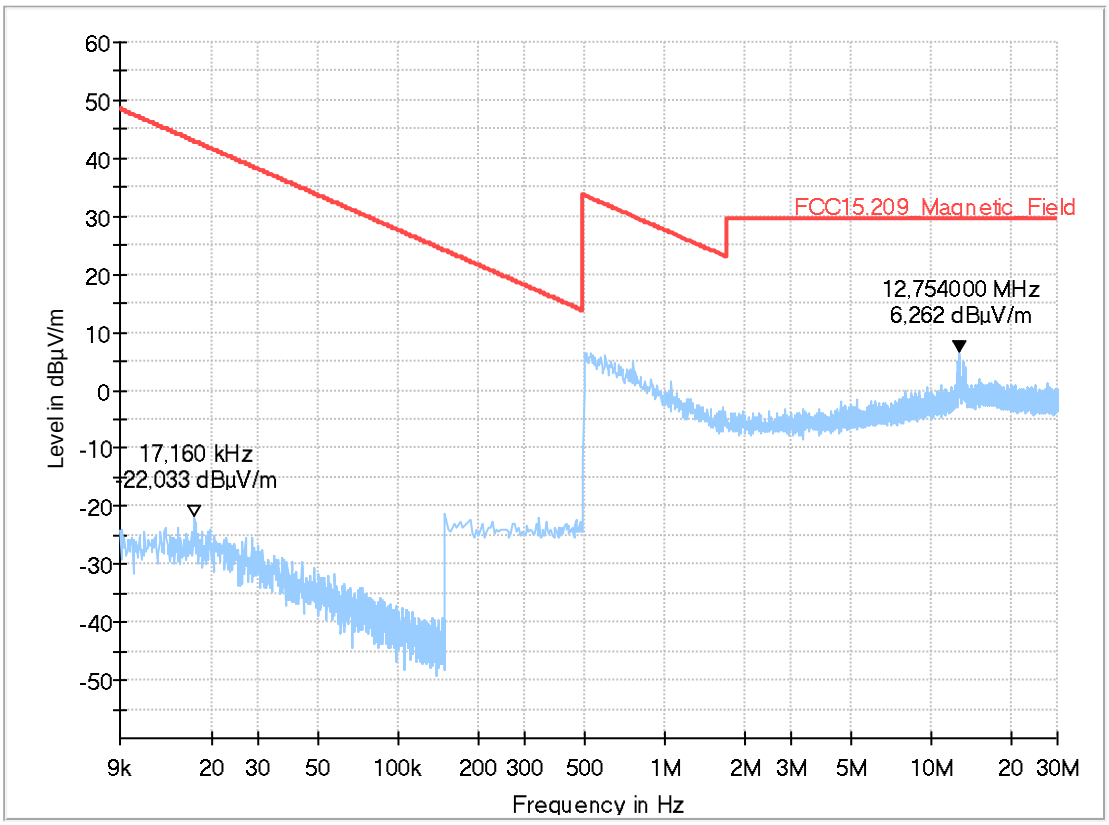


2.02a_mid_laying

Date: 16.04.2018 Page 1 of 2

Test description:	Magnetic Field Strength Measurement related to 30/300 m distance
Test site and distance:	Ref.-Nr. 441 Semi Anechoic Room (SAR) with 3 m measurement distance
Version of Testsoftware:	EMC32 V9.25.0
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 specification:	FCC 15.205 § 15.209; RSS-Gen: Issue 5
Operator:	TFra
Operating conditions:	TX-mid_laying
Power during tests:	charging
Comment 1:	Channel mid
Comment 2:	DUT Laying

Full Spectrum

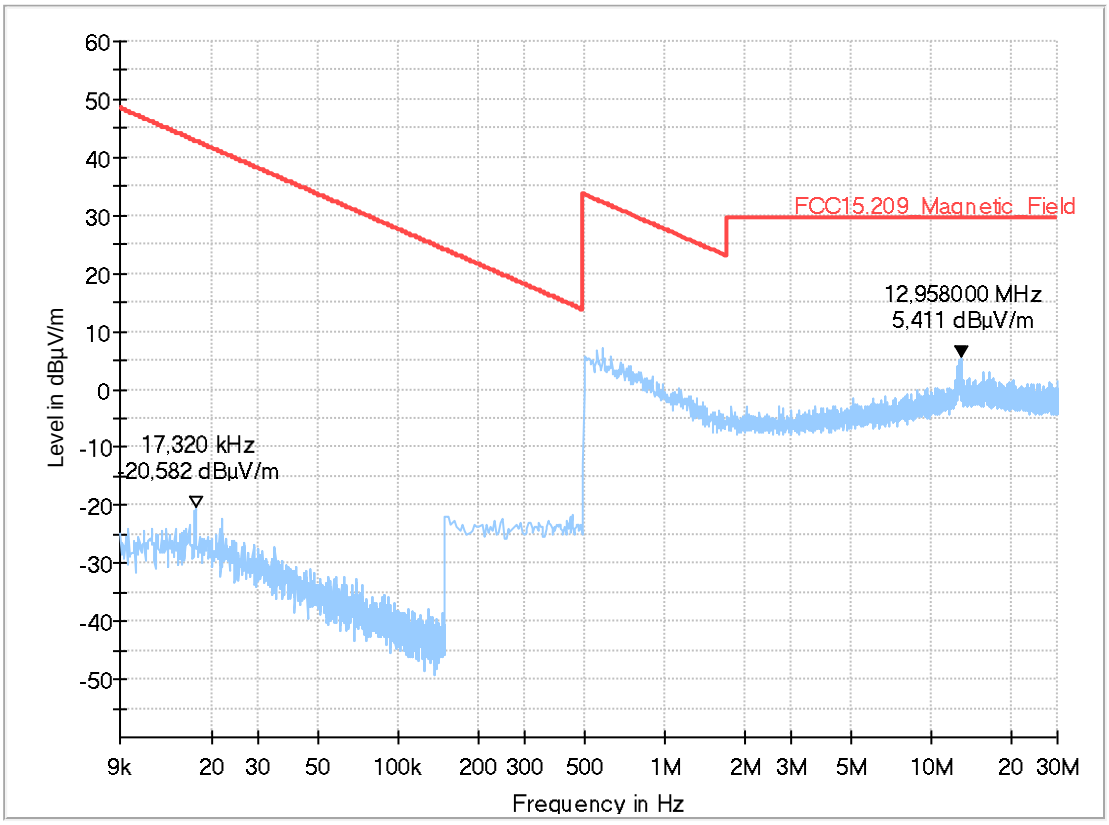


2.02b_mid_standing

Date: 16.04.2018 Page 1 of 2

Test description:	Magnetic Field Strength Measurement related to 30/300 m distance
Test site and distance:	Ref.-Nr. 441 Semi Anechoic Room (SAR) with 3 m measurement distance
Version of Testsoftware:	EMC32 V9.25.0
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 specification:	FCC 15.205 § 15.209; RSS-Gen: Issue 5
Operator:	TFra
Operating conditions:	TX-mid_standing
Power during tests:	charging
Comment 1:	Channel mid
Comment 2:	DUT Standing

Full Spectrum

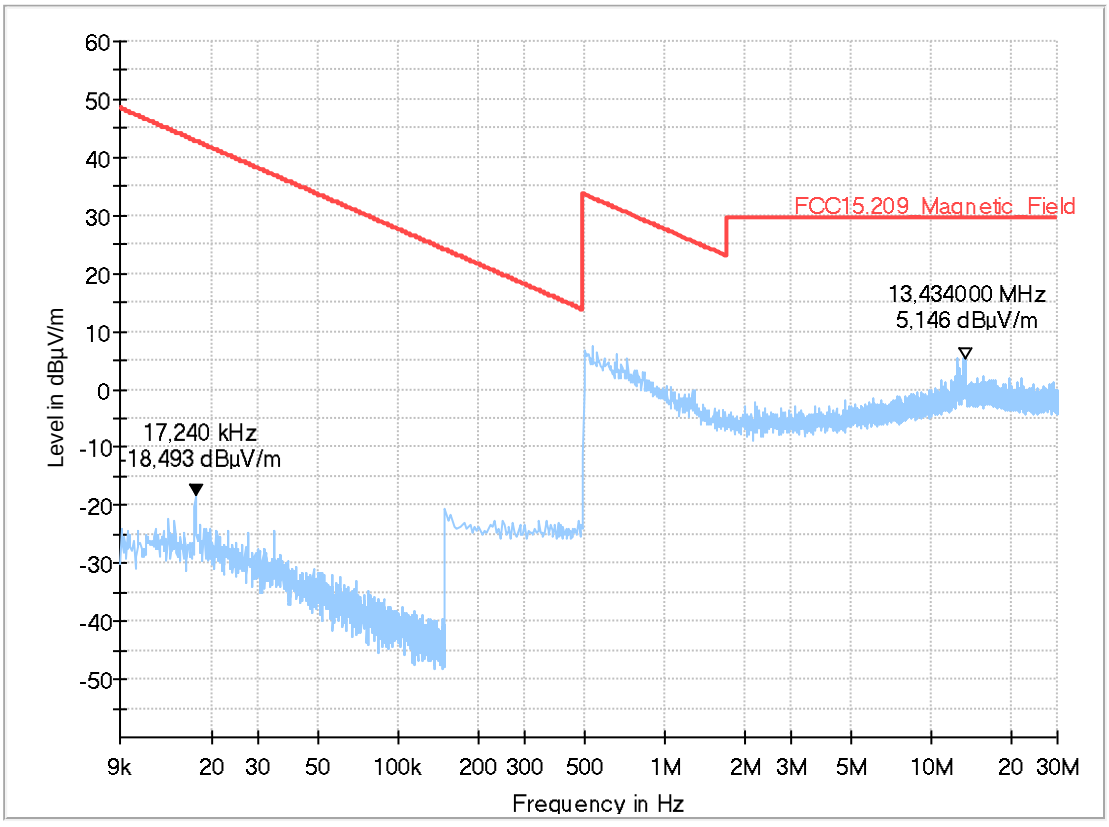


2.03a_high_laying

Date: 16.04.2018 Page 1 of 2

Test description:	Magnetic Field Strength Measurement related to 30/300 m distance
Test site and distance:	Ref.-Nr. 441 Semi Anechoic Room (SAR) with 3 m measurement distance
Version of Testsoftware:	EMC32 V9.25.0
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 specification:	FCC 15.205 § 15.209; RSS-Gen: Issue 5
Operator:	TFra
Operating conditions:	TX-high_laying
Power during tests:	charging
Comment 1:	Channel high
Comment 2:	DUT Laying

Full Spectrum

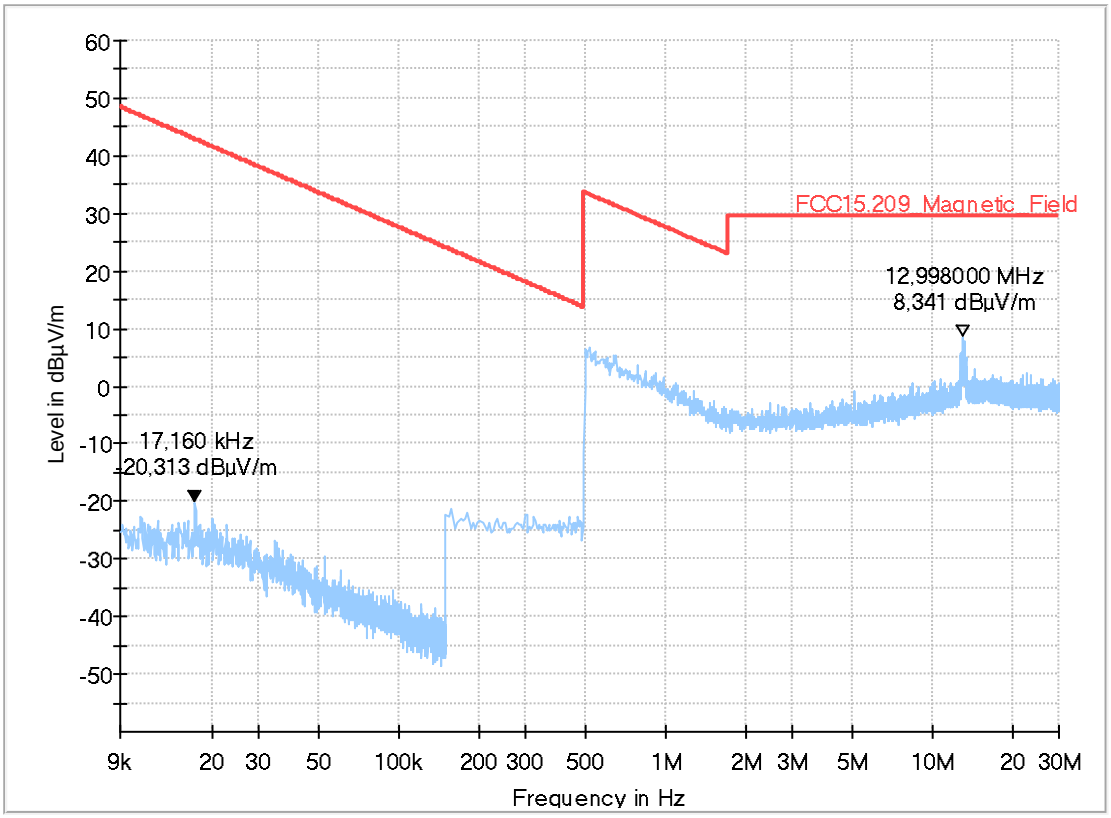


2.03b_high_standing

Date: 17.04.2018 Page 1 of 2

Test description:	Magnetic Field Strength Measurement related to 30/300 m distance
Test site and distance:	Ref.-Nr. 441 Semi Anechoic Room (SAR) with 3 m measurement distance
Version of Testsoftware:	EMC32 V9.25.0
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 specification:	FCC 15.205 § 15.209; RSS-Gen: Issue 5
Operator:	TFra
Operating conditions:	TX-high_standing
Power during tests:	charging
Comment 1:	Channel high
Comment 2:	DUT Standing

Full Spectrum



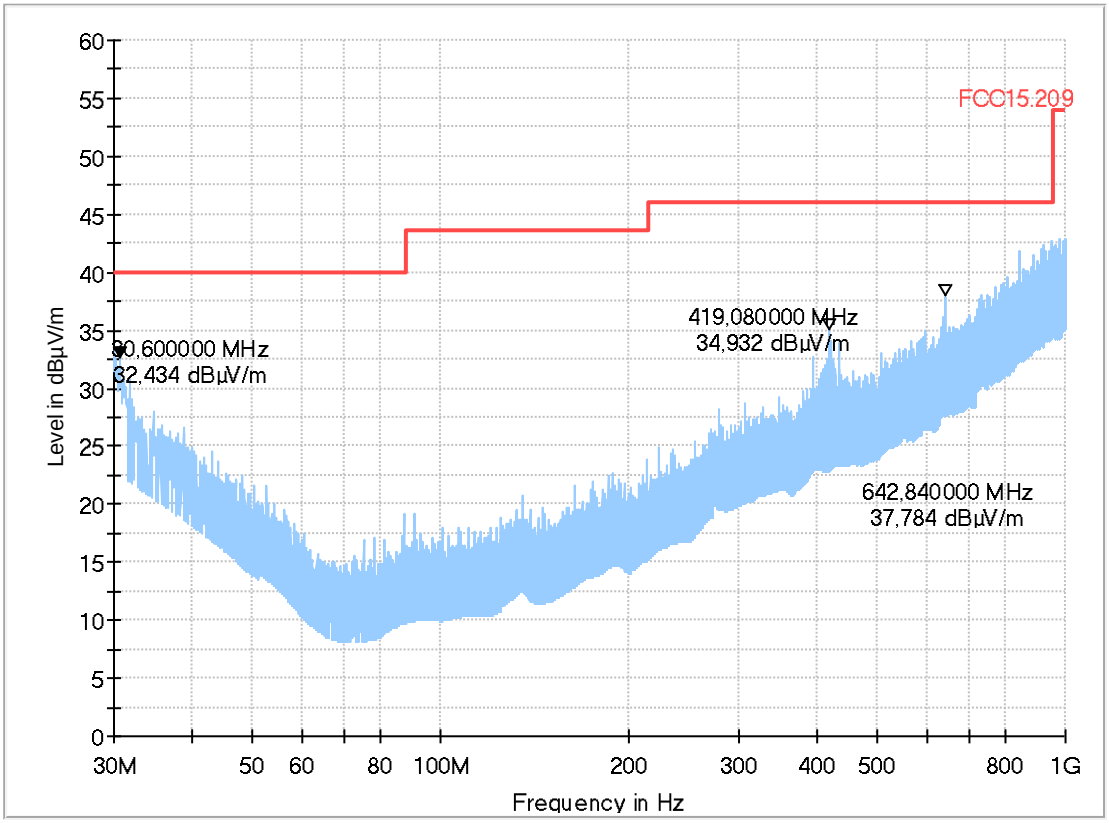
1.2. Radiated Field Strength Emissions – 30 MHz to 1 GHz

3.01a_channel_low_laying

Common Information

Test description:	Electric Field Strength Measurement
Test site and distance:	Ref.-Nr. 441 Semi Anechoic Room (SAR) with 3 m measurement distance
Version of Testsoftware:	EMC32 V9.25.0
Distance correction:	not used
Used filter:	not used
Technical Data:	please see page 2 for detailed data of measurement setup
Test specification.:	FCC 15.209; RSS-Gen: Issue 5
Operator:	RIs
Operating conditions:	Low channel
Power during tests:	full loaded batteries
Comment 1:	

Full Spectrum

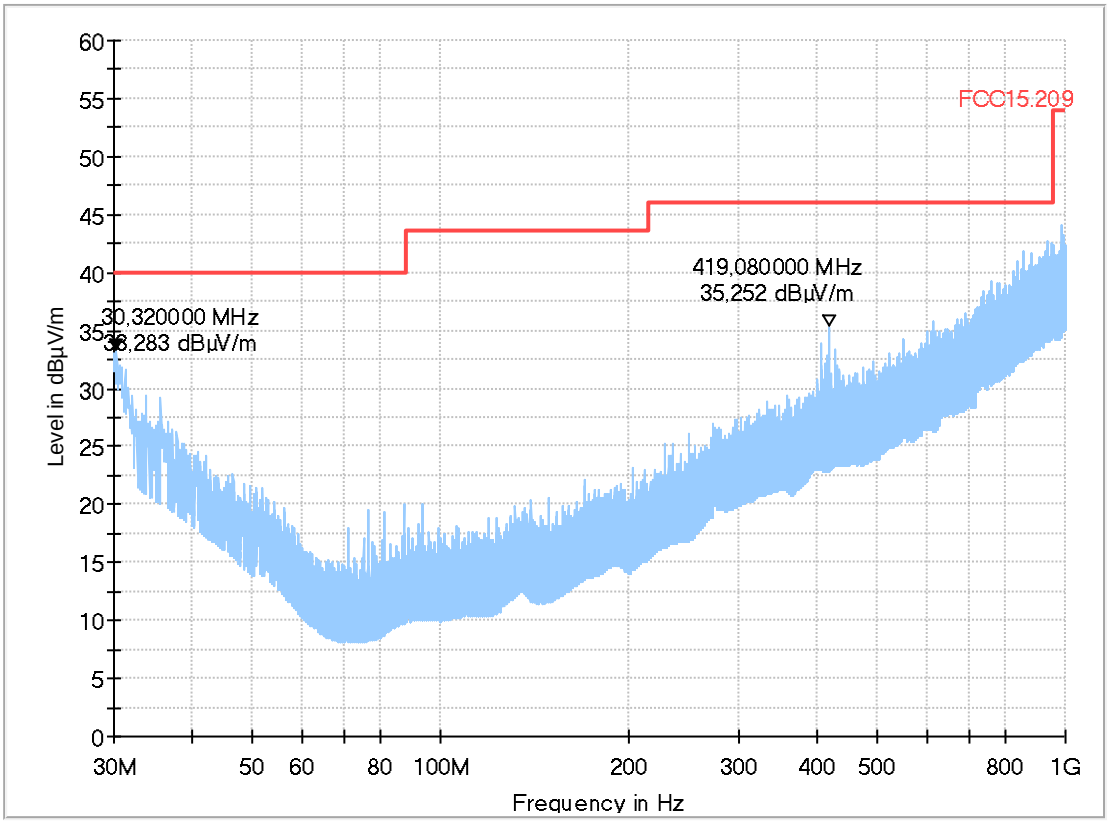


3.01b_channel_low_standing

Common Information

Test description:	Electric Field Strength Measurement
Test site and distance:	Ref.-Nr. 441 Semi Anechoic Room (SAR) with 3 m measurement distance
Version of Testsoftware:	EMC32 V9.25.0
Distance correction:	not used
Used filter:	not used
Technical Data:	please see page 2 for detailed data of measurement setup
Test specification.:	FCC 15.209; RSS-Gen: Issue 5
Operator:	RIs
Operating conditions:	Low channel
Power during tests:	full loaded batteries
Comment 1:	

Full Spectrum

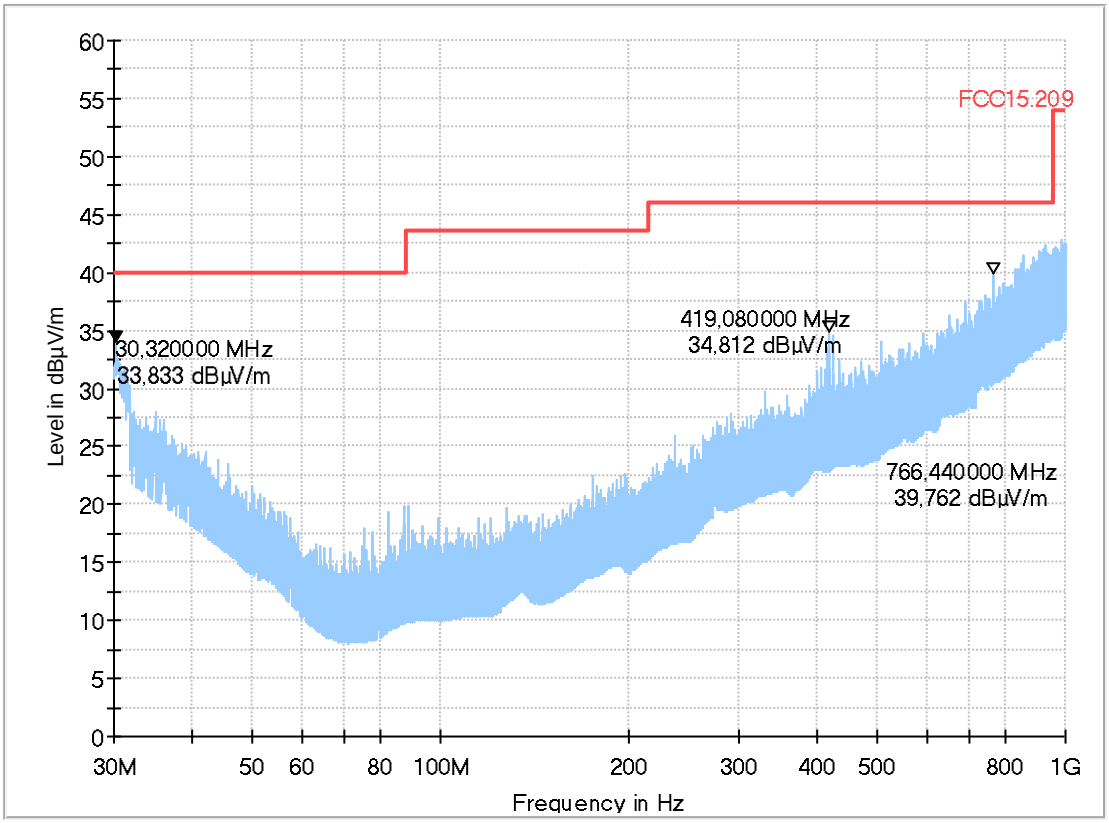


3.02a_Mid_laying

Common Information

Test description:	Electric Field Strength Measurement
Test site and distance:	Ref.-Nr. 441 Semi Anechoic Room (SAR) with 3 m measurement distance
Version of Testsoftware:	EMC32 V9.25.0
Distance correction:	not used
Used filter:	not used
Technical Data:	please see page 2 for detailed data of measurement setup
Test specification.:	FCC 15.209; RSS-Gen: Issue 5
Operator:	RIs
Operating conditions:	Mid channel
Power during tests:	full loaded batteries
Comment 1:	

Full Spectrum

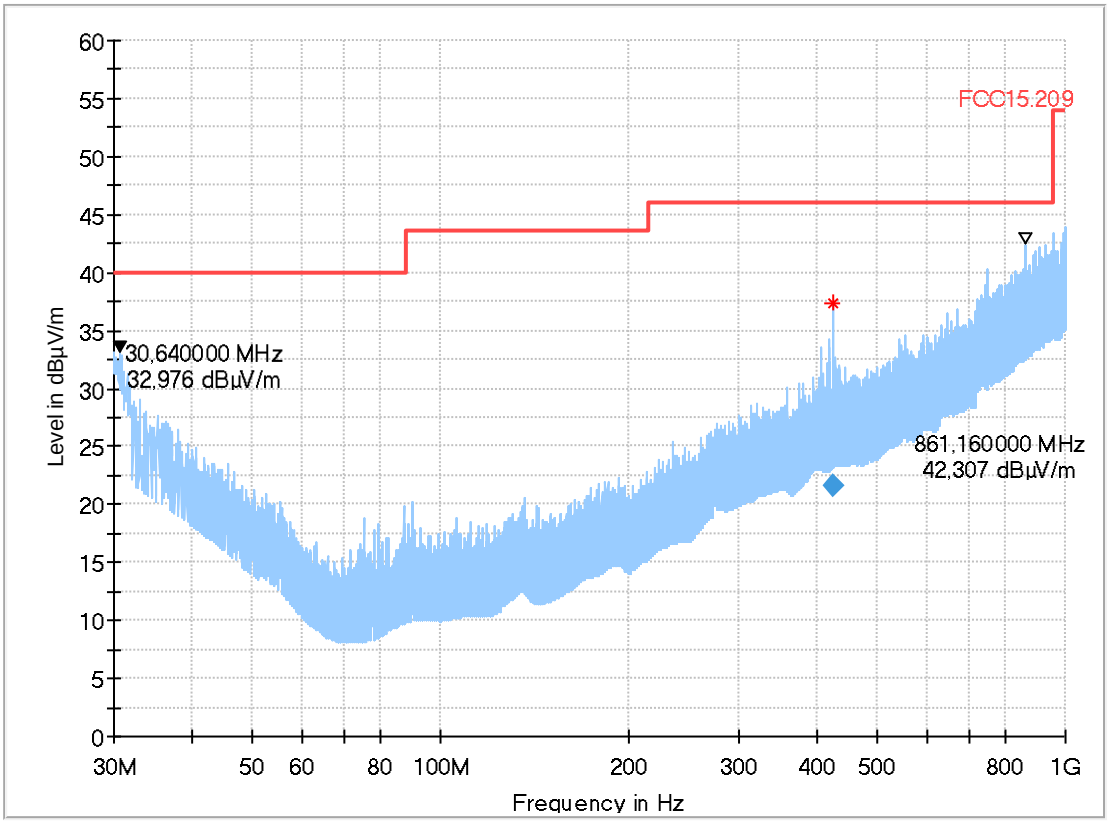


3.02b_Mid_Standing

Common Information

Test description:	Electric Field Strength Measurement
Test site and distance:	Ref.-Nr. 441 Semi Anechoic Room (SAR) with 3 m measurement distance
Version of Testsoftware:	EMC32 V9.25.0
Distance correction:	not used
Used filter:	not used
Technical Data:	please see page 2 for detailed data of measurement setup
Test specification.:	FCC 15.209; RSS-Gen: Issue 5
Operator:	RIs
Operating conditions:	Mid channel
Power during tests:	full loaded batteries
Comment 1:	

Full Spectrum

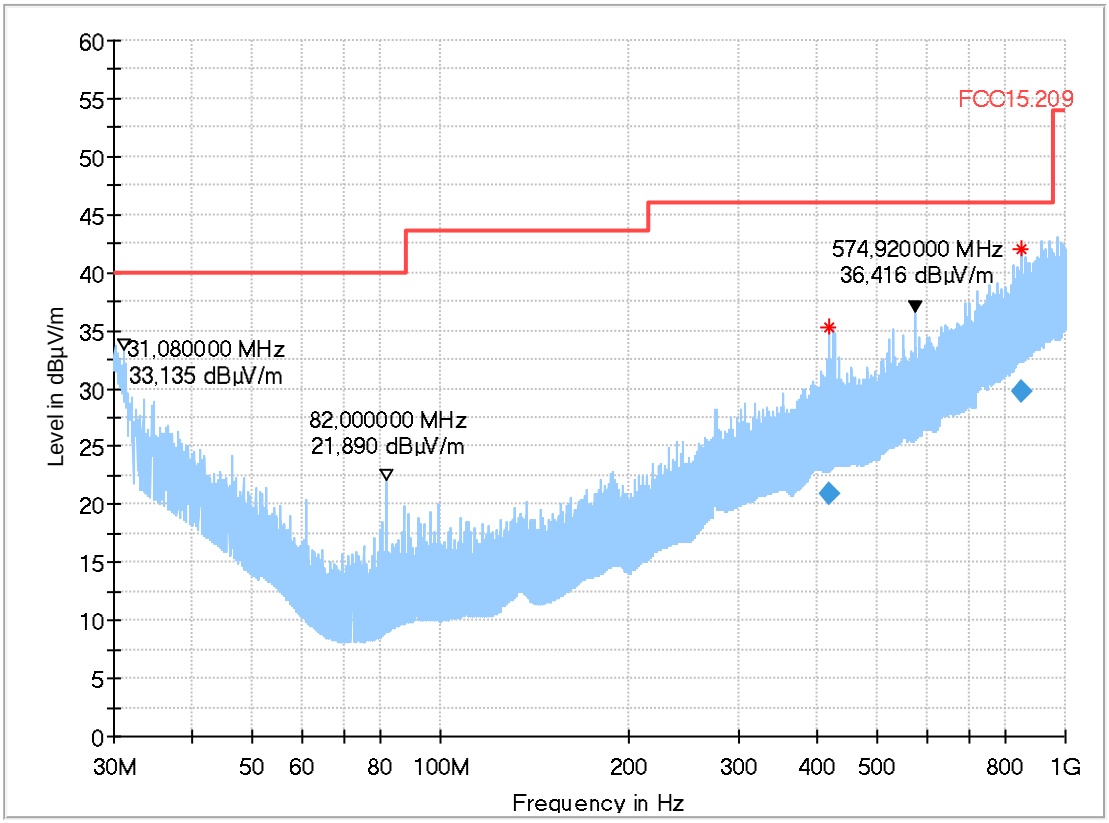


3.03a_high_laying

Common Information

Test description:	Electric Field Strength Measurement
Test site and distance:	Ref.-Nr. 441 Semi Anechoic Room (SAR) with 3 m measurement distance
Version of Testsoftware:	EMC32 V9.25.0
Distance correction:	not used
Used filter:	not used
Technical Data:	please see page 2 for detailed data of measurement setup
Test specification.:	FCC 15.209; RSS-Gen: Issue 5
Operator:	RIs
Operating conditions:	High channel
Power during tests:	full loaded batteries
Comment 1:	

Full Spectrum



Final_Result

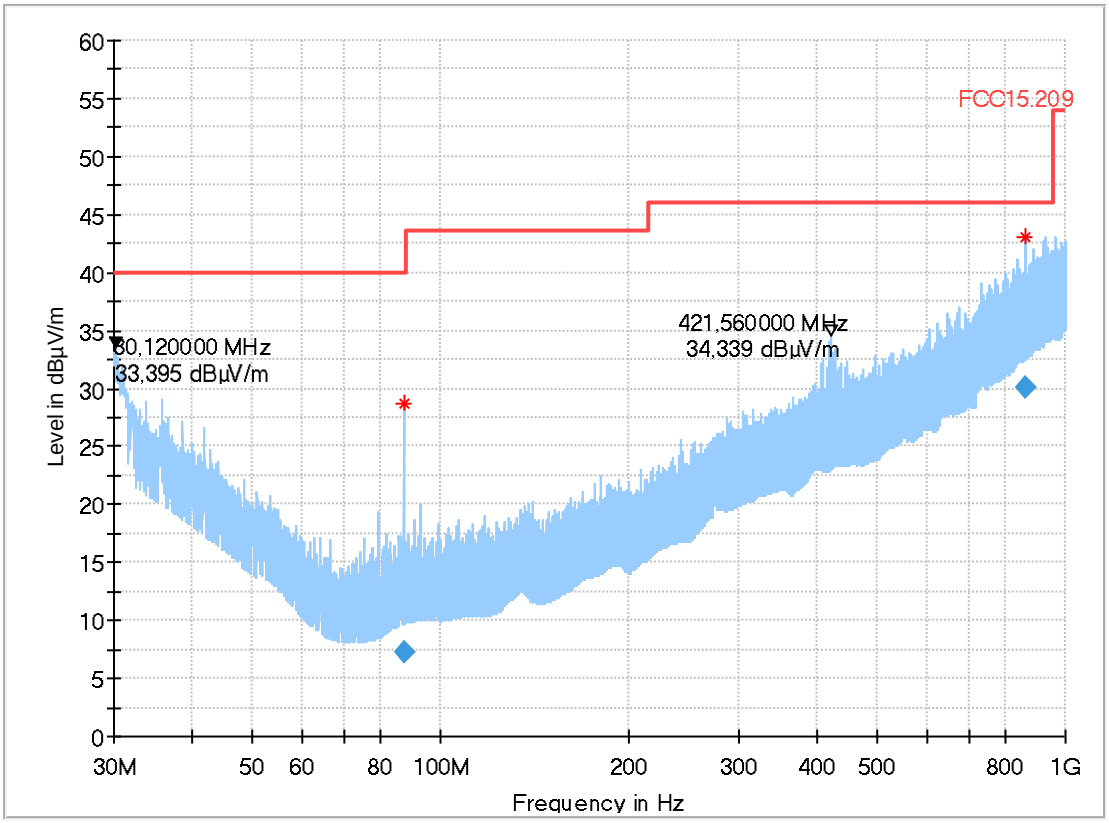
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
419.100000	20.85	46.00	25.15	1000.0	120.000	360.0	V	24.0	18.8
850.892000	29.81	46.00	16.19	1000.0	120.000	283.0	H	99.0	25.7

3.03b_high_standing

Common Information

Test description:	Electric Field Strength Measurement
Test site and distance:	Ref.-Nr. 441 Semi Anechoic Room (SAR) with 3 m measurement distance
Version of Testsoftware:	EMC32 V9.25.0
Distance correction:	not used
Used filter:	not used
Technical Data:	please see page 2 for detailed data of measurement setup
Test specification.:	FCC 15.209; RSS-Gen: Issue 5
Operator:	RIs
Operating conditions:	High channel
Power during tests:	full loaded batteries
Comment 1:	

Full Spectrum



Final_Result

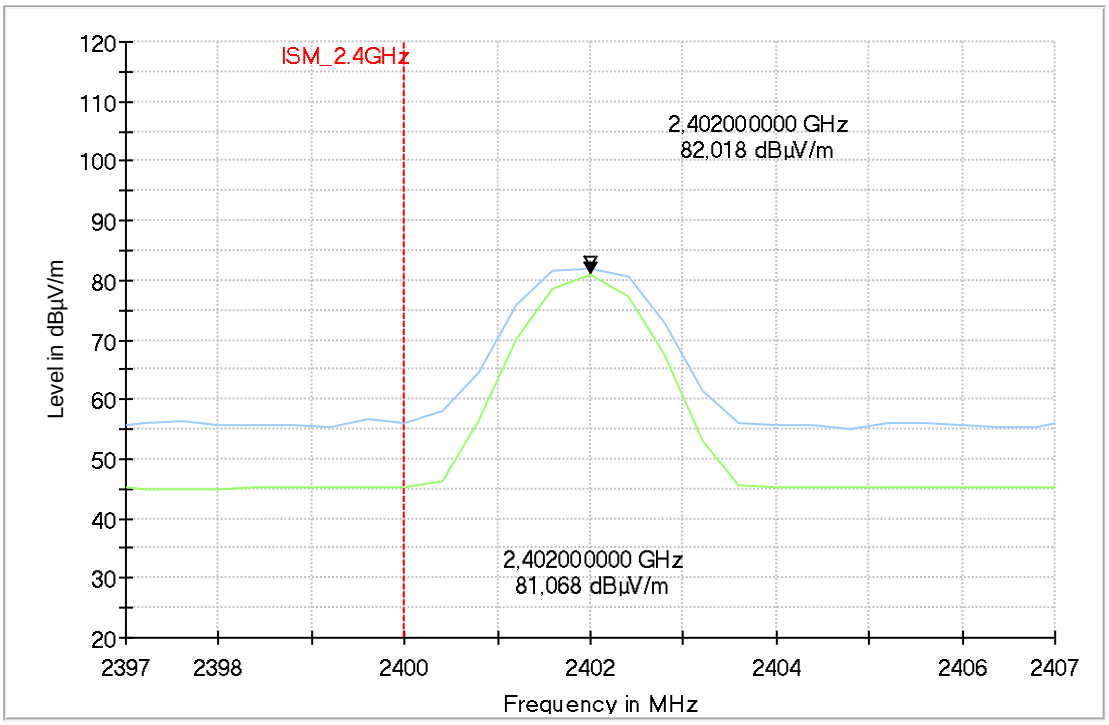
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
87.252000	7.26	40.00	32.74	1000.0	120.000	360.0	V	86.0	8.0
865.744000	30.09	46.00	15.91	1000.0	120.000	225.0	V	27.0	26.0

1.3. Radiated Field Strength Emissions – Field Strength

4.01a_FieldStrength_channel_low

Common Information

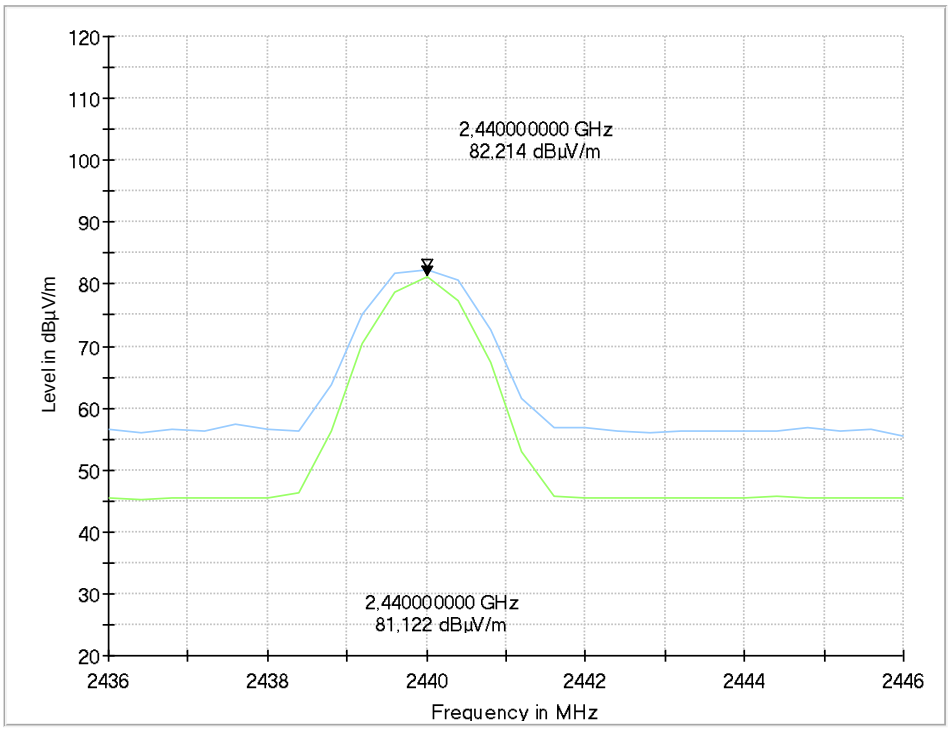
Test Description:	Radiated field strength emission in 3m distance
Test Site:	CETECOM GmbH Essen
Test Standard:	FCC 15.249&15.209 Intentional Radiator / RSS-Gen, Issue 4
Antenna polarisation:	horizontal/vertical
Operation mode:	BT,CH:00
Operator Name:	MSo



4.02a_FieldStrength_mid

Common Information

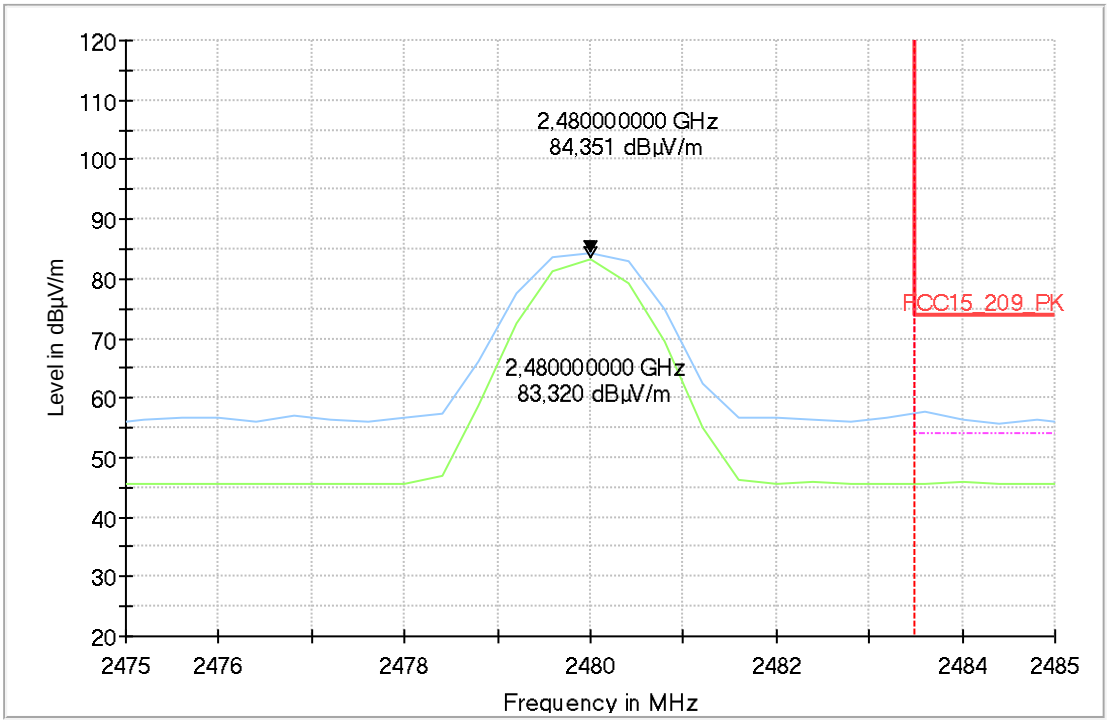
Test Description:	Radiated field strength emission in 3m distance
Test Site:	CETECOM GmbH Essen
Test Standard:	FCC 15.249&15.209 Intentional Radiator / RSS-Gen, Issue 4
Antenna polarisation:	horizontal/vertical
Operation mode:	BT,CH:39
Operator Name:	HEI



4.03a_FieldStrength _high

Common Information

Test Description:	Radiated field strength emission in 3m distance
Test Site:	CETECOM GmbH Essen
Test Standard:	FCC 15.249&15.209 Intentional Radiator / RSS-Gen, Issue 4
Antenna polarisation:	horizontal/vertical
Operation mode:	BT,CH:80
Operator Name:	HEI



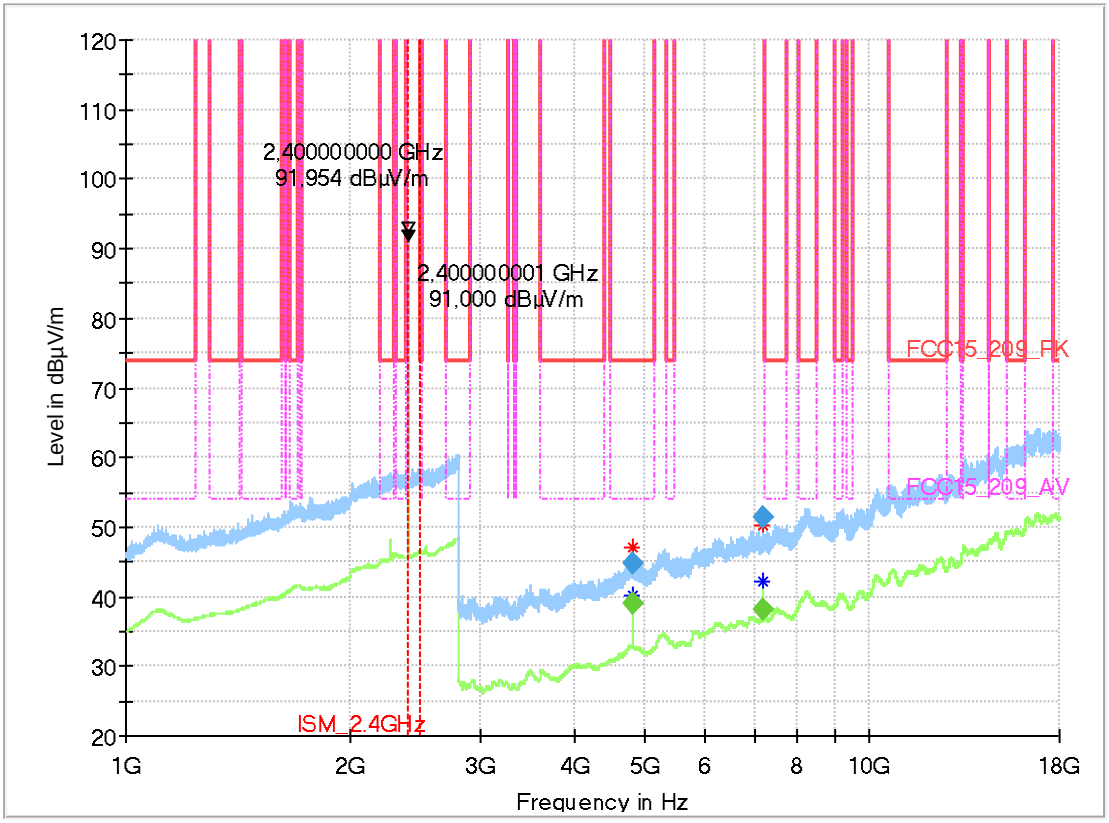
1.4. Radiated Field Strength Emissions – 1 GHz to 18 GHz

4.01b_low

Common Information

Test Description:	Radiated field strength emission in 3m distance
Test Site:	CETECOM GmbH Essen
Test Standard:	FCC 15.249&15.209 Intentional Radiator / RSS-Gen, Issue 5
Antenna polarisation:	horizontal/vertical
Operation mode:	TX, continuous
Operator Name:	RIs
Comment:	Channel no. low

Full Spectrum



Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Elevation (deg)
4800.000000	---	38.95	54.00	15.05	100.0	1000.000	155.0	V	89.0	0.0
4800.000000	44.81	---	74.00	29.19	100.0	1000.000	155.0	V	62.0	0.0
7199.600000	51.46	---	150.00	98.54	100.0	1000.000	155.0	H	-4.0	0.0
7200.000000	---	38.05	150.00	111.95	100.0	1000.000	155.0	V	-41.0	0.0

(continuation of the "Final_Result" table from column 16 ...)

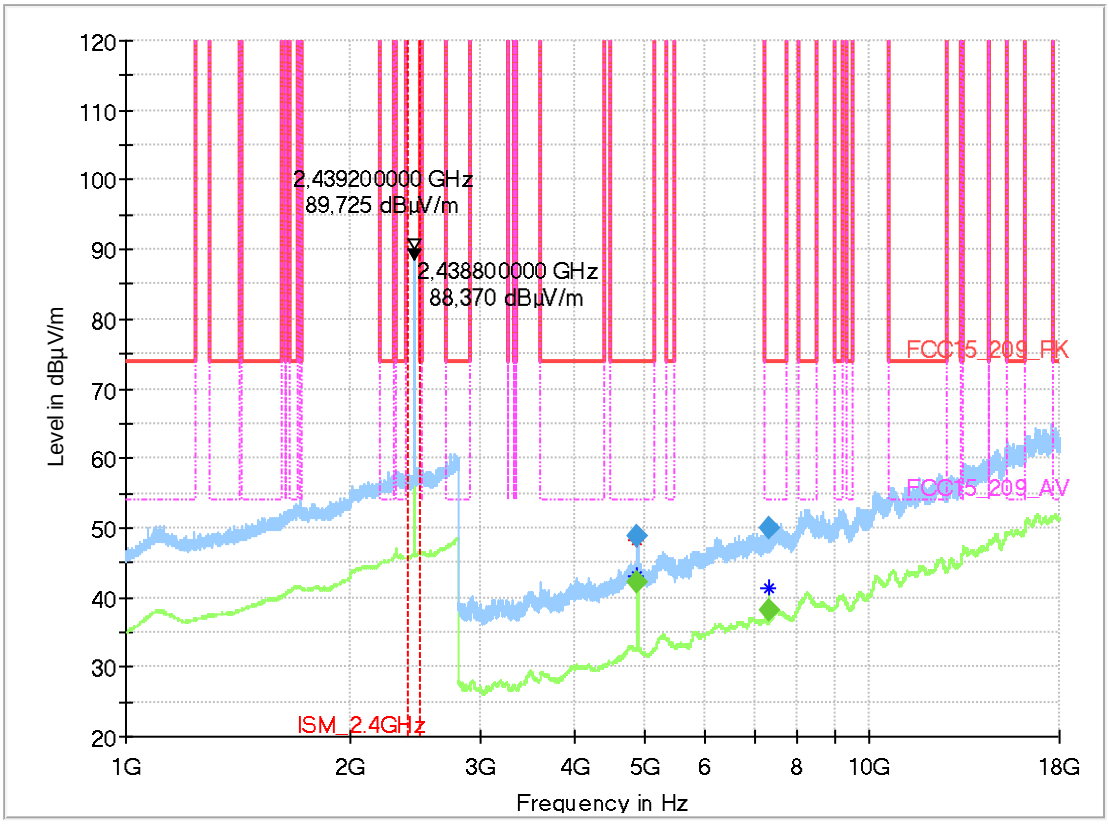
Frequency (MHz)	Corr.	Comment
4800.000000	4.9	01:07:02 - 19.04.2018
4800.000000	4.9	01:03:19 - 19.04.2018
7199.600000	10.5	01:01:15 - 19.04.2018
7200.000000	10.5	01:05:17 - 19.04.2018

4.02b_mid

Common Information

Test Description:	Radiated field strength emission in 3m distance
Test Site:	CETECOM GmbH Essen
Test Standard:	FCC 15.249&15.209 Intentional Radiator / RSS-Gen, Issue 5
Antenna polarisation:	horizontal/vertical
Operation mode:	TX, continuous
Operator Name:	RIs
Comment:	Channel no.middle

Full Spectrum



Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Elevation (deg)
4877.600000	48.69	---	74.00	25.31	100.0	1000.000	155.0	H	270.0	0.0
4878.000000	---	42.20	54.00	11.80	100.0	1000.000	155.0	H	271.0	0.0
7316.400000	49.93	---	74.00	24.07	100.0	1000.000	155.0	H	56.0	0.0
7317.200000	---	38.23	54.00	15.77	100.0	1000.000	155.0	H	216.0	0.0

(continuation of the "Final_Result" table from column 16 ...)

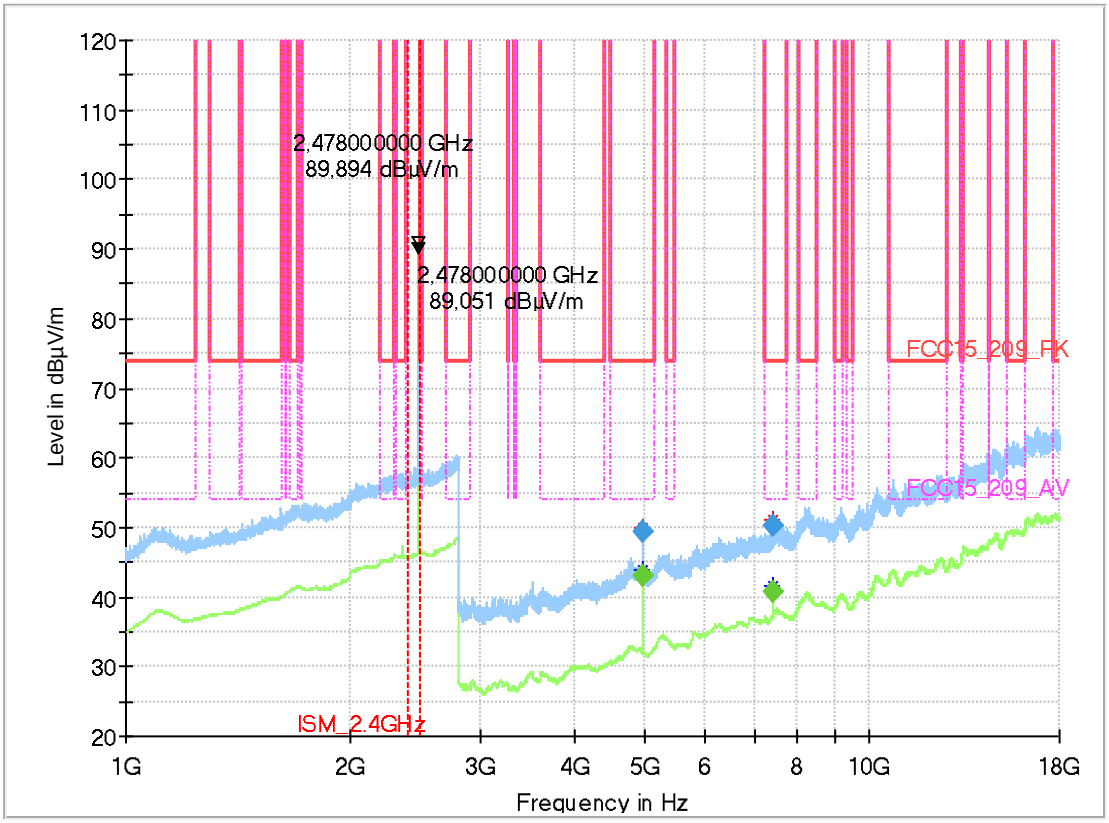
Frequency (MHz)	Corr.	Comment
4877.600000	4.7	02:36:35 - 19.04.2018
4878.000000	4.7	02:40:00 - 19.04.2018
7316.400000	10.6	02:34:35 - 19.04.2018
7317.200000	10.6	02:38:27 - 19.04.2018

4.03b_high

Common Information

Test Description:	Radiated field strength emission in 3m distance
Test Site:	CETECOM GmbH Essen
Test Standard:	FCC 15.249&15.209 Intentional Radiator / RSS-Gen, Issue 5
Antenna polarisation:	horizontal/vertical
Operation mode:	TX, continuous
Operator Name:	RIs
Comment:	Channel no.high

Full Spectrum



Final_Result

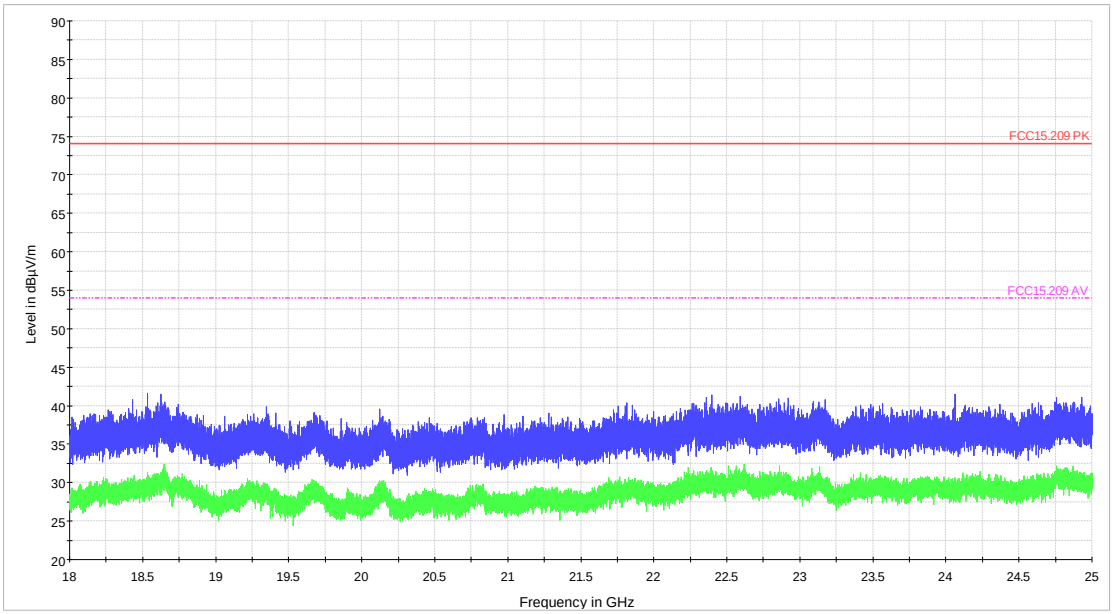
Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Elevation (deg)
4955.600000	49.39	---	74.00	24.61	100.0	1000.000	155.0	H	271.0	0.0
4956.000000	---	43.20	54.00	10.80	100.0	1000.000	155.0	H	269.0	0.0
7433.600000	---	40.65	54.00	13.35	100.0	1000.000	155.0	H	61.0	0.0
7434.400000	50.16	---	74.00	23.84	100.0	1000.000	155.0	H	29.0	0.0

(continuation of the "Final_Result" table from column 16 ...)

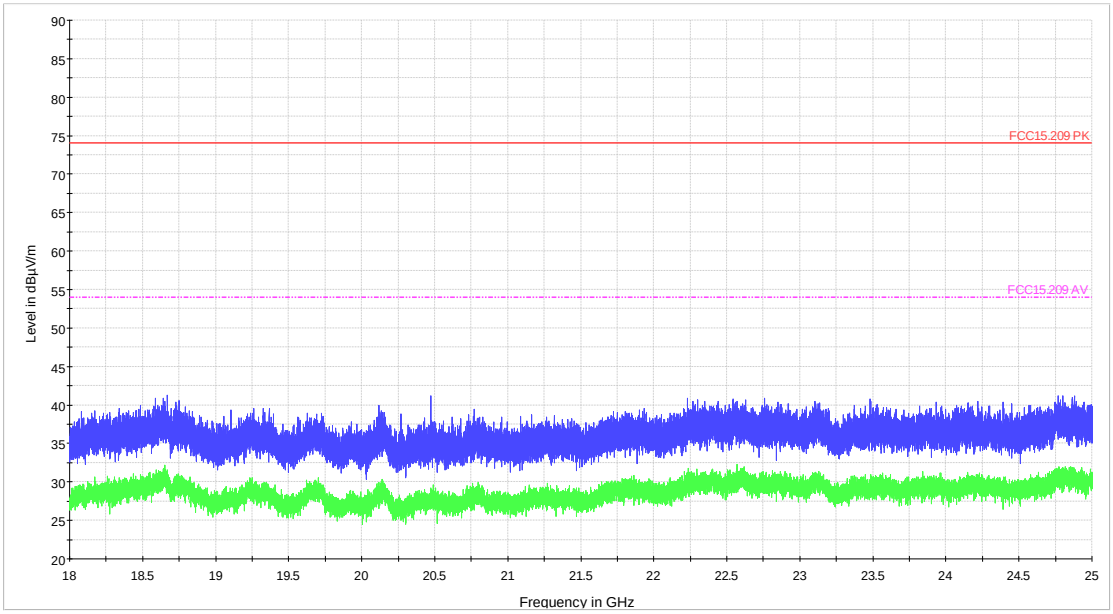
Frequency (MHz)	Corr.	Comment
4955.600000	4.3	04:09:27 - 19.04.2018
4956.000000	4.3	04:13:45 - 19.04.2018
7433.600000	11.6	04:11:42 - 19.04.2018
7434.400000	11.6	04:07:22 - 19.04.2018

1.5. Radiated Field Strength Emissions – 18 GHz to 25 GHz

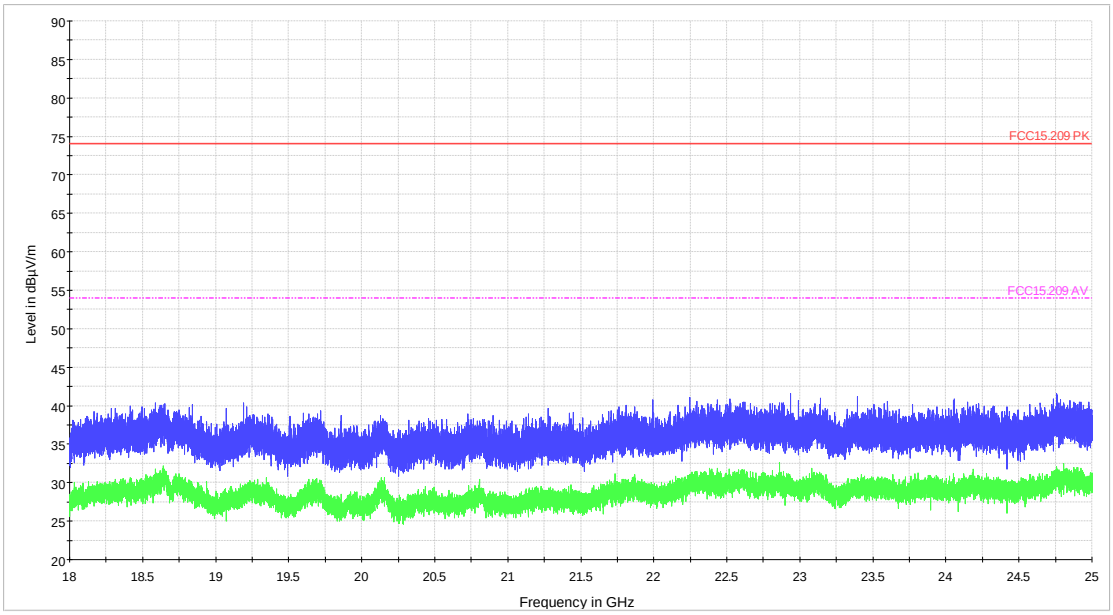
4.54a Low channel:



4.55a Middle channel:



4.56a High channel:



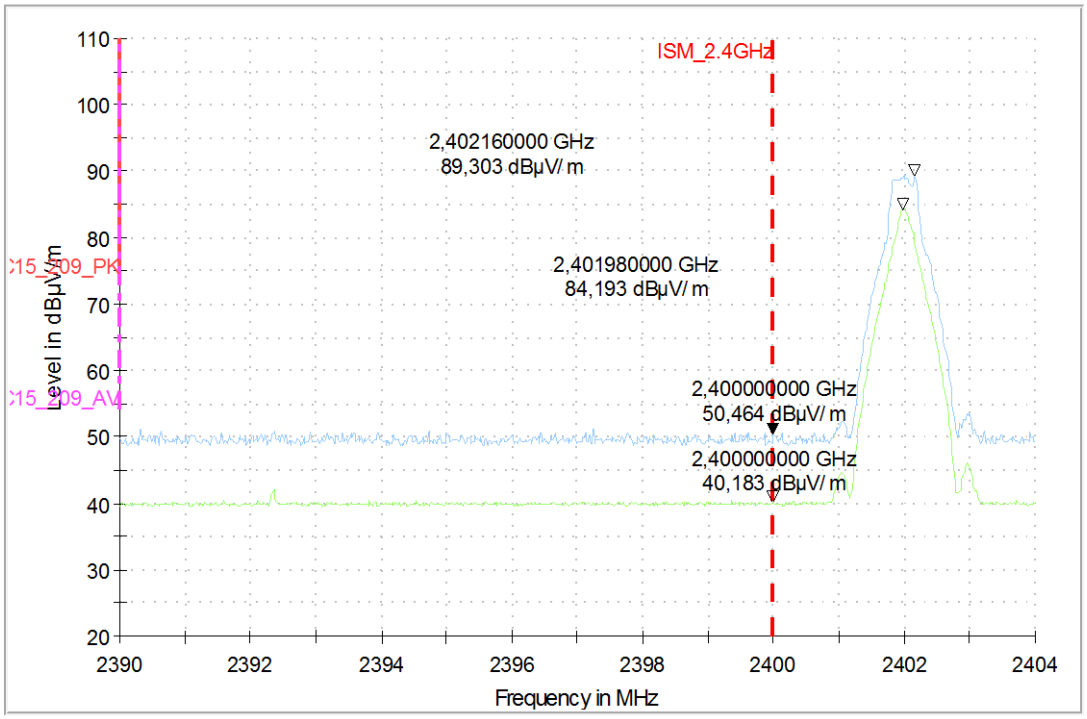
2. Radiated Band-Edge Measurements

2.1. ANT+ GFSK-Low Channel 2402 MHz (2.4 GHz ISM: left band edge)

9.01_BE_low

Common Information

Test Description:	Band-Edge: Radiated Field Strength Emissions Emissions in 3m distance
Test Site:	CETECOM GmbH Essen
Test Standard:	FCC 15.249&15.209 Intentional Radiator / RSS-Gen, Issue 5
Antenna polarisation:	horizontal/vertical
Operation mode:	TX, continuous
Operator Name:	RIs
Comment:	Channel no. low



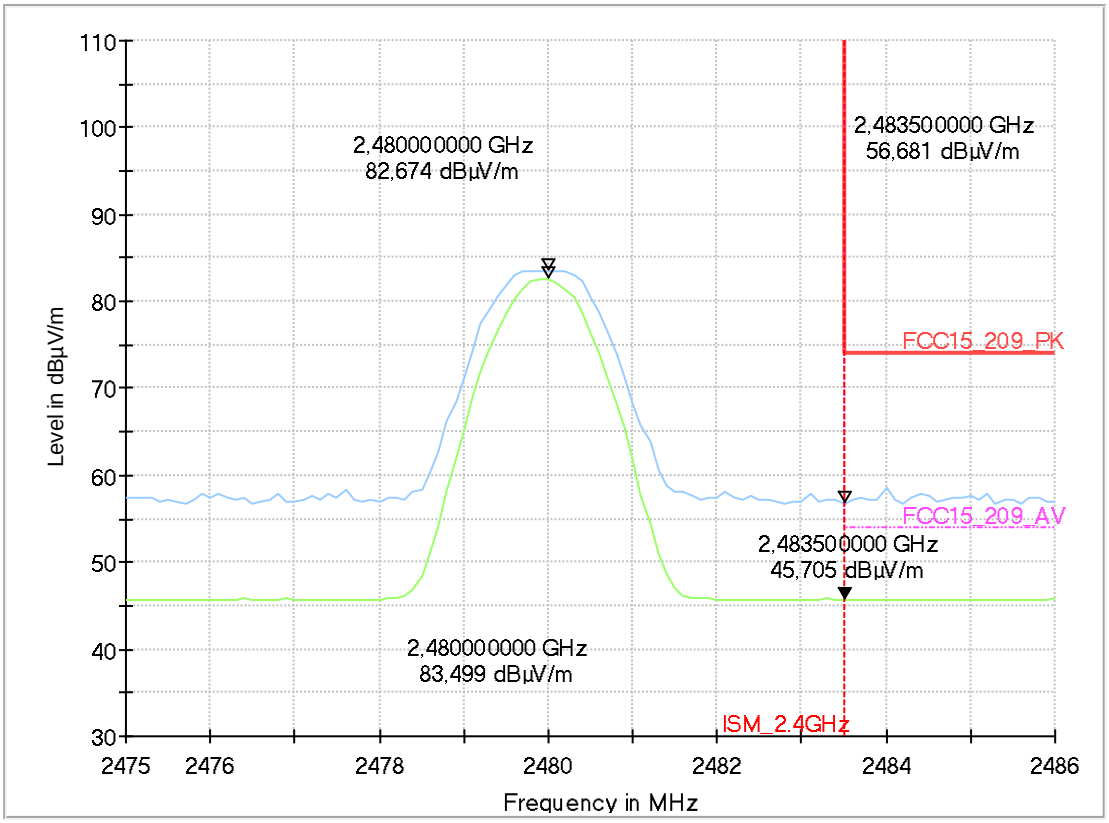
2.2. ANT+ GFSK-High Channel 2480 MHz (2.4 GHz ISM: right band edge)

9.02_BE_high

Common Information

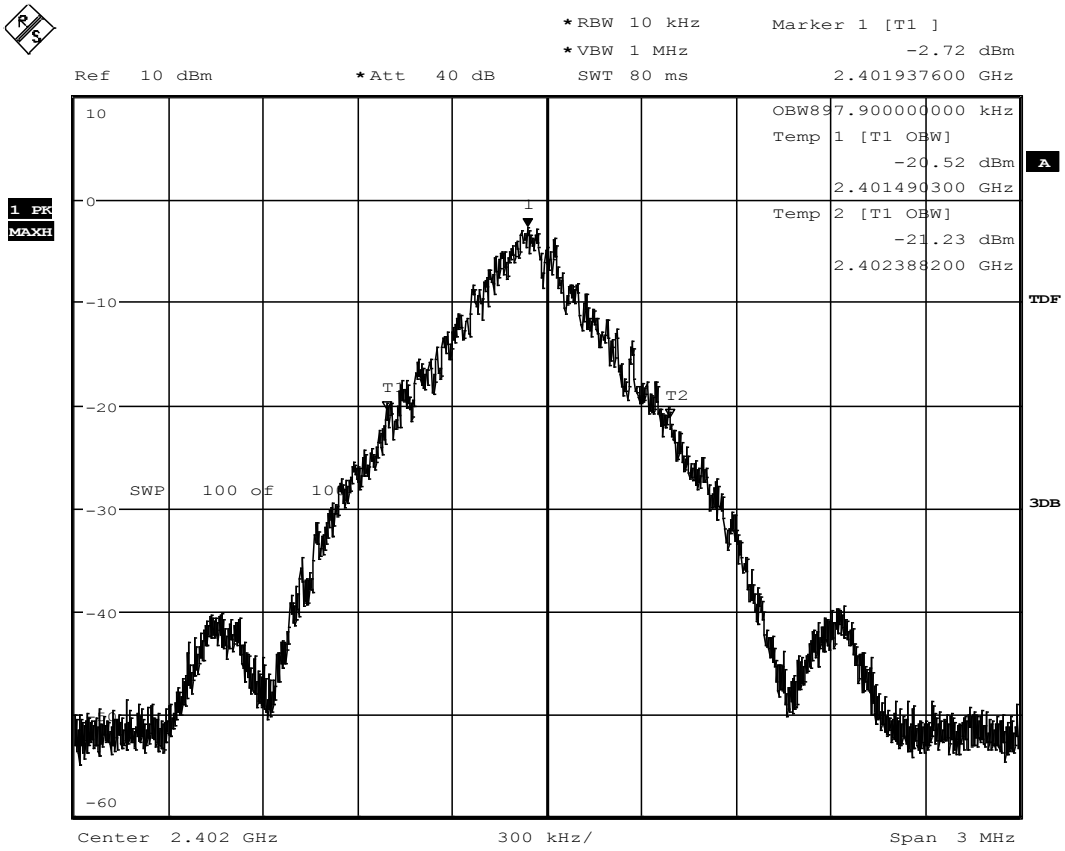
Test Description:	Band-Edge: Radiated Field Strength Emissions Emissions in 3m distance
Test Site:	CETECOM GmbH Essen
Test Standard:	FCC 15.249&15.209 Intentional Radiator / RSS-Gen, Issue 5
Antenna polarisation:	horizontal/vertical
Operation mode:	TX, continuous
Operator Name:	RIs
Comment:	Channel no.high

Full Spectrum

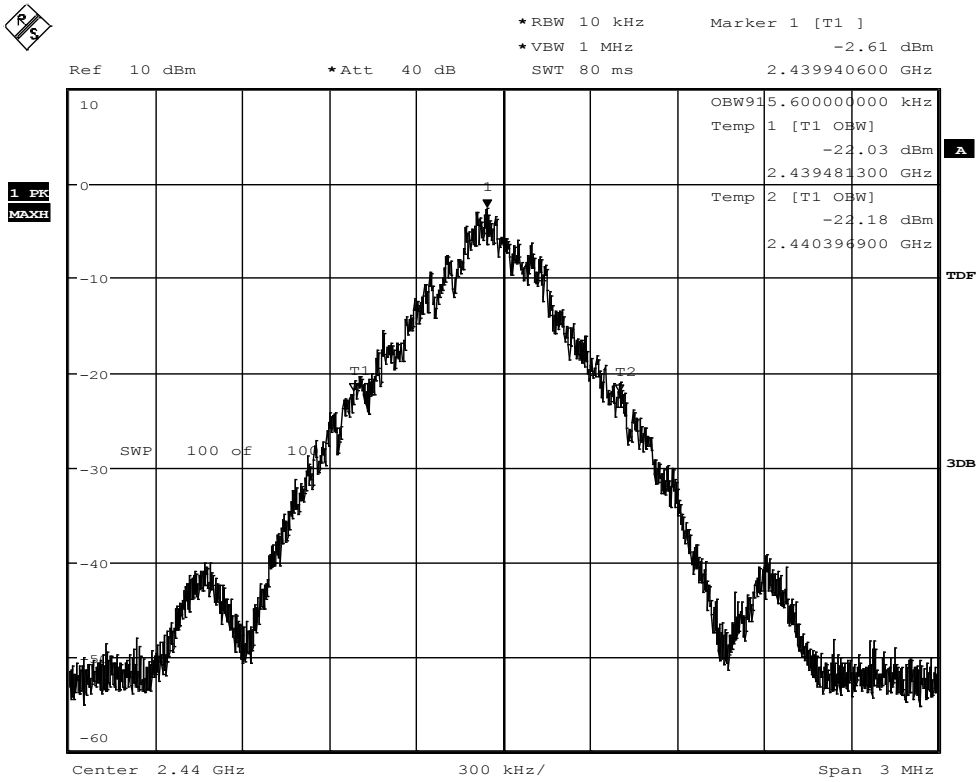


3. Conducted Measurements

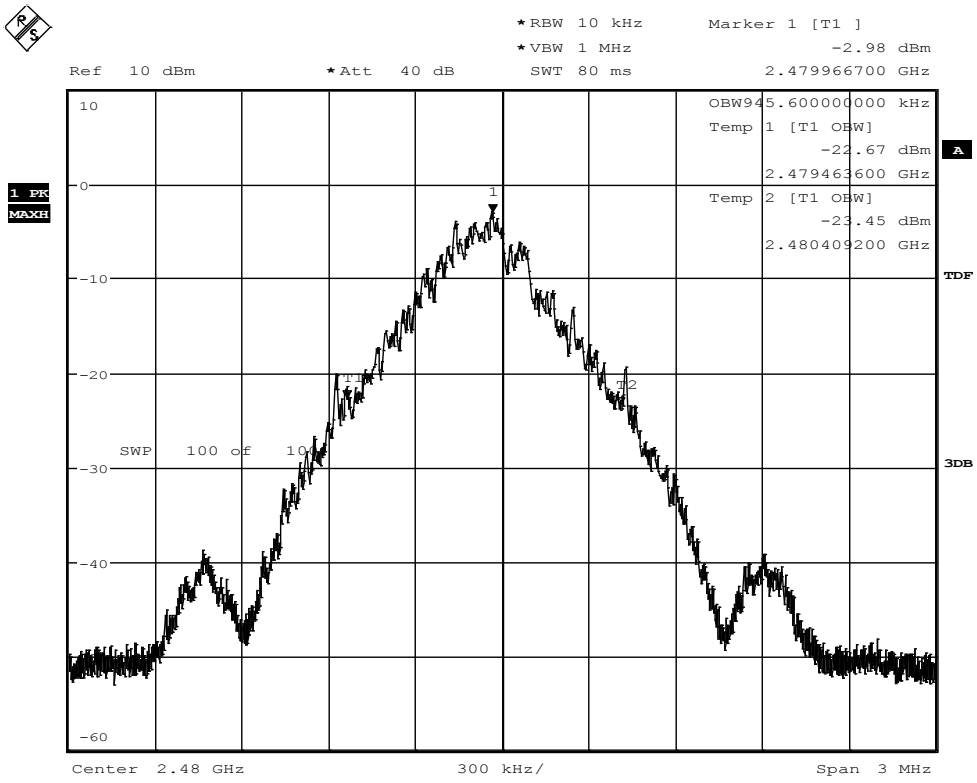
3.1. Occupied Bandwidth



Occupied Channel Bandwidth Plot: 2402 MHz



Occupied Channel Bandwidth Plot: 2440 MHz



Occupied Channel Bandwidth Plot: 2480 MHz

3.2. 20dB Emission Bandwidth

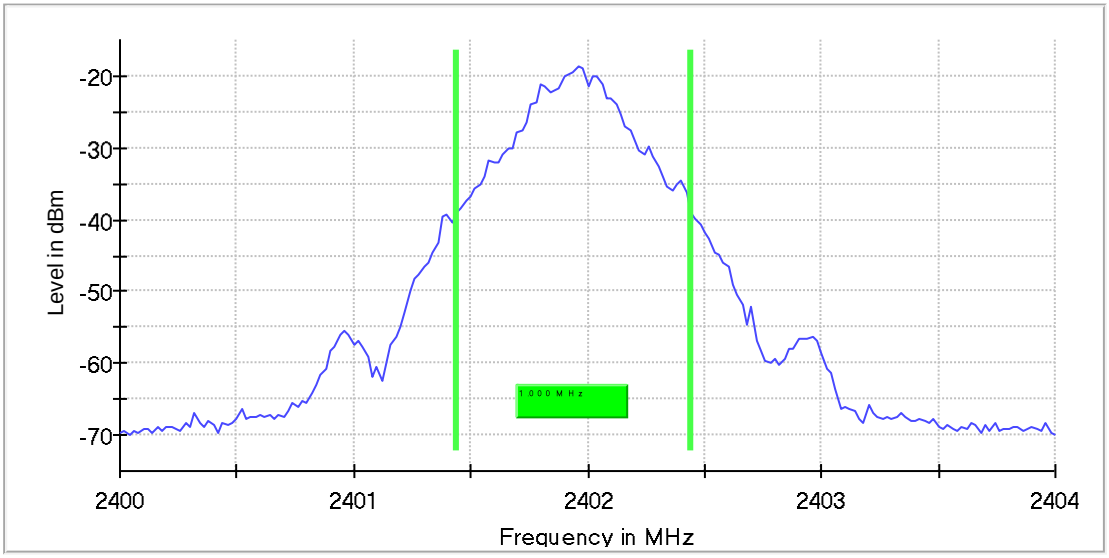
Emission Bandwidth 20 dB (2402 MHz; 4,000 dBm; 2 MHz)

20 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)	Max Level (dBm)
2402.000000	1.000000	---	---	2401.440000	2402.440000	-18.5

(continuation of the "20 dB Bandwidth" table from column 7 ...)

DUT Frequency (MHz)	Result
2402.000000	PASS



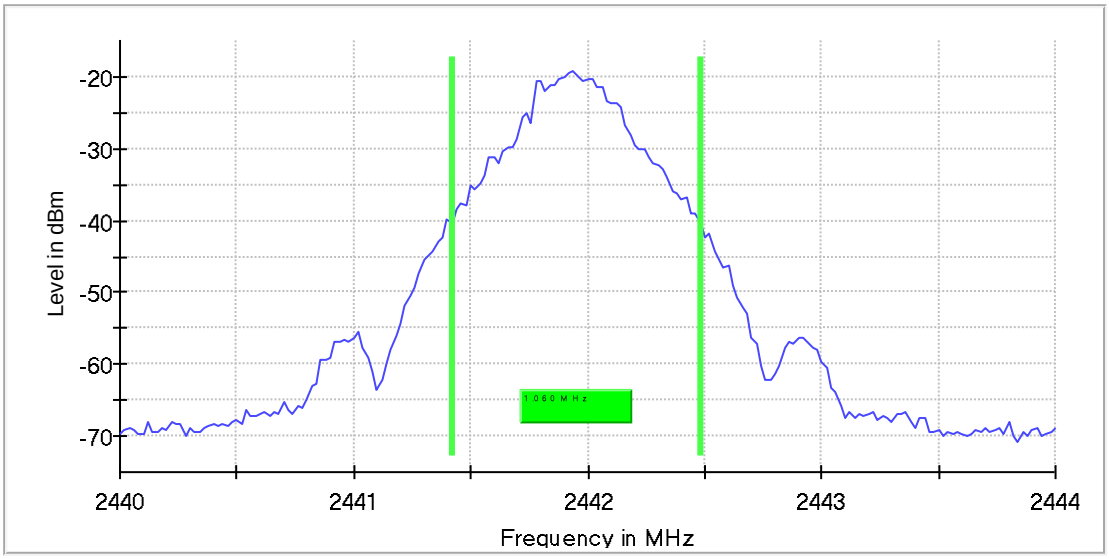
Emission Bandwidth 20 dB (2442 MHz; 4,000 dBm; 2 MHz)

20 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)	Max Level (dBm)
2442.000000	1.060000	---	---	2441.420000	2442.480000	-19.3

(continuation of the "20 dB Bandwidth" table from column 7 ...)

DUT Frequency (MHz)	Result
2442.000000	PASS



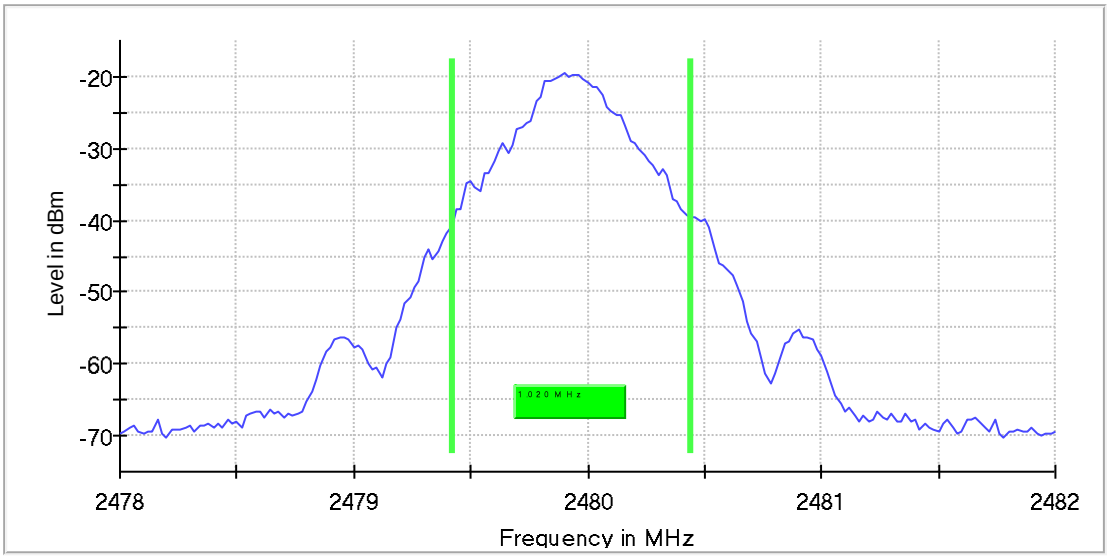
Emission Bandwidth 20 dB (2480 MHz; 4,000 dBm; 2 MHz)

20 dB Bandwidth

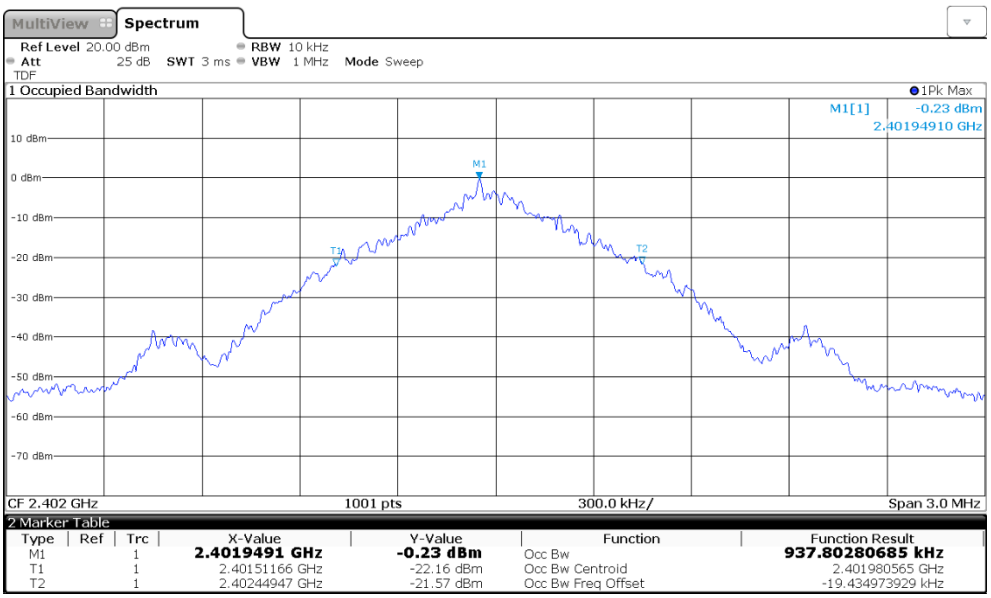
DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)	Max Level (dBm)
2480.000000	1.020000	---	---	2479.420000	2480.440000	-19.5

(continuation of the "20 dB Bandwidth" table from column 7 ...)

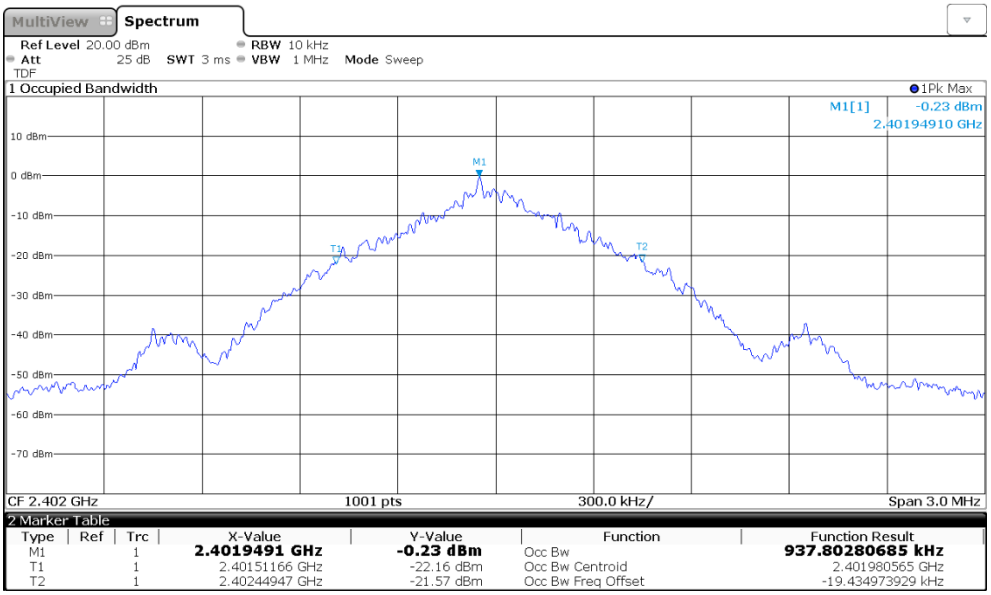
DUT Frequency (MHz)	Result
2480.000000	PASS



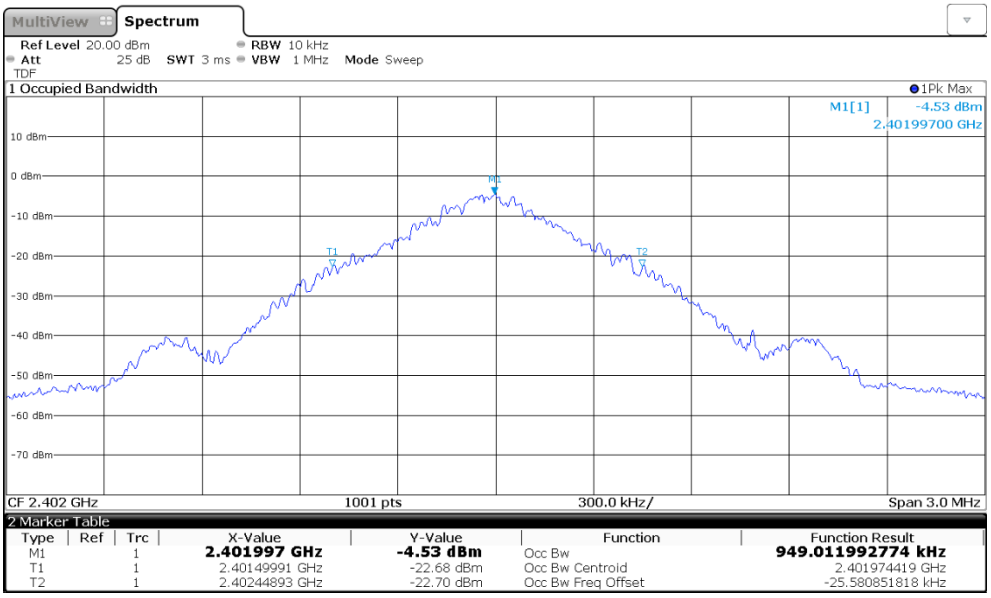
3.3. Frequency stability



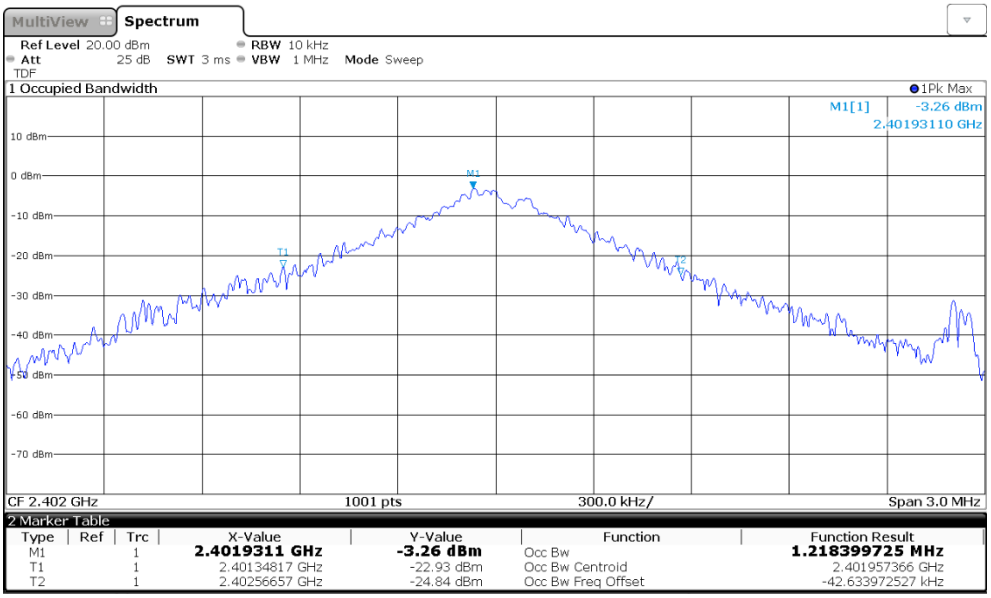
Frequency Stability Plot: Tnom | Vnom | 2402 MHz



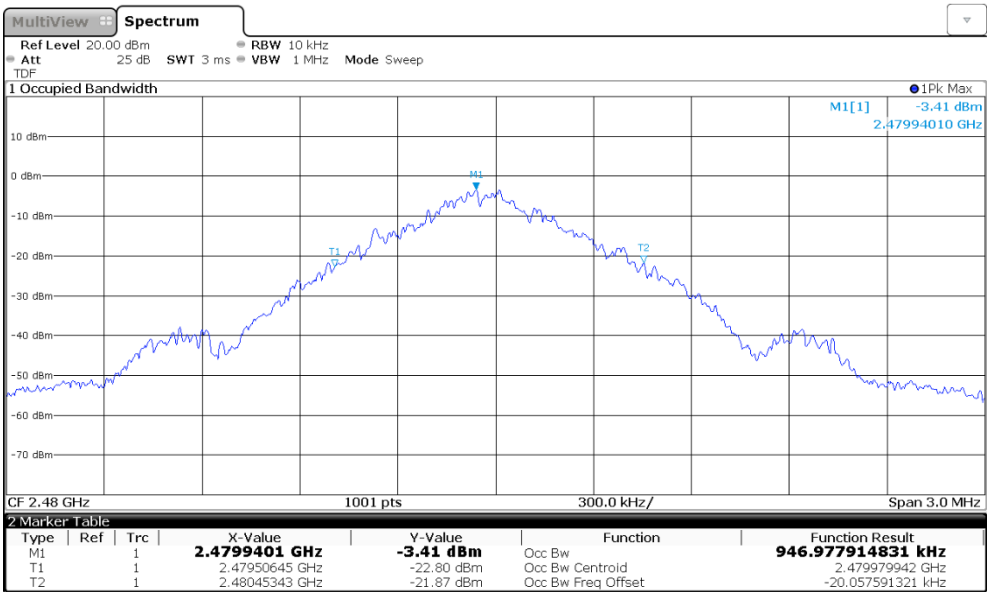
Frequency Stability Plot: Tnom | Vmin | 2402 MHz



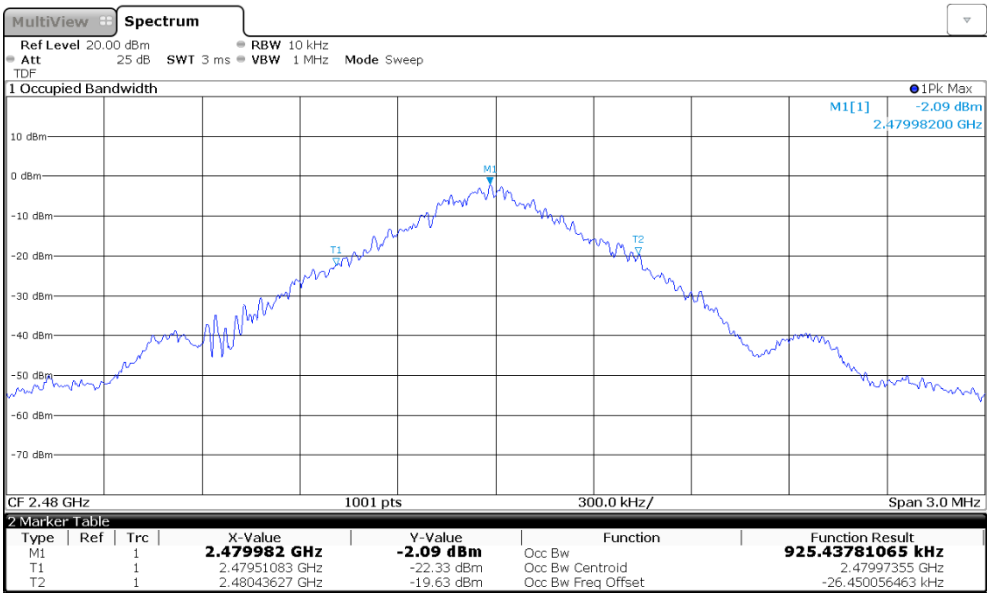
Frequency Stability Plot: Tmax | Vnom | 2402 MHz



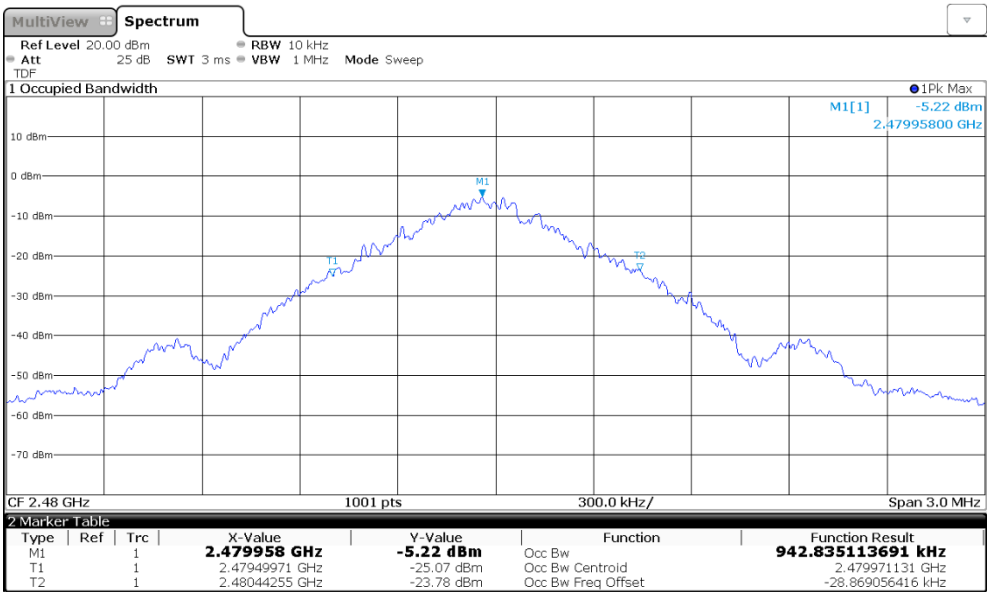
Frequency Stability Plot: Tmin | Vmin | 2402 MHz



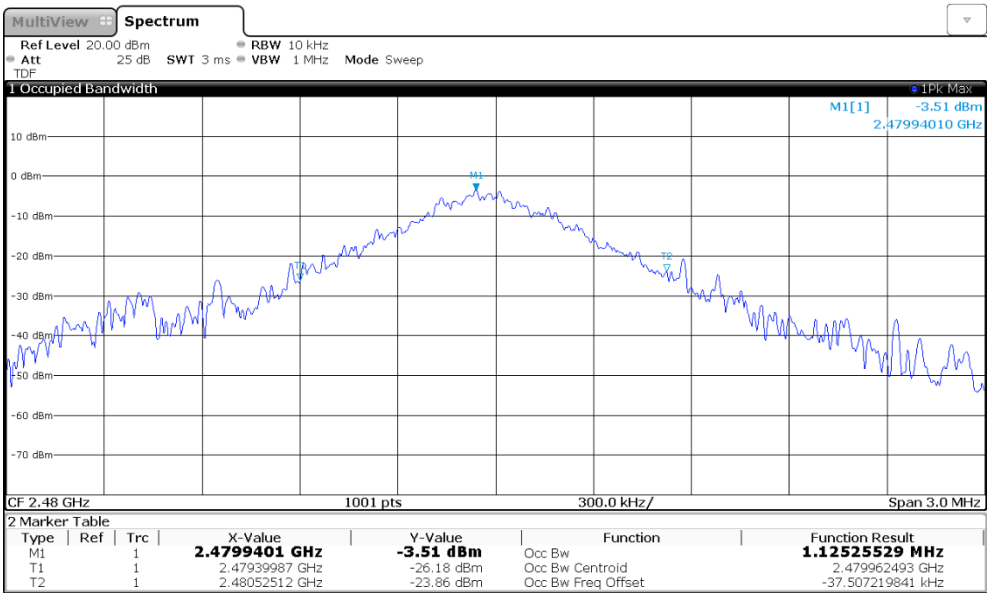
Frequency Stability Plot: Tnom | Vnom | 2480 MHz



Frequency Stability Plot: Tnom | Vmin | 2480 MHz



Frequency Stability Plot: Tmax | Vnom | 2480 MHz



Frequency Stability Plot: Tmin | Vmin | 2480 MHz