Annex 1: Measurement results for
T E S T R E P O R T
No.: 19-1-0103601T07-C1

According to:
Title 47 CFR, Chapter I
FCC Regulations, Subchapter A
§15.247 (DTS)

ISED-Regulations
RSS-Gen, Issue 5
RSS 247 Issue 2
(DTS)

for

Continental Advanced Antenna GmbH

TRANSCVRP02
BT-Transceiver

FCC ID: 2ACC7TRANSCVRP02
ISED: 11980A-TRANSCVRP02

Laboratory Accreditation and Listings
 Accredited EMC-Test Laboratory
accredited according to DIN EN ISO/IEC 17025
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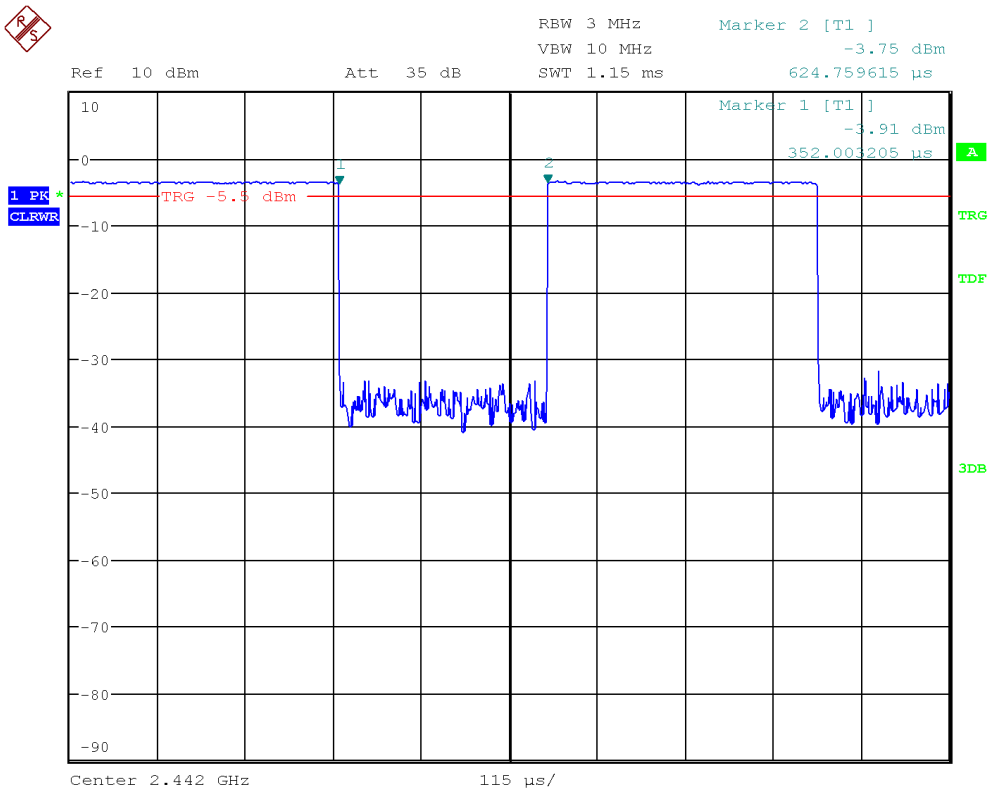
1. Conducted measurements on RF-antenna port

1.1. Duty Cycle



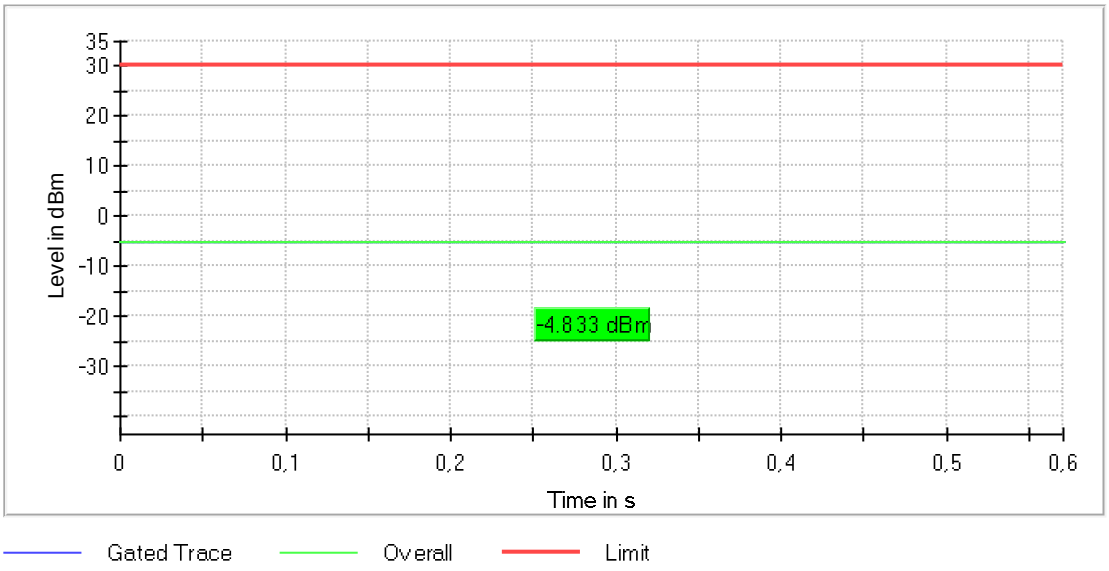
Duty Cycle for Channel 39 (2442 MHz)

1.2. Maximum Conducted Output Power (Average)

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

Result

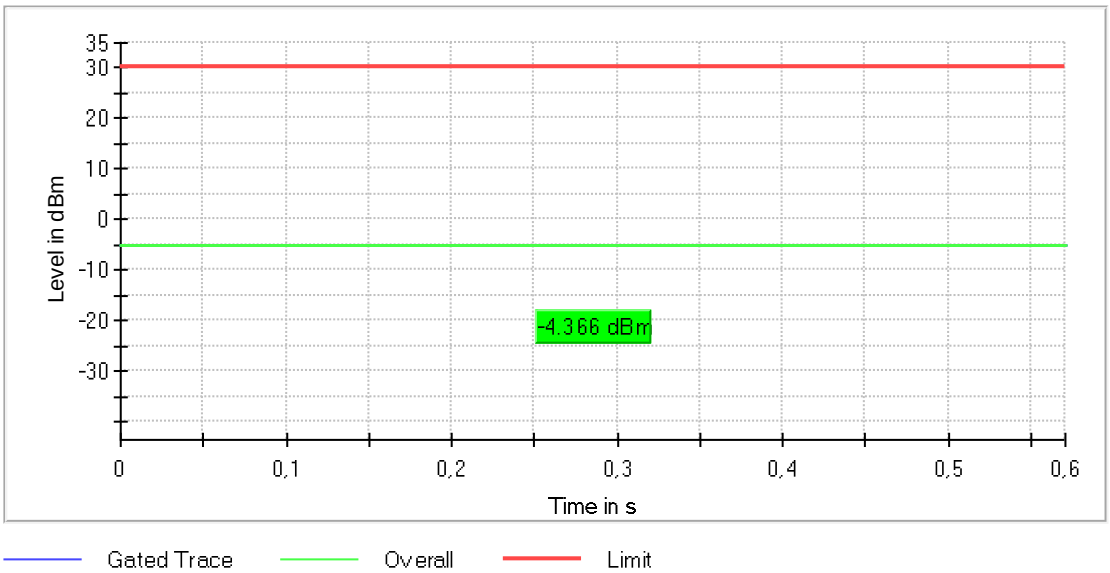
DUT Frequency (MHz)	Gated RMS (dBm)	Limit Max (dBm)	Gated EIRP (dBm)	DutyCycle (%)	Result
2402.000000	-4.8	30.0	-4.8	56.952	PASS



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

Result

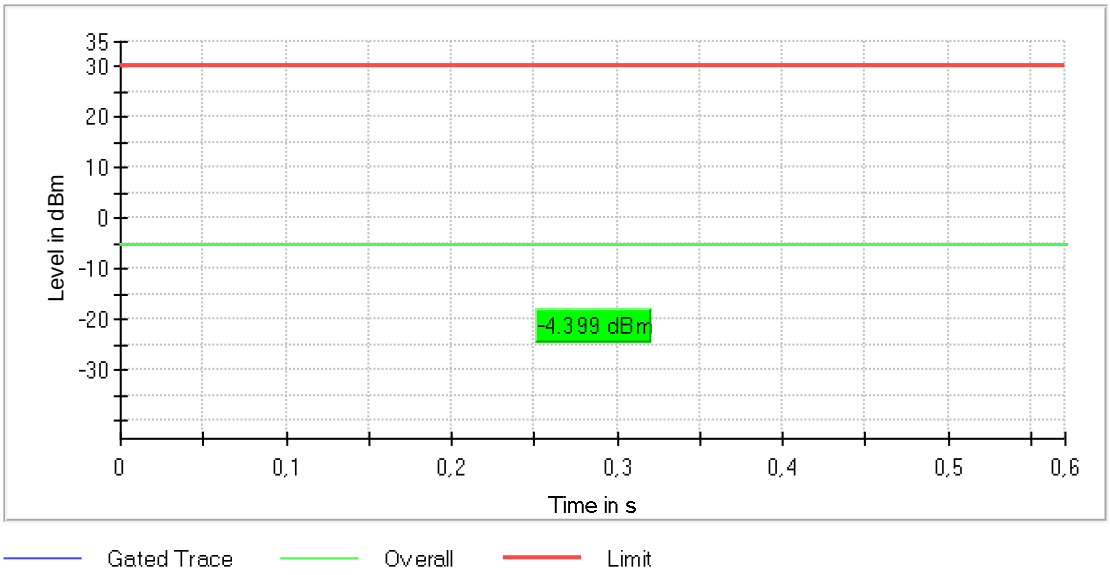
DUT Frequency (MHz)	Gated RMS (dBm)	Limit Max (dBm)	Gated EIRP (dBm)	DutyCycle (%)	Result
2440.000000	-4.4	30.0	-4.4	56.949	PASS



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
2442.000000	-4.4	30.0	-4.4	56.949	PASS

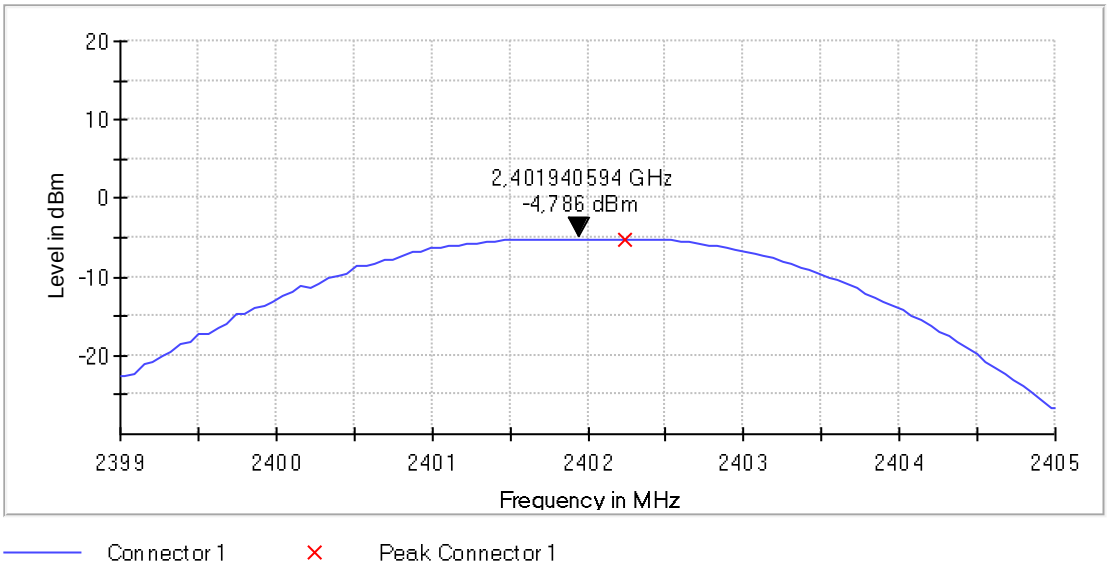


1.3. Maximum Conducted Output Power (Peak)

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

Result

DUT Frequency (MHz)	Peak Power (dBm)	Limit Max (dBm)	Result
2402.000000	-4.8	30.0	PASS

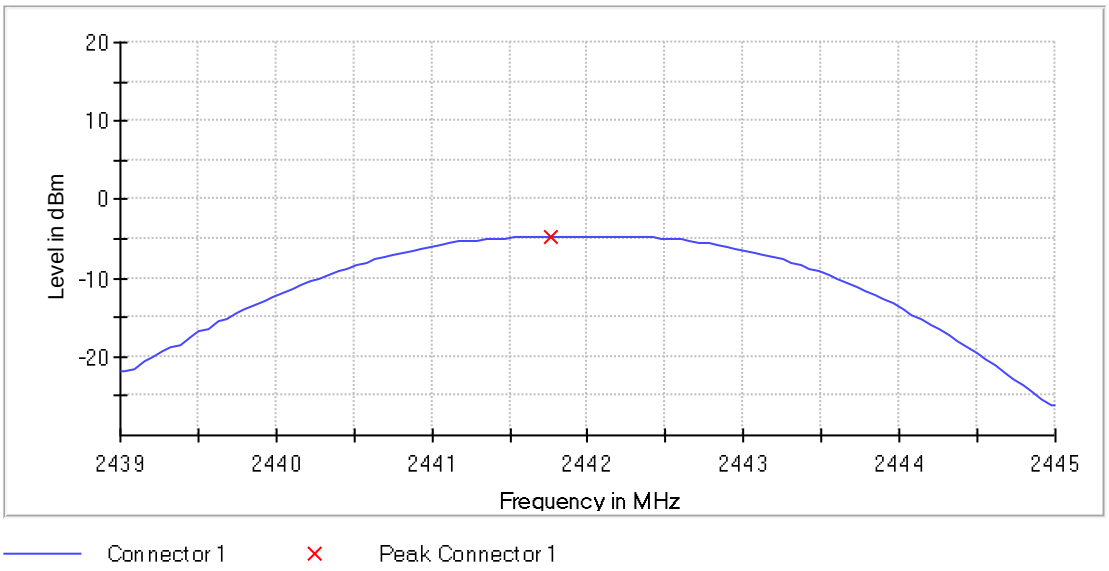


Setting	Instrument Value	Target Value
Start Frequency	2.39900 GHz	2.39900 GHz
Stop Frequency	2.40500 GHz	2.40500 GHz
Span	6.000 MHz	6.000 MHz
RBW	2.000 MHz	>= 1.000 MHz
VBW	10.000 MHz	>= 6.000 MHz
SweepPoints	101	~ 101
Sweeptime	1.000 ms	AUTO
Reference Level	10.000 dBm	10.000 dBm
Attenuation	20.000 dB	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	0.08 dB	0.50 dB

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

Result

DUT Frequency (MHz)	Peak Power (dBm)	Limit Max (dBm)	Result
2442.000000	-4.2	30.0	PASS

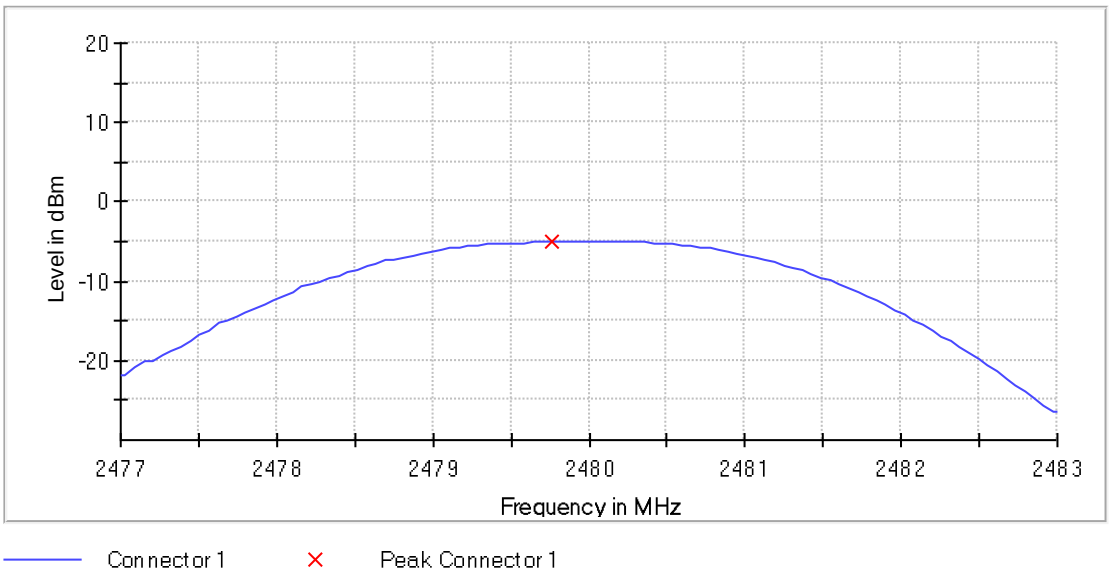


Setting	Instrument Value	Target Value
Start Frequency	2.43900 GHz	2.43900 GHz
Stop Frequency	2.44500 GHz	2.44500 GHz
Span	6.000 MHz	6.000 MHz
RBW	2.000 MHz	>= 1.000 MHz
VBW	10.000 MHz	>= 6.000 MHz
SweepPoints	101	~ 101
Sweeptime	1.000 ms	AUTO
Reference Level	10.000 dBm	10.000 dBm
Attenuation	20.000 dB	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	0.10 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	-4.8	30.0	PASS



Setting	Instrument Value	Target Value
Start Frequency	2.47700 GHz	2.47700 GHz
Stop Frequency	2.48300 GHz	2.48300 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	6 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.14 dB	0.50 dB

1.4. Minimum Emission Bandwidth 6 dB

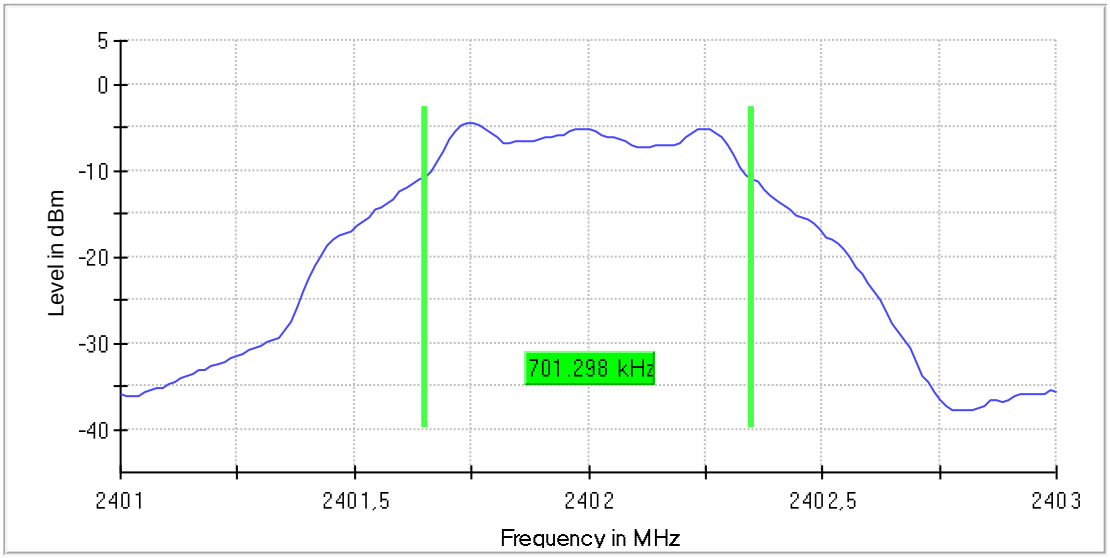
Minimum Emission Bandwidth 6 dB (2402 MHz; 10,000 dBm; 1 MHz)

6 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2402.000000	0.701298	0.500000	---	2401.649351	2402.350649

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

DUT Frequency (MHz)	Max Level (dBm)	Result
2402.000000	-4.6	PASS



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	155	~ 40
Sweeptime	2.500 ms	AUTO
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	15.000 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	8 / max. 150	max. 150
Stable	5 / 5	5
Max Stable Difference	0.01 dB	0.50 dB

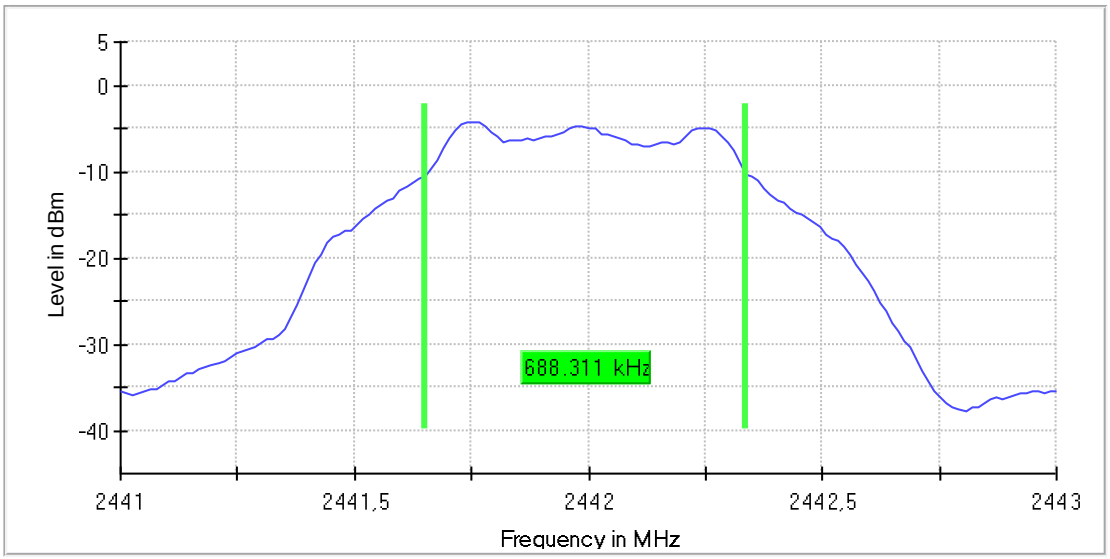
Minimum Emission Bandwidth 6 dB (2442 MHz; 10,000 dBm; 1 MHz)

6 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2442.000000	0.688311	0.500000	---	2441.649351	2442.337662

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

DUT Frequency (MHz)	Max Level (dBm)	Result
2442.000000	-4.2	PASS



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	155	~ 40
Sweeptime	2.500 ms	AUTO
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	15.000 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	8 / max. 150	max. 150
Stable	5 / 5	5
Max Stable Difference	0.04 dB	0.50 dB

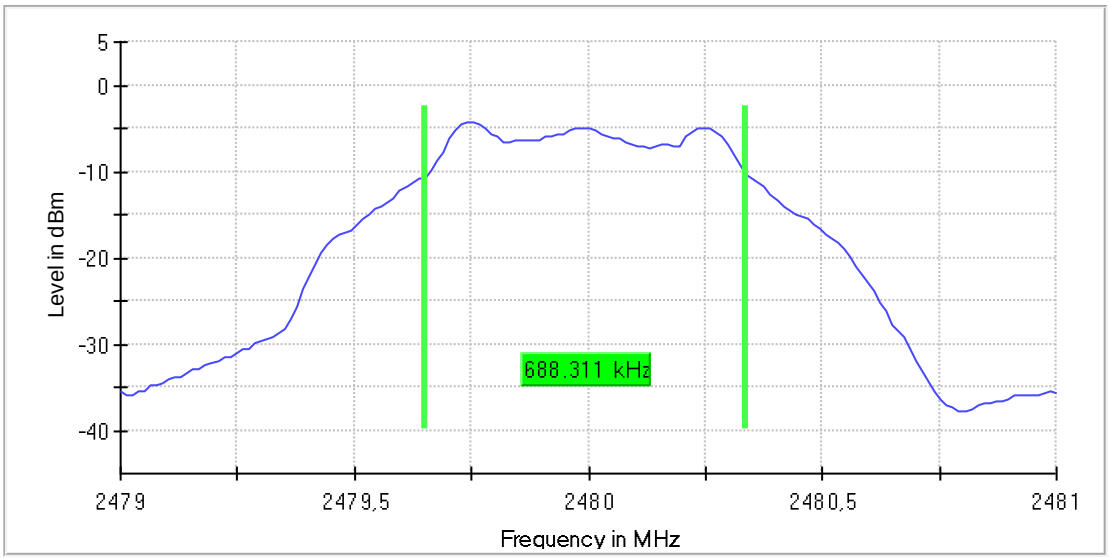
Minimum Emission Bandwidth 6 dB (2480 MHz; 10,000 dBm; 1 MHz)

6 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2480.000000	0.688311	0.500000	---	2479.649351	2480.337662

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

DUT Frequency (MHz)	Max Level (dBm)	Result
2480.000000	-4.4	PASS



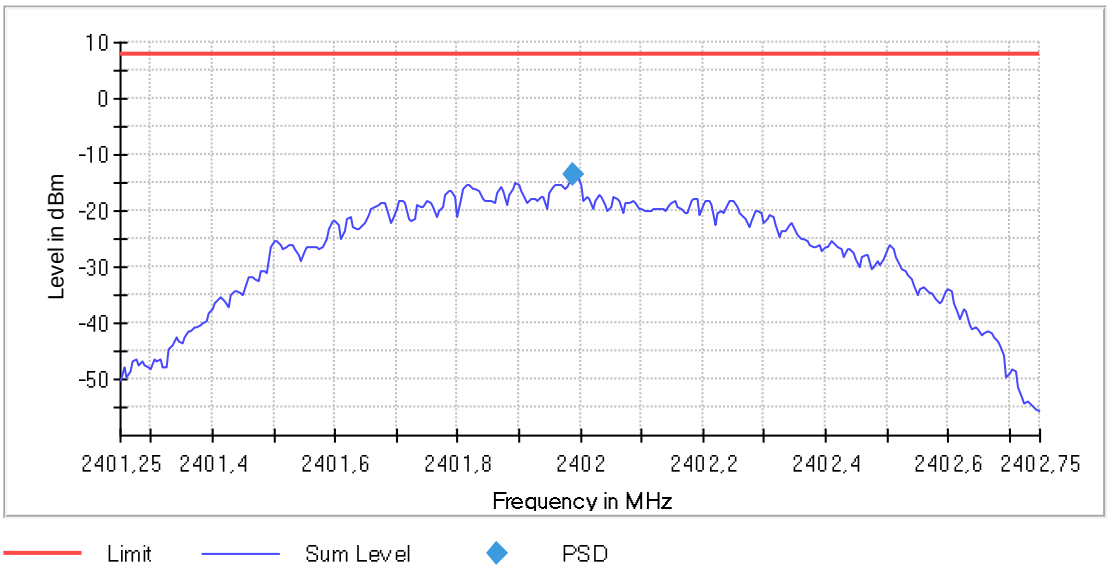
Setting	Instrument Value	Target Value
Start Frequency	2.47900 GHz	2.47900 GHz
Stop Frequency	2.48100 GHz	2.48100 GHz
Span	2.000 MHz	2.000 MHz
RBW	100.000 kHz	~ 100.000 kHz
VBW	300.000 kHz	~ 300.000 kHz
SweepPoints	155	~ 40
Sweeptime	2.500 ms	AUTO
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	15.000 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	0.10 dB	0.50 dB

1.5. Power Spectral Density

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	2401.990000	-13.541	8.0	PASS

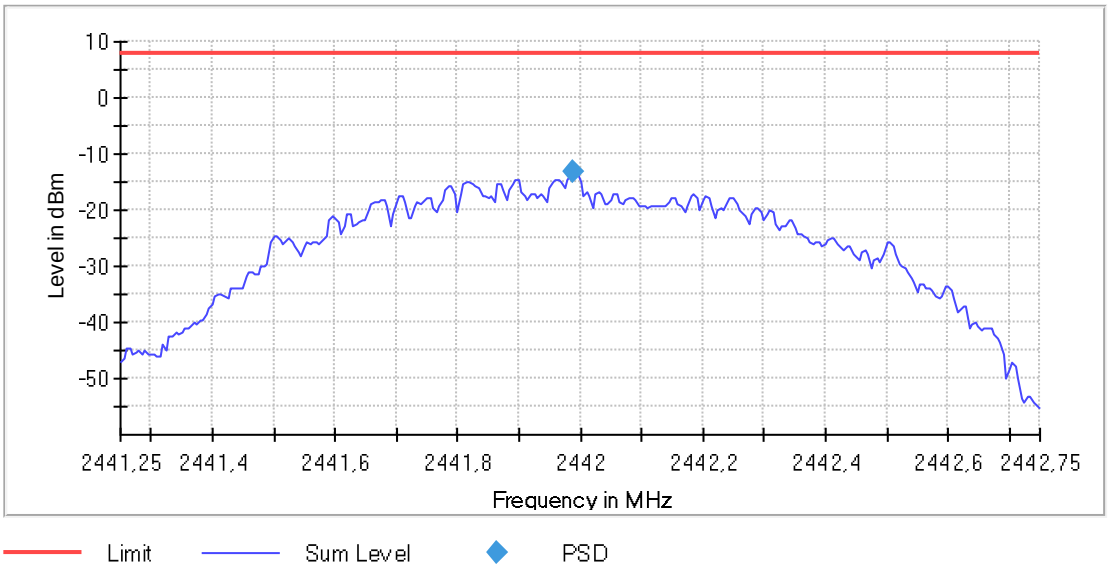


Setting	Instrument Value	Target Value
Start Frequency	2.40125 GHz	2.40125 GHz
Stop Frequency	2.40275 GHz	2.40275 GHz
Span	1.500 MHz	1.500 MHz
RBW	10.000 kHz	<= 10.000 kHz
VBW	30.000 kHz	>= 30.000 kHz
SweepPoints	301	~ 300
Sweeptime	60.000 ms	AUTO
Reference Level	0.000 dBm	0.000 dBm
Attenuation	25.000 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	0.00 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	2441.990000	-13.048	8.0	PASS

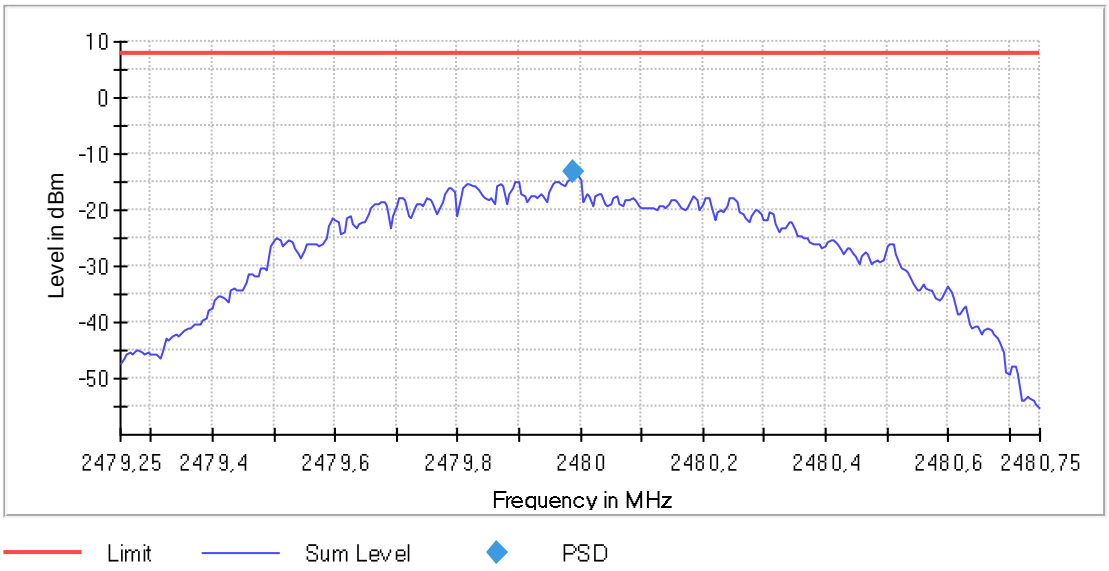


Setting	Instrument Value	Target Value
Start Frequency	2.44125 GHz	2.44125 GHz
Stop Frequency	2.44275 GHz	2.44275 GHz
Span	1.500 MHz	1.500 MHz
RBW	10.000 kHz	<= 10.000 kHz
VBW	30.000 kHz	>= 30.000 kHz
SweepPoints	301	~ 300
Sweeptime	60.000 ms	AUTO
Reference Level	0.000 dBm	0.000 dBm
Attenuation	25.000 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	0.18 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	2479.990000	-13.383	8.0	PASS



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	301	~ 300
Sweeptime	60.000 ms	AUTO
Reference Level	0.000 dBm	0.000 dBm
Attenuation	25.000 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	0.18 dB	0.50 dB

1.6. Occupied Channel Bandwidth 99%

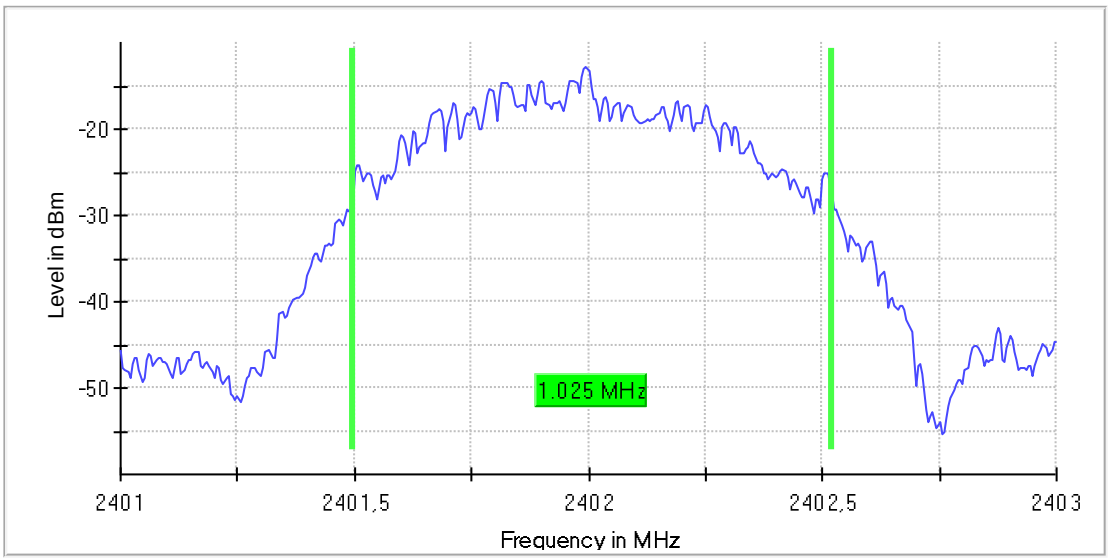
Occupied Channel Bandwidth 99% (2402 MHz; 10,000 dBm; 1 MHz)

99 % Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2402.000000	1.025000	---	---	2401.495000	2402.520000

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

DUT Frequency (MHz)	Result
2402.000000	PASS



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	401	~ 400
Sweeptime	80.000 ms	AUTO
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	15.000 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	0.30 dB	0.30 dB
Run	4 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.18 dB	0.30 dB

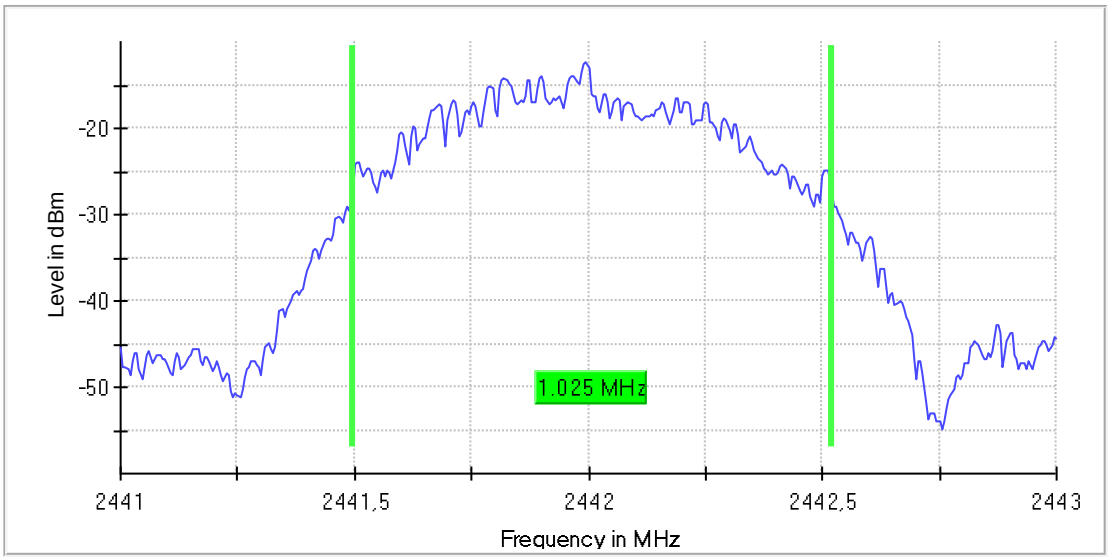
Occupied Channel Bandwidth 99% (2442 MHz; 10,000 dBm; 1 MHz)

99 % Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2442.000000	1.025000	---	---	2441.495000	2442.520000

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

DUT Frequency (MHz)	Result
2442.000000	PASS



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	401	~ 400
Sweeptime	80.000 ms	AUTO
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	15.000 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	0.30 dB	0.30 dB
Run	5 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.13 dB	0.30 dB

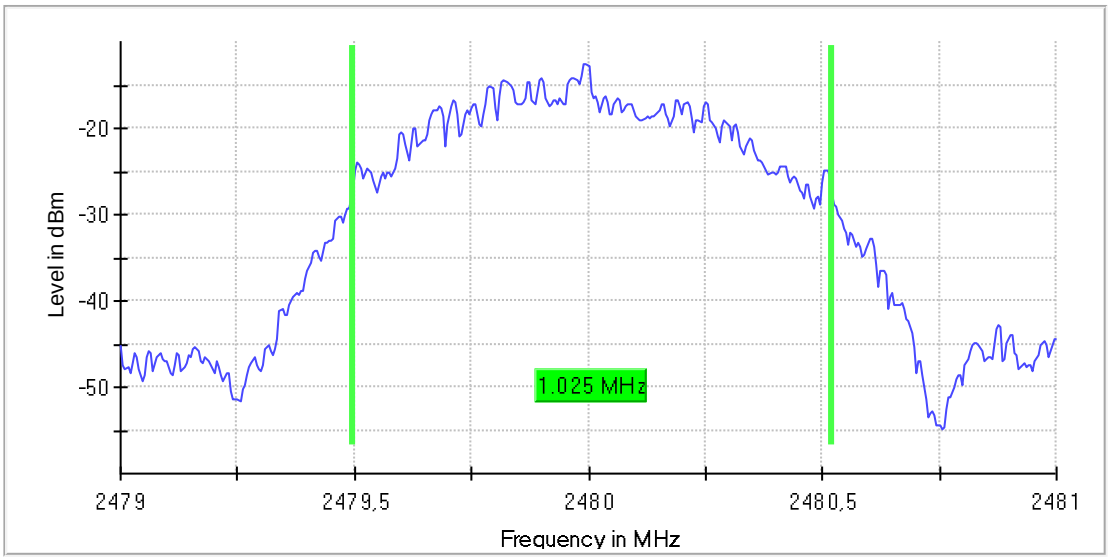
Occupied Channel Bandwidth 99% (2480 MHz; 10,000 dBm; 1 MHz)

99 % Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2480.000000	1.025000	---	---	2479.495000	2480.520000

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

DUT Frequency (MHz)	Result
2480.000000	PASS



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	401	~ 400
Sweeptime	80.000 ms	AUTO
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	15.000 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	0.30 dB	0.30 dB
Run	4 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.17 dB	0.30 dB

1.7. 20dBc Emissions

Measurements done for Port1

➔ values 3dB higher than the plots.

1.7.1. Channel 01

1.7.1.1. Channel 01 Reference

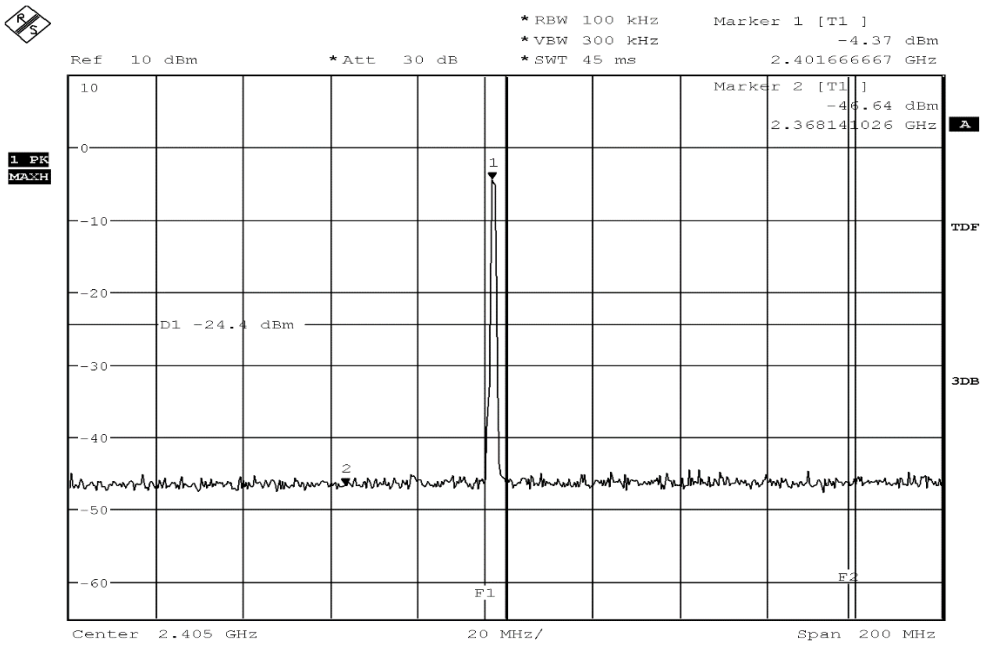


Diagram 1: Channel 01

1.7.1.2. Sweep 1: 150kHz to 30MHz

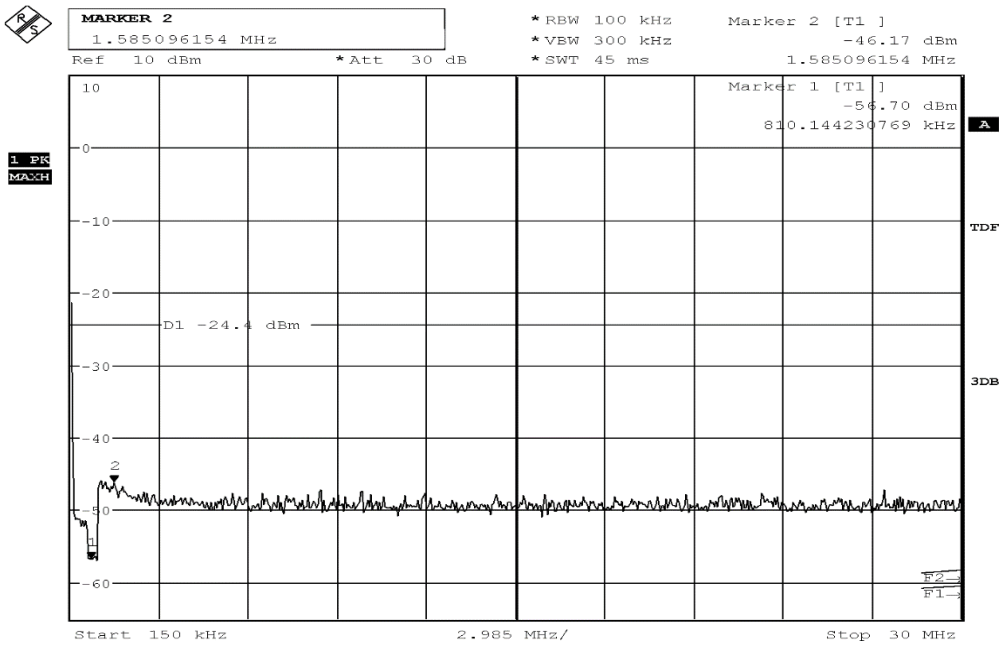


Diagram 2: Channel 01

1.7.1.3. Sweep 2: 30MHz to 2.8GHz

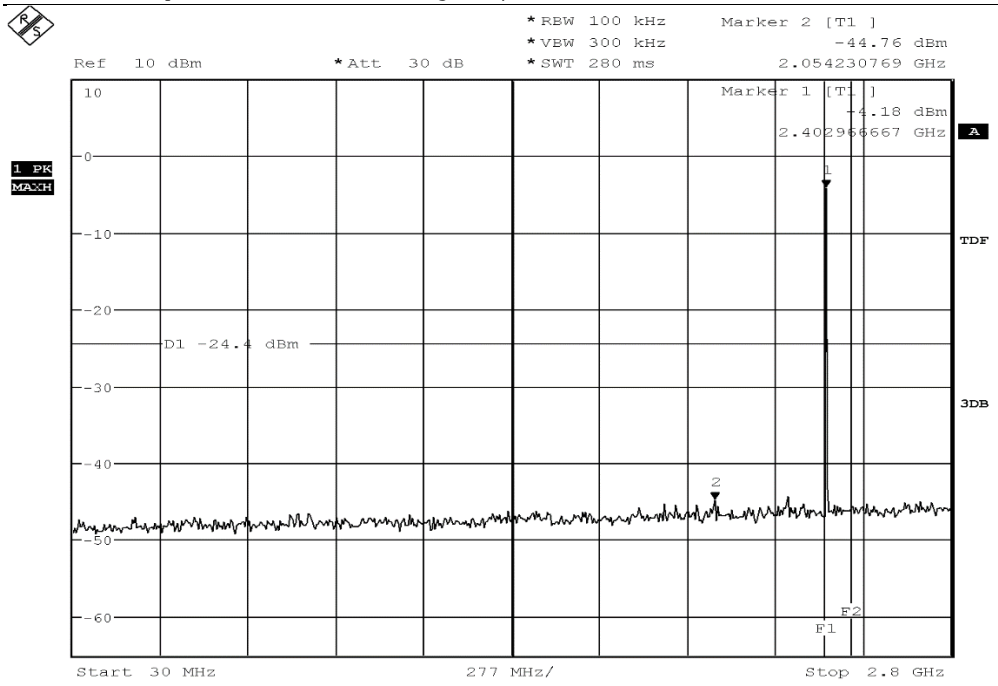


Diagram 3: Channel 01

1.7.1.4. Sweep 2: 2.8GHz to 26GHz

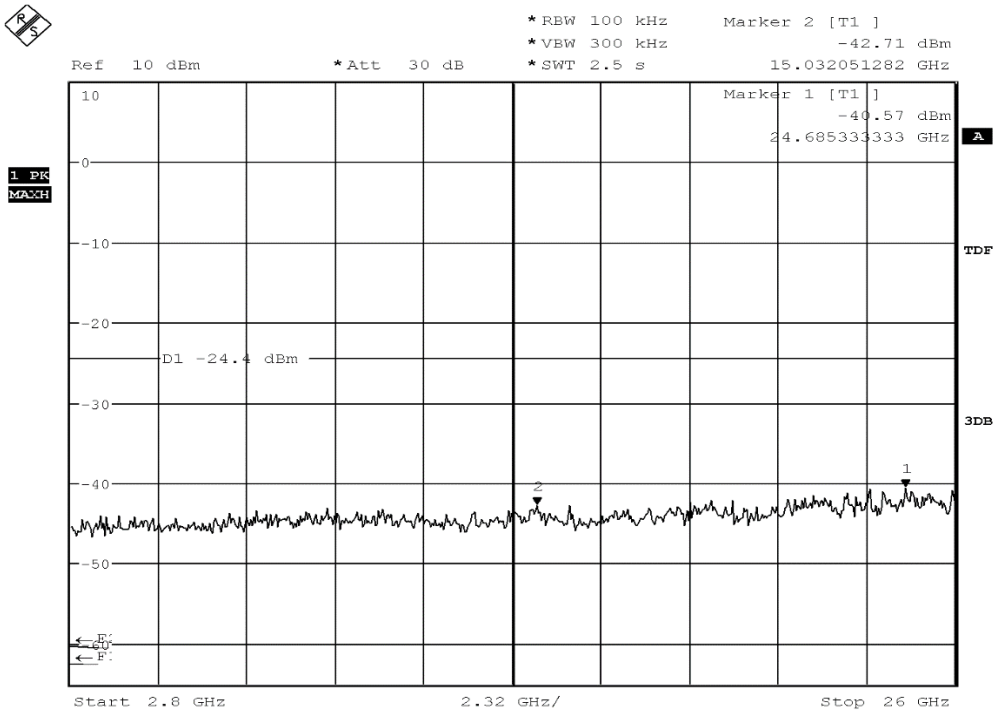


Diagram 4: Channel 01

1.7.2. Channel 20

1.7.2.1. Channel 20 Reference

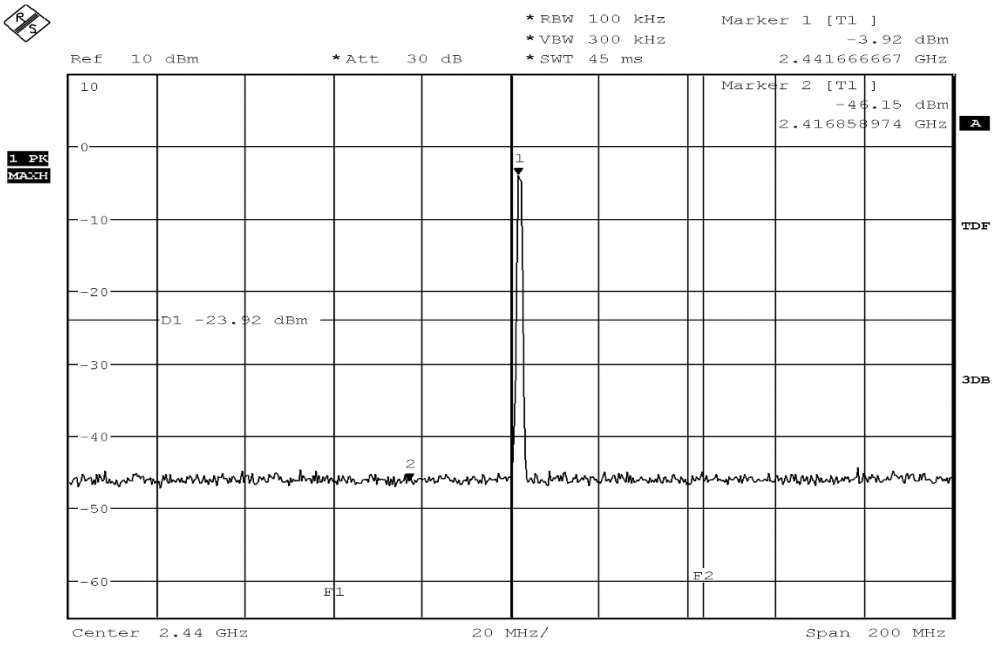


Diagram 5: Channel 20

1.7.2.2. Sweep 1: 150kHz to 30MHz

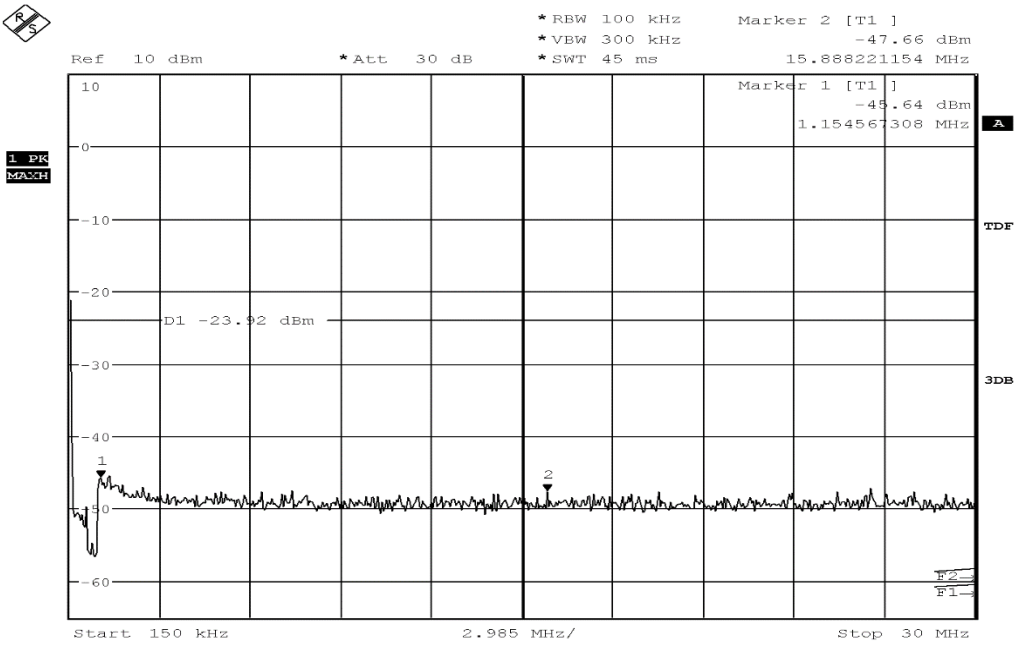


Diagram 6: Channel 20

1.7.2.3. Sweep 2: 30MGHz to 2.8GHz

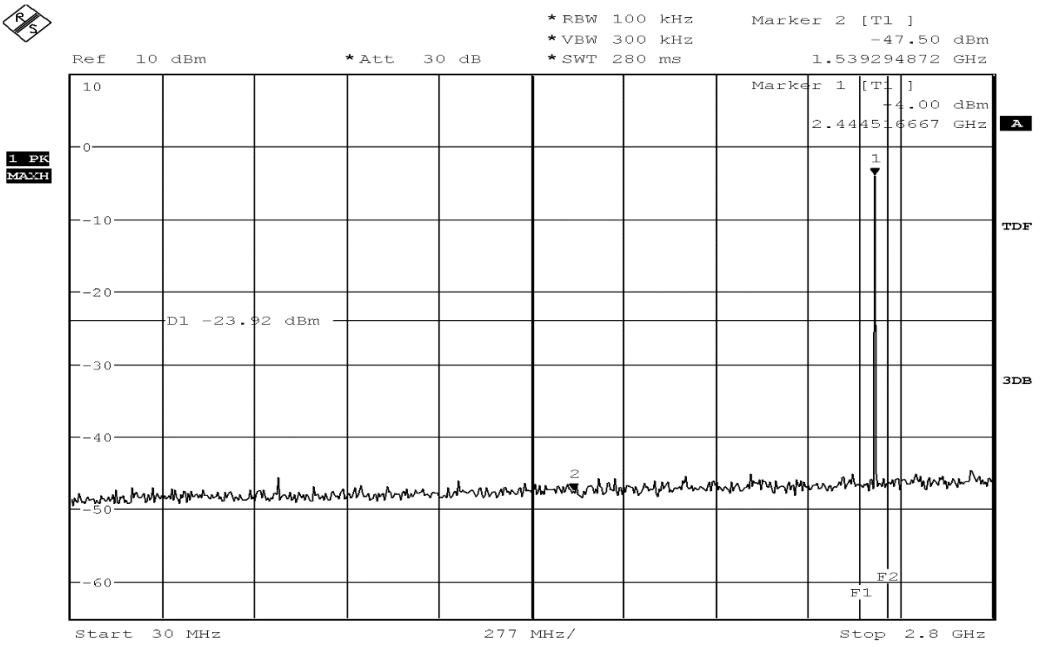


Diagram 7: Channel 20

1.7.2.4. Sweep 3: 2.8GHz to 26GHz

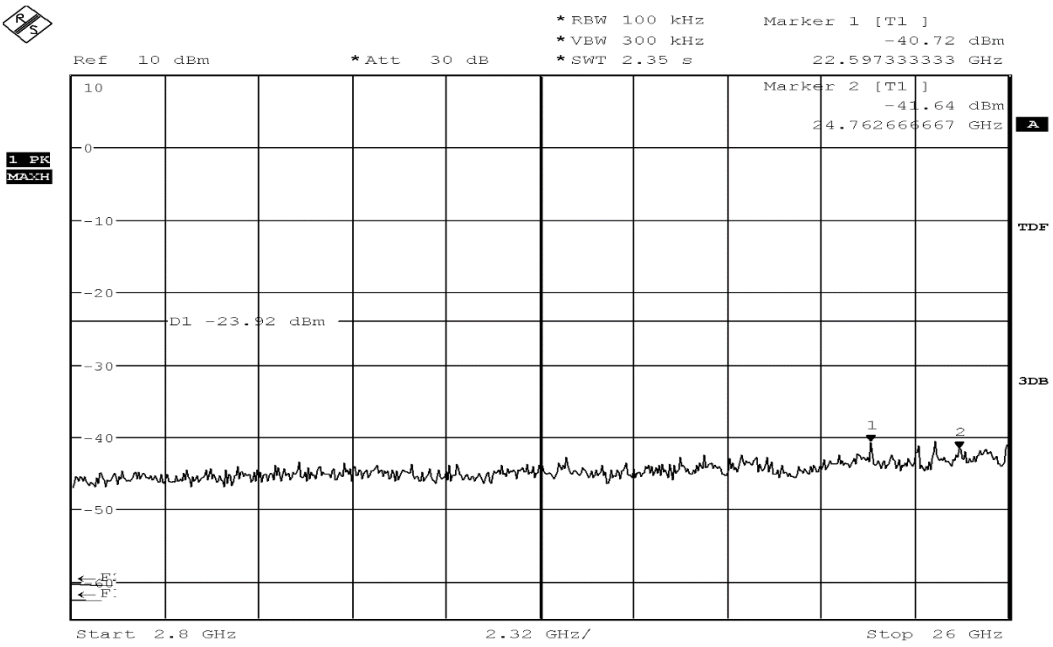


Diagram 8: Channel 20

1.7.3. Channel 39

1.7.3.1. Channel 39 Reference

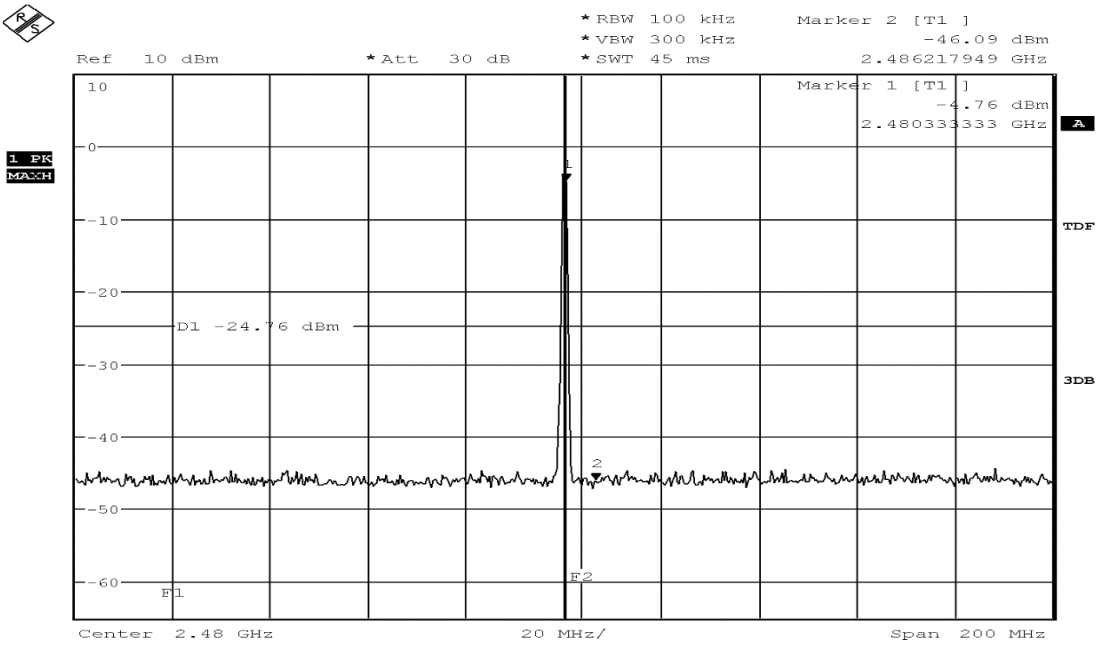


Diagram 9: Channel 39

1.7.3.2. Sweep 1: 150kHz to 30MHz

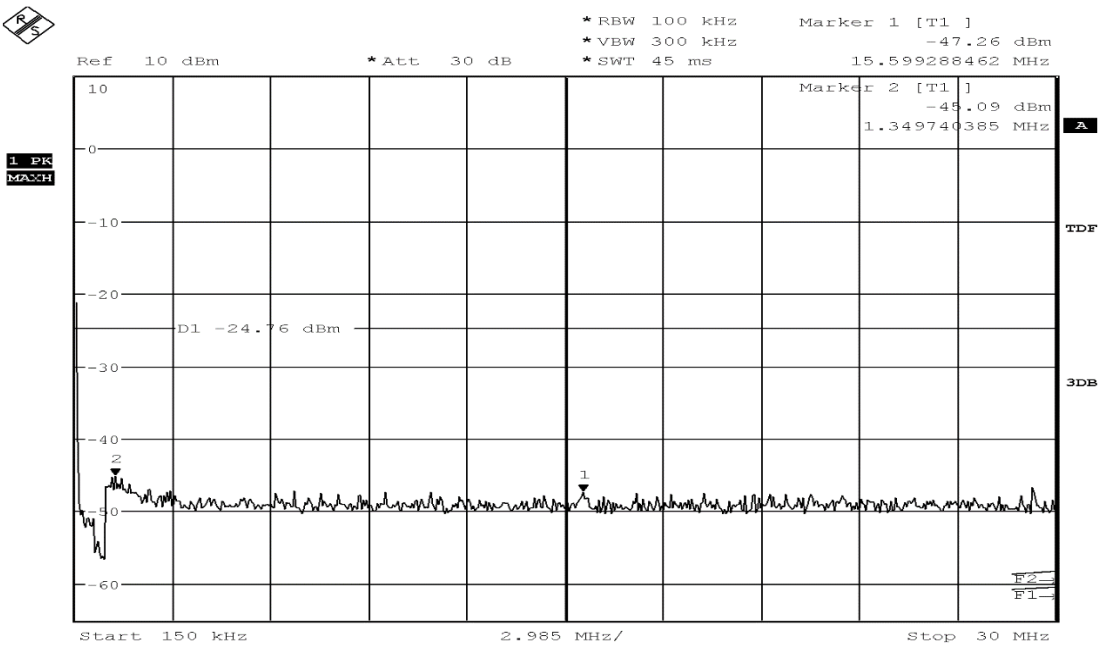
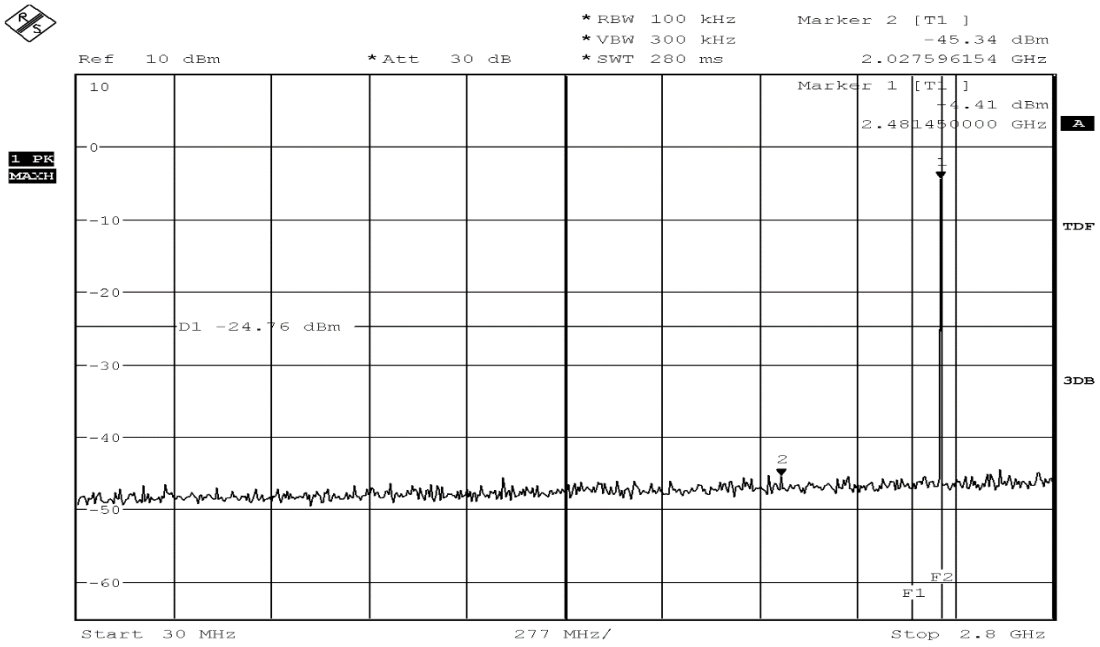


Diagram 10: Channel 39

1.7.3.3. Sweep 2: 30MHz to 2.8GHz



Date: 20.AUG.2019 13:22:59

Diagram 11: Channel 39

1.7.3.4. Sweep 3: 2.8GHz to 26GHz

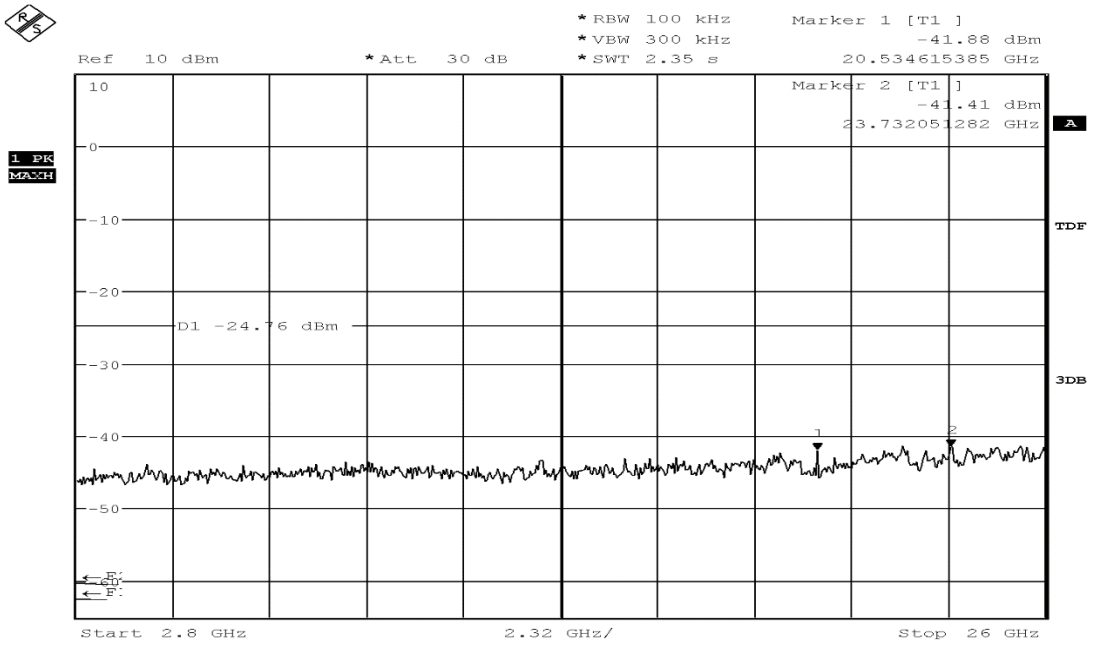


Diagram 12: Channel 39

2. Radiated field strength measurements accord. §15.209&15.205

2.1. Magnetic field measurements f<30MHz

2.01a_BT_LE_low_Standing

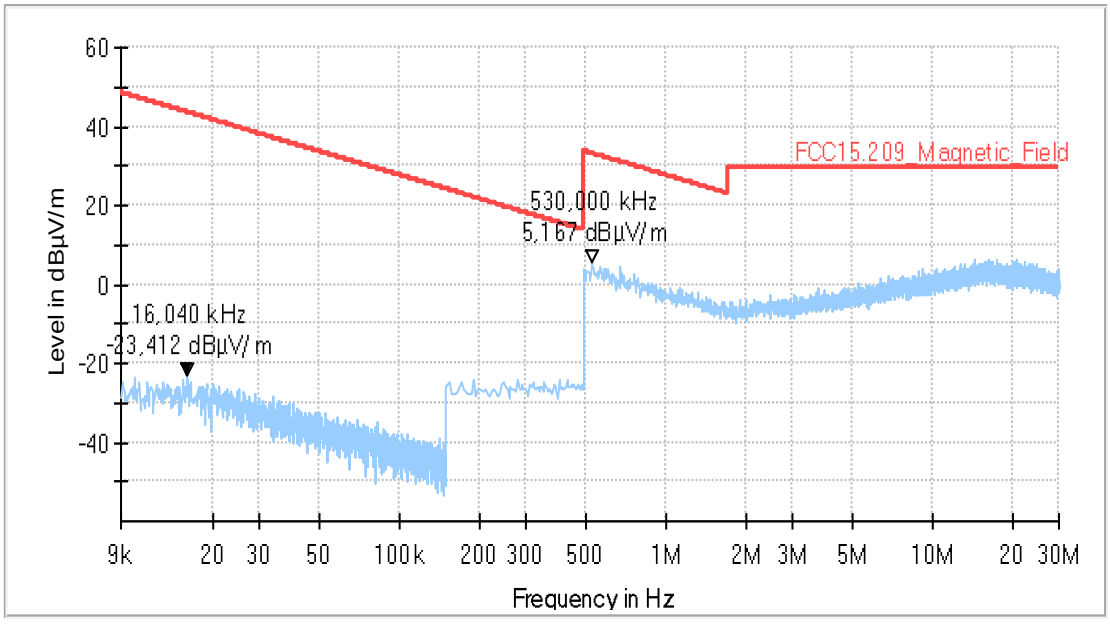
Common Information

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:	TFA
Operating Mode:	BT-LE| GFSK | 1Mbit | low Channel 2402 MHz
Environmental Conditions::	Humidity : 56%rH; Temperature: 21,7°C
EUT Setup:	Standing

EUT Information

PMT number:	19-1-01036S06
Manufacturer:	Continental Advanced Antenna GmbH
Product:	IPA 2 Transreceiver
Model:	9J1.051.515
---	---
HW version:	01S
SW version:	BT:STACK: 01.03.05
SVN:	
Config:	
Serial number:	000045
Connected Interfaces:	
Power Supply:	
Date received:	13.08.2019
Comments:	

Full Spectrum



➔ No remarkable peaks noticeable only noise floor

2.01b_BT_LE_low_laying

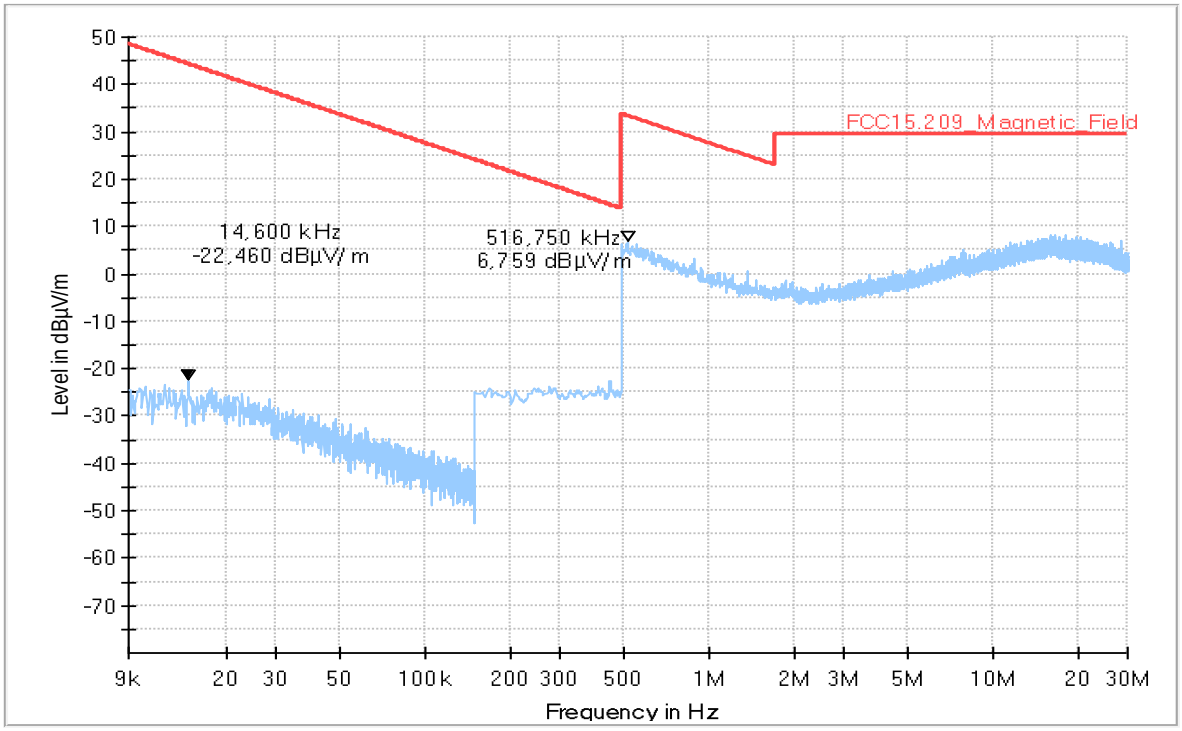
Common Information

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:	MKh/
Operating Mode:	BT-LE| GFSK | 1Mbit | low Channel 2402 MHz
Power during tests:	12V DC
Environmental Conditions::	Humidity : 54,6%rH; Temperature: 21,6°C
EUT Setup:	Laying

EUT Information

PMT number:	19-1-01036S06
Manufacturer:	Continental Advanced Antenna GmbH
Product:	IPA 2 Transreceiver
Model:	9J1.051.515
----------	----------
HW version:	01S
SW version:	BT:STACK: 01.03.05
SVN:	--
Config:	--
Serial number:	000045
Connected Interfaces:	--
Power Supply:	12 VDC
Date received:	13.08.2019

Full Spectrum



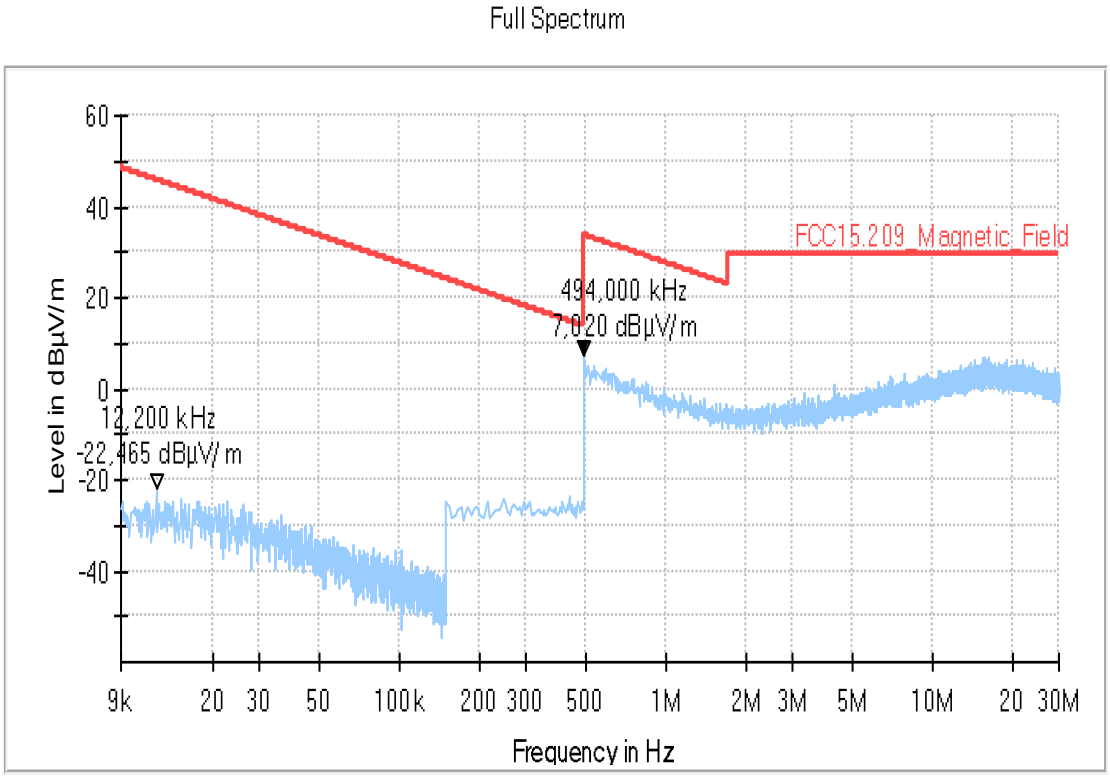
2.02a_BT_LE_Mid_Standing

Common Information

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:	TFA
Operating Mode:	Bluetooth LE - Mid Channel
Power during tests:	12V DC
Environmental Conditions::	Humidity : 56%rH; Temperature: 21,8°C
EUT Setup:	Standing
Verdict:	Initial

EUT Information

PMT number:	19-1-01036S06
Manufacturer:	Continental Advanced Antenna GmbH
Product:	IPA 2 Transreceiver
Model:	9J1.051.515
---	---
HW version:	01S
SW version:	BT:STACK: 01.03.05
SVN:	--
Config:	--
Serial number:	000045
Connected Interfaces:	--
Power Supply:	12 VDC
Date received:	13.08.2019



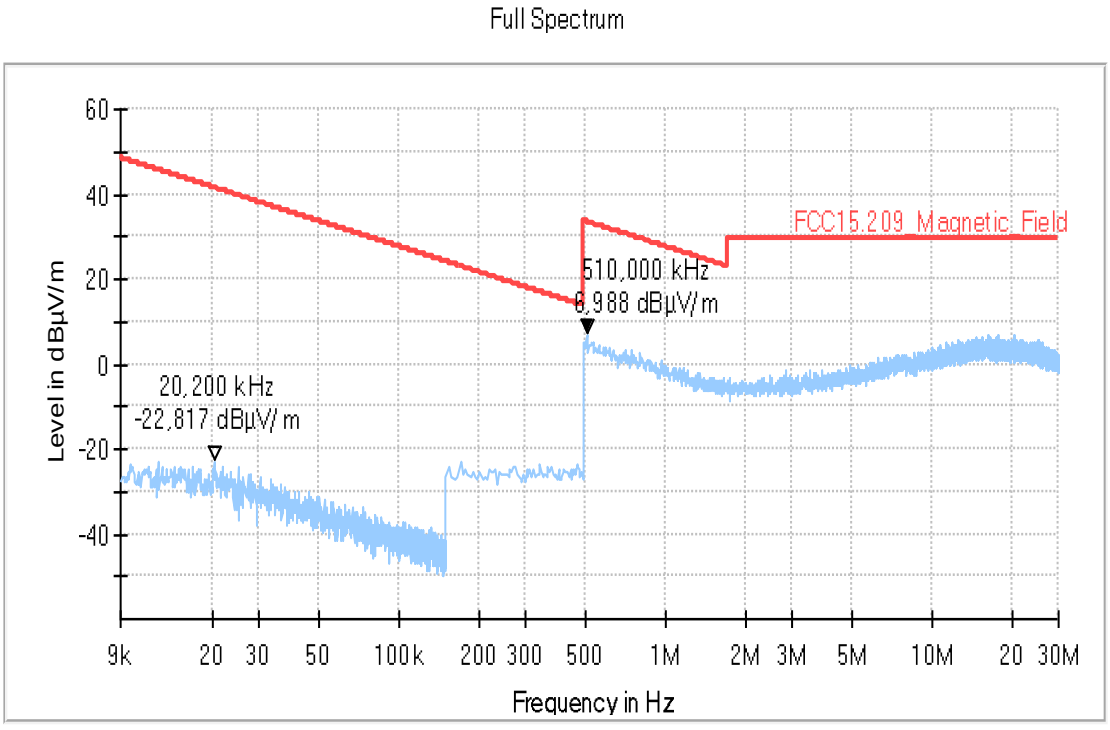
2.02b_BT_LE_Mid_Laying

Common Information

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:	TFA
Operating Mode:	Bluetooth LE - Mid Channel
Power during tests:	12V DC
Environmental Conditions::	Humidity : 56%rH; Temperature: 21,9°C
EUT Setup:	Laying
Verdict:	Initial

EUT Information

PMT number:	19-1-01036S06
Manufacturer:	Continental Advanced Antenna GmbH
Product:	IPA 2 Transreceiver
Model:	9J1.051.515
---	---
HW version:	01S
SW version:	BT:STACK: 01.03.05
SVN:	--
Config:	--
Serial number:	000045
Connected Interfaces:	--
Power Supply:	12 VDC
Date received:	13.08.2019



2.03a_BT_LE_High_Standing

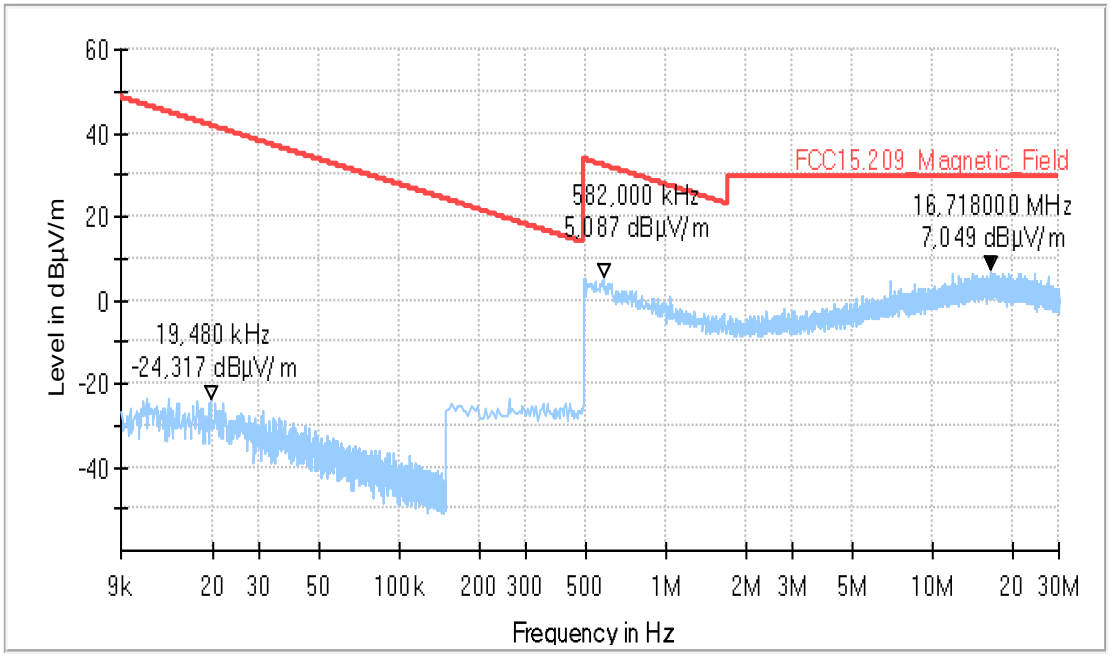
Common Information

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:	TFA
Operating Mode:	Bluetooth LE - high Channel
Power during tests:	12V DC
Environmental Conditions::	Humidity : 56%rH; Temperature: 21,9°C
EUT Setup:	Standing
Verdict:	Initial

EUT Information

PMT number:	19-1-01036S06
Manufacturer:	Continental Advanced Antenna GmbH
Product:	IPA 2 Transreceiver
Model:	9J1.051.515
----------	----------
HW version:	01S
SW version:	BT:STACK: 01.03.05
SVN:	--
Config:	--
Serial number:	000045
Connected Interfaces:	--
Power Supply:	12V DC
Date received:	13.08.2019

Full Spectrum



2.03b_BT_LE_High_Laying

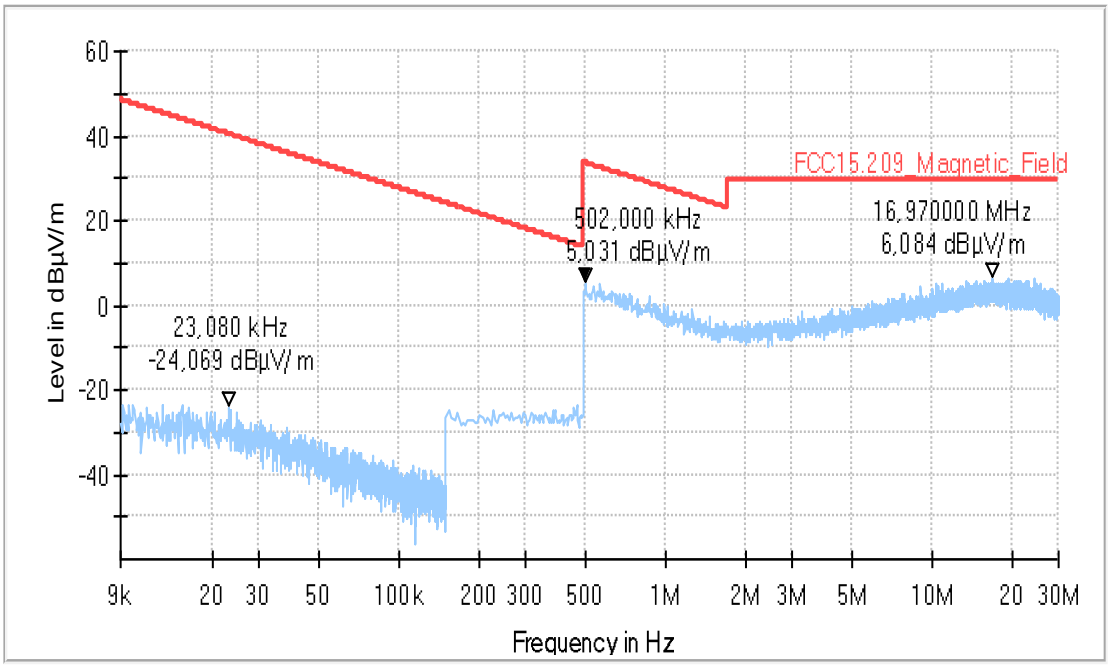
Common Information

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:	TFA
Operating Mode:	Bluetooth LE - high Channel
Power during tests:	12V DC
Environmental Conditions::	Humidity : 51,6%rH; Temperature: 21,9°C
EUT Setup:	Laying
Verdict:	Initial

EUT Information

PMT number:	19-1-01036S06
Manufacturer:	Continental Advanced Antenna GmbH
Product:	IPA 2 Transreceiver
Model:	9J1.051.515
----------	----------
HW version:	01S
SW version:	BT:STACK: 01.03.05
SVN:	--
Config:	--
Serial number:	000045
Connected Interfaces:	--
Power Supply:	12V DC
Date received:	13.08.2019

Full Spectrum



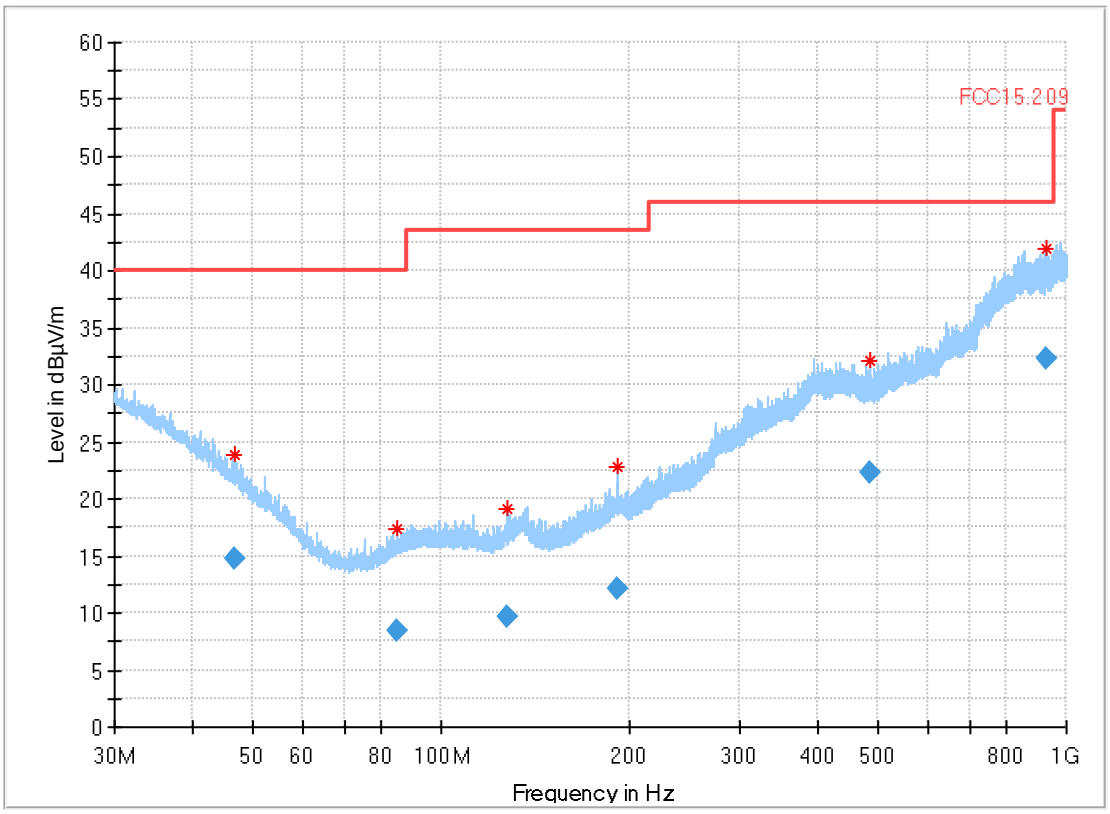
2.2. Field strength measurements 30MHz <f <1GHz

3.00_Reference_Measurement_30MHz-1GHz

Common Information

Test Description:	Electric Field Strength Measurement
Test Site Location:	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 Standard.:	FCC 15.209; RSS-Gen: Issue 5
Operator:	MKh
Operating Mode:	Leer Messung/ Reference measurement
Environmental Conditions::	Humidity : 52%rH; Temperature: 20°C
Verdict:	Passed

Full Spectrum



Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
46.676000	14.76	40.00	25.24	120.000	294.0	V	98.0	14.4
84.664000	8.50	40.00	31.50	120.000	200.0	H	240.0	7.7
127.356000	9.63	43.50	33.87	120.000	352.0	V	211.0	8.6
191.036000	12.04	43.50	31.46	120.000	134.0	H	70.0	11.5
485.828000	22.30	46.00	23.70	120.000	175.0	H	0.0	19.5
927.688000	32.21	46.00	13.79	120.000	223.0	V	244.0	27.0

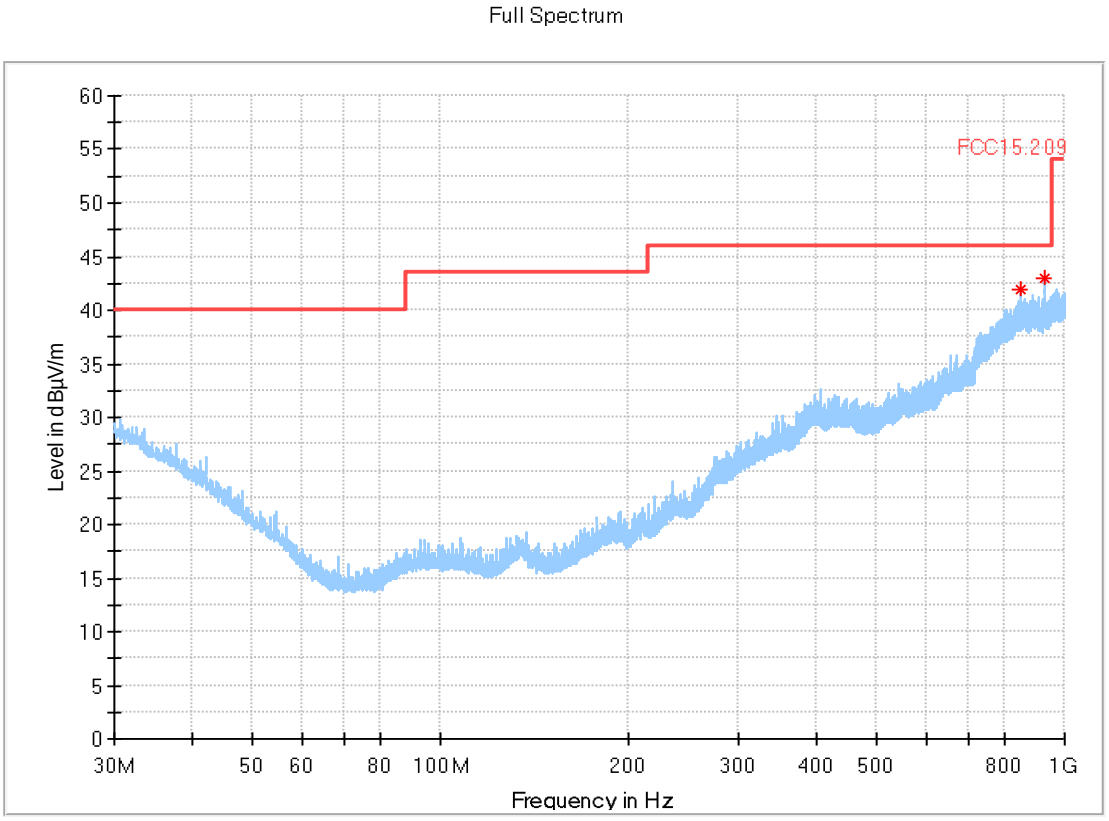
3.01a_BT_LE_low_standing

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:	RAbdurrahi
Operating Mode:	Bluetooth LE-low Channel
Power during tests:	12V DC
Environmental Conditions::	Humidity : 46,3%rH; Temperature: 21,2°C
EUT Setup:	Standing
Verdict:	Initial

EUT Information

PMT number:	19-1-01036S06
Manufacturer:	Continental Advanced Antenna GmbH
Product:	IPA 2 Transreceiver
Model:	9J1.051.515
----------	----------
HW version:	01S
SW version:	BT:STACK: 01.03.05
SVN:	--
Config:	--
Serial number:	000045
Power Supply:	12V DC
Date received:	13.08.2019



➔ No remarkable peaks noticeable only noise floor

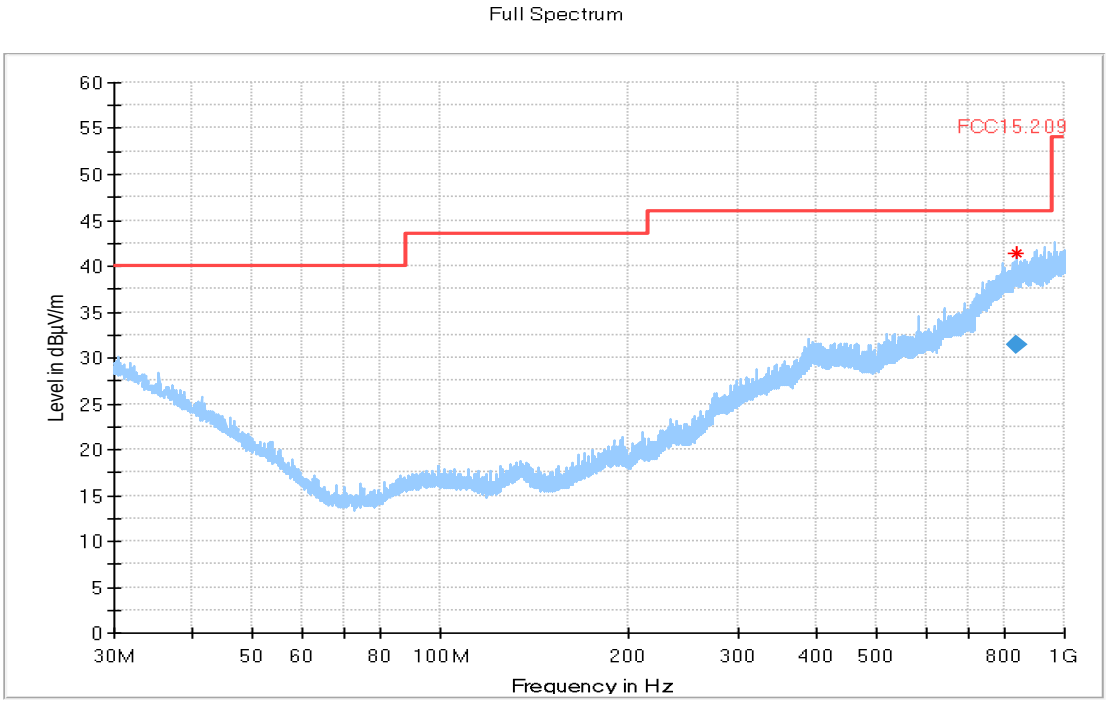
3.01b_BT_LE_low_laying

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:	RAbdurrahi
Operating Mode:	Bluetooth LE-low Channel
Power during tests:	12V DC
Environmental Conditions::	Humidity : 45,9%rH; Temperature: 21,1°C
EUT Setup:	Laying
Verdict:	Passed

EUT Information

PMT number:	19-1-01036S06
Manufacturer:	Continental Advanced Antenna GmbH
Product:	IPA 2 Transreceiver
Model:	9J1.051.515
----------	----------
HW version:	01S
SW version:	BT:STACK: 01.03.05
SVN:	--
Config:	--
Serial number:	000045
Connected Interfaces:	--
Power Supply:	12V DC
Date received:	13.08.2019



Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
839.196000	31.45	46.00	14.55	120.000	292.0	V	109.0	26.1

3.02a_BT_LE_mid_standing

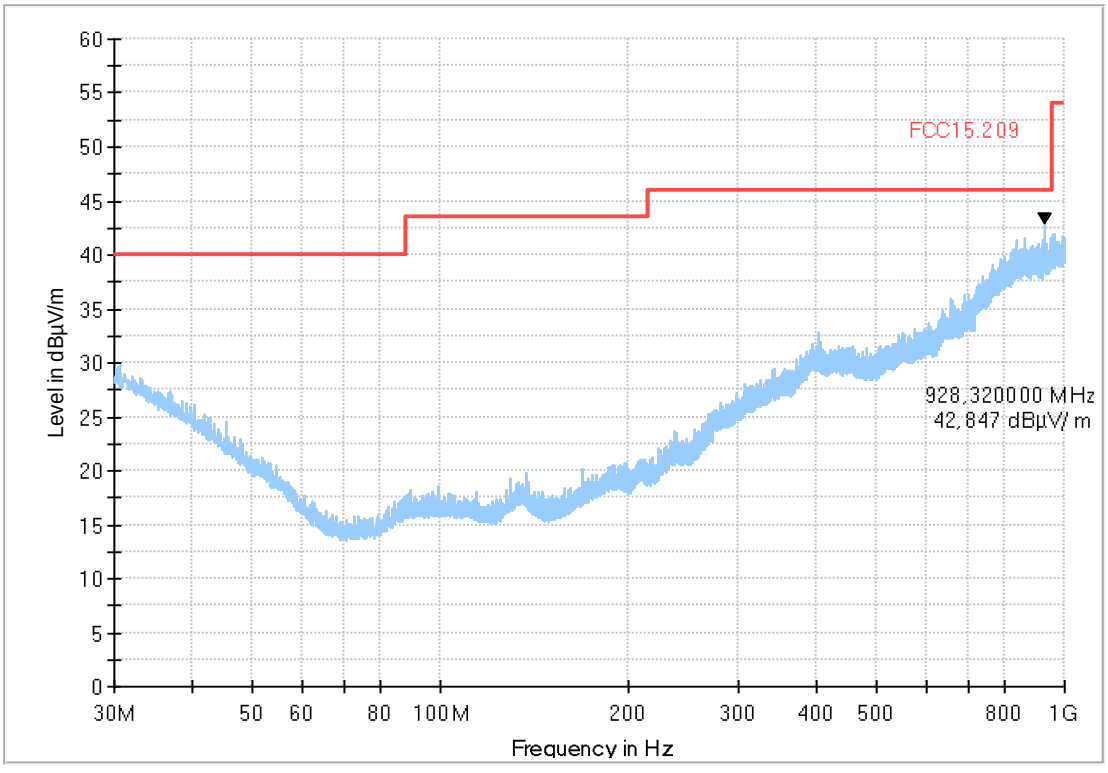
Common Information

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:	RAbdurrahi
Operating Mode:	Bluetooth LE - Mid Channel-2442 MHz
Power during tests:	12V DC
Environmental Conditions::	Humidity : 46,8%rH; Temperature: 21,3°C
EUT Setup:	Standing
Verdict:	Initial

EUT Information

PMT number:	19-1-01036S06
Manufacturer:	Continental Advanced Antenna GmbH
Product:	IPA 2 Transreceiver
Model:	9J1.051.515
----------	----------
HW version:	01S
SW version:	BT:STACK: 01.03.05
SVN:	--
Config:	--
Serial number:	000045
Connected Interfaces:	--
Power Supply:	12V DC
Date received:	13.08.2019

Full Spectrum



➔ No remarkable peaks noticeable only noise floor

3.02b_BT_LE_mid_laying

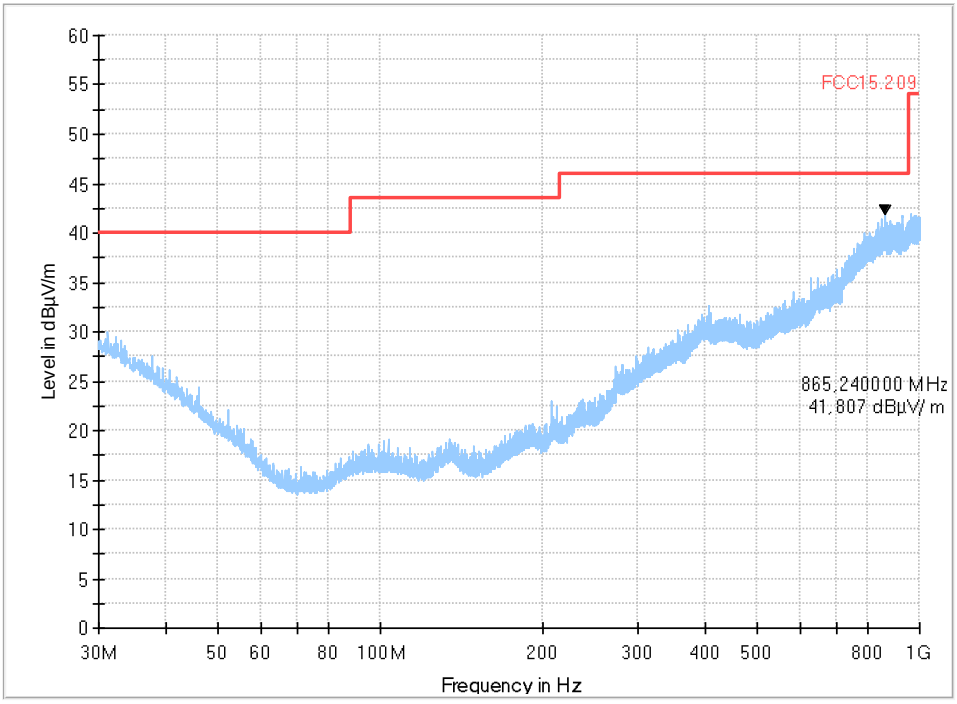
Common Information

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:	RAbdurrahi
Operating Mode:	Bluetooth LE - Mid Channel
Power during tests:	12V DC
Environmental Conditions::	Humidity : 46,7%rH; Temperature: 21,5°C
EUT Setup:	Laying
Verdict:	Passed

EUT Information

PMT number:	19-1-01036S06
Manufacturer:	Continental Advanced Antenna GmbH
Product:	IPA 2 Transreceiver
Model:	9J1.051.515
----------	----------
HW version:	01S
SW version:	BT:STACK: 01.03.05
SVN:	--
Config:	--
Serial number:	000045
Connected Interfaces:	--
Power Supply:	12V DC
Date received:	13.08.2019

Full Spectrum



➔ No remarkable peaks noticeable only noise floor

3.03a_BT_LE_high_standing

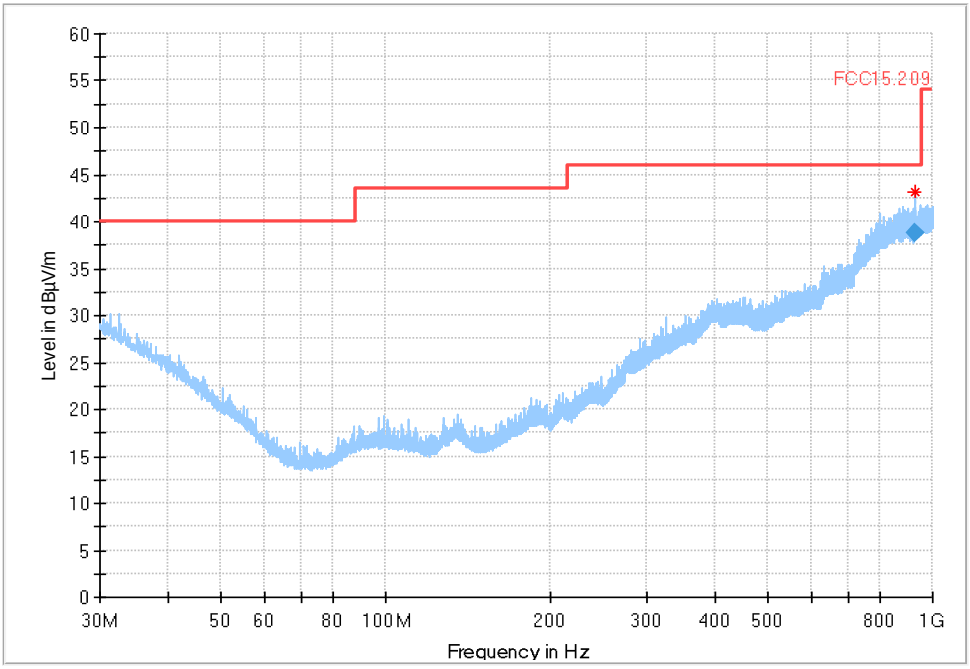
Common Information

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:	RAbdurrahi
Operating Mode:	Bluetooth LE - high Channel
Power during tests:	12V DC
Environmental Conditions::	Humidity : 46,7%rH; Temperature: 21,7°C
EUT Setup:	Standing
Verdict:	Passed

EUT Information

PMT number:	19-1-01036S06
Manufacturer:	Continental Advanced Antenna GmbH
Product:	IPA 2 Transreceiver
Model:	9J1.051.515
----------	----------
HW version:	01S
SW version:	BT:STACK: 01.03.05
SVN:	--
Config:	--
Serial number:	000045
Connected Interfaces:	--
Power Supply:	12V DC
Date received:	13.08.2019

Full Spectrum



Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
928.336000	38.77	46.00	7.23	120.000	235.0	V	47.0	27.0

3.03b_BT_LE_high_laying

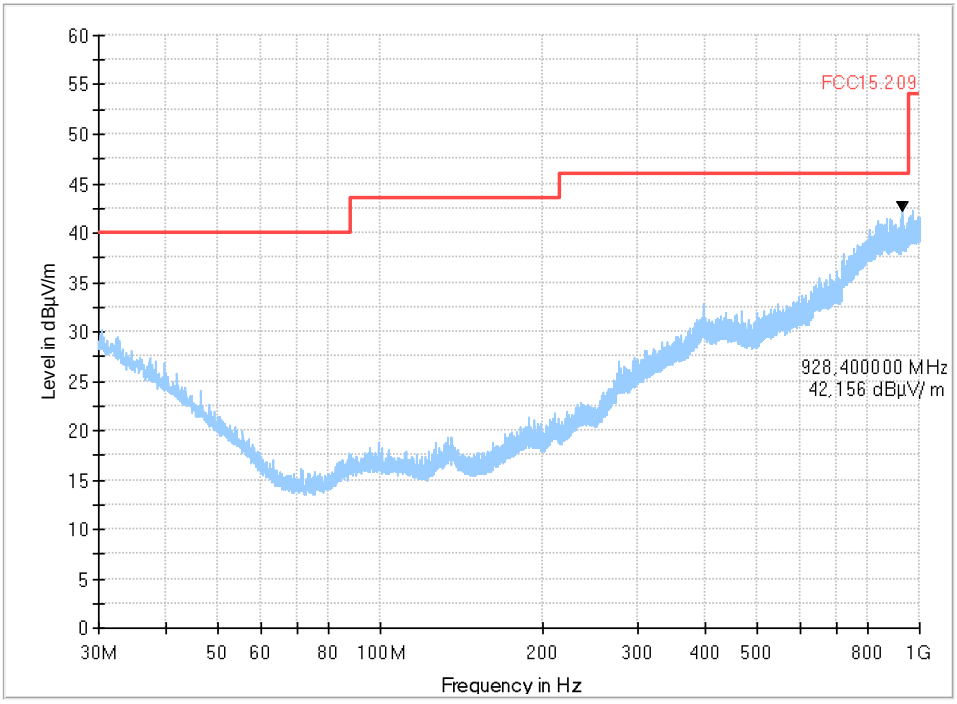
Common Information

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:	RAbdurrahi
Operating Mode:	Bluetooth LE - high Channel
Power during tests:	12V DC
Environmental Conditions::	Humidity : 46,6%rH; Temperature: 21,6°C
EUT Setup:	Laying
Verdict:	Passed

EUT Information

PMT number:	19-1-01036S06
Manufacturer:	Continental Advanced Antenna GmbH
Product:	IPA 2 Transreceiver
Model:	9J1.051.515
----------	----------
HW version:	01S
SW version:	BT:STACK: 01.03.05
SVN:	--
Config:	--
Serial number:	000045
Connected Interfaces:	--
Power Supply:	12V DC
Date received:	13.08.2019

Full Spectrum



➔ No remarkable peaks noticeable only noise floor

2.3. Field strength measurements f 1GHz - 18GHz

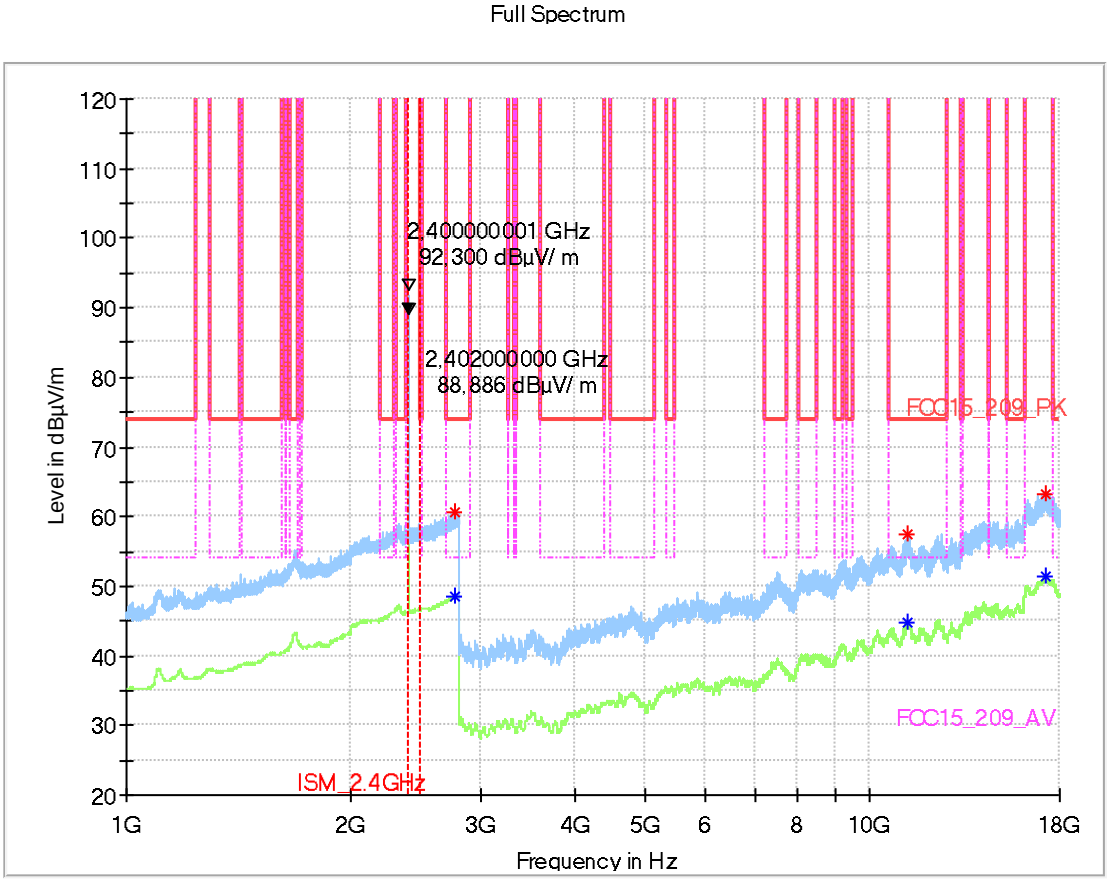
4.01_BT_LE_low

Common Information

Test Description:	Radiated field strength emission in 3m distance
Test Site:	CETECOM GmbH Essen
Test Standard:	FCC 15.247&15.209 Intentional Radiator / RSS-Gen, Issue 5
Antenna polarisation:	horizontal/vertical
Operating Mode:	low (2402MHz | ch low)
Operator:	HEl
Comment:	BLE_TX: Ch 0
EUT Setup:	1
Verdict:	Passed

EUT Information

PMT number:	19-1-01036S06
Manufacturer:	Continental Advanced Antenna GmbH
Product:	IPA 2 Transreceiver
Model:	9J1.051.515
HW version:	01S
SW version:	BT:STACK: 01.03.05
Serial number:	000045
Power Supply:	
Date received:	13.08.2019



➔ No remarkable peaks noticeable only noise floor

Marker_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	RMS (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB/m)
2766.800000	---	48.61	54.00	5.39	155.0	H	135.0	90.0	39
2773.200000	60.53	---	74.00	13.47	155.0	H	0.0	0.0	39
11222.400000	---	44.73	54.00	9.27	155.0	H	225.0	0.0	20
11238.000000	57.40	---	74.00	16.60	155.0	V	315.0	0.0	20
17187.600000	---	51.37	150.00	98.63	155.0	V	315.0	0.0	30
17200.000000	63.23	---	150.00	86.77	155.0	H	180.0	90.0	30

4.02_BT_LE_mid

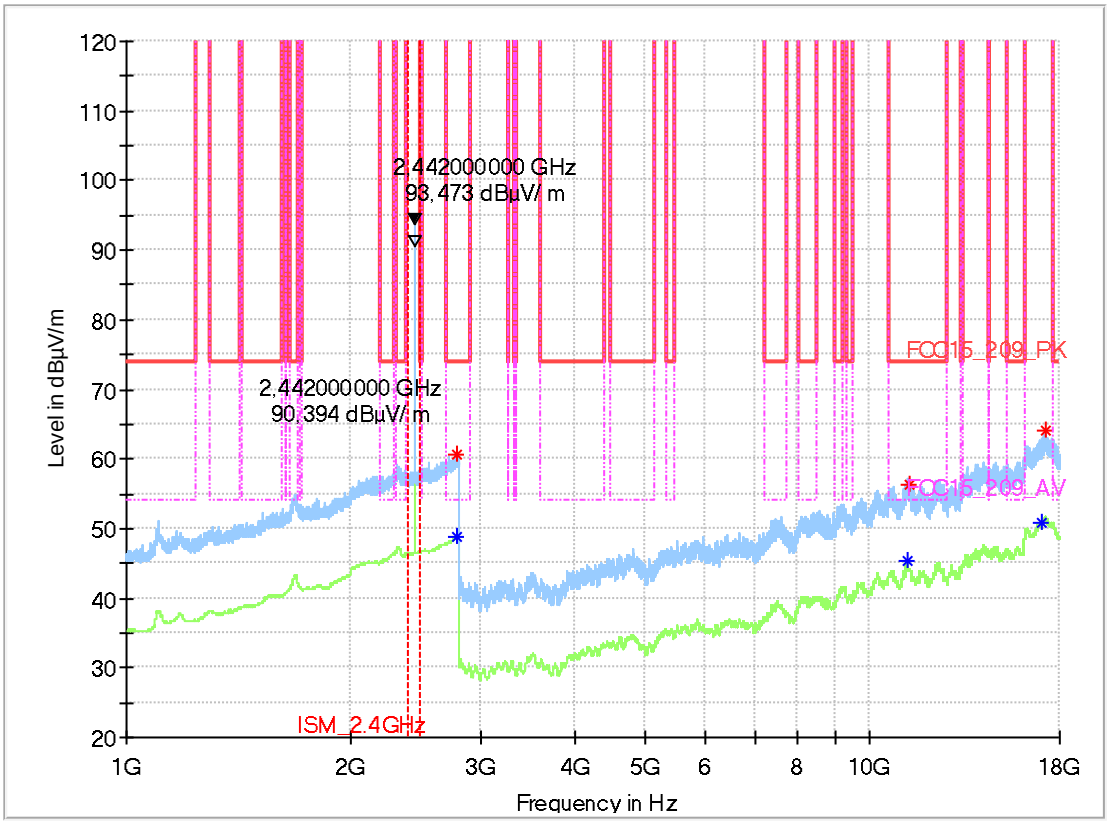
Common Information

Test Description:	Radiated field strength emission in 3m distance
Test Site:	CETECOM GmbH Essen
Test Standard:	FCC 15.247&15.209 Intentional Radiator / RSS-Gen, Issue 5
Antenna polarisation:	horizontal/vertical
Operating Mode:	BLE_TX_mid
Operator:	HEl
Comment:	BLE_TX_Ch20
EUT Setup:	1
Verdict:	Initial

EUT Information

PMT number:	19-1-01036S06
Manufacturer:	Continental Advanced Antenna GmbH
Product:	IPA 2 Transreceiver
Model:	9J1.051.515
----------	----------
HW version:	01S
SW version:	BT:STACK: 01.03.05
SVN:	--
Config:	--
Serial number:	000045
Connected Interfaces:	--
Power Supply:	12V DC
Date received:	13.08.2019

Full Spectrum



➔ No remarkable peaks noticeable only noise floor

Marker_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	RMS (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB/m)
2780.800000	60.64	---	74.00	13.36	155.0	V	225.0	0.0	39
2786.400000	---	48.82	54.00	5.18	155.0	V	270.0	90.0	39
11201.200000	---	45.22	54.00	8.78	155.0	H	225.0	0.0	20
11283.600000	56.21	---	74.00	17.79	155.0	H	225.0	0.0	20
17063.600000	---	50.72	150.00	99.28	155.0	H	315.0	0.0	30
17236.800000	64.19	---	150.00	85.81	155.0	V	90.0	0.0	31

4.03_BT_LE_high

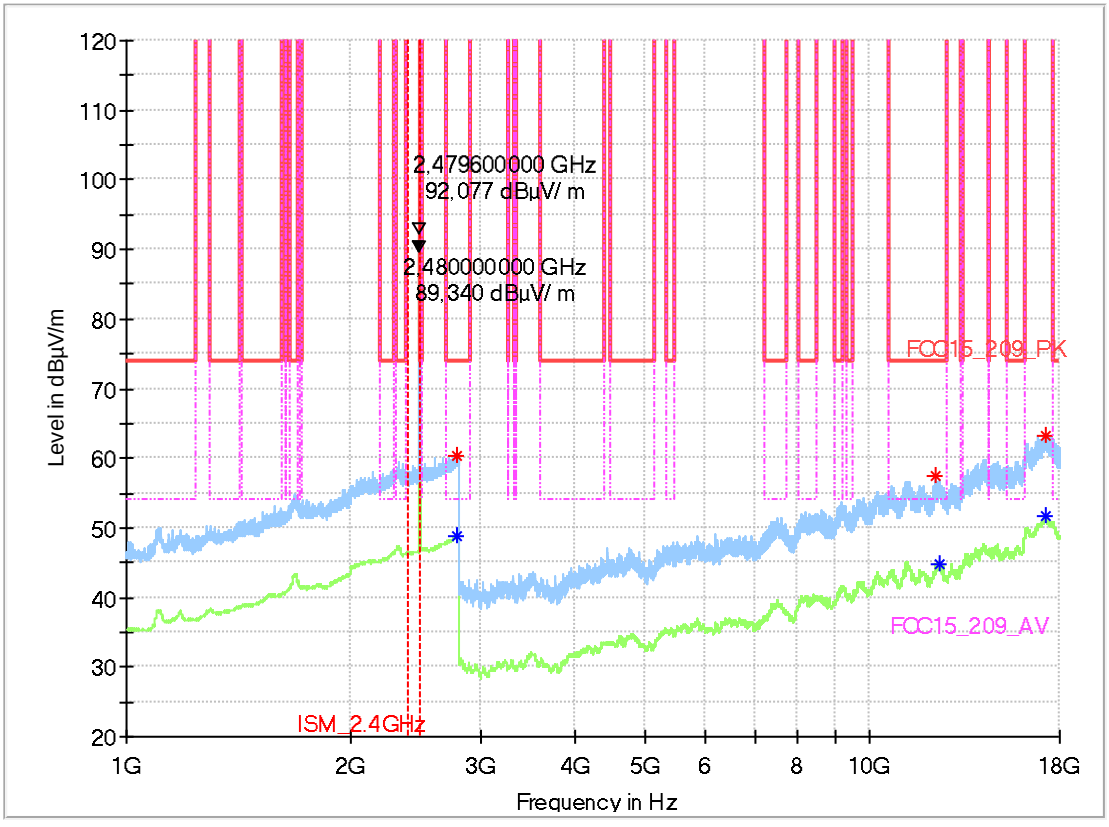
Common Information

Test Description:	Radiated field strength emission in 3m distance
Test Site:	CETECOM GmbH Essen
Test Standard:	FCC 15.247&15.209 Intentional Radiator / RSS-Gen, Issue 5
Antenna polarisation:	horizontal/vertical
Operating Mode:	high (2480MHz | ch high)
Operator:	HEl
Comment:	BLE_TX_high
EUT Setup:	1
Verdict:	Passed

EUT Information

PMT number:	19-1-01036S06
Manufacturer:	Continental Advanced Antenna GmbH
Product:	IPA 2 Transreceiver
Model:	9J1.051.515
----------	----------
HW version:	01S
SW version:	BT:STACK: 01.03.05
SVN:	--
Config:	--
Serial number:	000045
Connected Interfaces:	--
Power Supply:	12V DC
Date received:	13.08.2019

Full Spectrum



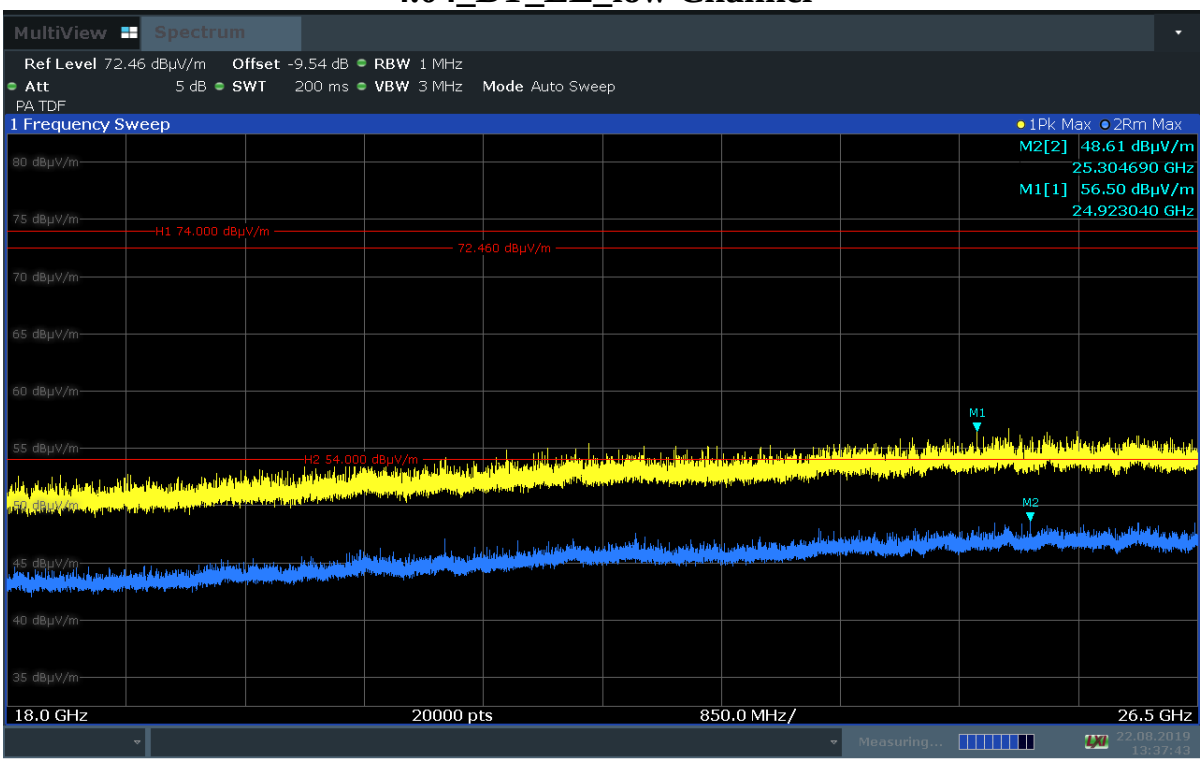
➔ No remarkable peaks noticeable only noise floor

Marker_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	RMS (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB/m)
2786.400000	---	48.75	54.00	5.25	155.0	H	270.0	0.0	39
2788.800000	60.33	---	74.00	13.67	155.0	V	45.0	90.0	39
12290.000000	57.37	---	74.00	16.63	155.0	V	315.0	90.0	19
12394.400000	---	44.87	54.00	9.13	155.0	V	315.0	0.0	20
17187.600000	63.35	---	150.00	86.65	155.0	H	315.0	90.0	30
17246.800000	---	51.80	150.00	98.20	155.0	H	135.0	0.0	31

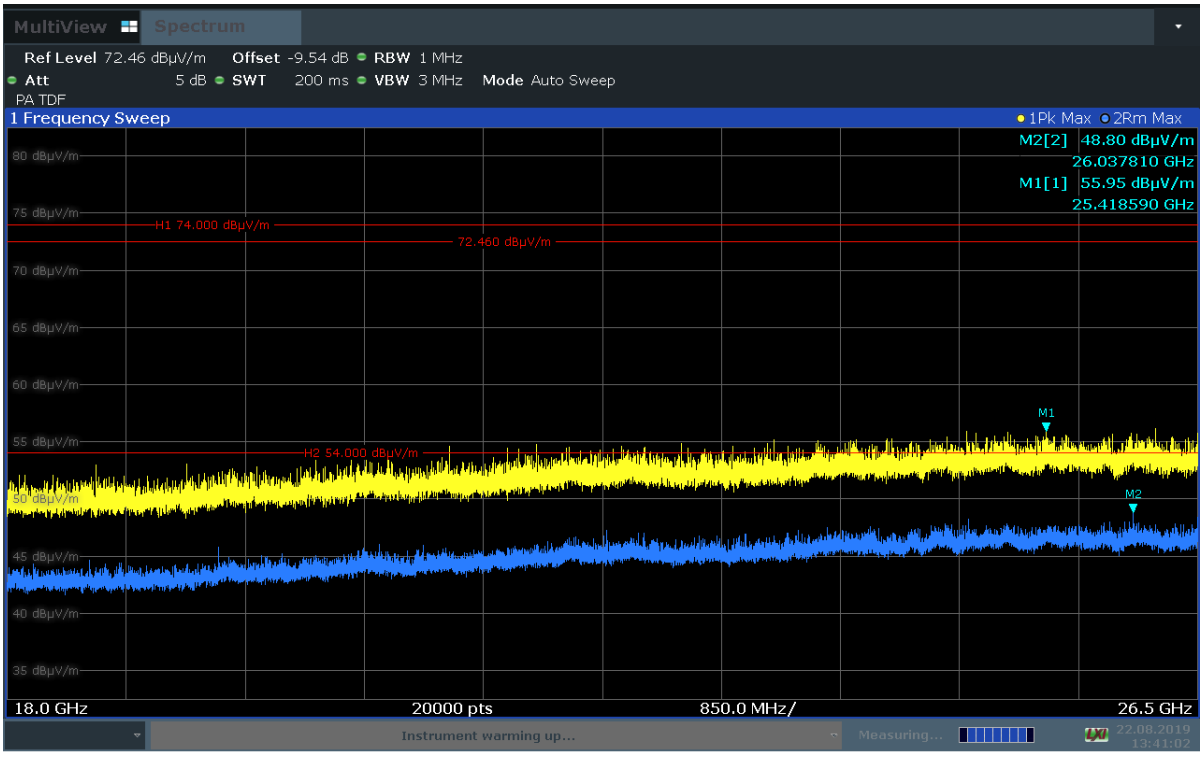
2.4. Field strength measurements f 18GHz - 26GHz

4.04_BT_LE_low Channel



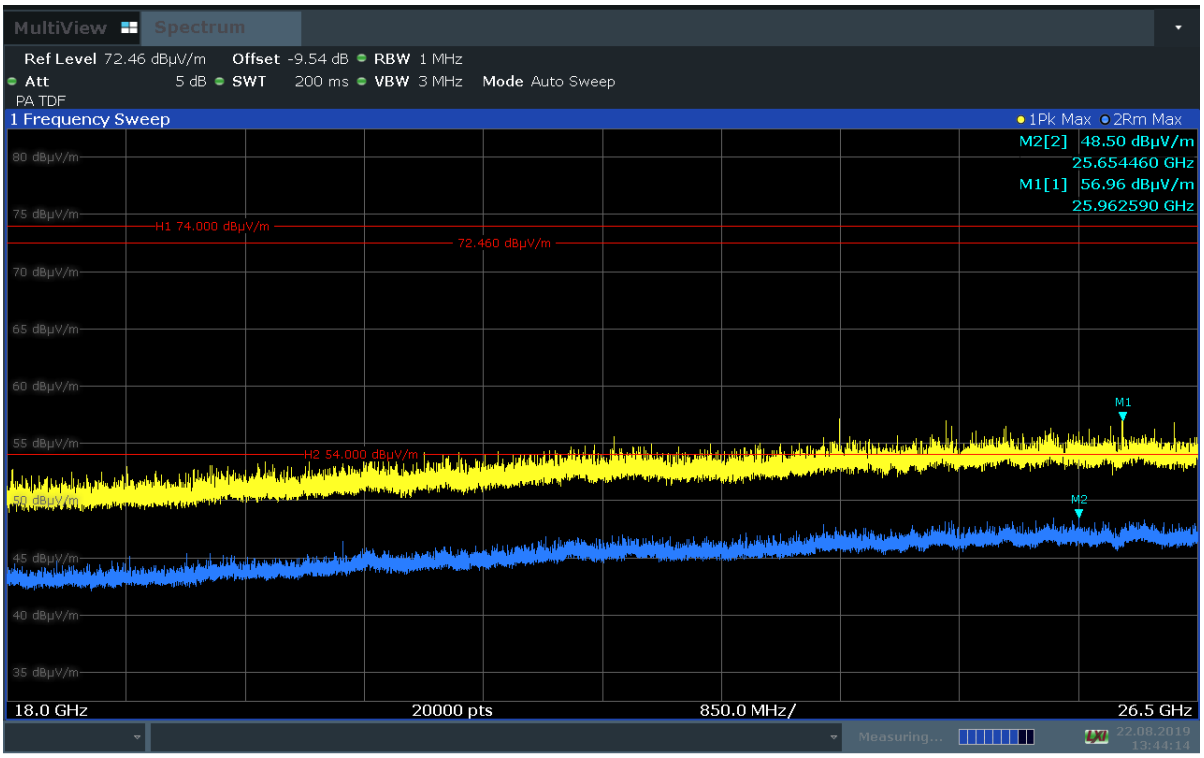
13:37:43 22.08.2019

4.05_BT_LE_mid_channel



13:41:03 22.08.2019

4.06_BT_LE_high_channel



13:44:14 22.08.2019

3. Radiated band-edge measurements accord. §15.209 & §15.205 (§15.247)

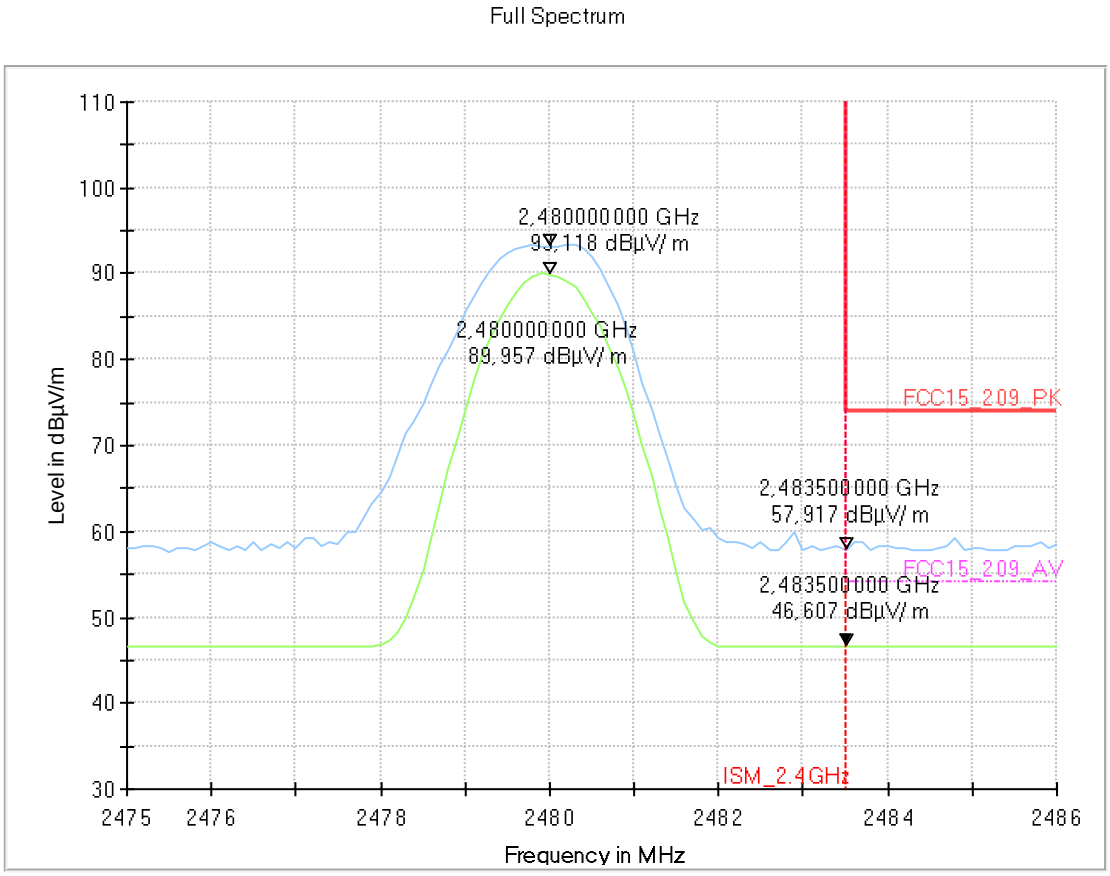
9.01_BT_LE_high

Common Information

Test Description:	Band-Edge: Radiated Field Strength Emissions Emissions in 3m distance
Test Site:	CETECOM GmbH Essen
Test Standard:	FCC 15.247&15.209 Intentional Radiator / RSS-Gen, Issue 5
Antenna polarisation:	horizontal/vertical
Operating Mode:	high (2480MHz | ch high)
Operator:	HEl
EUT Setup:	1
Verdict:	Passed

EUT Information

PMT number:	19-1-01036S06
Manufacturer:	Continental Advanced Antenna GmbH
Product:	IPA 2 Transreceiver
Model:	9J1.051.515
---	---
HW version:	01S
SW version:	BT:STACK: 01.03.05
SVN:	--
Config:	--
Serial number:	000045
Connected Interfaces:	--
Power Supply:	12V DC
Date received:	13.08.2019



9.02_BT_LE_low

Common Information

Test Description:	Band-Edge: Radiated Field Strength Emissions Emissions in 3m distance
Test Site:	CETECOM GmbH Essen
Test Standard:	FCC 15.247&15.209 Intentional Radiator / RSS-Gen, Issue 5
Antenna polarisation:	horizontal/vertical
Operating Mode:	high (2402MHz | ch low)
Operator:	HEl
EUT Setup:	1
Verdict:	Passed

EUT Information

PMT number:	19-1-01036S06
Manufacturer:	Continental Advanced Antenna GmbH
Product:	IPA 2 Transreceiver
Model:	9J1.051.515
----------	----------
HW version:	01S
SW version:	BT:STACK: 01.03.05
SVN:	--
Config:	--
Serial number:	000045
Connected Interfaces:	--
Power Supply:	12V DC
Date received:	13.08.2019

Full Spectrum