

ENUSTECH

Dates of Tests: Jan 14~18, 2011
Test Report S/N: LR500111101F
Test Site : LTA CO., LTD.

CERTIFICATION OF COMPLIANCE

FCC ID.
IC
APPLICANT**TT2BHF2000S**
6329A-BHF2000S
ENUSTECH..INC.

Equipment Class	:	Part 15 Spread Spectrum Transmitter (DSS)
Manufacturing Description	:	Wireless Bluetooth Carkit
Manufacturer	:	ENUSTECH.,INC.
Model name	:	BHF2000S
Variant Model name	:	BHF2000
Test Device Serial No.:	:	Identical prototype
Rule Part(s)	:	FCC Part 15.247 Subpart C; ANSI C-63.4-2003
	:	RSS-210 and ISSUE No.: 8 Date: 2010
Frequency Range	:	2402 ~ 2480MHz
RF power	:	Max 7.80dBm - Conducted
Data of issue	:	January 19, 2011

This test report is issued under the authority of:

The test was supervised by:



Hyun-Chae You, Manager



Il-Shin kim, Test Engineer

This test result only responds to the tested sample. It is not allowed to copy this report even partly without the allowance of the test laboratory. This report must not be used by the applicant to claim product endorsement by any agency.



NVLAP LAB Code.: 200723-0

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1. General information's

1-1 Test Performed

Company name : LTA Co., Ltd.
 Address : 243, Jubug-ri, Yangji-Myeon, Youngin-Si, Kyunggi-Do, Korea. 449-822
 Web site : <http://www.ltalab.com>
 E-mail : chahn@ltalab.com
 Telephone : +82-31-323-6008
 Facsimile : +82-31-323-6010

Quality control in the testing laboratory is implemented as per ISO/IEC 17025 which is the “General requirements for the competents of calibration and testing laboratory”.

1-2 Accredited agencies

LTA Co., Ltd. is approved to perform EMC testing by the following agencies:

Agency	Country	Accreditation No.	Validity	Reference
NVLAP	U.S.A	200723-0	2011-09-30	ECT accredited Lab.
RRL	KOREA	KR0049	2011-06-20	EMC accredited Lab.
FCC	U.S.A	610755	2011-04-22	FCC filing
VCCI	JAPAN	R2133, C2307	2011-06-21	VCCI registration
IC	CANADA	IC5799	2012-05-14	IC filing

2. Information's about test item

2-1 Client

Company name : ENUSTECH.,INC.
 Address : Dui Bldg., 6F, 1196-2 Gaepo-4dong, Gangnam-gu, Seoul 135-240,Korea
 Telephone / Facsimile : +82-2-565-0785 / +82-2-3452-3603

2-2 Manufacturer

Company name : E-TECH
 Address : 111, Yeochon-Li, Ochang-Eup, Cheongwon-Gun,
 Chungcheongbuk-do, Korea
 Telephone / Facsimile : +82- 43-219-2265 / +82- 43-219-2235

2-3 Equipment Under Test (EUT)

Trade name : Wireless Bluetooth Carkit
 FCC ID : TT2BHF2000S
 Model name : BHF2000S
 Variant Model name : BHF2000
 Serial number : Identical prototype
 Date of receipt : January 13, 2011
 EUT condition : Pre-production, not damaged
 Antenna type : Pattern Antenna Max Gain 3.847dBi
 Frequency Range : 2402 ~ 2480MHz
 RF output power : Max. 7.80dBm - Conducted
 Number of channels : 79
 Duty cycle : 81.46 %
 Channel spacing : 1MHz
 Channel Access Protocol : Frequency Hopping Spread Spectrum (FHSS)
 Type of Modulation : Basic Mode(GFSK), EDR Mode(Pi/4 DQPSK, 8DPSK)
 Power Source : Battery Pack: 3.7V (Li-Ion Polymer Battery)
 Cigar jack adapter : Input: 12VDC Output : 5VDC

2-4 Tested frequency

	LOW	MID	HIGH
Frequency (MHz)	2402	2441	2480

2-5 Ancillary Equipment

Equipment	Model No.	Serial No.	Manufacturer
Note PC	PP37L	G4YRDNI	DELL
Car Battery	BX40R	N/A	ATLASBX
PRINTER	STYLUS C65	N/A	EPSON

2-6 Model Description

Model Name	Solarcell	Note
BHF2000S	O	Tested
BHF2000	X	-

3. Test Report

3.1 Summary of tests

FCC Part Section(s)	Parameter	Limit	Test Condition	Status (note 1)
15.247(a)	Carrier Frequency Separation	> 25 kHz	Conducted	C
15.247(a)	Number of Hopping Frequencies	> 15 hops		C
15.247(a)	20 dB Bandwidth 99% Bandwidth	> 1.5 MHz		C
15.247	Dwell Time	< 0.4 seconds		C
15.247(b)	Transmitter Output Power	< 250 mWatt		C
15.247(d)	Conducted Spurious emission	> 20 dBc		C
15.247(d)	Band Edge	> 20 dBc		C
15.249 / 15.209	Field Strength of Harmonics	< 54 dBuV (at 3m)	Radiated	C
15.109	Field Strength	-		C
15.207 / 15.107	AC Conducted Emissions	EN 55022	Line Conducted	C
15.203	Antenna requirement	-	-	C

Note 1: C=Complies NC=Not Complies NT=Not Tested NA=Not Applicable

Note 2: The data in this test report are traceable to the national or international standards.

Note 1: Antenna Requirement

→ The ENUSTECH.,INC. BHF2000S unit complies with the requirement of §15.203.

The antenna is PCB Pattern antenna.

Note 2: The sample was tested according to the following specification:

FCC Parts 15.247; ANSI C-63.4-2003

RSS-210 and ISSUE No.: 8 Date: 2010

3.2 Transmitter requirements

3.2.1 Carrier Frequency Separation

Procedure:

The carrier frequency separation was measured with a spectrum analyzer connected to the antenna terminal, while EUT had its hopping function enabled.

After the trace being stable, the reading value between the peaks of the adjacent channels using the marker-delta function was recorded as the measurement results.

The spectrum analyzer is set to:

Span = 3 MHz (wide enough to capture the peaks of two adjacent channels)

RBW = 10 kHz (1% of the span or more) Sweep = auto

VBW = 10 kHz Detector function = peak

Trace = max hold

Measurement Data:

Test Results	
Carrier Frequency Separation (MHz)	Result
1.0724	Complies

- See next pages for actual measured spectrum plots.

Minimum Standard:

The EUT shall have hopping channel carrier frequencies separated by a minimum of 25kHz or two-thirds of 20dB bandwidth of the hopping channel, whichever is greater.

Measurement Setup

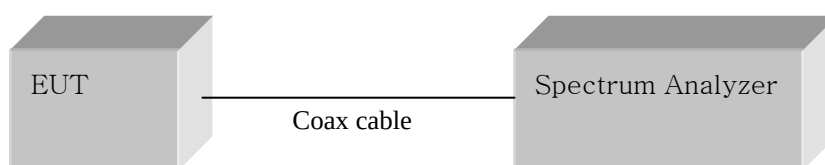
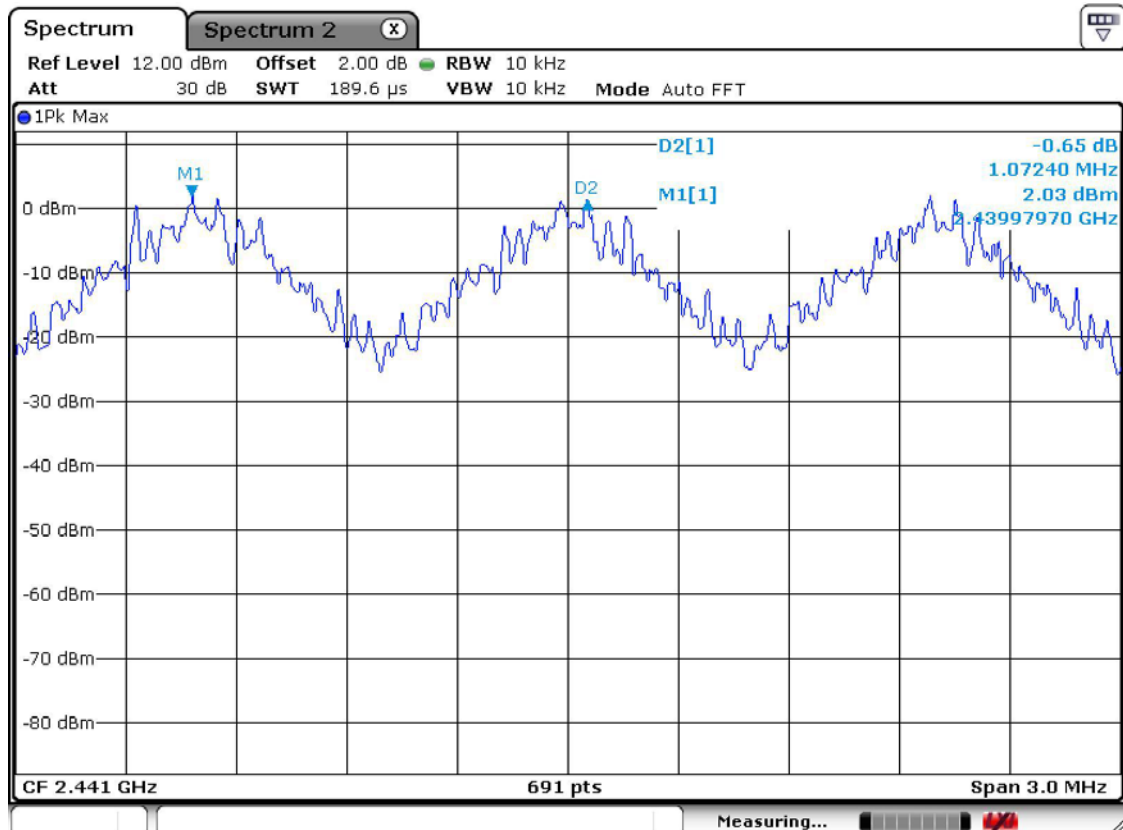


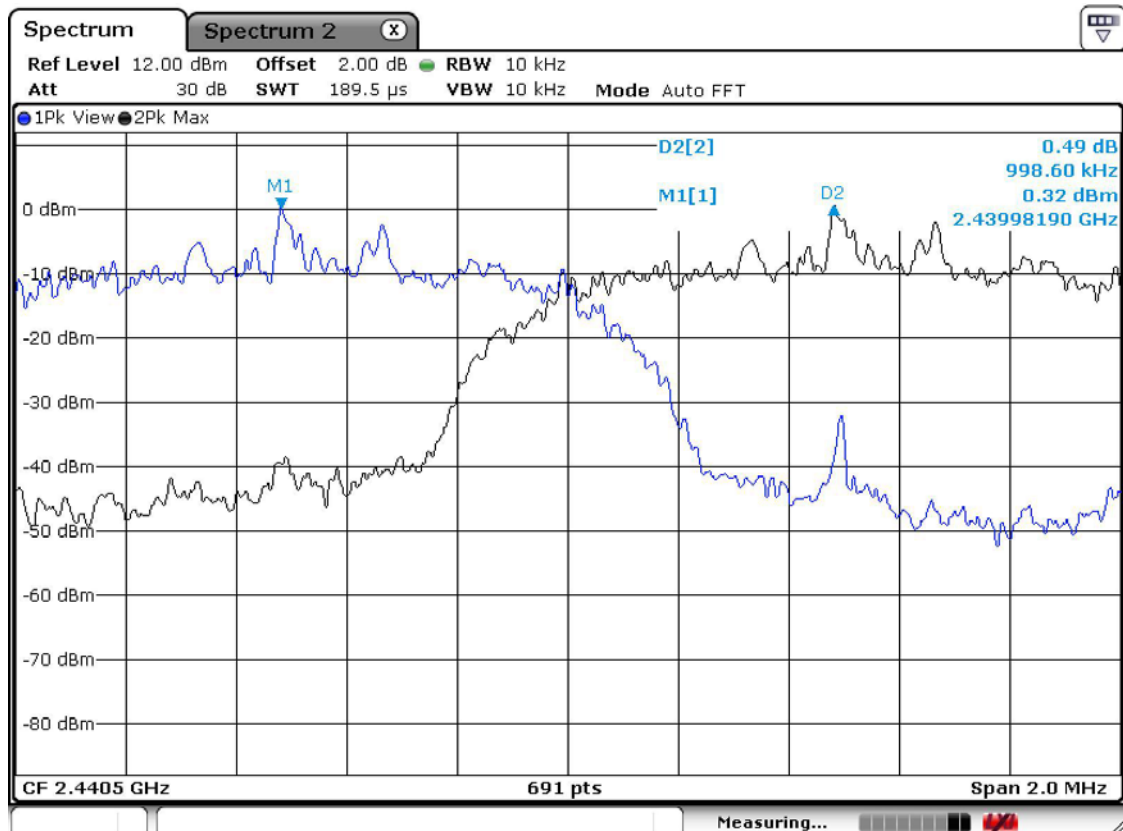
Figure 1: Measurement setup for the carrier frequency separation

Carrier Frequency Separation

Basic Mode



EDR Mode



3.2.2 Number of Hopping Frequencies

Procedure:

The number of hopping frequencies was measured with a spectrum analyzer connected to the antenna terminal, while EUT had its hopping function enabled.

To get higher resolution, four frequency ranges within the 2400 ~ 2483.5 MHz FH band were examined.

The spectrum analyzer is set to:

Frequency range 1: Start = 2400.0MHz, Stop = 2441.5 MHz

 2: Start = 2441.5MHz, Stop = 2483.5 MHz

RBW = 100 kHz (1% of the span or more) Sweep = auto

VBW = 100 kHz (VBW $\geq$ RBW) Detector function = peak

Trace = max hold Span > 40MHz

Measurement Data: Complies

Total number of Hopping Channels	79
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- See next pages for actual measured spectrum plots.

Minimum Standard:

At least 15 hopes

Measurement Setup

Same as the Chapter 3.2.1 (Figure 1)

3.2.3 20 dB Bandwidth

Procedure:

The bandwidth at 20 dB below the highest inband spectral density was measured with a spectrum analyzer connected to the antenna terminal, while EUT had its hopping function disabled at the highest, middle and the lowest available channels..

After the trace being stable, Use the marker-to-peak function to set the marker to the peak of the emission. Use the marker-delta function to measure 20dB down one side of the emission. Reset the marker-delta function, and move the marker to the other side of the emission, until it is (as close as possible to) even with the reference marker level. The marker-delta reading at this point is the 20 dB bandwidth of the emission.

The spectrum analyzer is set to:

Center frequency = the highest, middle and the lowest channels

Span = 3 MHz (approximately 2 or 3 times of the 20 dB bandwidth)

RBW = 30 kHz

Sweep = auto

VBW = 30 kHz (VBW $\geq$ RBW)

Detector function = peak

Trace = max hold

Measurement Data: Basic Mode

Frequency (MHz)	Channel No.	Test Results(MHz)	
		20dB Bandwidth	99% Bandwidth
2402	0	0.821	0.868
2441	39	0.821	0.868
2480	78	0.821	0.868

Measurement Data: EDR Mode

Frequency (MHz)	Channel No.	Test Results(MHz)	
		20dB Bandwidth	99% Bandwidth
2402	0	1.220	1.168
2441	39	1.220	1.168
2480	78	1.285	1.164

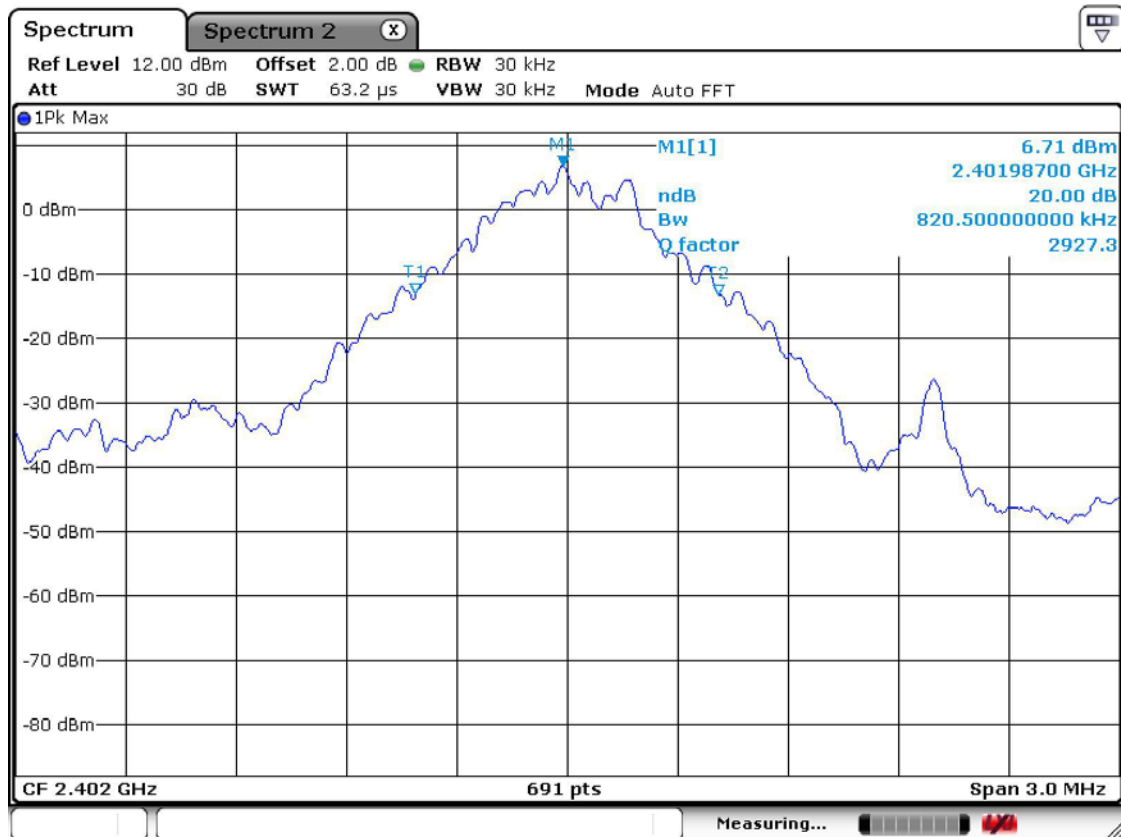
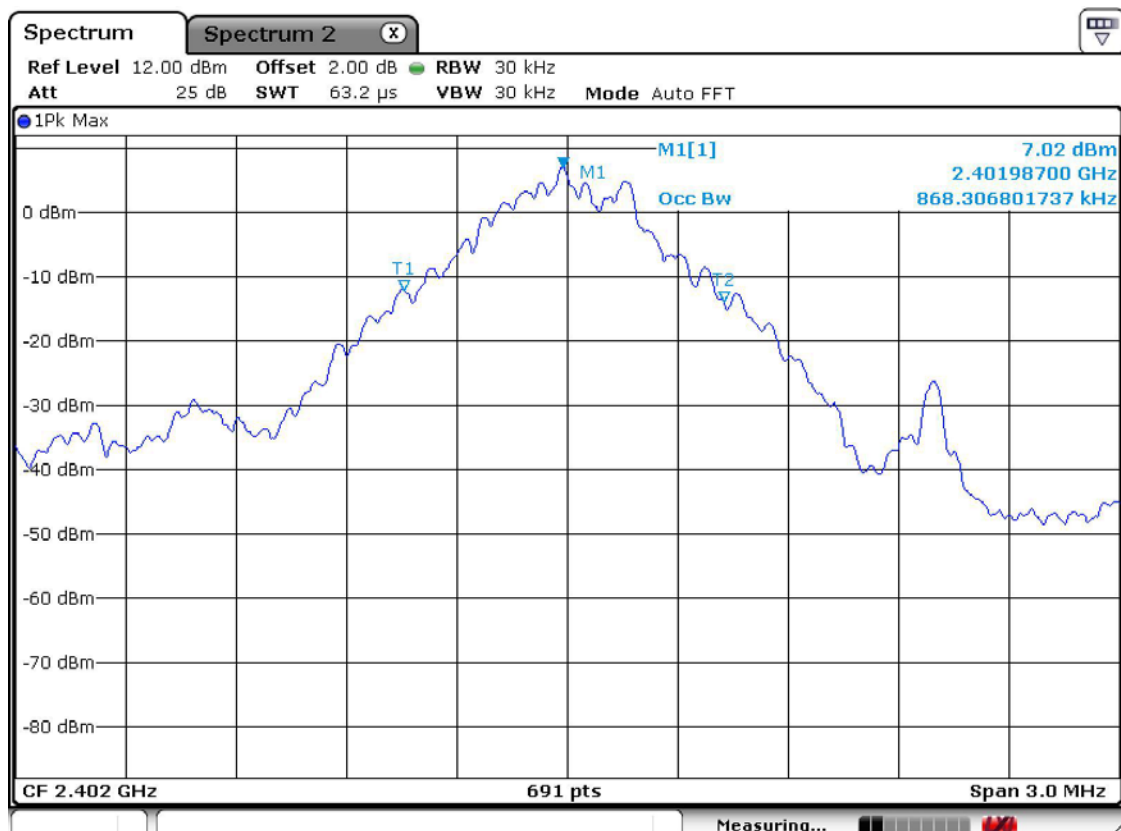
- See next pages for actual measured spectrum plots.

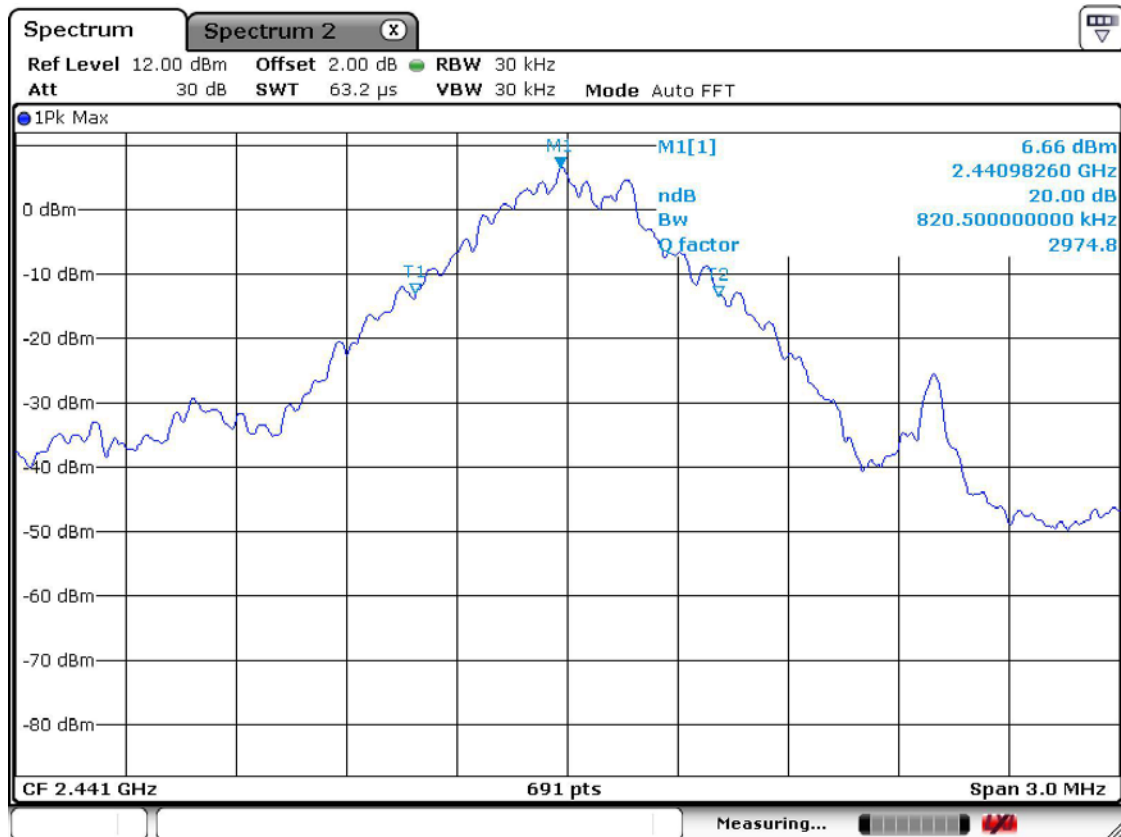
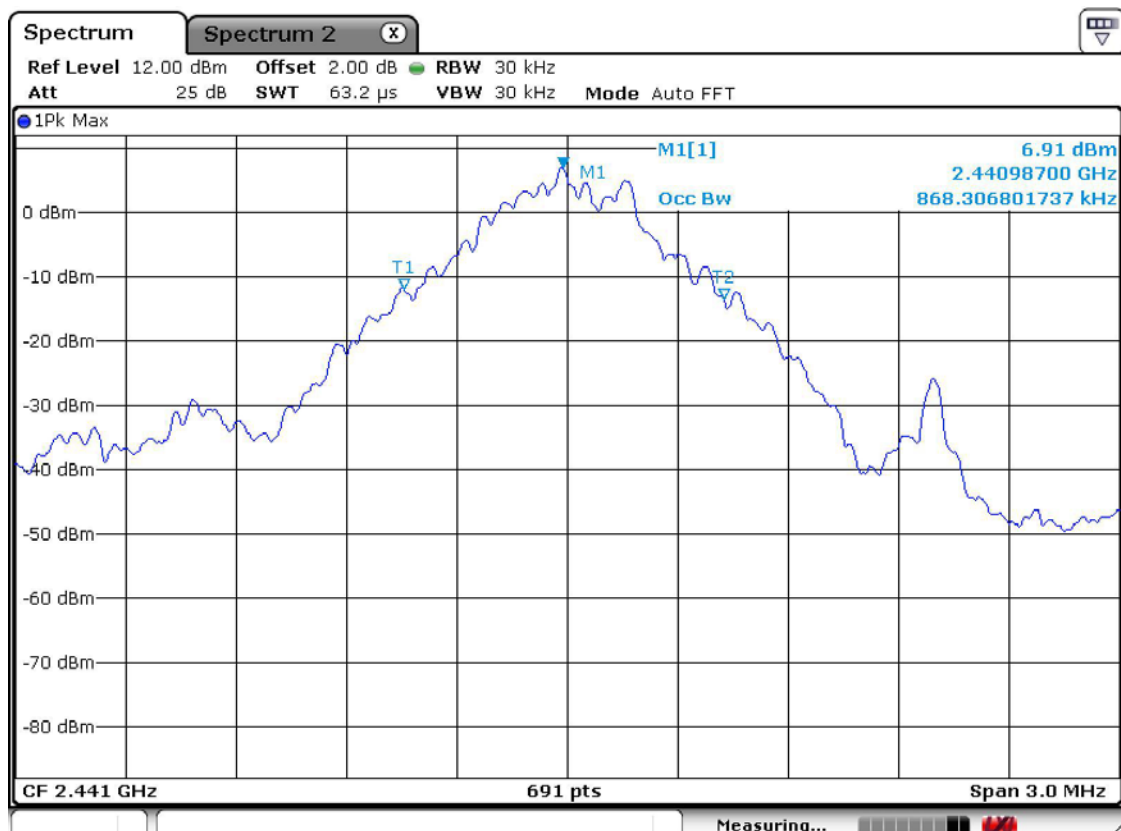
Minimum Standard:

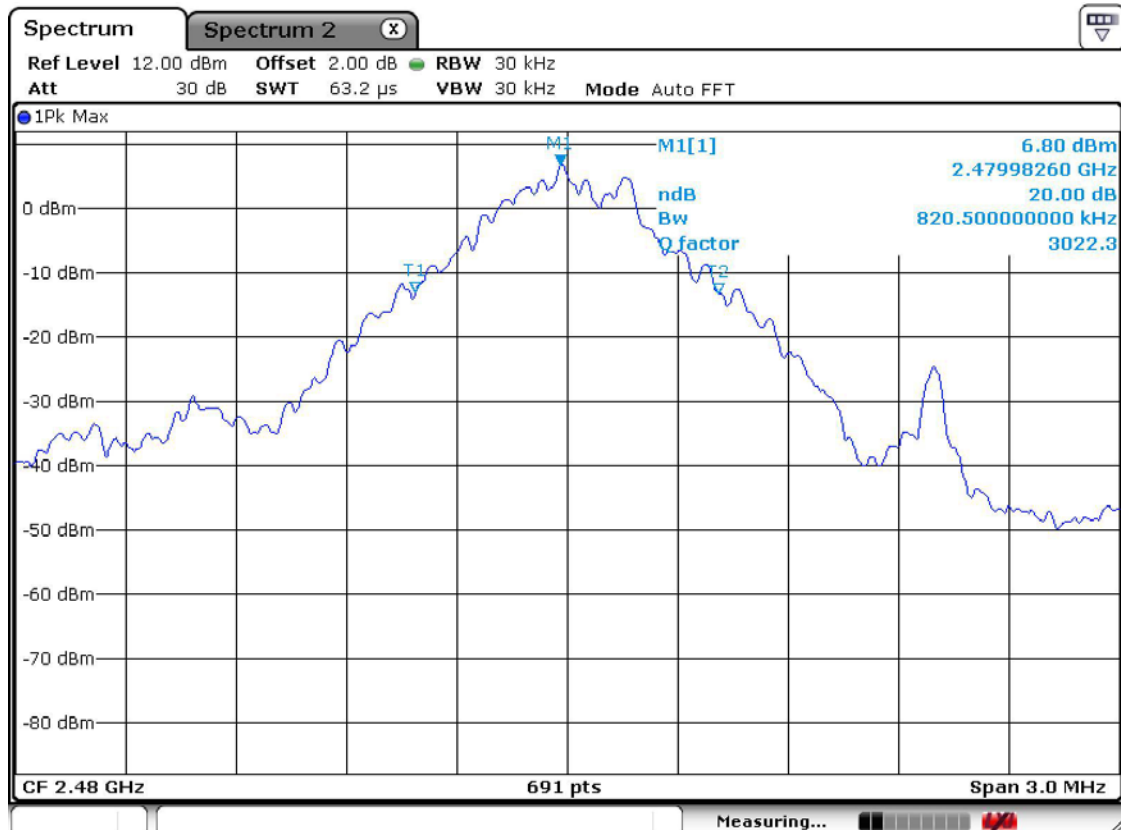
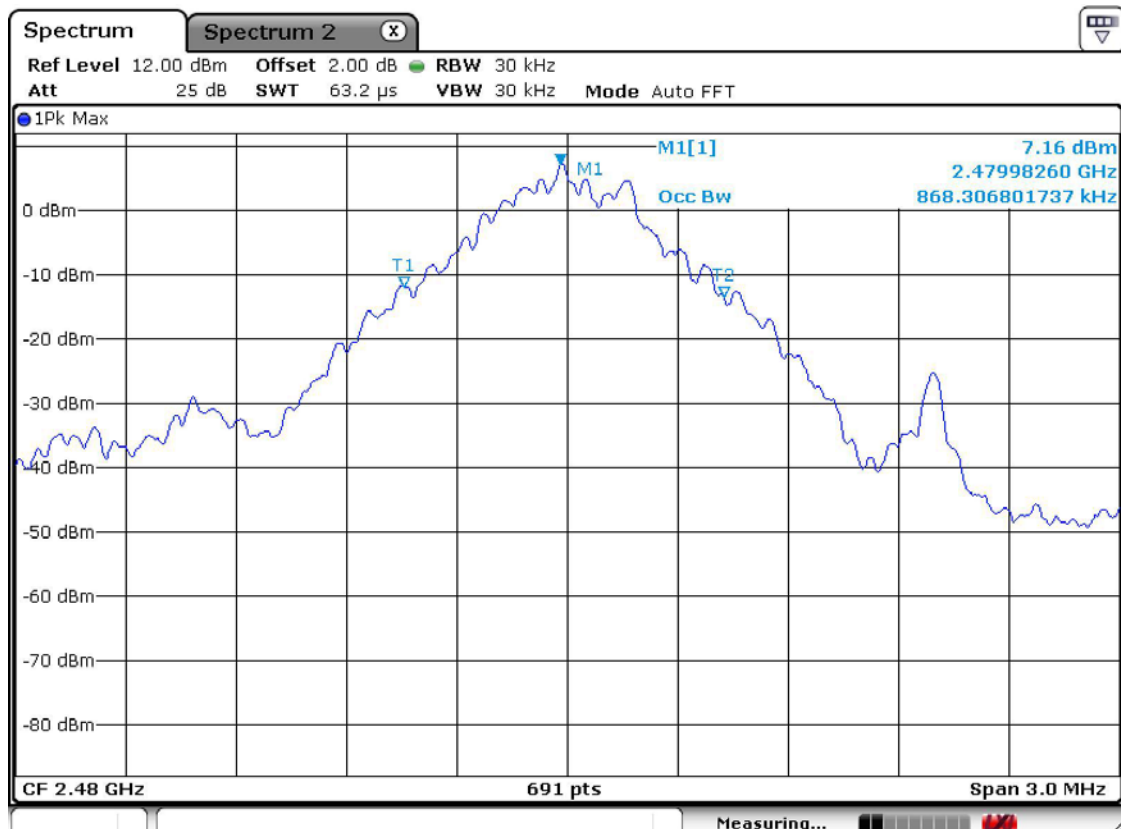
N/A

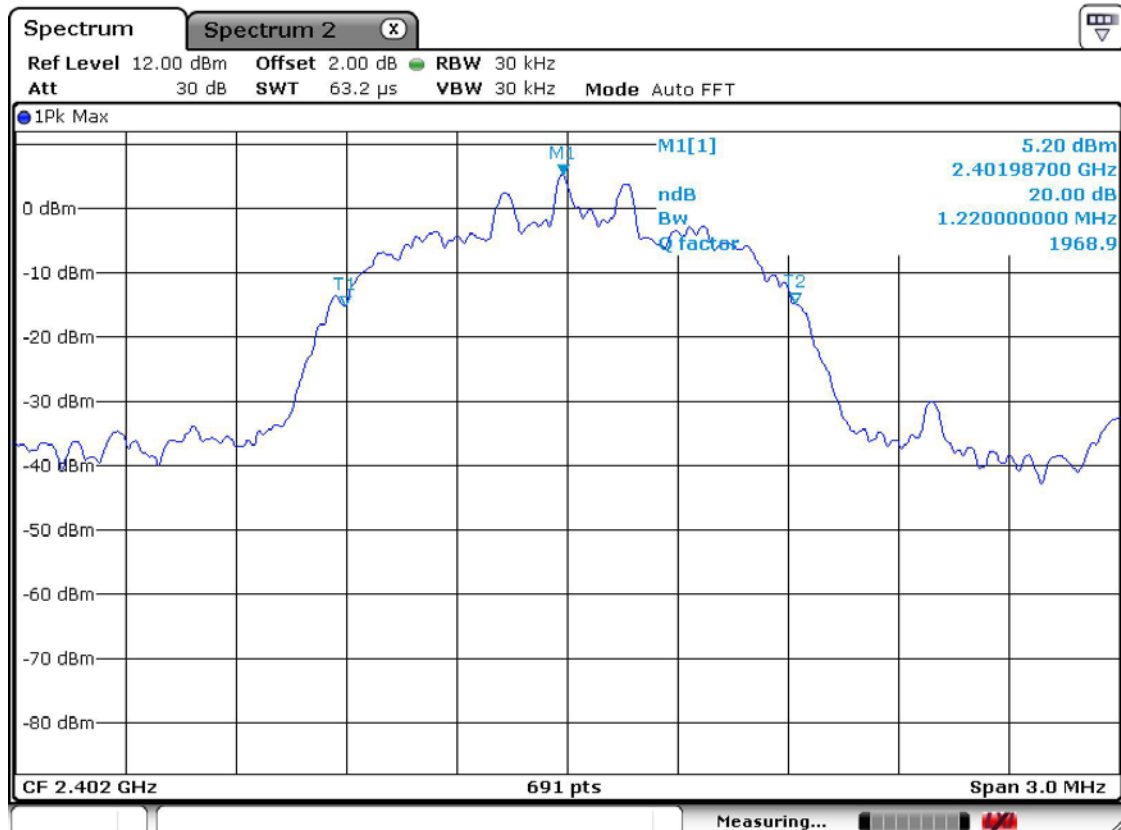
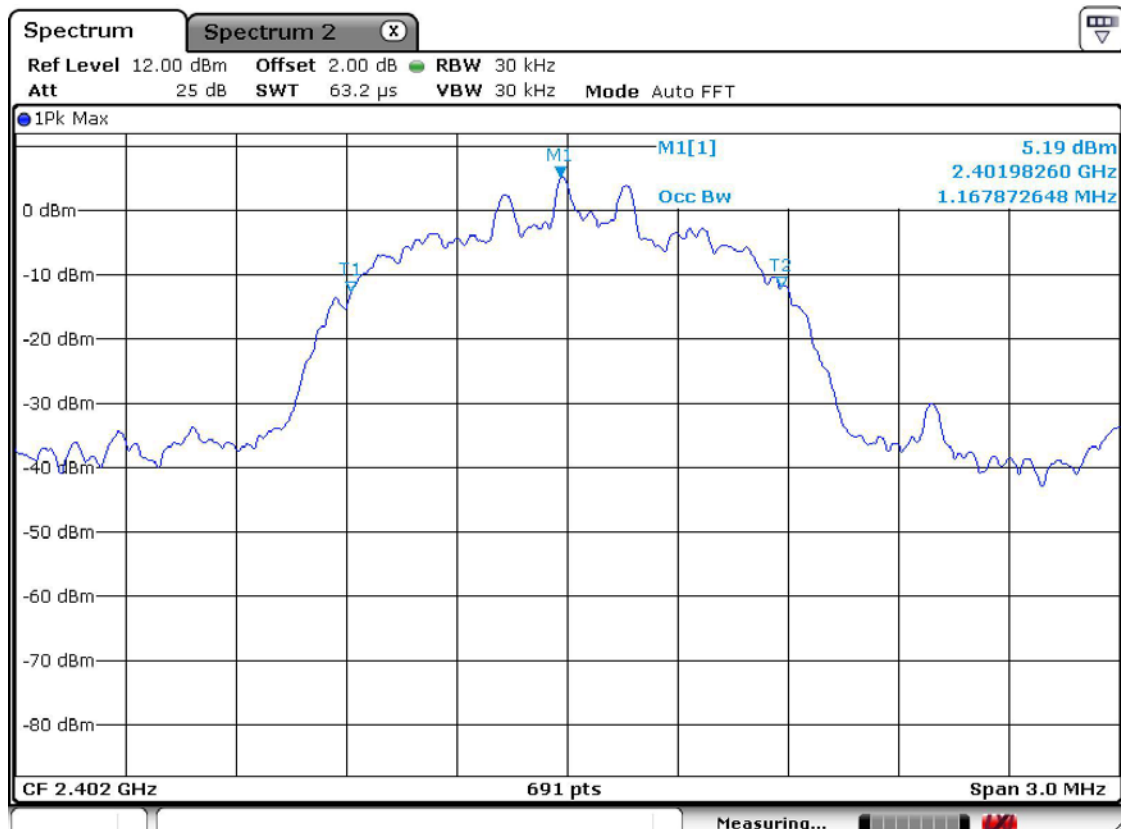
Measurement Setup

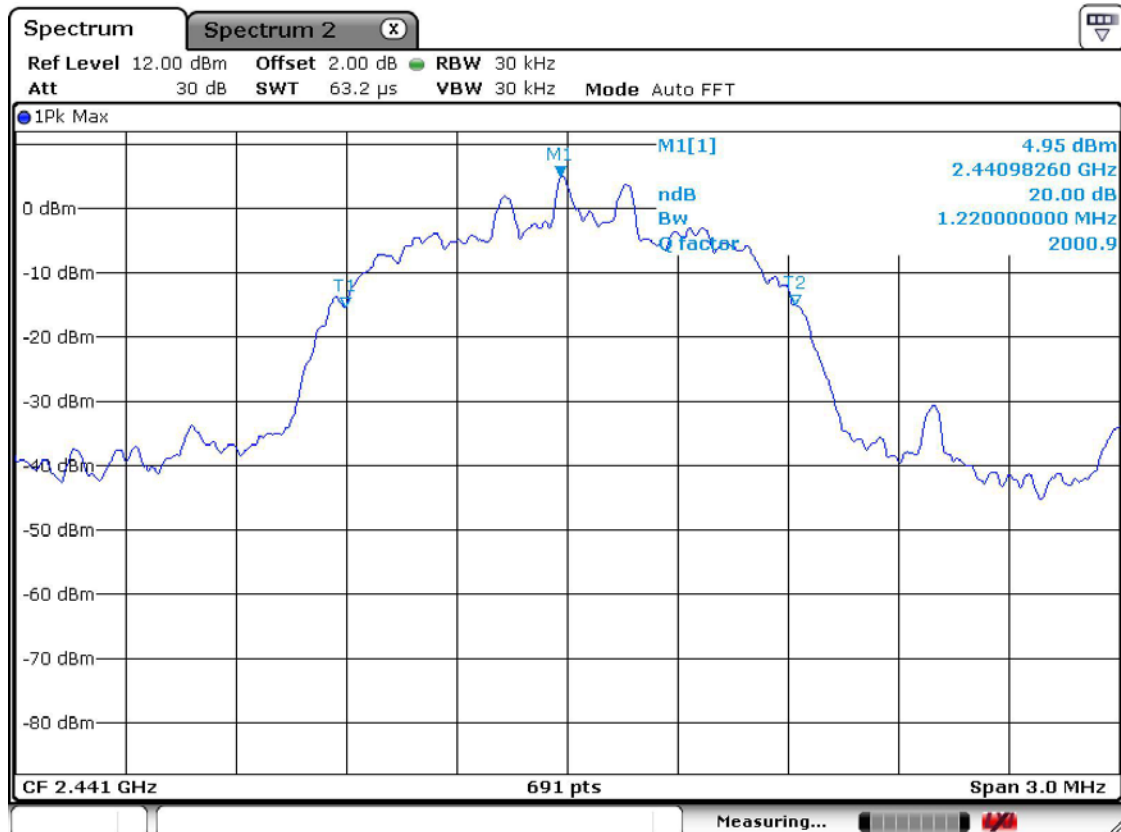
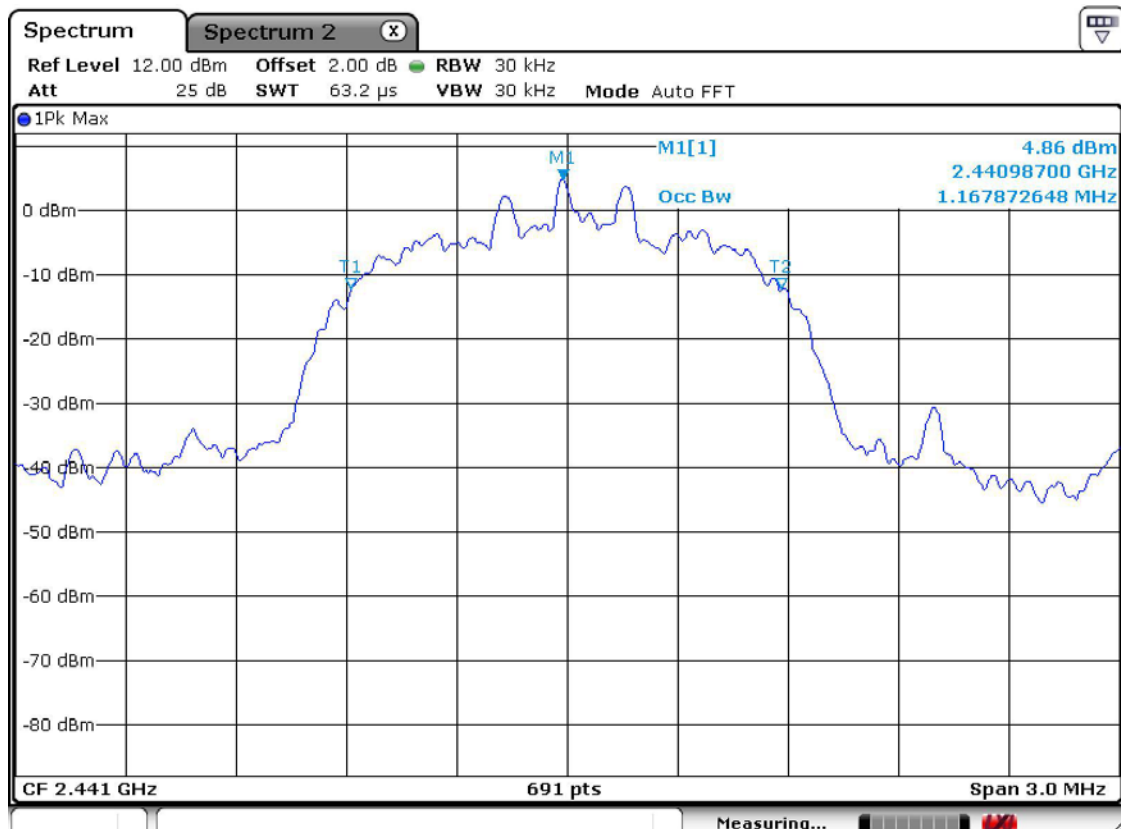
Same as the Chapter 3.2.1 (Figure 1)

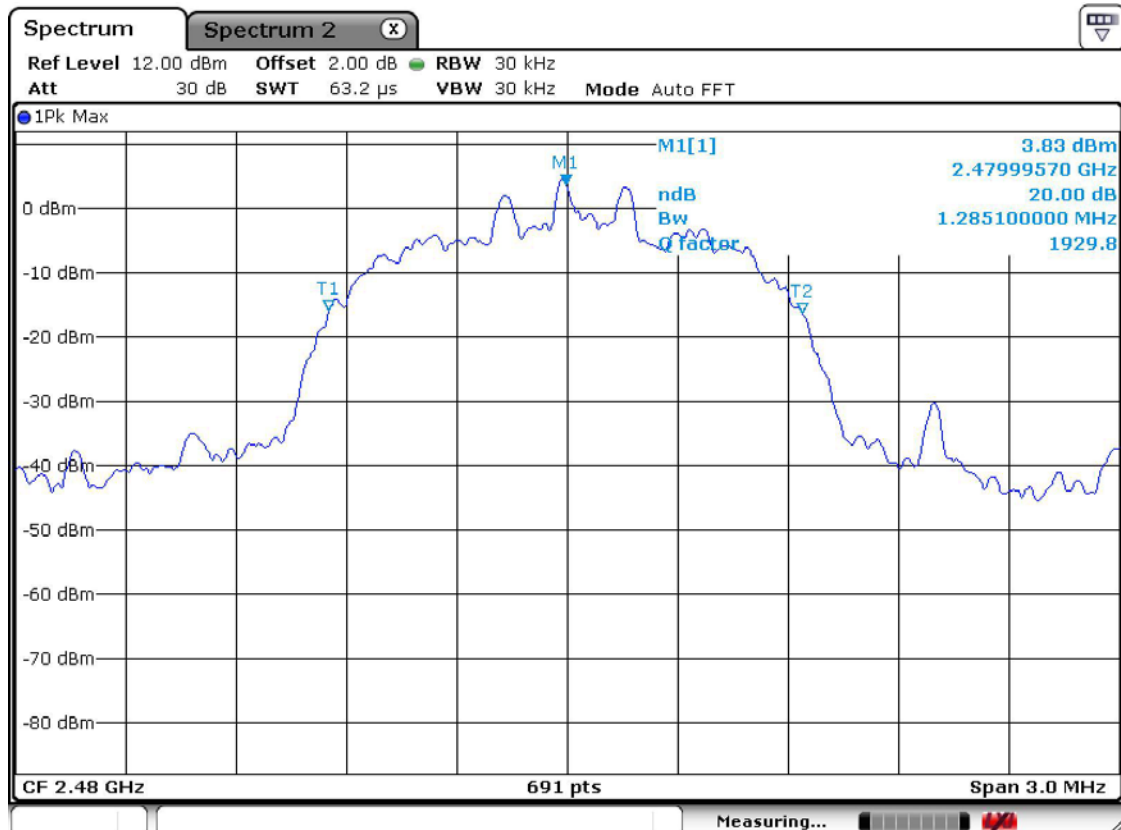
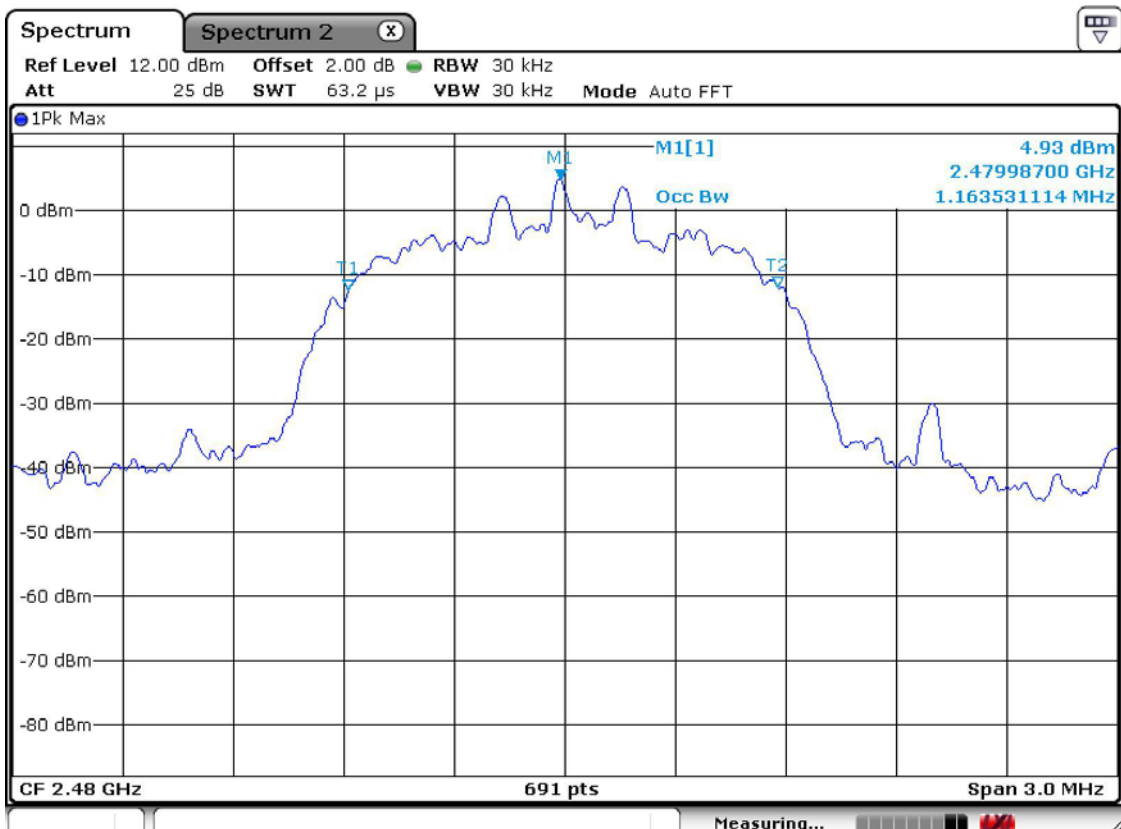
Channel 1 of basic mode**20 dB Bandwidth****99% Bandwidth**

Channel 2 of basic mode**20 dB Bandwidth****99% Bandwidth**

Channel 3 of basic mode**20 dB Bandwidth****99% Bandwidth**

Channel 1 at EDR mode**20 dB Bandwidth****99% Bandwidth**

Channel 2 at EDR mode**20 dB Bandwidth****99% Bandwidth**

Channel 3 at EDR mode**20 dB Bandwidth****99% Bandwidth**

3.2.4 Time of Occupancy (Dwell Time)

Procedure:

The dwell time was measured with a spectrum analyzer connected to the antenna terminal, while EUT had its hopping function enabled.

The spectrum analyzer is set to:

Center frequency = 2441 MHz

Span = zero

RBW = 1 MHz

VBW = 1 MHz (VBW $\geq$ RBW)

Trace = max hold

Detector function = peak

Measurement Data:

Mode	Number of transmission in a 31.6s (79Hopping*0.4)	Length of Transmission Time (msec)	Result (msec)	Limit (msec)
DH1	30(Times / 3sec) *10.533 = 315.99	0.530	167.48	400
DH3	15(Times / 3sec) *10.533 = 158.00	1.765	278.87	400
DH5	10(Times / 3sec) *10.533 = 105.33	3.051	321.36	400
EDR 3Mbps DH5	10(Times / 3sec) *10.533 = 105.33	3.058	322.10	400

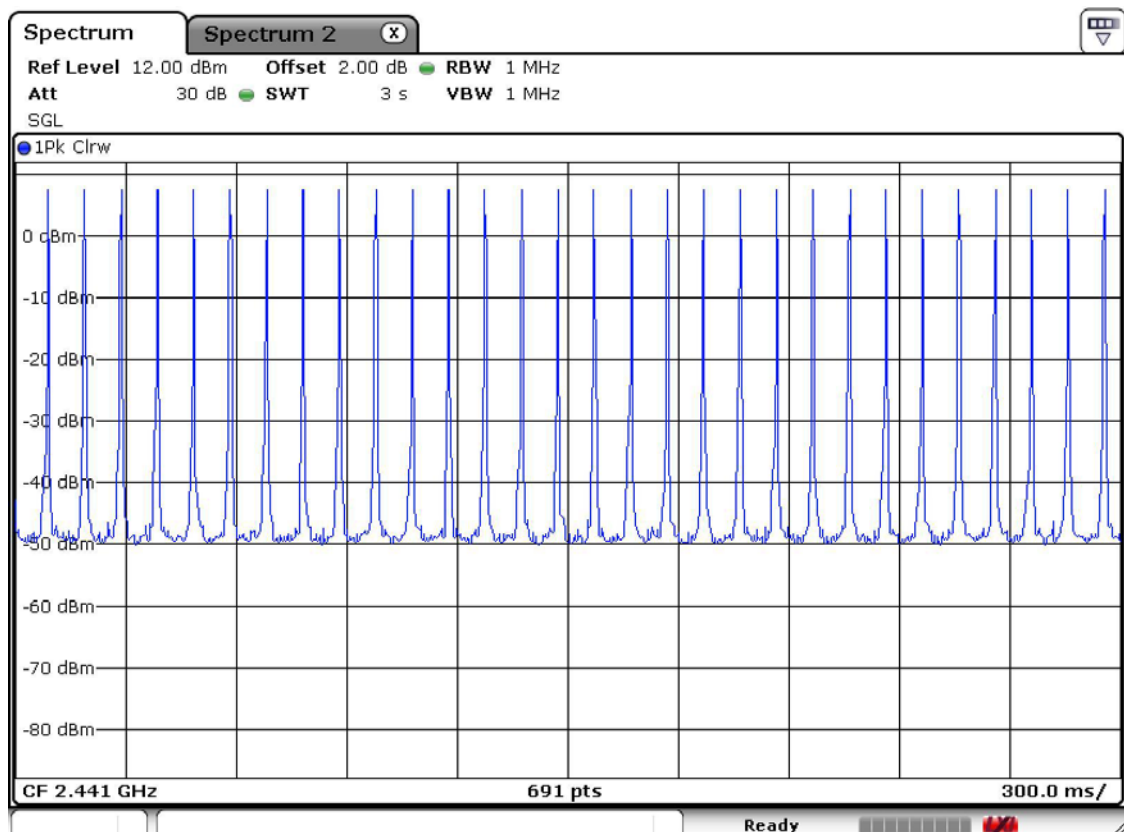
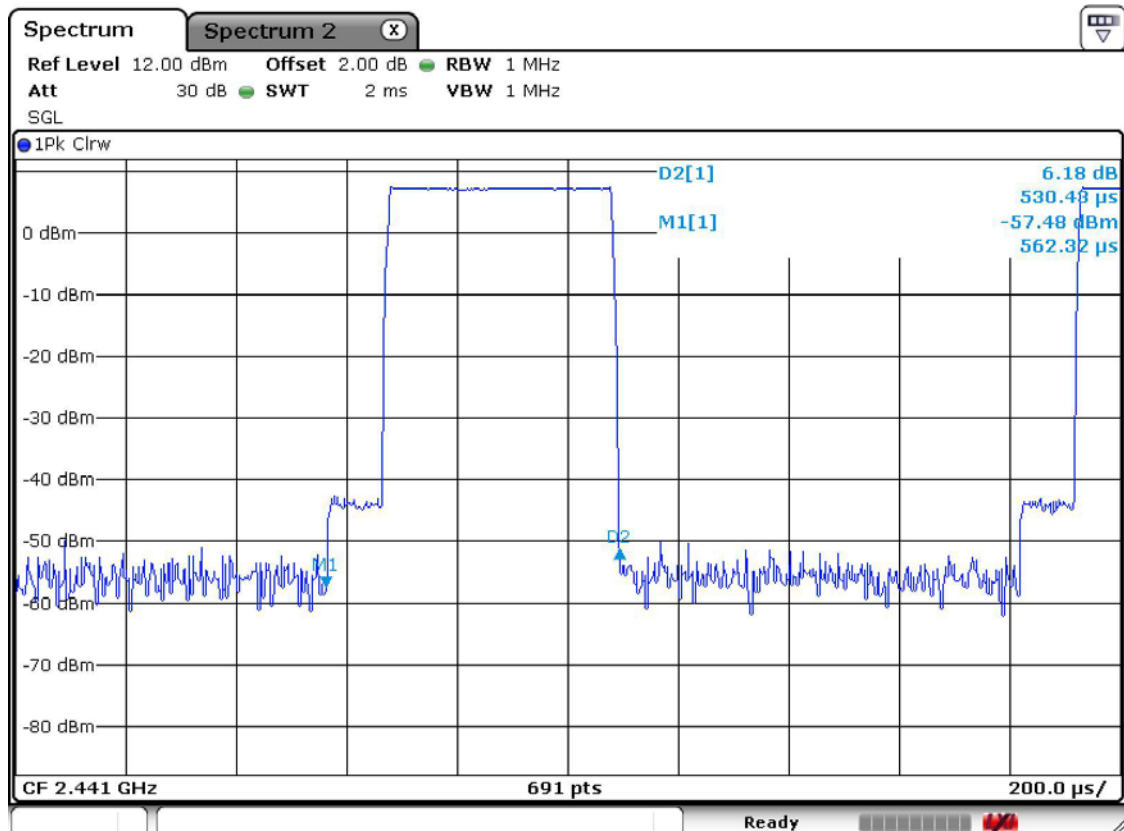
- See next pages for actual measured spectrum plots.
- dwell time = {(number of hopping per second / number of slot) x duration time per channel} x 0.4 ms

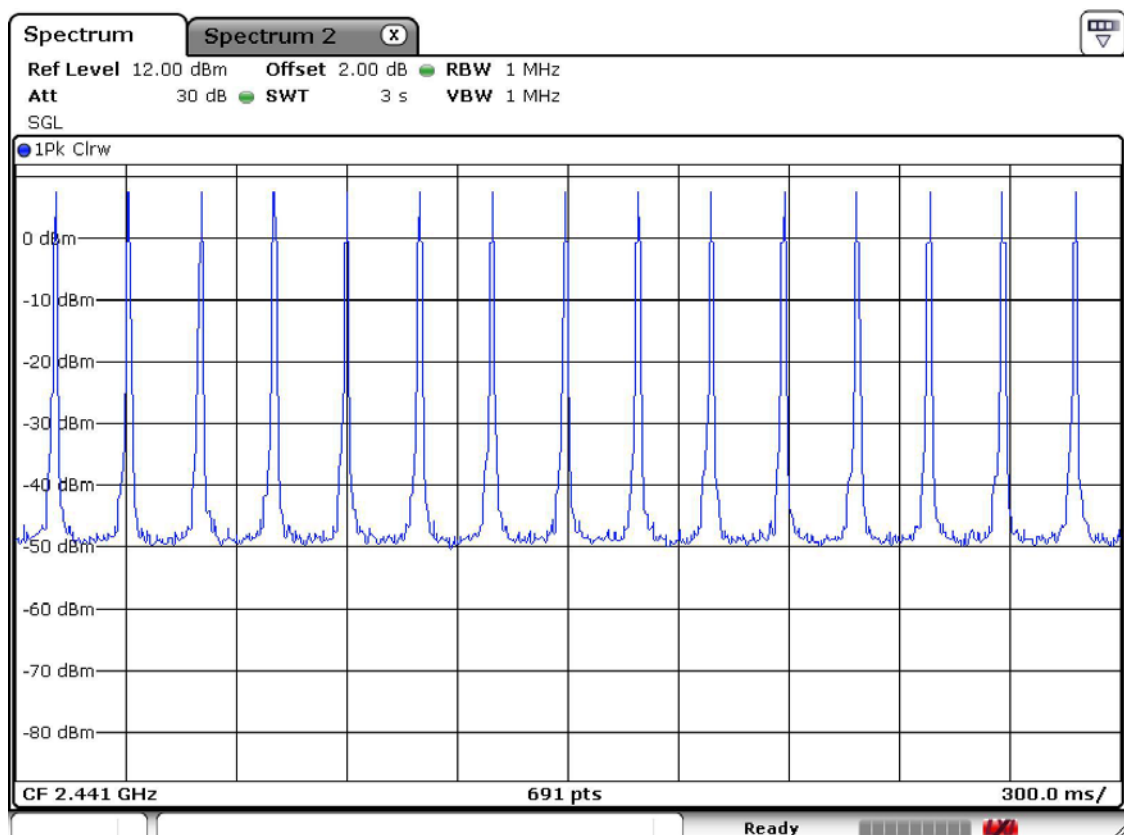
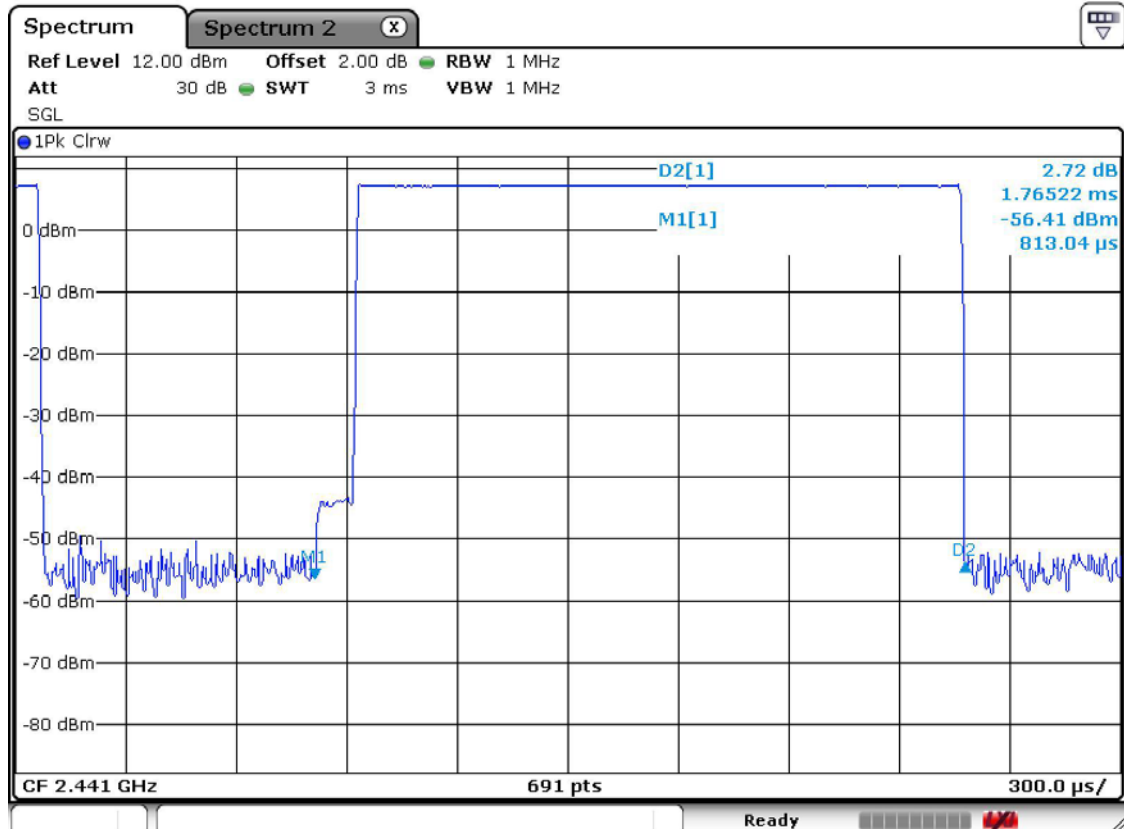
Minimum Standard:

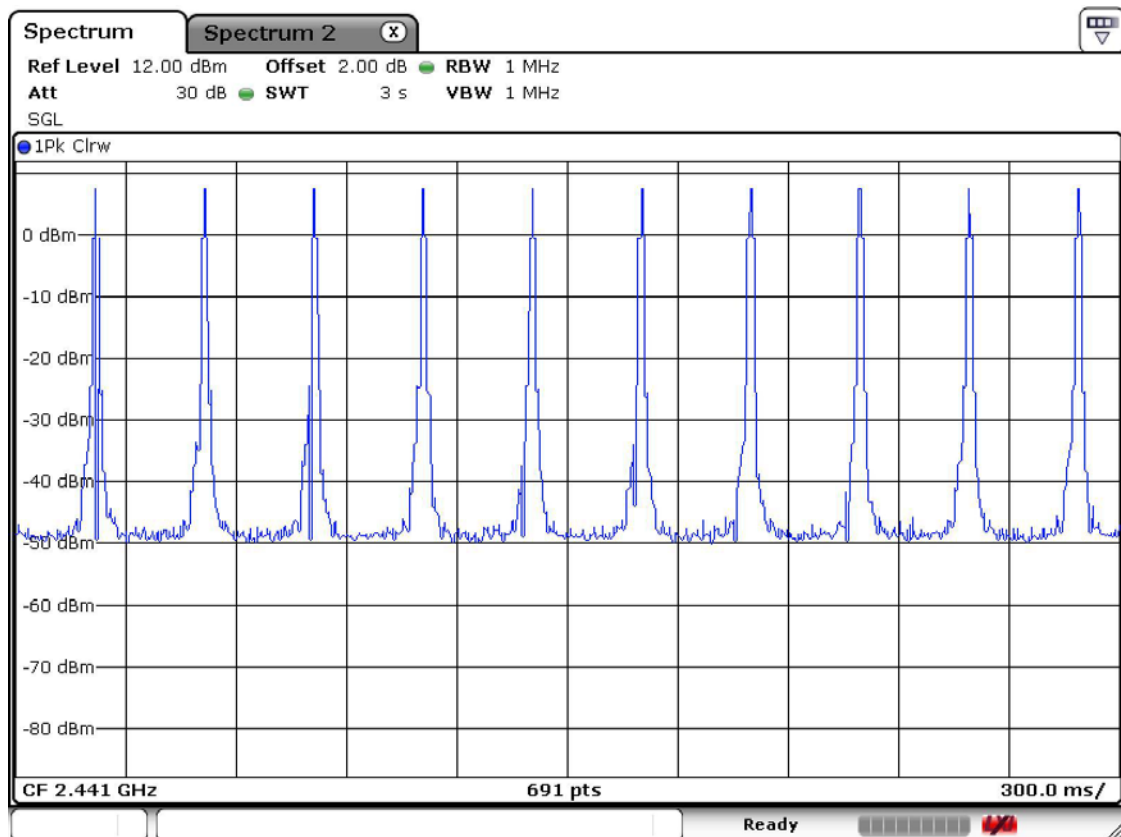
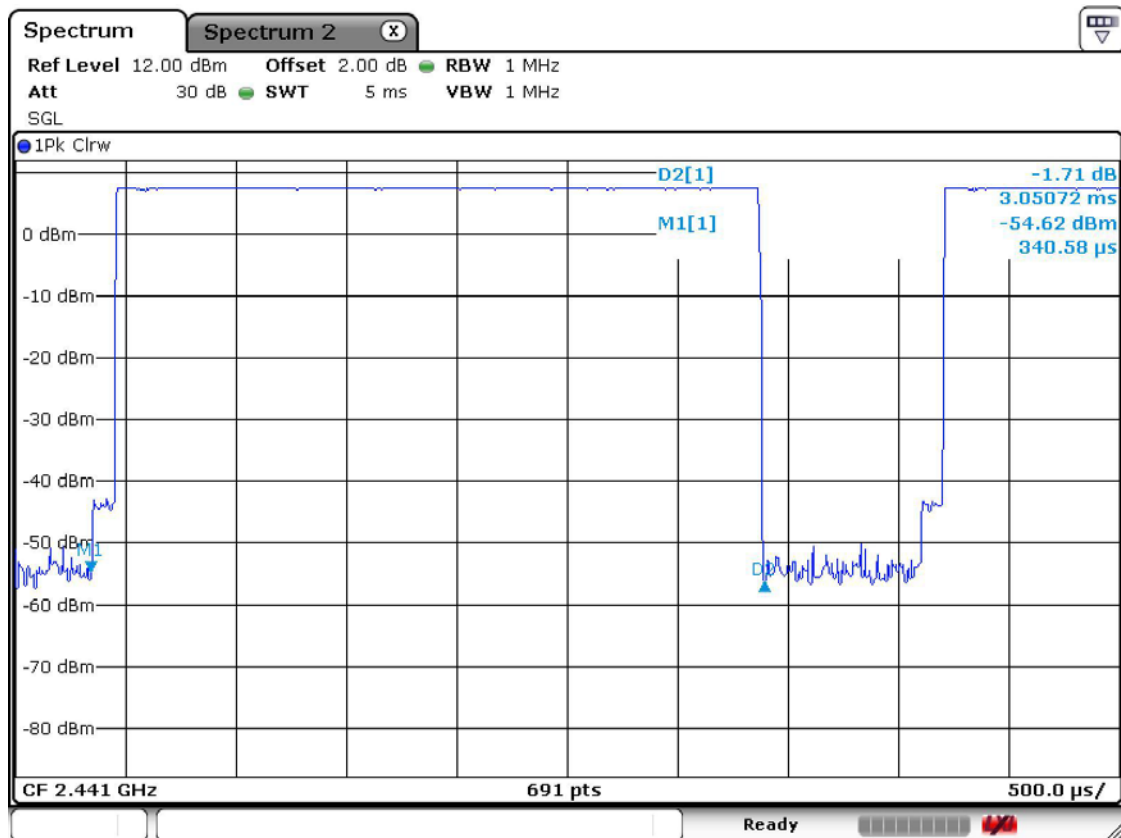
0.4 seconds within a 30 second period per any frequency

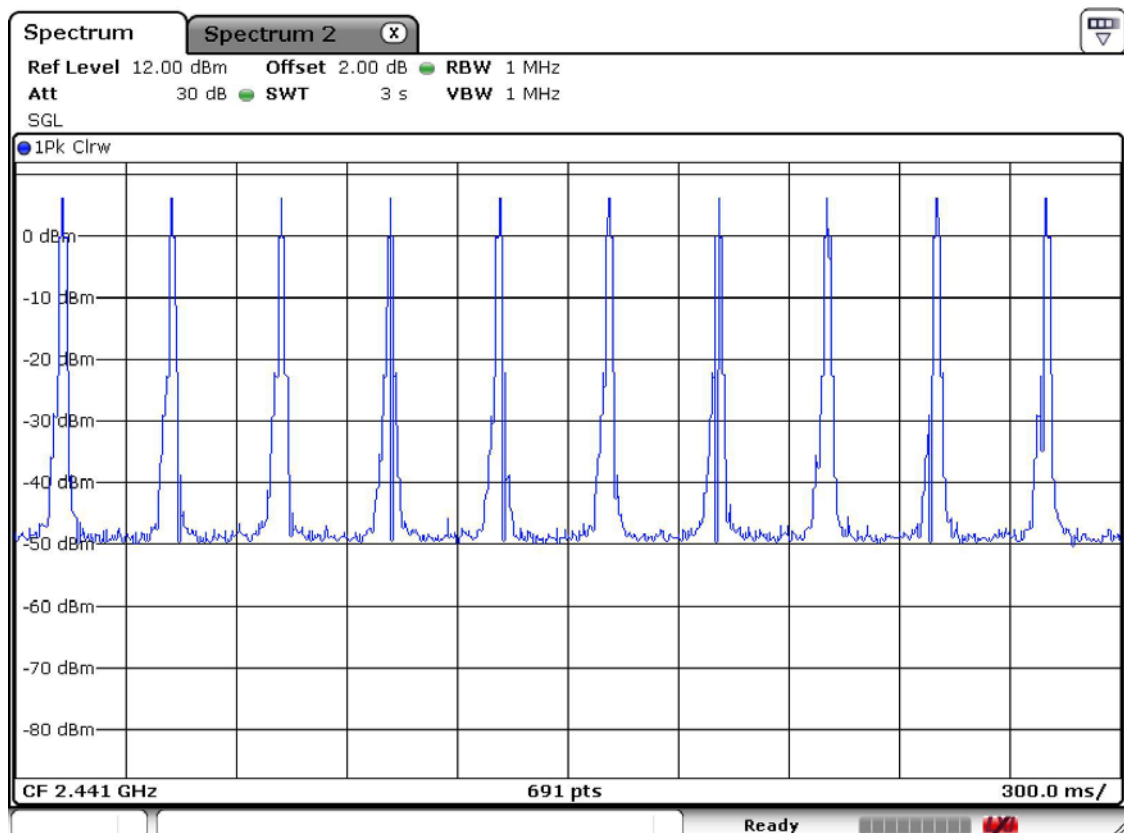
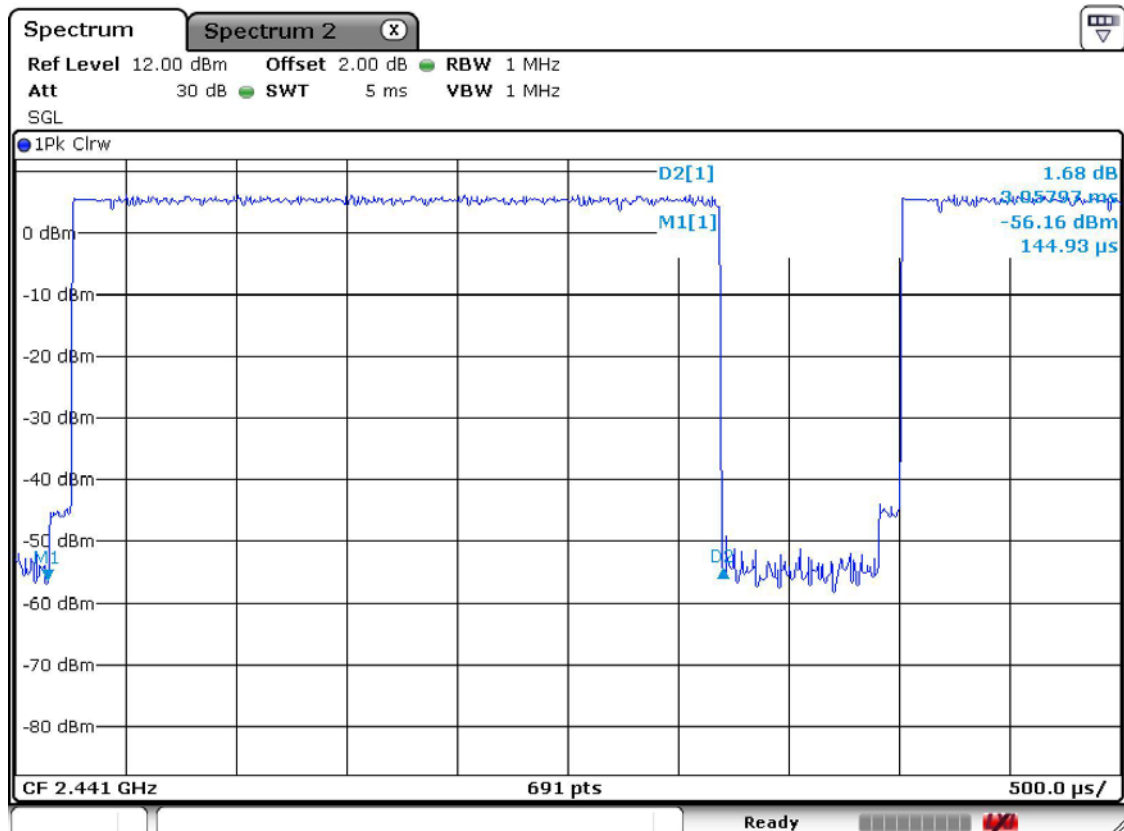
Measurement Setup

Same as the Chapter 3.2.1 (Figure 1)

DH1 at basic mode

DH3 at basic mode

DH5 at basic mode

DH5 at EDR mode with 3Mbps

3.2.5 Transmitter Output Power

Procedure:

The peak output power was measured with a spectrum analyzer connected to the antenna terminal, while EUT had its hopping function disabled at the highest, middle and the lowest available channels..

After the trace being stable, Use the marker-to-peak function to set the marker to the peak of the emission. The indicated level is the peak output power.

The spectrum analyzer is set to:

Center frequency = the highest, middle and the lowest channels

Span = 10 MHz (approximately 5 times of the 20 dB bandwidth)

RBW = 3 MHz (greater than the 20dB bandwidth of the emission being measured)

VBW = 3 MHz (VBW $\geq$ RBW)

Detector function = peak

Trace = max hold

Sweep = auto

Measurement Data: Basic Mode

Frequency (MHz)	Ch.	Test Results		
		dBm	mW	Result
2402	0	7.53	5.66	Complies
2441	39	7.62	5.78	Complies
2480	78	7.80	6.03	Complies

Measurement Data: EDR Mode

Frequency (MHz)	Ch.	Test Results		
		dBm	mW	Result
2402	0	6.71	4.69	Complies
2441	39	6.65	4.62	Complies
2480	78	6.69	4.67	Complies

- See next pages for actual measured spectrum plots.

Minimum Standard:	< 250 mW
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Measurement Setup

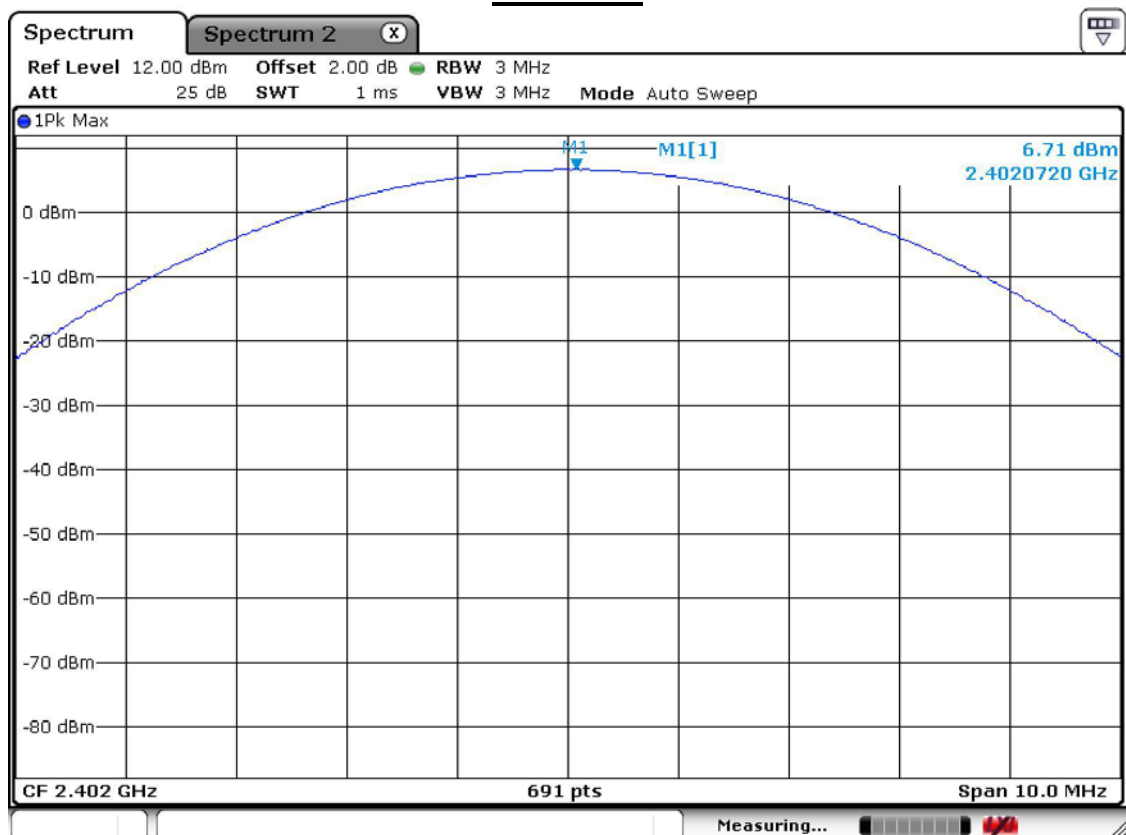
Same as the Chapter 3.2.1 (Figure 1)

Channel 1

Basic mode



EDR mode

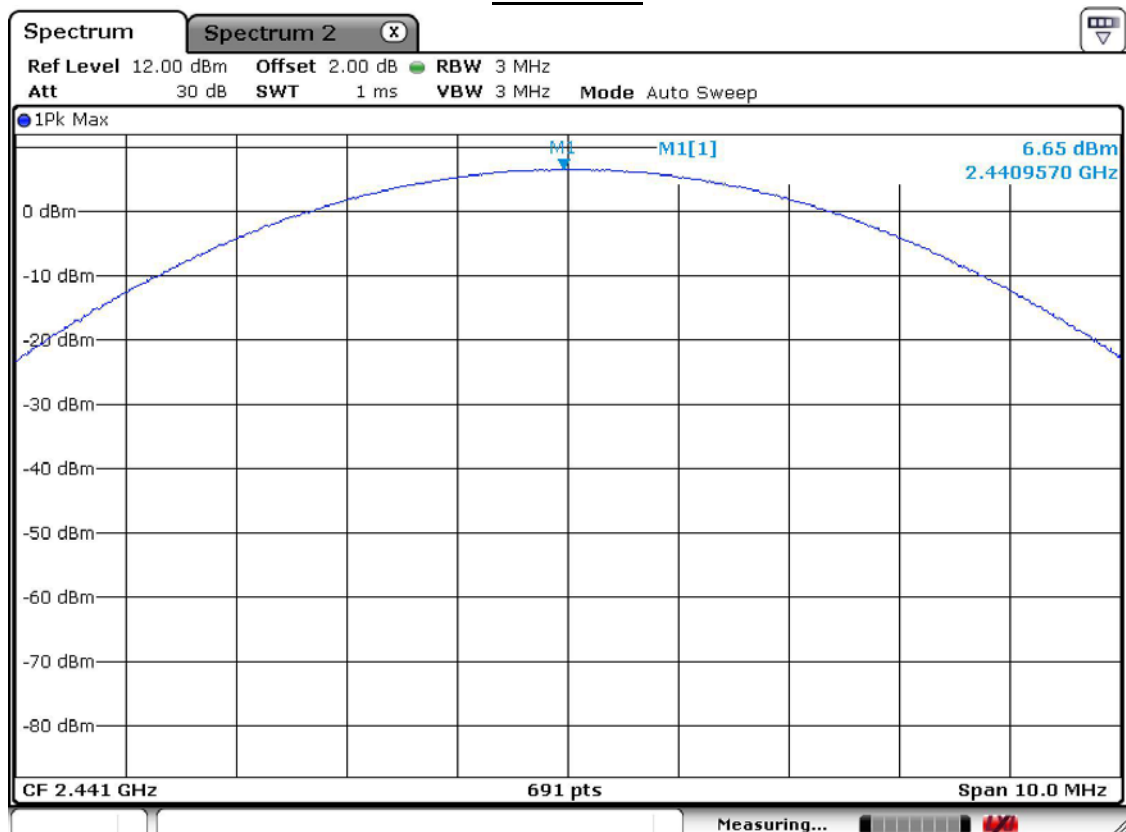


Channel 2

Basic mode



EDR mode



Channel 3

Basic mode



EDR mode



3.2.6 Band Edge

Procedure:

The bandwidth at 20dB down from the highest inband spectral density is measured with a spectrum analyzer connected to the antenna terminal, while EUT had its hopping function disabled at the highest, middle and the lowest available channels.

After the trace being stable, Use the marker-to-peak function to measure 20 dB down both sides of the intentional emission.

The spectrum analyzer is set to:

Center frequency = the highest, middle and the lowest channels

RBW = 100 kHz

VBW = 100 kHz

Span = 10~30 MHz

Detector function = peak

Trace = max hold

Sweep = auto

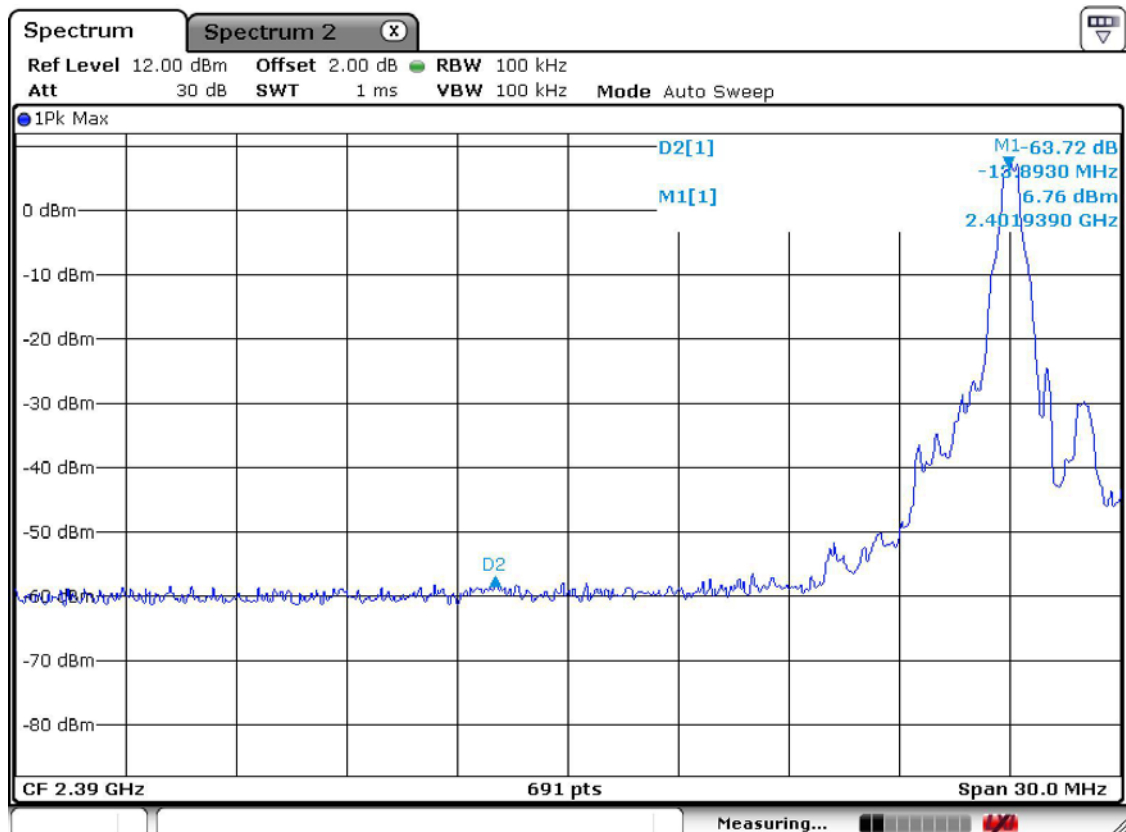
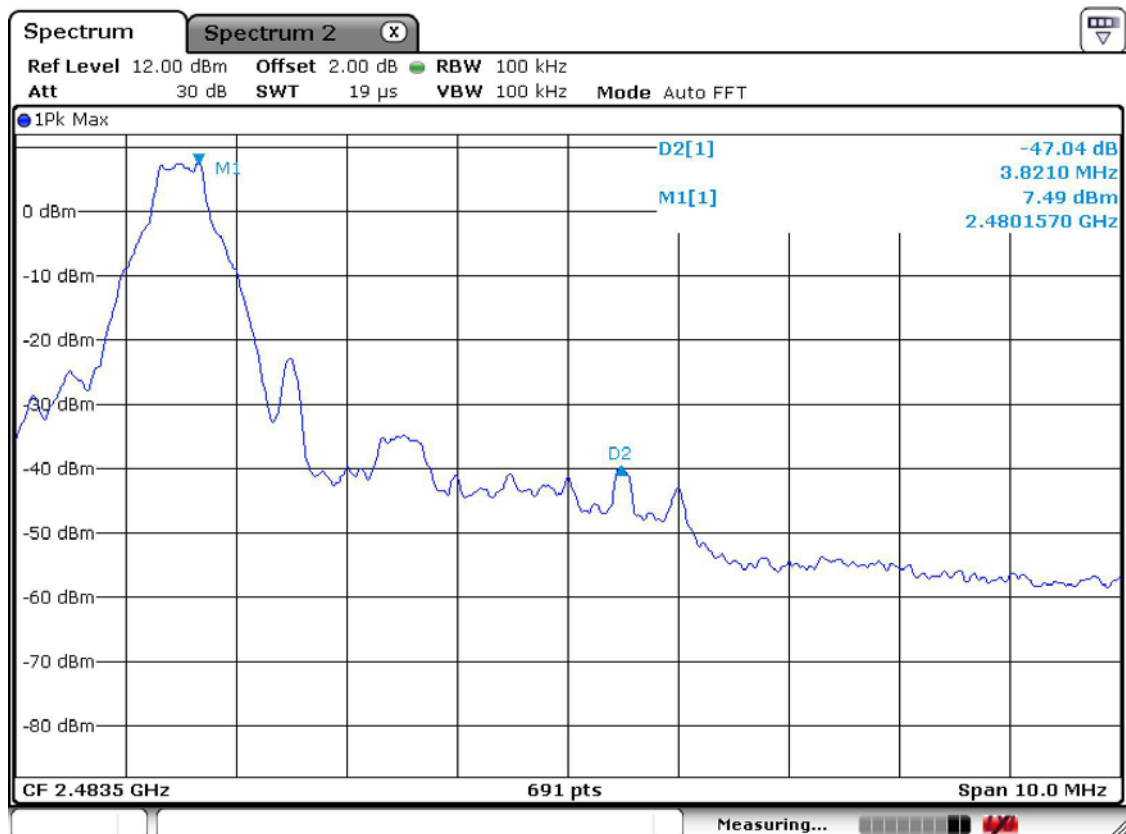
Measurement Data: Complies

- All conducted emission in any 100kHz bandwidth outside of the spread spectrum band was at least 20dB lower than the highest inband spectral density. Therefore the applying equipment meets the requirement.
- See next pages for actual measured spectrum plots.

Minimum Standard:	> 20 dBc
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Measurement Setup

Same as the Chapter 3.2.1 (Figure 1)

Band – edgeLower edgeUpper edge

Band-edges in the restricted band 2310-2390 MHz measurement

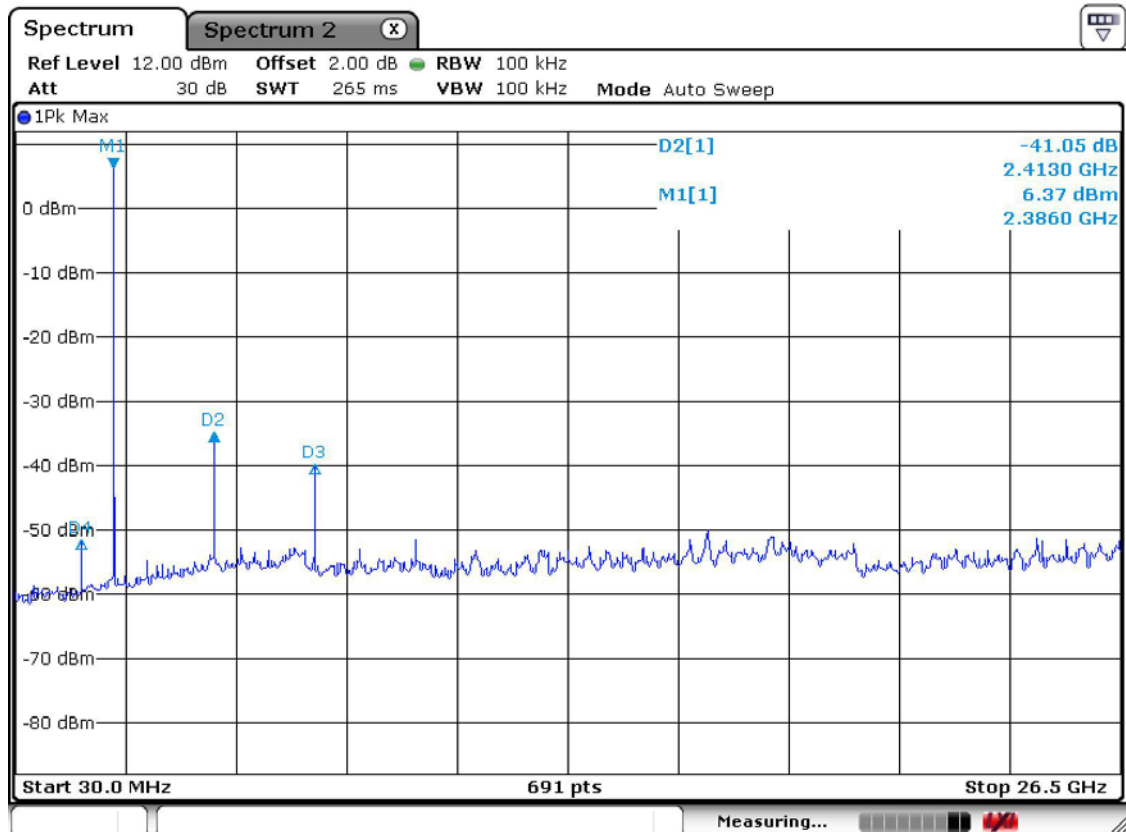
Frequency	Reading		Pol.	Correction			Limits		Result		Margin	
	[dBuV / m]			Factor			[dBuV / m]		[dBuV / m]		[dB]	
[MHz]	AV / Peak			Antenna	Amp. Gain	Cable	AV / Peak		AV / Peak		AV / Peak	
2390	34.5	47.2	H	26.0	36.0	8.2	54.0	74.0	32.7	45.4	21.3	28.6

Band-edges in the restricted band 2483.5-2500 MHz measurement

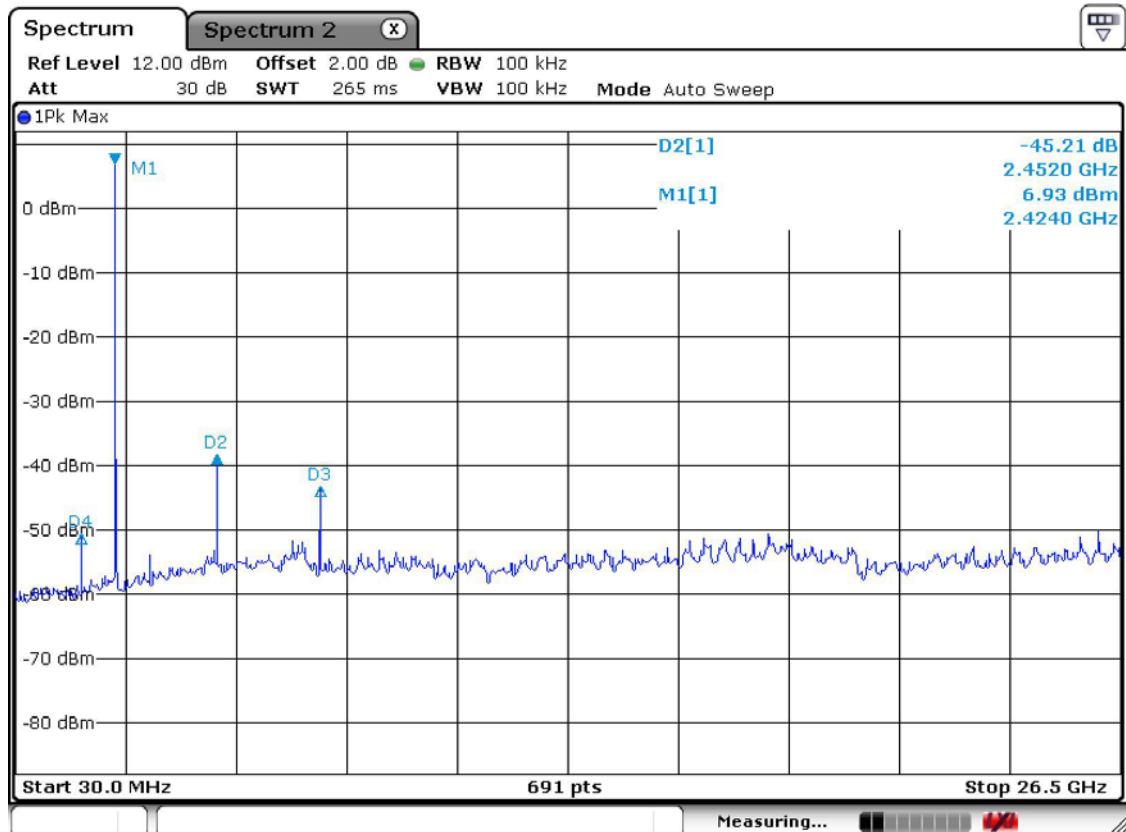
Frequency	Reading		Pol.	Correction			Limits		Result		Margin	
	[dBuV / m]			Factor			[dBuV / m]		[dBuV / m]		[dB]	
[MHz]	AV / Peak			Antenna	Amp. Gain	Cable	AV / Peak		AV / Peak		AV / Peak	
2483.5	40.2	52.1	H	26.0	36.0	8.2	54.0	74.0	38.4	50.3	15.6	23.7

Note : This EUT was tested in 3 orthogonal positions and the worst-case data was presented.

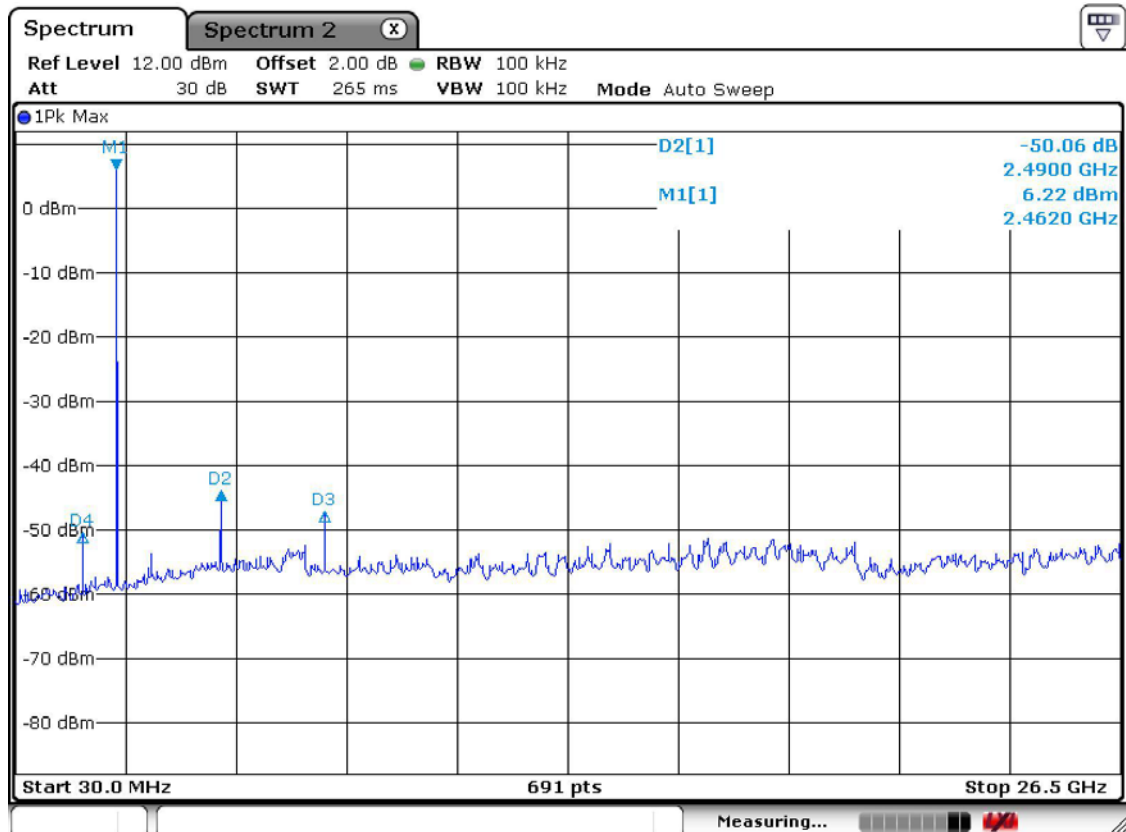
Unwanted Emission – Low channel
Frequency Range = 30 MHz ~ 26.5 GHz



Unwanted Emission – Middle channel
Frequency Range = 30 MHz ~ 26.5 GHz



Unwanted Emission – High channel
Frequency Range = 30 MHz ~ 26.5 GHz



3.2.7 Field Strength of Harmonics - Transmitter

Procedure:

The EUT was placed on a 0.8m high wooden table inside a shielded enclosure. An antenna was placed near the EUT and measurements of frequencies and amplitudes of field strengths were recorded for reference during final measurements. For final radiated testing, measurements were performed in OATS. Measurements were performed with the EUT oriented in 3 orthogonal axis and rotated 360 degrees to determine worst-case orientation for maximum emissions. In case of the air temperature of the test site is out of the range is 10 to 40°C before the testing proceeds the warm-up time of EUT maintain adequately

The spectrum analyzer is set to:

Center frequency = the worst channel

Frequency Range = 30 MHz ~ 10th harmonic.

RBW = 100 kHz (30MHz ~ 1 GHz)

= 1 MHz (1 GHz ~ 10th harmonic)

Span = 100 MHz

Trace = max hold

Peak:VBW $\geq$ RBW

Average:VBW=10Hz

Detector function = Peak and Average

Sweep = auto

Measurement Data: Complies

- Refer to the next page.
- The warm-up time of the EUT is 20min.
- No other emissions were detected at a level greater than 20dB below limit.
- The used FMT Freq is “88.1MHz (Low ch)” and it gave the worse case emissions.

Minimum Standard: FCC Part 15.209(a)

Frequency (MHz)	Limit (uV/m) @ 3m
30 ~ 88	100 **
88 ~ 216	150 **
216 ~ 960	200 **
Above 960	500

** Except as provided in 15.209(g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88MHz, 174-216MHz or 470-806MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g. 15.231 and 15.241.

Measurement Data:

Frequency	Reading		Pol.	Correction			Limits		Result		Margin	
	[dBuV / m]			Factor			[dBuV / m]		[dBuV / m]		[dB]	
[MHz]	AV / Peak			Antenna	Amp. Gain	Cable	AV / Peak		AV / Peak		AV / Peak	
4810.0	36.5	51.5	H	31.4	34.6	8.7	54.0	74.0	42.0	57.0	12.1	17.1
Frequency	Reading		Pol.	Correction			Limits		Result		Margin	
	[dBuV / m]			Factor			[dBuV / m]		[dBuV / m]		[dB]	
[MHz]	AV / Peak			Antenna	Amp. Gain	Cable	AV / Peak		AV / Peak		AV / Peak	
4890.0	36.3	51.4	H	31.4	34.6	8.7	54.0	74.0	41.8	56.9	12.3	17.2
Frequency	Reading		Pol.	Correction			Limits		Result		Margin	
	[dBuV / m]			Factor			[dBuV / m]		[dBuV / m]		[dB]	
[MHz]	AV / Peak			Antenna	Amp. Gain	Cable	AV / Peak		AV / Peak		AV / Peak	
4659.90	37.1	51.9	H	31.4	34.6	8.7	54.0	74.0	42.6	57.4	11.5	16.7

No other emissions were detected at a level greater than 20dB below limit.

Radiated Emissions – Car adapter Charging+BT+FM(TLOW)

243 Jubug-ni, yangji-Myeon, Youngin-si,
Gyeonggi-do 449-822 Korea
Tel :+82-31-3236008,9
Fax:+82-31-3236010

EUT/Model No.: BHF2000S

TEST MODE: Car adap. Charging+BT+FM-T(Low) mode

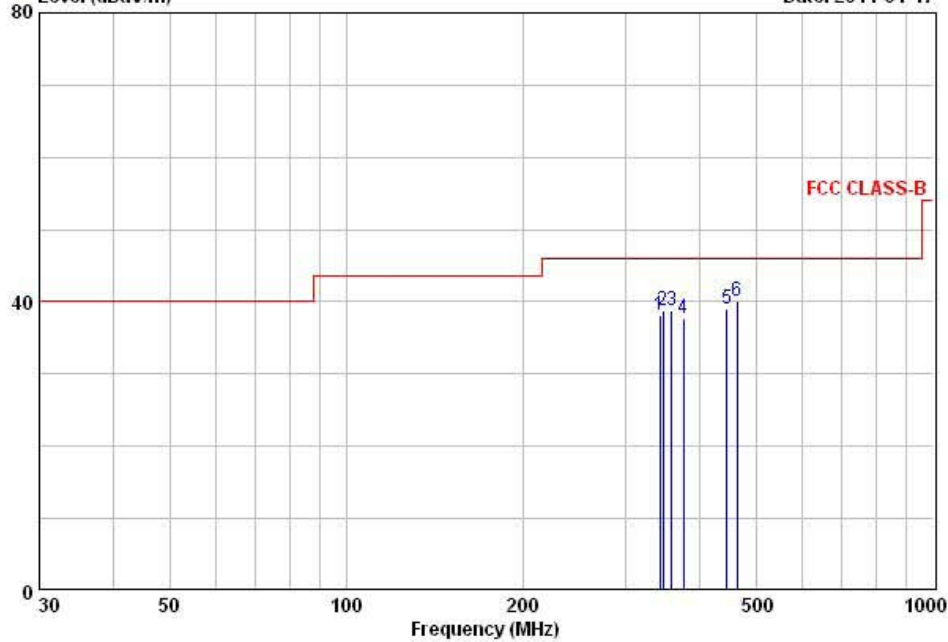
Temp Humi : 2 / 33

Tested by: PARK.H.W

Data: 66

Level (dBuV/m)

Date: 2011-01-17



	Freq	Reading	C.F	Result	Limit	Margin	Height	Angle	Polarity
	MHz	dBuV/m	dB/m	dBuV/m	QP	dB	cm	deg	
1	342.14	43.80	-5.68	38.12	46.00	7.88	103	279	HORIZONTAL
2	346.34	44.50	-5.60	38.90	46.00	7.10	106	252	VERTICAL
3	358.26	44.20	-5.39	38.81	46.00	7.19	106	252	VERTICAL
4	375.62	42.90	-5.15	37.75	46.00	8.25	103	97	HORIZONTAL
5	444.92	43.30	-4.28	39.02	46.00	6.98	100	86	HORIZONTAL
6	464.25	44.10	-4.02	40.08	46.00	5.92	101	312	HORIZONTAL

Remarks: C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain

Radiated Emissions – USB Charging+BT+FMT(LOW)

243 Jubug-ni, yangji-Myeon, Youngin-si,
Gyeonggi-do 449-822 Korea
Tel :+82-31-3236008,9
Fax:+82-31-3236010

EUT/Model No.: BHF2000S

TEST MODE: PC Charging+BT+FM-T(Low) mode

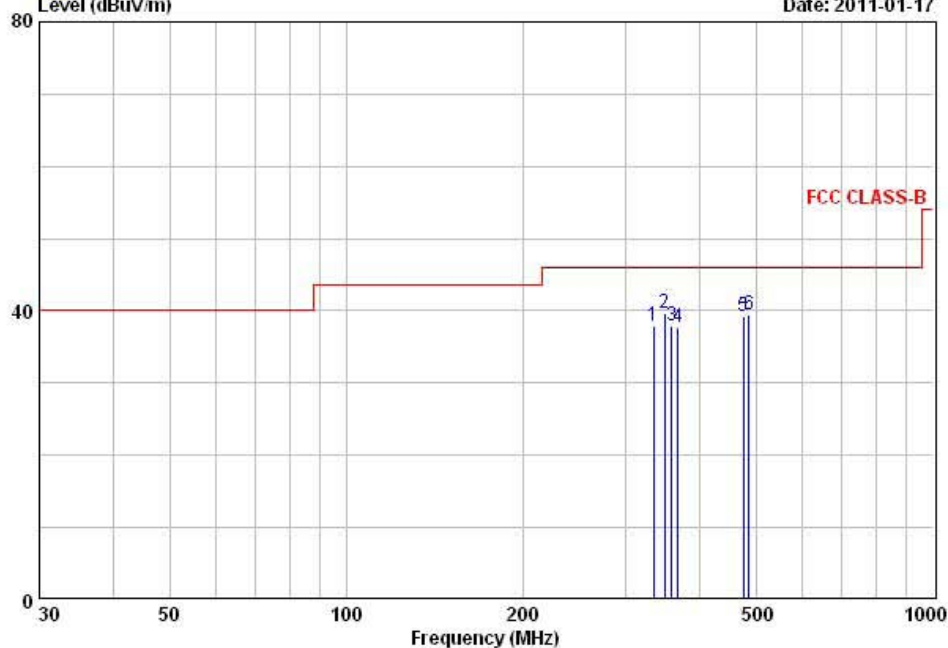
Temp Humi : 2 / 33

Tested by: PARK.H.W

Data: 65

Level (dBuV/m)

Date: 2011-01-17



	Freq	Reading	C.F	Result	Limit	Margin	Height	Angle	Polarity
	MHz	dBuV/m	dB/m	dBuV/m	dBuV/m	dB	cm	deg	
1	334.25	43.70	-5.83	37.87	46.00	8.13	100	137	VERTICAL
2	348.98	45.20	-5.56	39.64	46.00	6.36	101	187	VERTICAL
3	358.33	43.30	-5.39	37.91	46.00	8.09	100	99	VERTICAL
4	367.32	42.90	-5.25	37.65	46.00	8.35	101	141	HORIZONTAL
5	475.90	43.10	-3.84	39.26	46.00	6.74	100	149	HORIZONTAL
6	486.21	43.10	-3.67	39.43	46.00	6.57	103	252	HORIZONTAL

Remarks: C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain

3.2.8 Field Strength of Harmonics - Receivers

Definition:

The field strength of emissions from intentional radiators was measured. In case of the air temperature of the test site is out of the range is 10 to 40°C before the testing proceeds the warm-up time of EUT maintain adequately

Test method	: FCC Part 15.209
Frequency Range	: 30 MHz ~ 10 th harmonic.
Bandwidth	: 120 kHz (F < 1GHz) 1 MHz (F > 1GHz)
Distance of antenna	: 3 meters
Test mode	: Rx mode
Result	: Complies

Measurement Data:

- Refer to the next page.
- The warm-up time of the EUT is 20min.
- No other emissions were detected at a level greater than 20dB below limit
- It gave the worse case emissions.

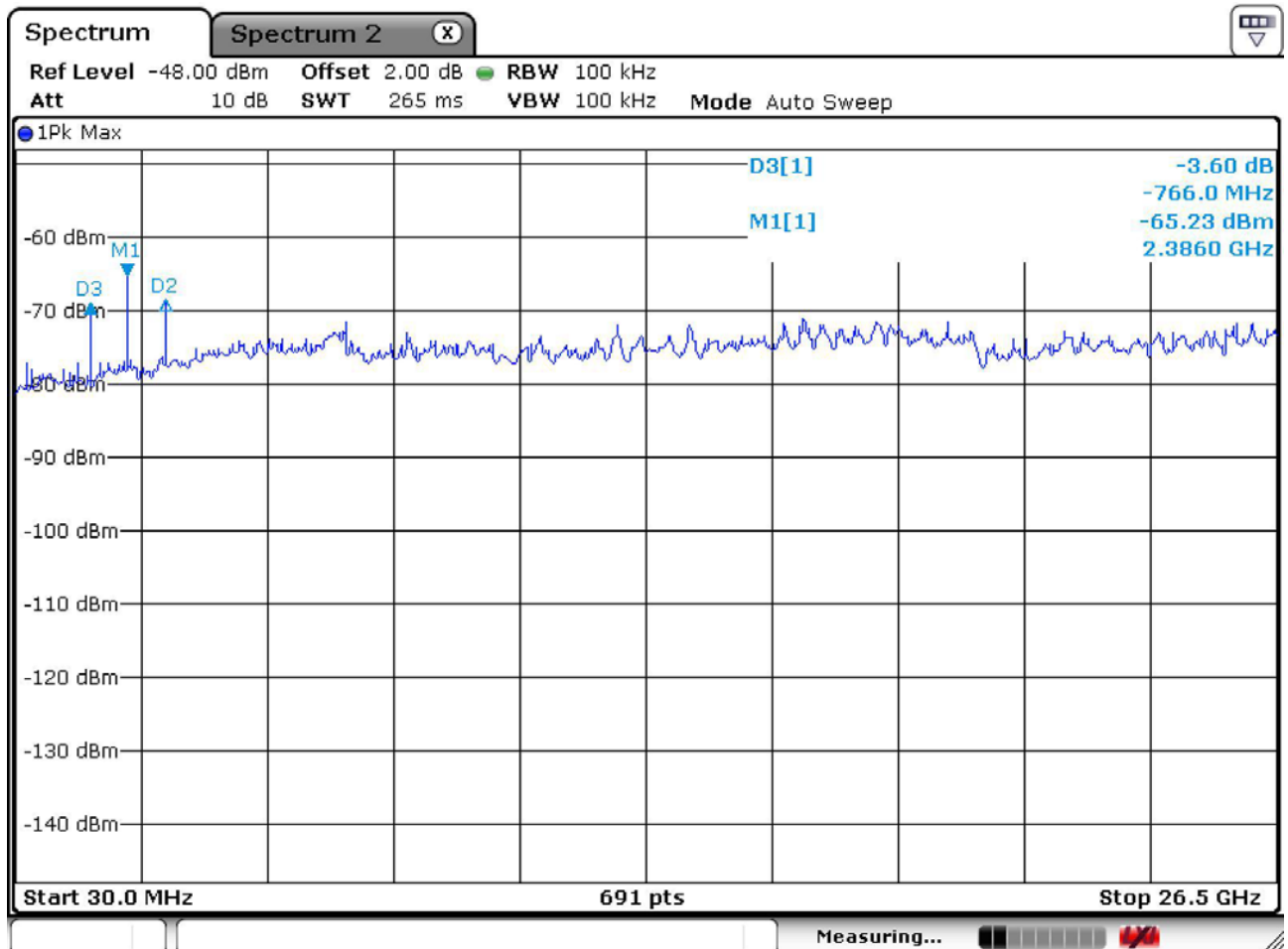
Field Strength Limit

Part 15.209 LIMIT:

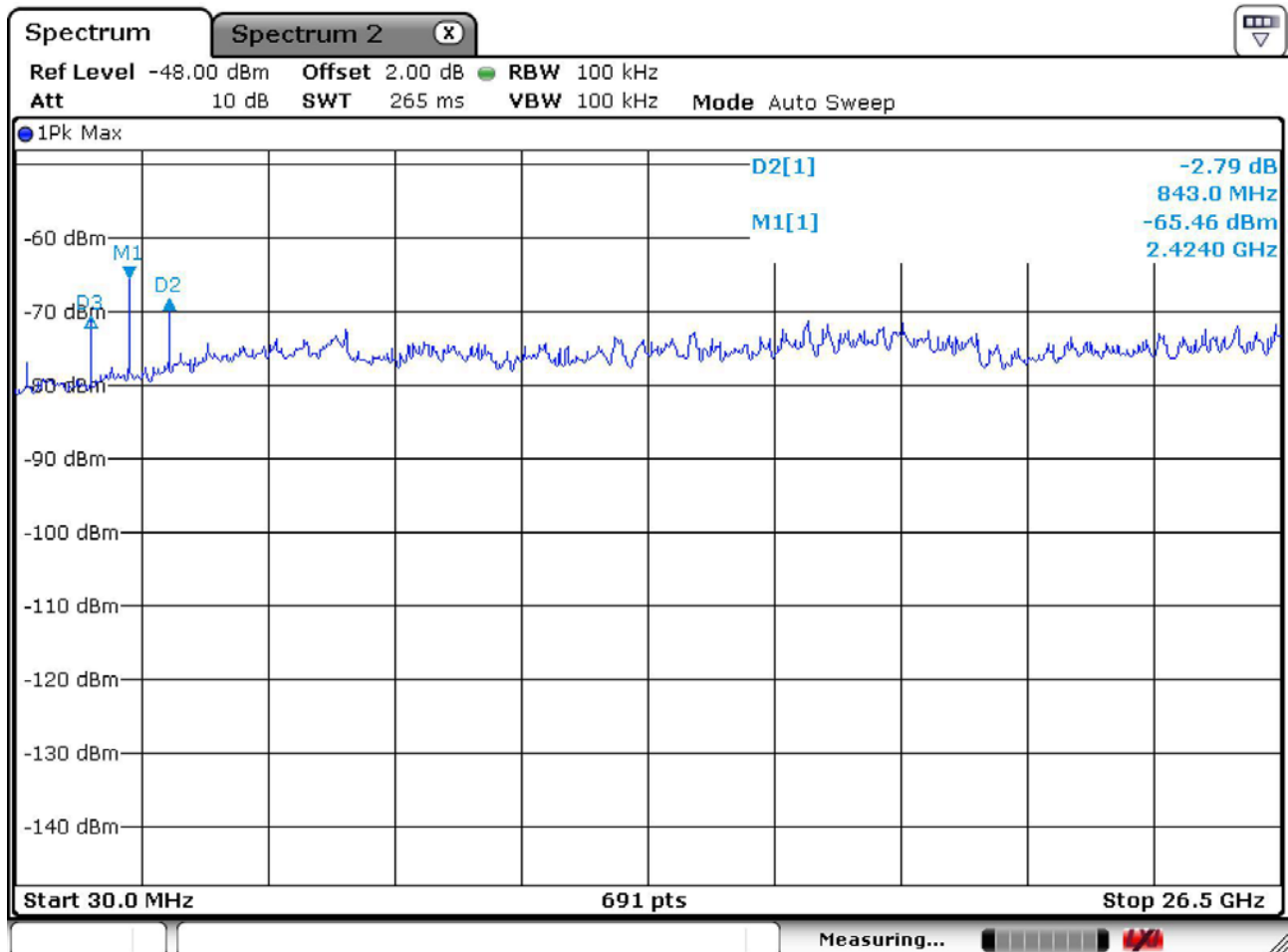
Frequency (MHz)	Limit (uV/m) @ 3m
30 ~ 88	100**
88 ~ 216	150**
216 ~ 960	200**
Above 960	500

** Except as provided in 15.209(g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88MHz, 174-216MHz or 470-806MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g. 15.231 and 15.241.

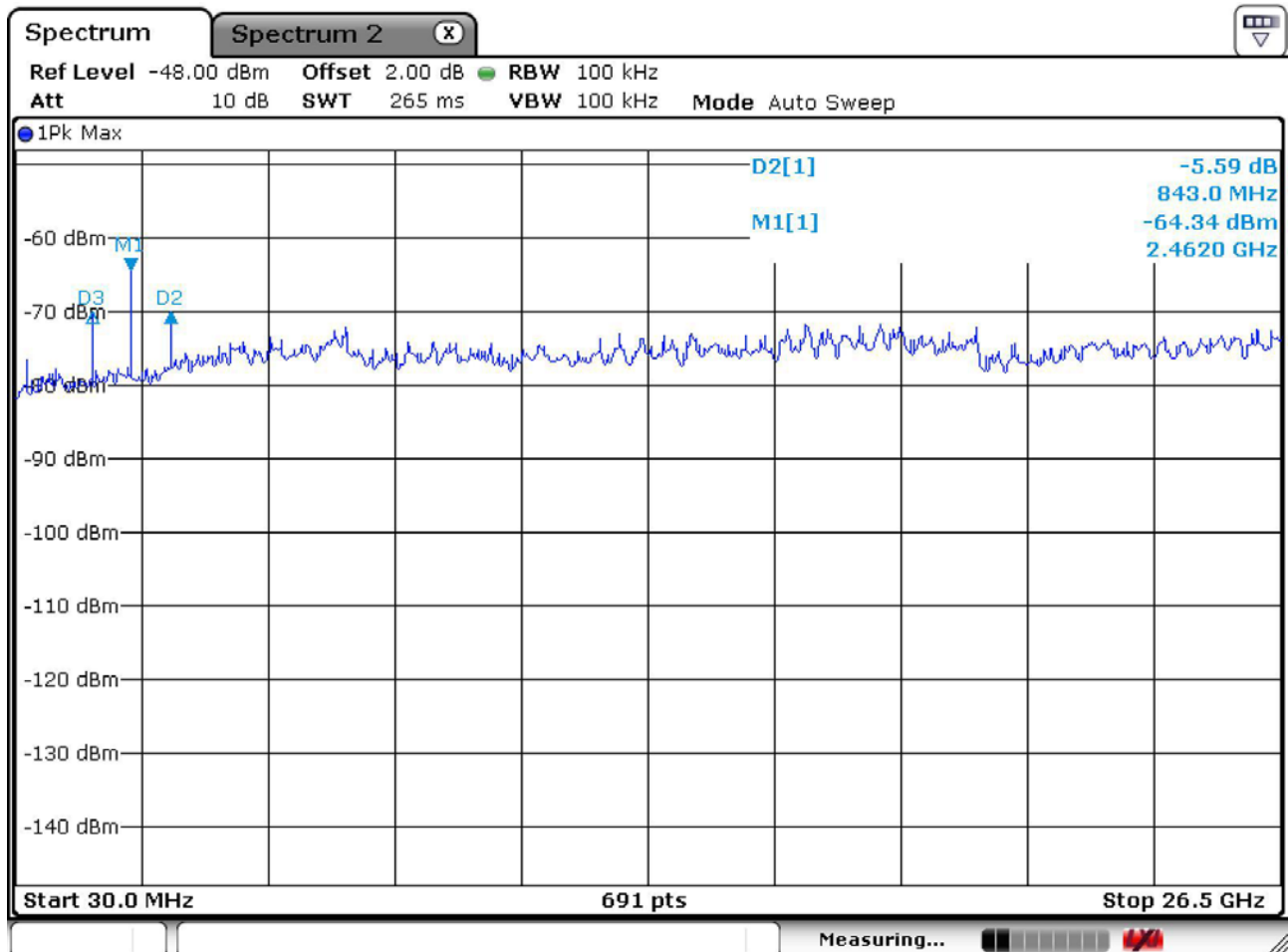
Conduceted Emission – Low channel
Frequency Range = 30 MHz ~ 26.5 GHz



Conduceted Emission – Middle channel
Frequency Range = 30 MHz ~ 26.5 GHz



Conduceted Emission – High channel
Frequency Range = 30 MHz ~ 26.5 GHz



Measurement Data:

Frequency		Reading		Pol.	Correction			Limits		Result		Margin	
		[dBuV / m]			Factor			[dBuV / m]		[dBuV / m]		[dB]	
[MHz]		AV / Peak			Antenna	Amp.Gain	Cable	AV / Peak		AV / Peak		AV / Peak	
Frequency		Reading		Pol.	Correction			Limits		Result		Margin	
		[dBuV / m]			Factor			[dBuV / m]		[dBuV / m]		[dB]	
[MHz]		AV / Peak			Antenna	Amp.Gain	Cable	AV / Peak		AV / Peak		AV / Peak	
Frequency		Reading		Pol.	Correction			Limits		Result		Margin	
		[dBuV / m]			Factor			[dBuV / m]		[dBuV / m]		[dB]	
[MHz]		AV / Peak			Antenna	Amp.Gain	Cable	AV / Peak		AV / Peak		AV / Peak	

No other emissions were detected at a level greater than 20dB below limit.

3.2.9 AC Conducted Emissions

Procedure:

The conducted emissions are measured in the shielded room with a spectrum analyzer in peak hold. While the measurement, EUT had its hopping function disabled at the middle channels in line with Section 15.31(m). Emissions closest to the limit are measured in the quasi-peak mode (QP) with the tuned receiver using a bandwidth of 9 kHz. The emissions are maximized further by cable manipulation and Exerciser operation. The highest emissions relative to the limit are listed.

Measurement Data: Complies

- Refer to the next page.
- The used FMT Freq is “107.9MHz (High ch)” and it gave the worse case emissions.

Minimum Standard: FCC Part 15.207(a)/EN 55022

Frequency Range (MHz)	Conducted Limit (dBuV)	
	Quasi-Peak	Average
0.15 ~ 0.5	66 to 56 *	56 to 46 *
0.5 ~ 5	56	46
5 ~ 30	60	50

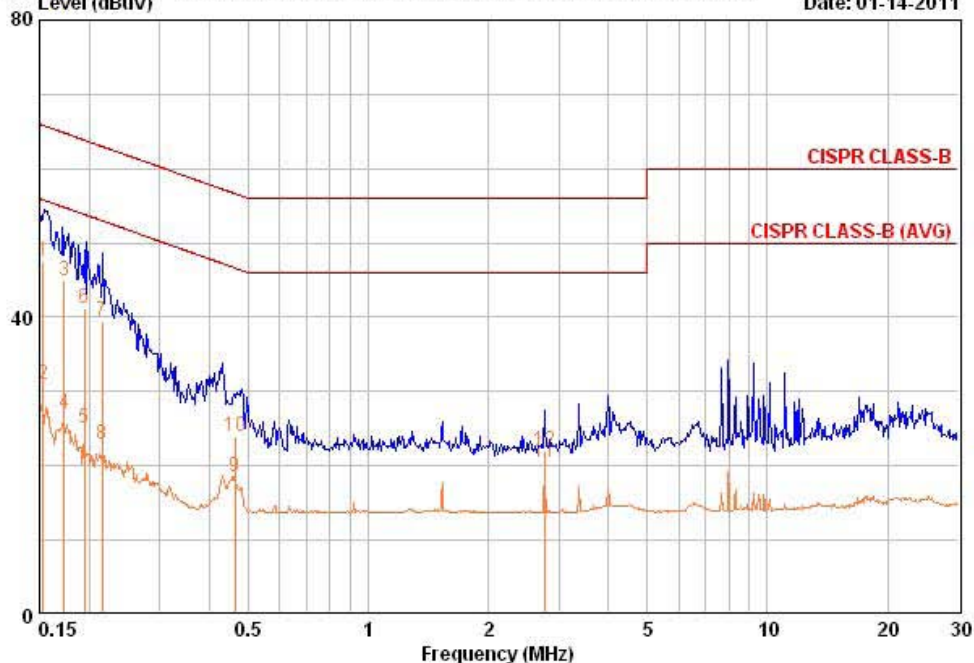
* Note: The limits will decrease with the frequency logarithmically within 0.15MHz to 0.5MHz

AC Conducted Emissions - USB Charging+BT+FMT(High) – Line

243 Jubug-ri, yangji-Myeon, Youngin-si,
Gyeonggi-do 449-822 Korea
Tel :+82-31-3236008,9
Fax:+82-31-3236010

EUT / Model No. :	BHF2000S	Phase :	LINE
Test Mode :	PC Charging+BT+FM-T(High) mode	Test Power :	120 / 60
Temp./Humi. :	20 / 43	Test Engineer :	PARK.H.W

Data: 16 Level (dBuV) File: C:\Conducted Data\2011\LTA_Conduction_1101-2.EMI (18) Date: 01-14-2011



Freq	RD	RD	C.F	Result	Result	Limit	Limit	Margin	Margin
MHz	QP	AV	dB	QP	AV	QP	AV	QP	AV
	dBuV	dBuV		dBuV	dBuV	dBuV	dBuV	dB	dB
0.153	37.95	21.35	9.66	47.61	31.01	65.84	55.84	18.23	24.83
0.173	35.15	17.35	9.65	44.81	27.01	64.82	54.82	20.01	27.81
0.194	31.66	15.36	9.64	41.30	25.00	63.86	53.86	22.56	28.86
0.215	29.76	13.36	9.64	39.40	23.00	63.01	53.01	23.61	30.01
0.463	14.35	8.85	9.67	24.02	18.52	56.64	46.64	32.62	28.12
2.768	12.36	10.86	9.69	22.05	20.55	56.00	46.00	33.95	25.45

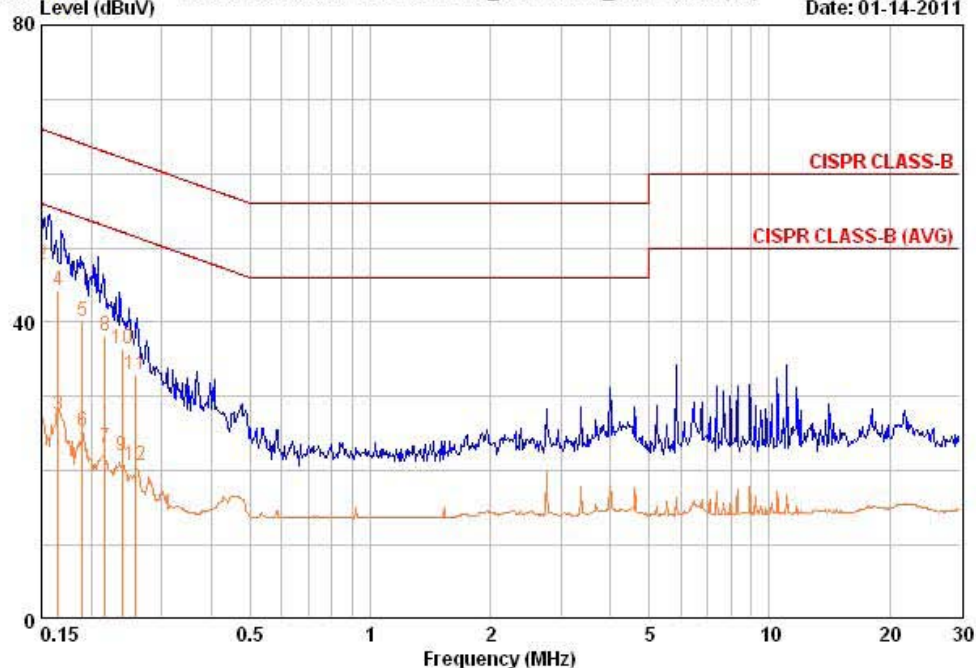
Remarks: C.F (Correction Factor) = Insertion loss + Cable loss

AC Conducted Emissions - USB Charging+BT+FMT(High) – Neutral

243 Jubug-ri, yangji-Myeon, Youngin-si,
Gyeonggi-do 449-822 Korea
Tel :+82-31-3236008,9
Fax:+82-31-3236010

EUT / Model No. :	BHF2000S	Phase :	NEUTRAL
Test Mode :	PC Charging+BT+FM-T(High) mode	Test Power :	120 / 60
Temp./Humi. :	20 / 43	Test Engineer :	PARK.H.W

Data: 18 File: C:\Conducted Data\2011\LTA_Conduction_1101-2.EMI (18) Date: 01-14-2011



Freq	RD	RD	C.F	Result	Result	Limit	Limit	Margin	Margin
MHz	QP	AV	dB	QP	AV	QP	AV	QP	AV
	dBuV	dBuV		dBuV	dBuV	dBuV	dBuV	dB	dB
0.150	38.15	23.05	9.67	47.82	32.72	66.00	56.00	18.18	23.28
0.165	34.65	17.85	9.66	44.31	27.51	65.21	55.21	20.89	27.70
0.190	30.56	15.66	9.65	40.20	25.30	64.04	54.04	23.83	28.73
0.216	28.56	13.46	9.64	38.20	23.10	62.97	52.97	24.77	29.87
0.239	26.65	12.45	9.65	36.30	22.10	62.13	52.13	25.83	30.03
0.258	23.25	11.05	9.65	32.90	20.70	61.50	51.50	28.59	30.79

Remarks: C.F (Correction Factor) = Insertion loss + Cable loss

APPENDIX

TEST EQUIPMENT USED FOR TESTS

	Description	Model No.	Serial No.	Manufacturer	Interval	Last Cal. Date
1	Spectrum Analyzer	FSV-30	100757	R&S	1 year	2010-02-01
2	Spectrum Analyzer	8563E	3425A02505	HP	1 year	2010-03-29
3	Spectrum Analyzer	8594E	3710A04074	HP	2 year	2009-10-12
4	Signal Generator	8648C	3623A02597	HP	1 year	2010-03-30
5	Signal Generator	83711B	US34490456	HP	1 year	2010-03-30
6	Attenuator (3dB)	8491A	37822	HP	1 year	2010-10-08
7	Attenuator (10dB)	8491A	63196	HP	1 year	2010-10-08
8	EMI Test Receiver	ESCI7	100722	R&S	1 year	2010-10-08
9	Horn Antenna(18 ~ 40GHz)	SAS-574	154	Schwarzbeck	2 year	2010-11-25
10	Horn Antenna(18 ~ 40GHz)	SAS-574	155	Schwarzbeck	2 year	2010-11-25
11	RF Amplifier	8447D	2949A02670	HP	2 year	2009-10-12
12	RF Amplifier	8449B	3008A02126	HP	1 year	2010-03-29
13	Test Receiver	ESHS10	828404/009	R&S	1 year	2010-03-29
14	TRILOG Antenna	VULB 9160	9160-3212	SCHWARZBECK	2 year	2009-04-02
15	Log Periodic Antenna	VULP 9118	9118 A 401	SCHWARZBECK	2 year	2009-04-13
16	Biconical Antenna	BBA 9106	VHA 9103-2315	SCHWARZBECK	2 year	2009-04-13
17	Horn Antenna	3115	00055005	ETS LINDGREN	2 year	2009-03-16
18	Horn Antenna	BBHA 9120D	9120D122	SCHWARZBECK	2 year	2010-12-24
19	Dipole Antenna	VHA9103	2116	SCHWARZBECK	2 year	2010-11-25
20	Dipole Antenna	VHA9103	2117	SCHWARZBECK	2 year	2010-11-25
21	Dipole Antenna	VHA9105	2261	SCHWARZBECK	2 year	2010-11-25
22	Dipole Antenna	VHA9105	2262	SCHWARZBECK	2 year	2010-11-25
23	Hygro-Thermograph	THB-36	0041557-01	ISUZU	1 year	2010-04-12
24	Splitter (SMA)	ZFSC-2-2500	SF617800326	Mini-Circuits	-	-
25	Power Divider	11636A	6243	HP	1 year	2010-10-08
26	DC Power Supply	6622A	3448A03079	HP	1 year	2010-10-08
27	Frequency Counter	5342A	2826A12411	HP	1 year	2010-03-30
28	Power Meter	EPM-441A	GB32481702	HP	1 year	2010-03-29
29	Power Sensor	8481A	US41030291	HP	1 year	2010-10-08
30	Audio Analyzer	8903B	3729A18901	HP	1 year	2010-10-08
31	Modulation Analyzer	8901B	3749A05878	HP	1 year	2010-10-08
32	TEMP & HUMIDITY Chamber	YJ-500	LTAS06041	JinYoung Tech	1 year	2010-10-08
33	LOOP-ANTENNA	FMZB 1516	151602/94	SCHWARZBECK	2 year	2009-03-02
34	Stop Watch	HS-3	601Q09R	CASIO	2 year	2010-03-31
35	LISN	ENV216	100408	R&S	1 year	2010-10-08
36	UNIVERSAL RADIO COMMUNICATION TESTER	CMU200	106243	R&S	2 year	2010-05-13
37	Attenuator (30dB)	8498A	3318A10929	HP	1 year	2011-01-05