

**SmartPayTech**

Dates of Tests : June 14~23, 2010

Test Report S/N: LR500191006E

Test Site : LTA CO., LTD

**CERTIFICATION OF COMPLIANCE**

FCC ID.

**YBIPAYPLUS**

APPLICANT

**SmartPayTech INC.**

Equipment Class	:	Digital Transmission System (DTS)
Manufacturing Description	:	Payment Industrial PDA
Manufacturer	:	SmartPayTech INC.
Model name	:	SmartPay Plus
Test Device Serial No.:	:	Identical prototype
Rule Part(s)	:	FCC Part 15.247 Subpart C; ANSI C-63.4-2003
Frequency Range	:	2412MHz ~ 2462MHz
Max. Output Power	:	Max 14.55dBm - Conducted (802.11b) Max 15.05dBm - Conducted (802.11g)
Data of issue	:	June 23, 2010

This test report is issued under the authority of:

The test was supervised by:



Kyung-Taek LEE, Technical Manager



Hyun-Chae You, 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.  
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 E-mail : [chahn@ltalab.com](mailto:chahn@ltalab.com)  
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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	2010-09-30	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

## **2-1 Applicant & Manufacturer**

## 2-2 Equipment Under Test (EUT)

### 2-3 Tested frequency

## 2-4 Ancillary Equipment

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### 3. Test Report

#### 3.1 Summary of tests

FCC Part Section(s)	Parameter	Limit	Test Condition	Status (note 1)
15.247(a)	6 dB Bandwidth	> 500kHz	Conducted	C
15.247(b)	Transmitter Peak Output Power	< 1Watt		C
15.247(d)	Transmitter Power Spectral Density	< 8dBm @ 3kHz		C
15.247(d)	Band Edge & Spurious	> 20 dBc		C
15.209	Field Strength of Harmonics	Emission	Radiated	C
15.207	AC Conducted Emissions	Emissions	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.

#### → Antenna Requirement

The SmartPayTech INC. FCC ID: YBIPAYPLUS unit complies with the requirement of §15.203. The antenna is connected to inside of EUT. And type is CHIP antenna.

The sample was tested according to the following specification:  
FCC Parts 15.247; ANSI C-63.4-2003

## 3.2 Technical Characteristics Test (802.11b/g)

### 3.2.1 6 dB Bandwidth

#### Procedure:

The bandwidth at 6dB below the highest in-band spectral density was measured with a spectrum analyzer connected to the antenna terminal, while EUT is operating in transmission mode at the appropriate frequencies.

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 6dB 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 6 dB bandwidth of the emission.

The spectrum analyzer is set to:

Center frequency = the highest, middle and the lowest channels

RBW = 100 kHz

Span = 30 MHz

VBW = 300 kHz (VBW  $\geq$  RBW)

Sweep = auto

Trace = max hold

Detector function = peak

#### Measurement Data:

Mode	Frequency (MHz)	Channel No.	Test Results	
			Measured Bandwidth (MHz)	Result
802.11b	2412	1	10.182	Complies
	2437	6	10.289	Complies
	2462	11	9.595	Complies
802.11g	2412	1	16.454	Complies
	2437	6	16.411	Complies
	2462	11	16.454	Complies

- See next pages for actual measured spectrum plots.

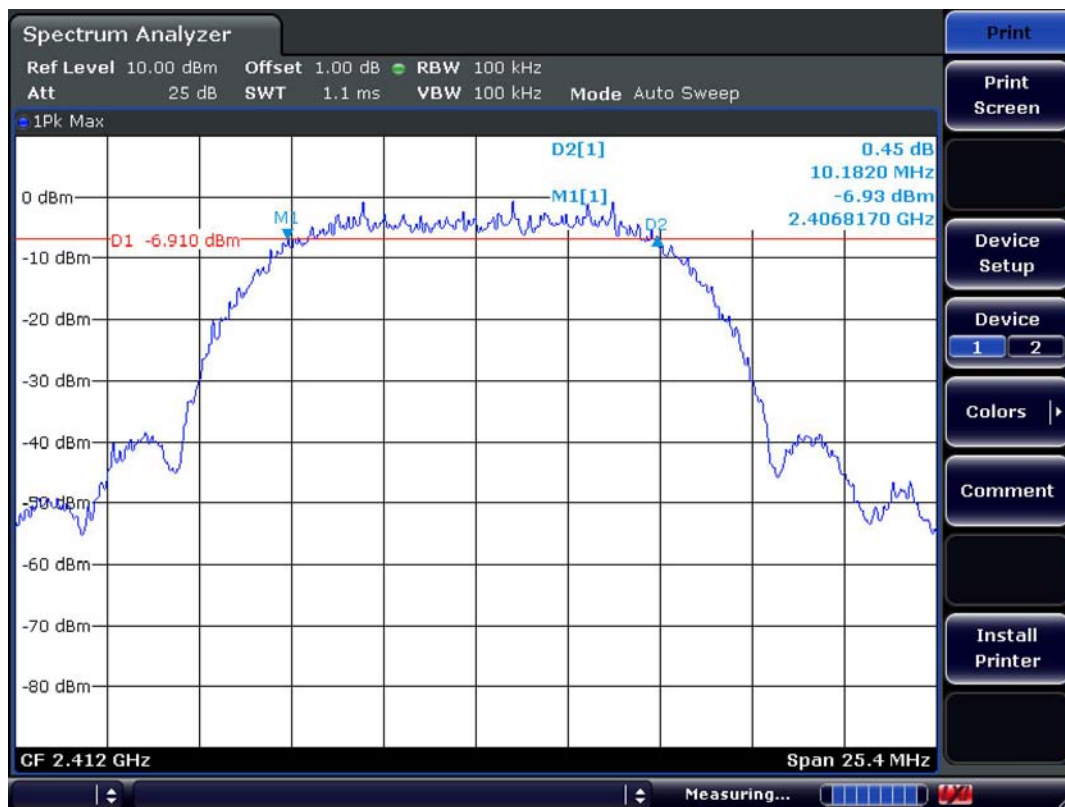
#### Minimum Standard:

6 dB Bandwidth > 500kHz

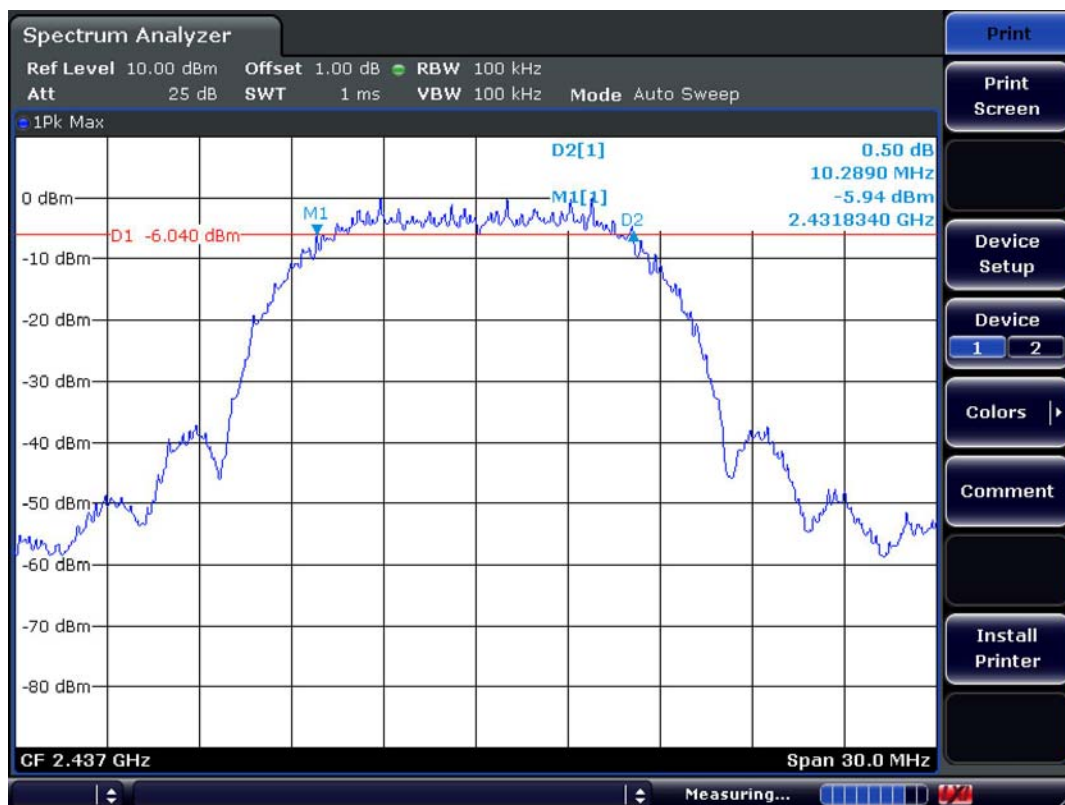
#### Measurement Setup

Same as the Chapter 3.2.1 (Figure 1)

## 802.11b CH 1



## CH 6

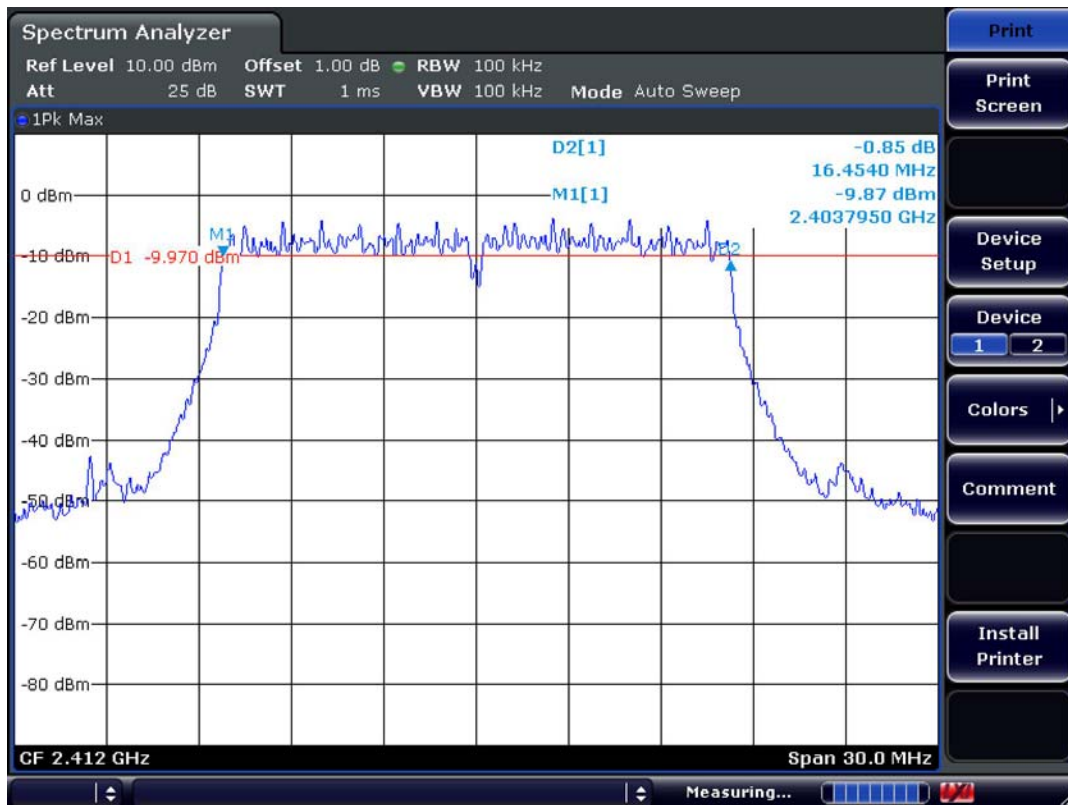


## CH 11

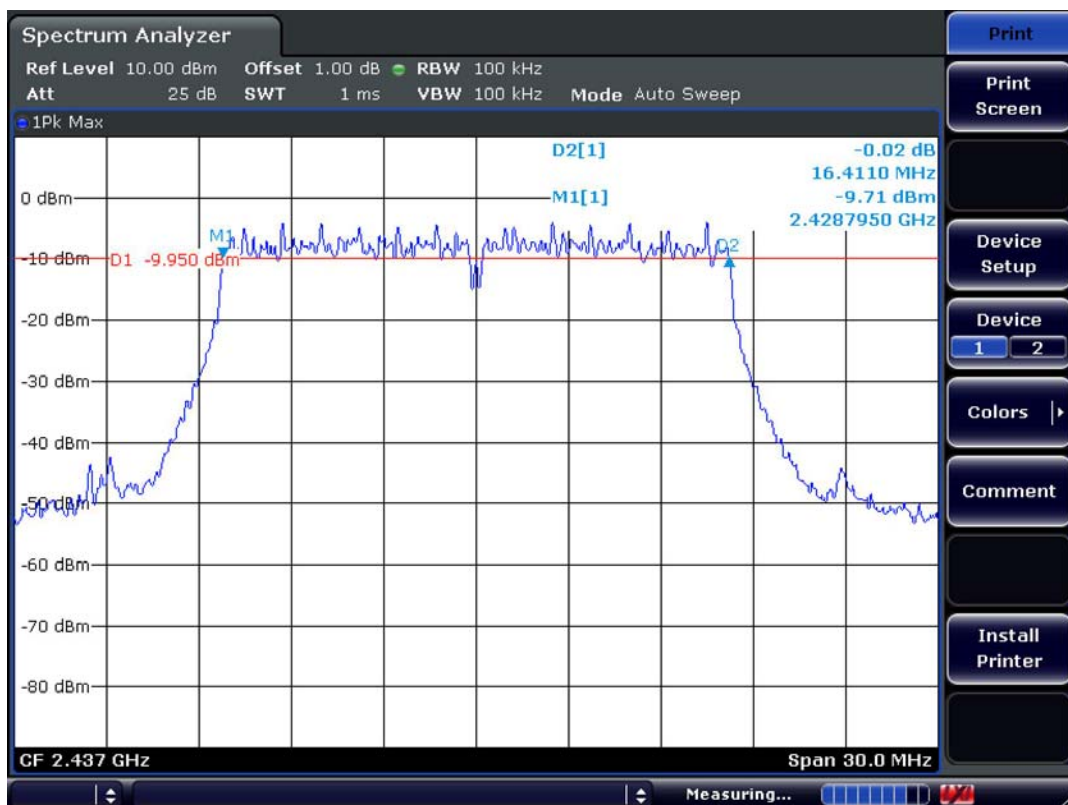




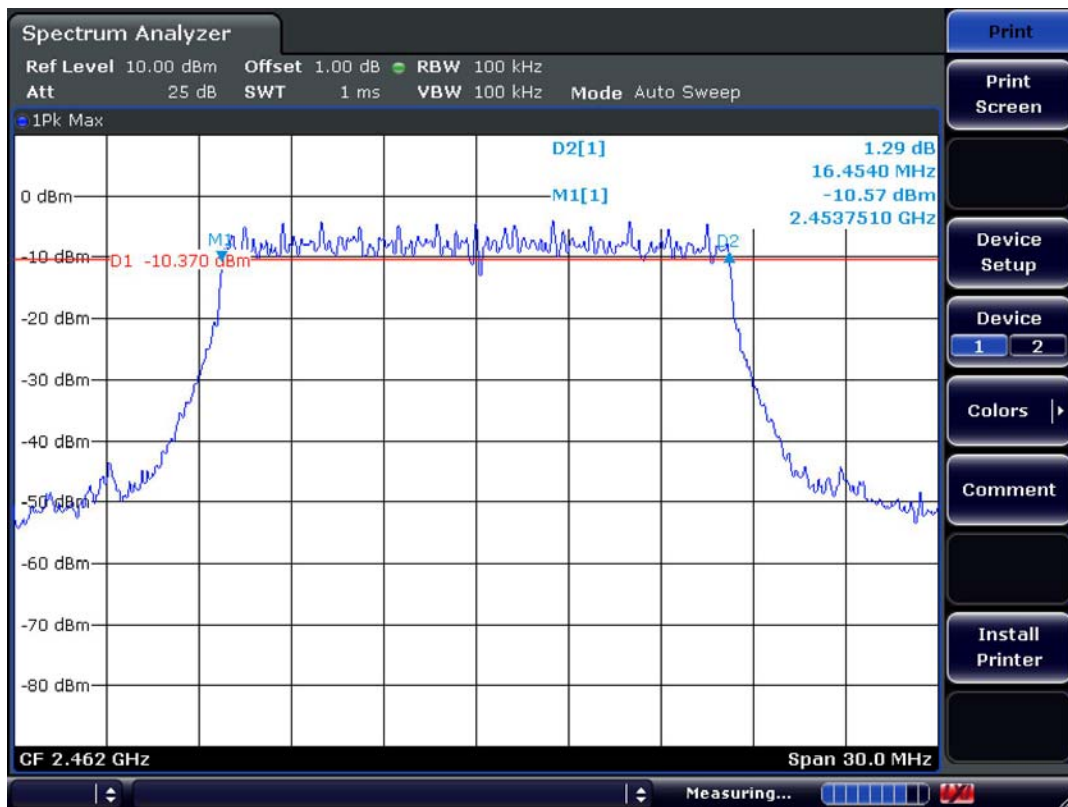
## 802.11g CH 1



## CH 6



## CH 11



### 3.2.2 Peak Output Power Measurement

#### Procedure:

The maximum peak output power was measured with the spectrum analyzer connected to the antenna output of the EUT. The spectrum analyzer's internal channel power integration function is used to integrate the power over a bandwidth greater than or equal to the 99% bandwidth. The EUT was operating in transmit mode at the appropriate center frequency.

The spectrum analyzer is set to:

Center frequency = the highest, middle and the lowest channels

RBW = 1MHz

Span = auto

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

Sweep = auto

Detector function = peak

#### Measurement Data:

Mode	Frequency (MHz)	Channel No.	Test Results	
			Measured Data (dBm)	Result
802.11b	2412	1	13.82	Complies
	2437	6	14.55	Complies
	2462	11	13.17	Complies
802.11g	2412	1	15.05	Complies
	2437	6	14.37	Complies
	2462	11	14.99	Complies

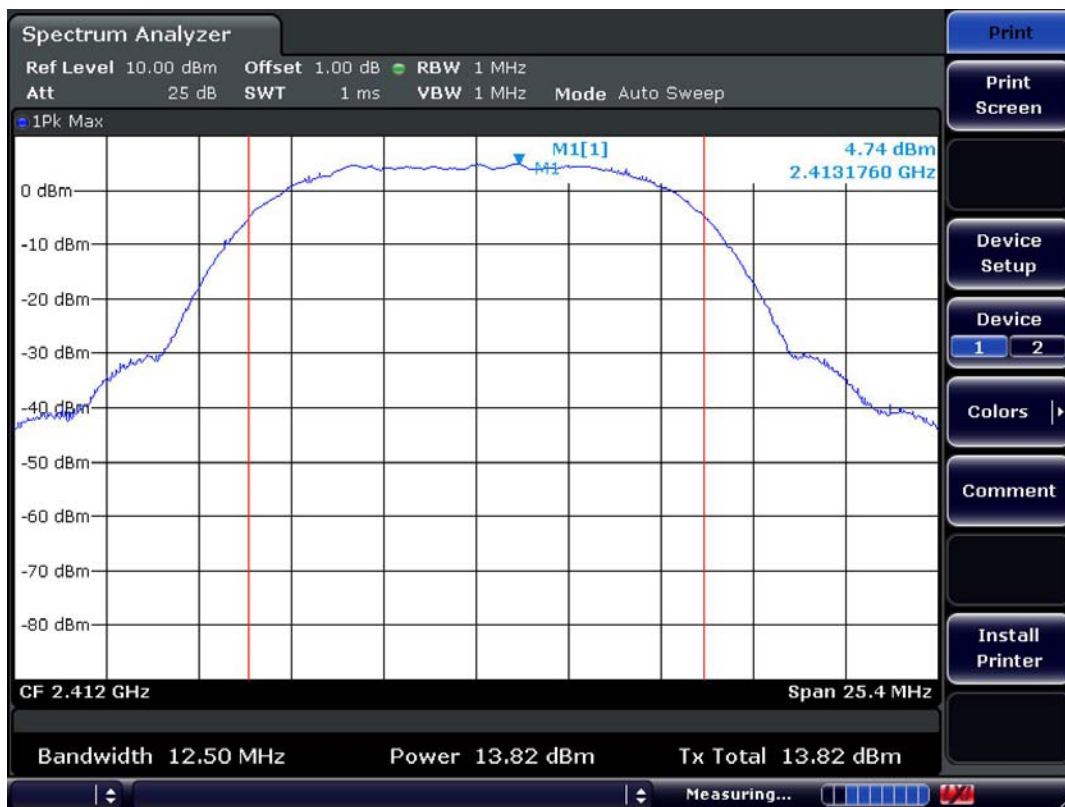
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- See next pages for actual measured spectrum plots.

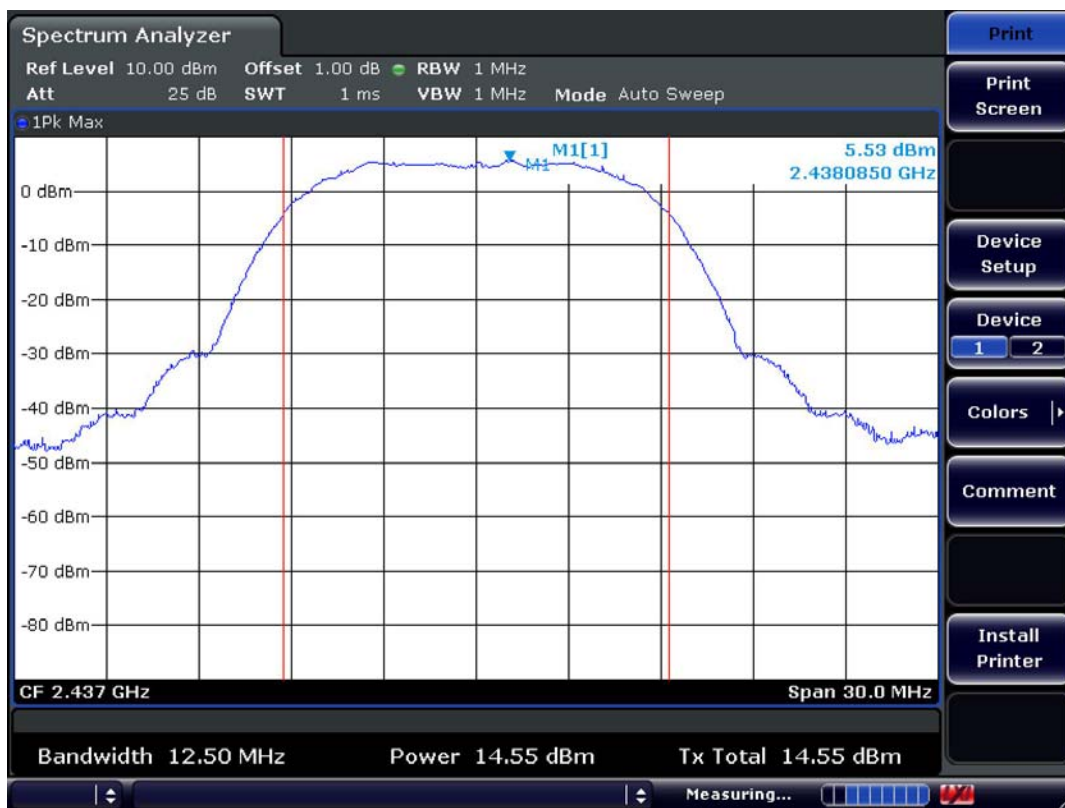
#### Minimum Standard:

Peak output power	< 1W
-------------------	------

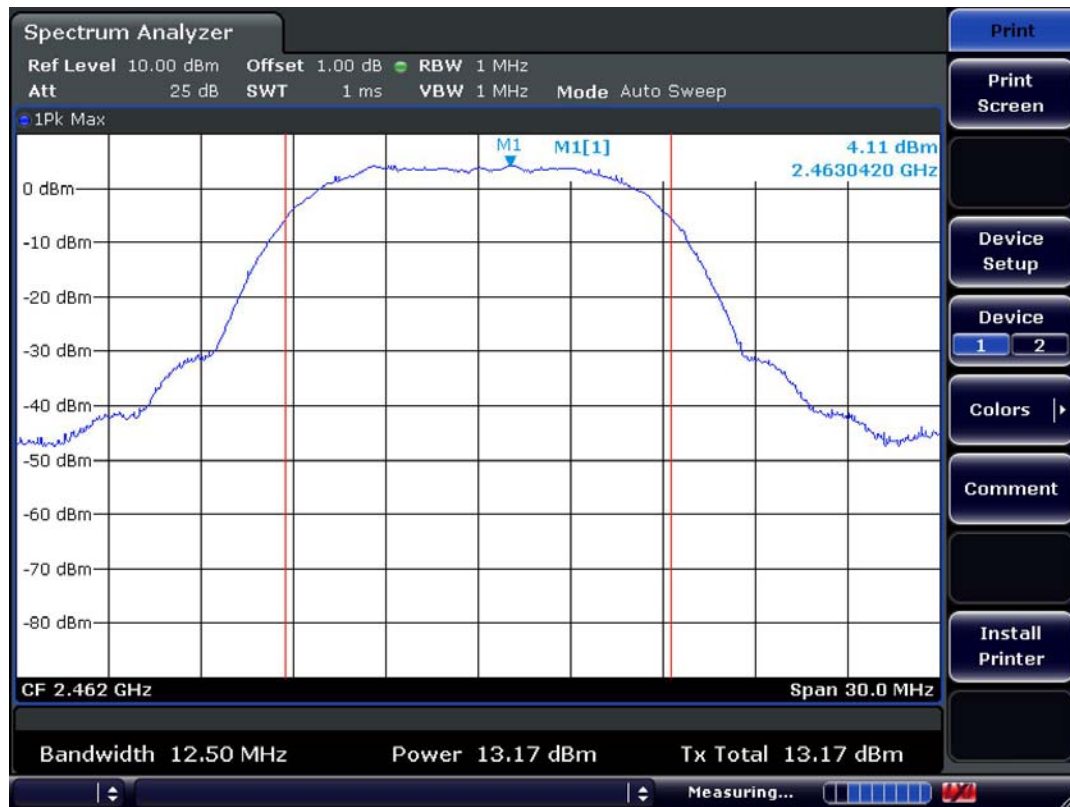
## 802.11b CH 1



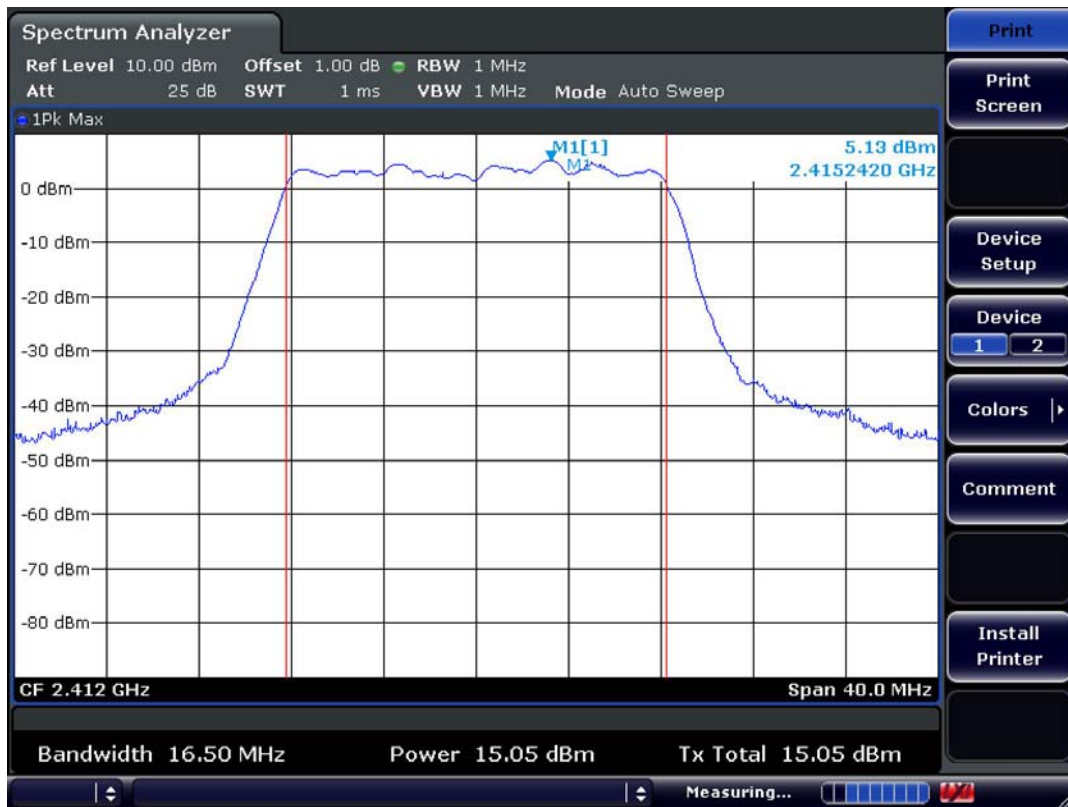
## CH 6



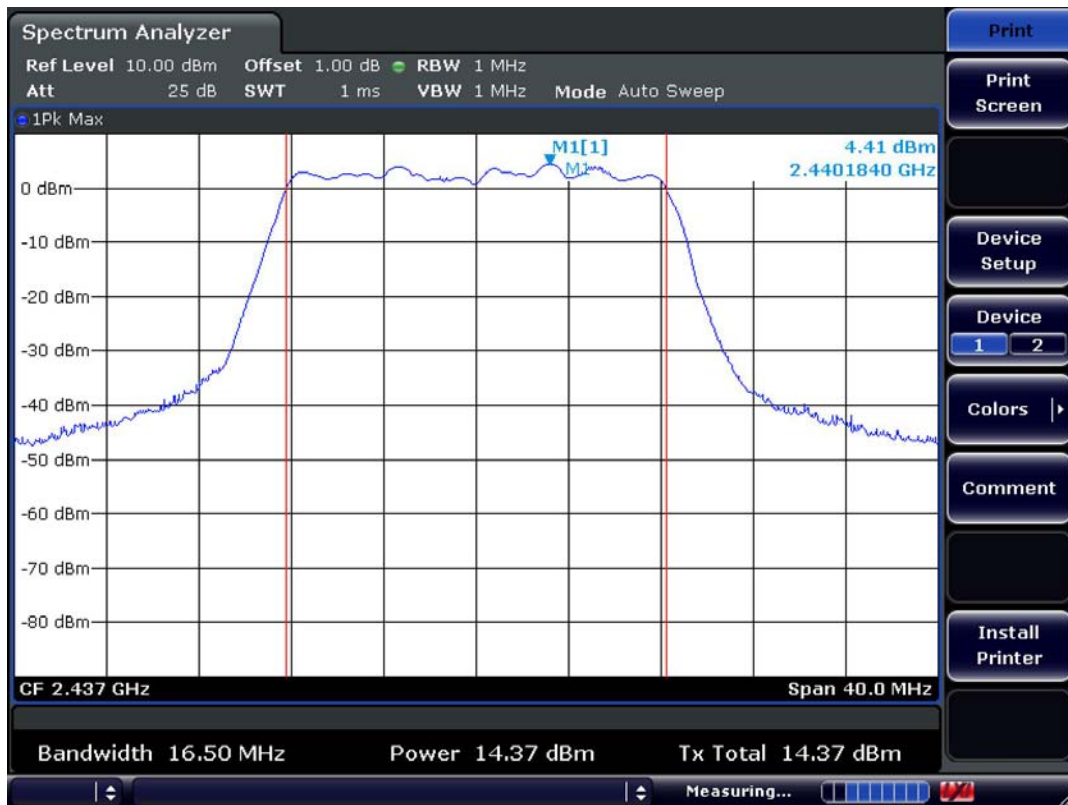
## CH 11



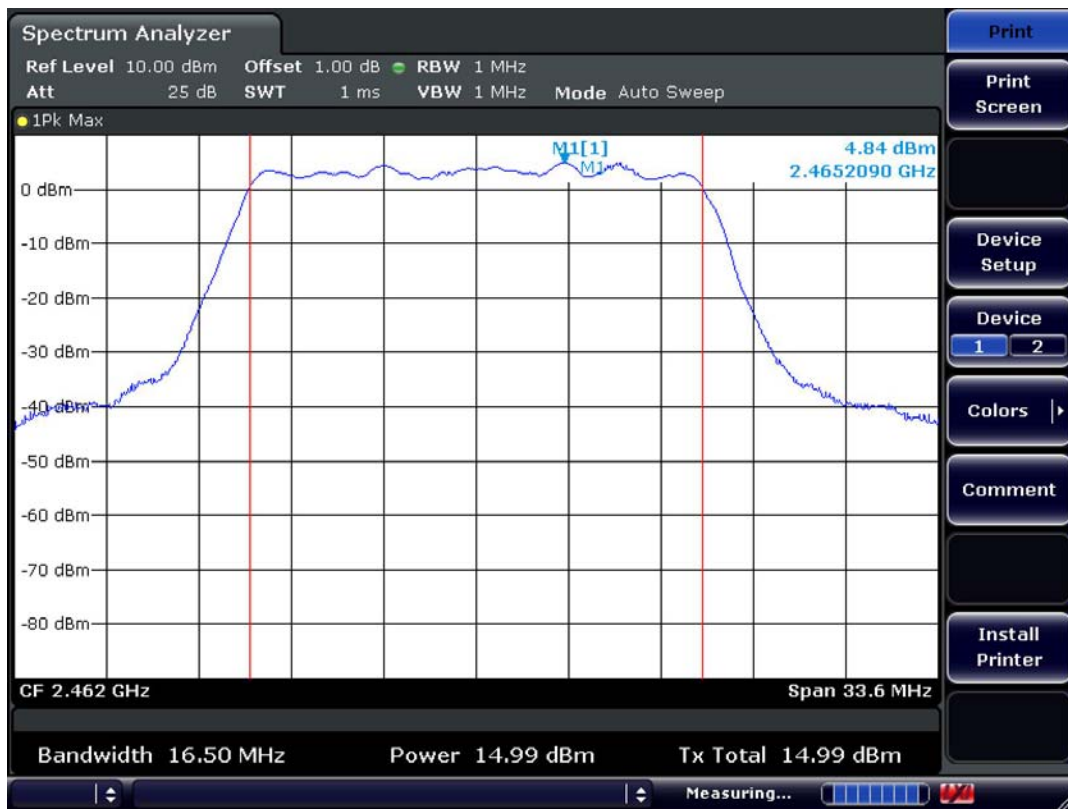
## 802.11g CH 1



## CH 6



## CH 11



### 3.2.3 Power Spectral Density

#### Procedure:

The peak power density is measured with a spectrum analyzer connected to the antenna terminal while the EUT is operating in transmission mode at the appropriate frequencies.

The spectrum analyzer is set to:

RBW = 3 kHz

Span = 300 kHz

VBW = 10 kHz

Sweep = 1000 sec

Detector function = peak

Trace = max hold

#### Measurement Data:

Mode	Frequency (MHz)	Ch.	Test Results	
			dBm	Result
802.11b	2412	1	-12.98	Complies
	2437	6	-14.64	Complies
	2462	11	-14.13	Complies
802.11b	2412	1	-19.19	Complies
	2437	6	-19.34	Complies
	2462	11	-19.57	Complies

- See next pages for actual measured spectrum plots.

#### Minimum Standard:

Power Spectral Density	< 8dBm @ 3kHz BW
------------------------	------------------

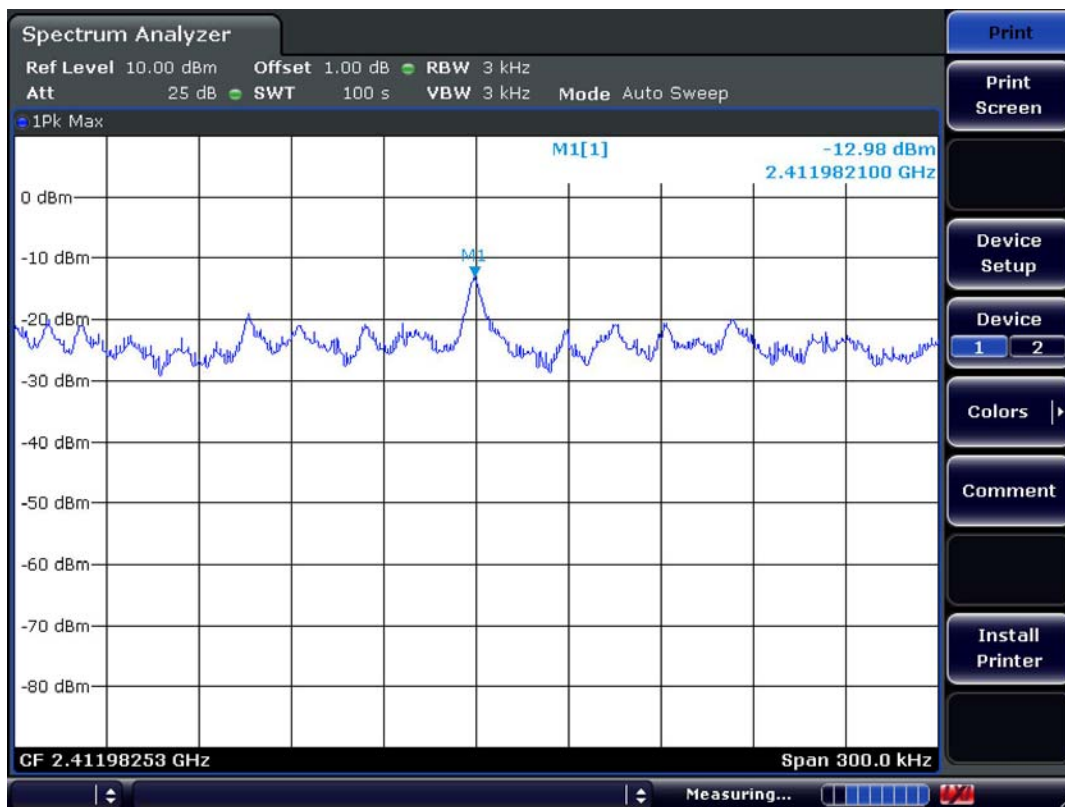
#### Measurement Setup

Same as the Chapter 3.2.1 (Figure 1)

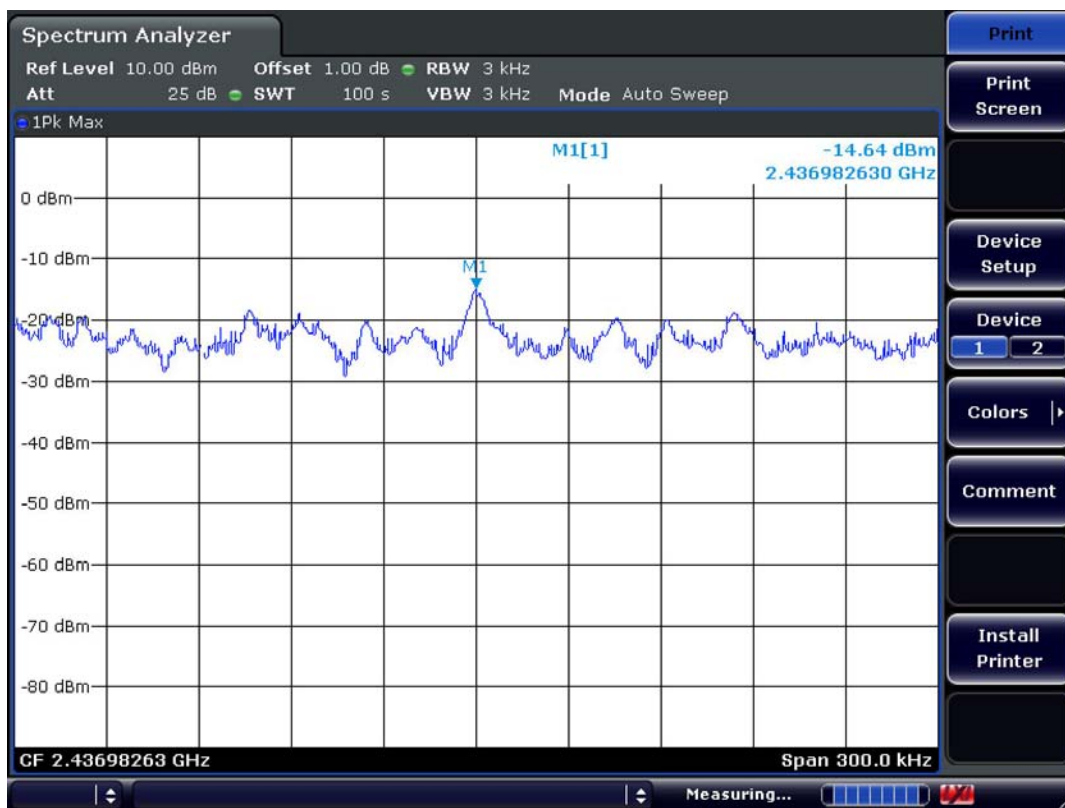


## 802.11b Power Density Measurement

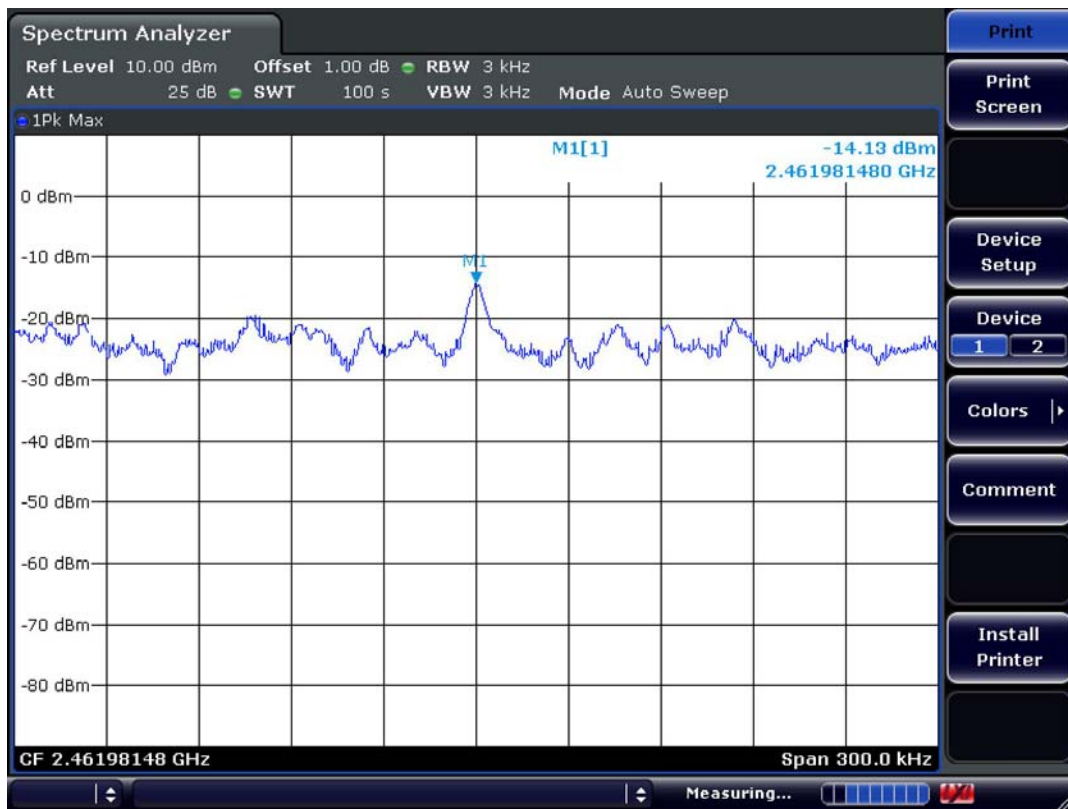
### CH 1



### CH 6

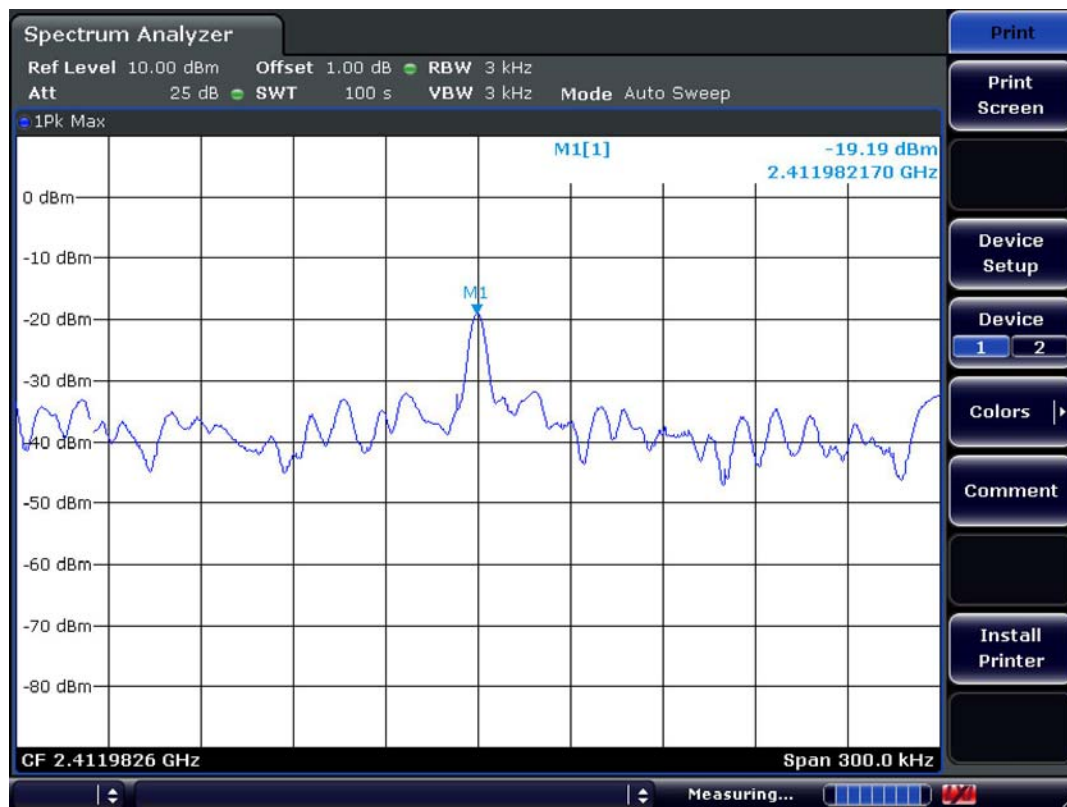


## CH 11

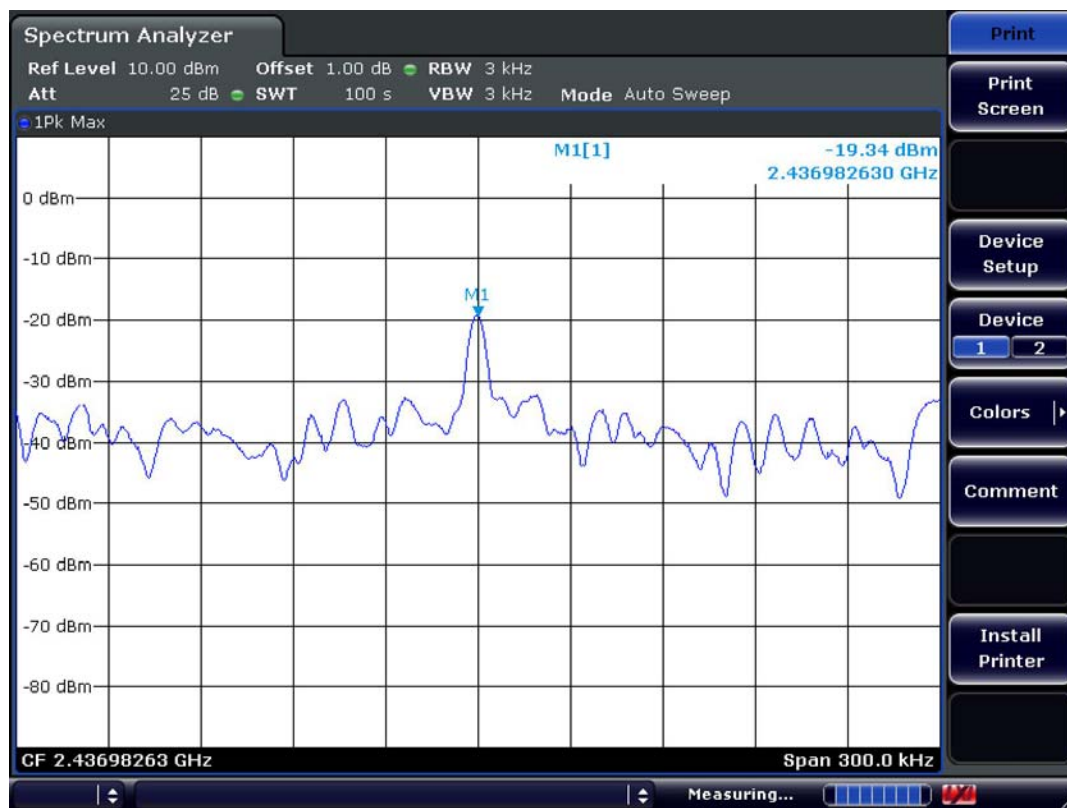


## 802.11g Power Density Measurement

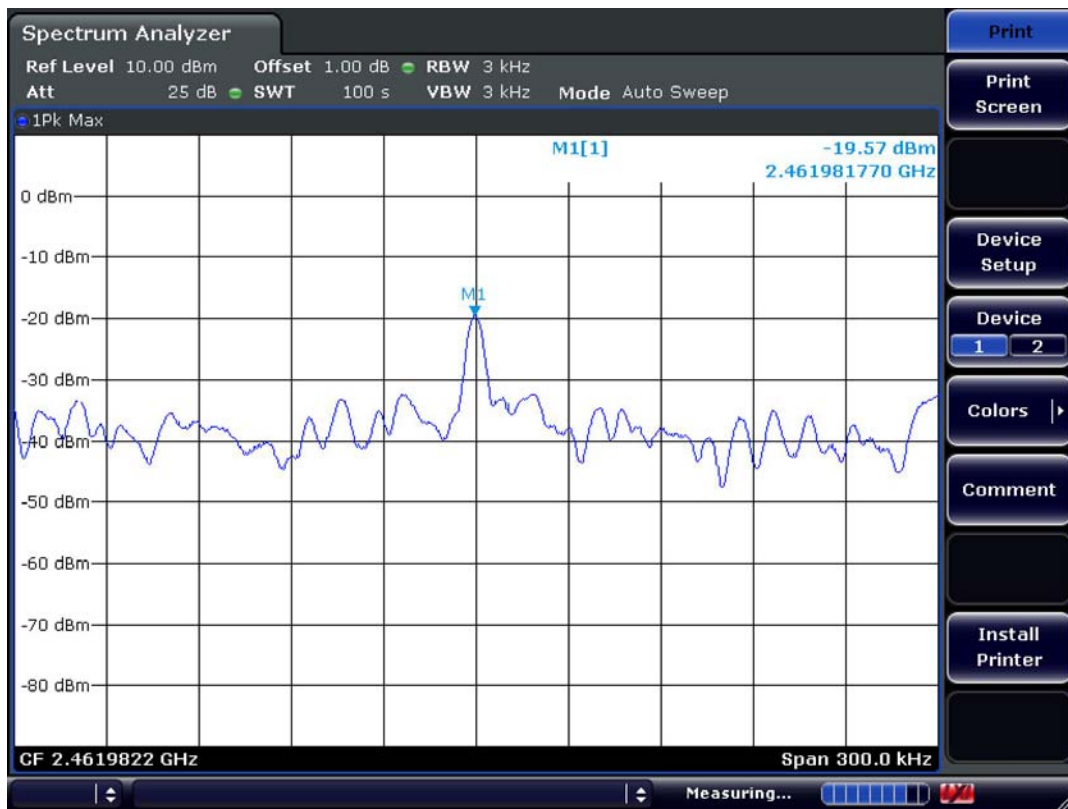
### CH 1



### CH 6



## CH 11



### 3.2.4 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 is operating in transmission mode at the appropriate frequencies.

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 = 40 MHz

Detector function = peak

Trace = max hold

Sweep = auto

Radiated emissions which fall in the restricted bands, as defined in 15.205(a), must also comply with the radiated emission limits specified in 15.209(a)

The spectrum analyzer is set to:

Center frequency = the highest, the lowest channels

PEAK:

RBW = VBW = 1MHz, Sweep=Auto

Average:

RBW = 1MHz, VBW=10Hz, Sweep=Auto

Measurement Distance:

3m

Polarization:

Horizontal / Vertical

#### Measurement Data: Complies

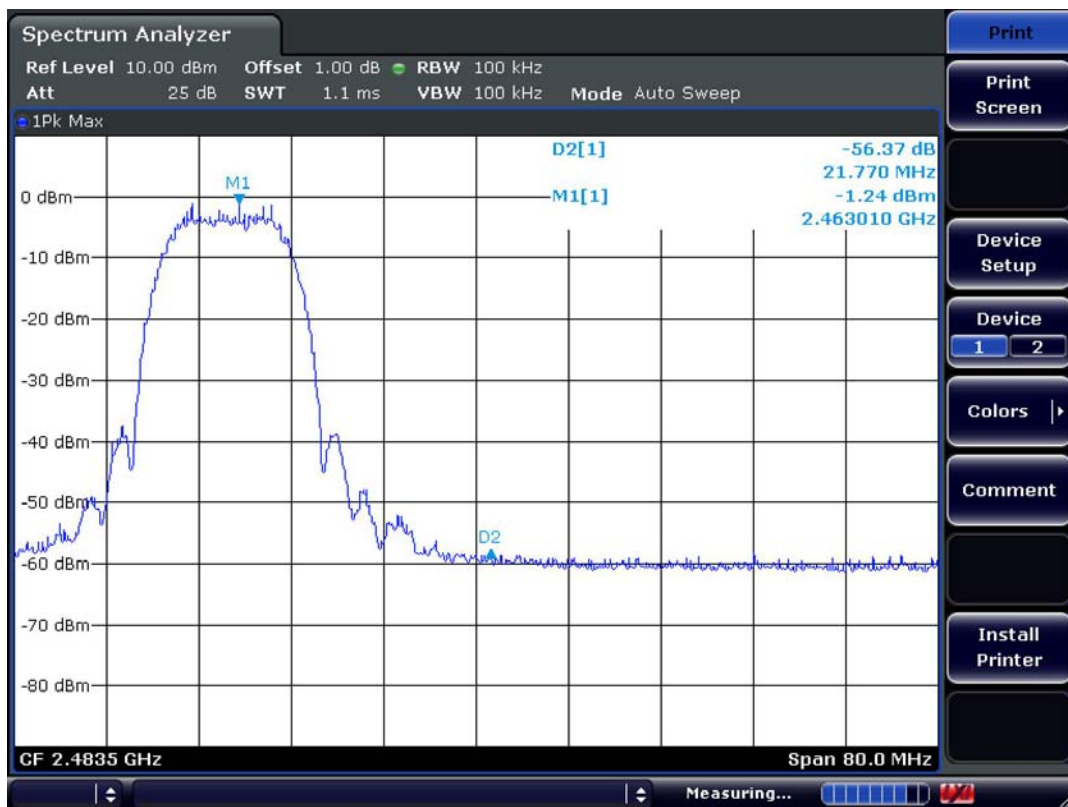
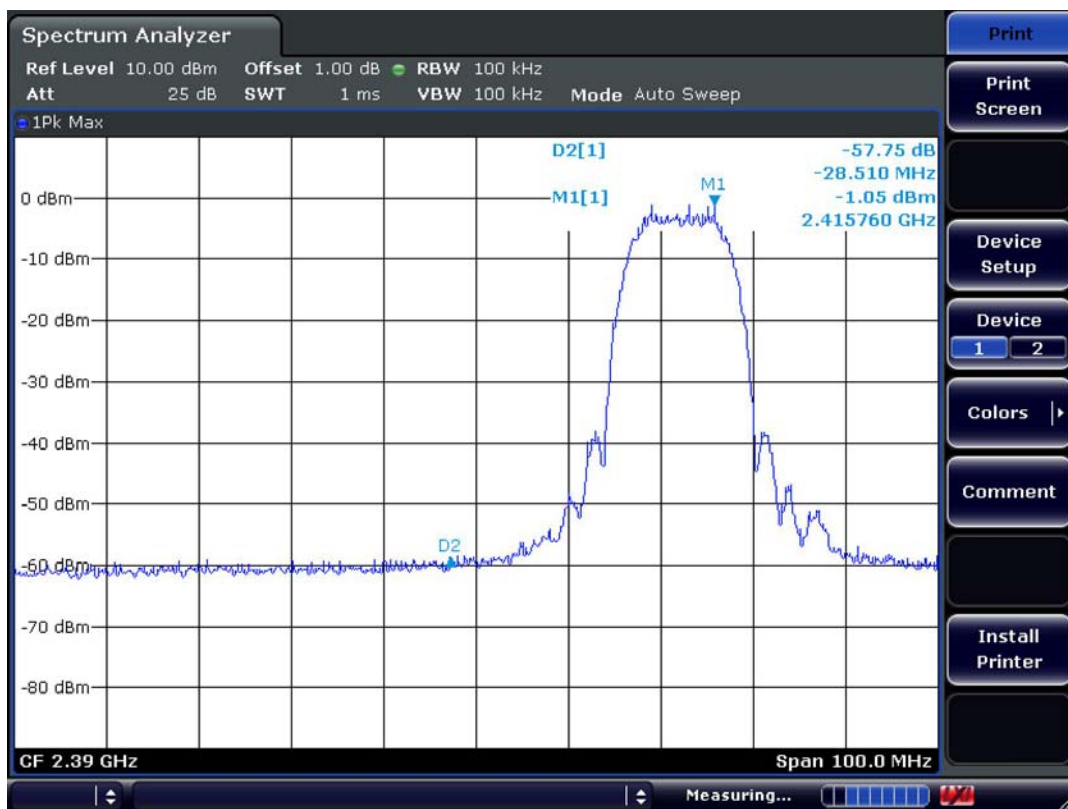
- All conducted emission in any 100kHz bandwidth outside of the spread spectrum band was at least 20dB lower than the highest inband spectral density. Therefore the applying equipment meets the requirement.
- See next pages for actual measured spectrum plots.

<b>Minimum Standard:</b>	> 20 dBc
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#### 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

## 802.11b Band-edge : Conducted Measurements



**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	42.4	58.8	V	26.0	36.0	8.2	54.0	74.0	40.6	57.0	13.4	17.0

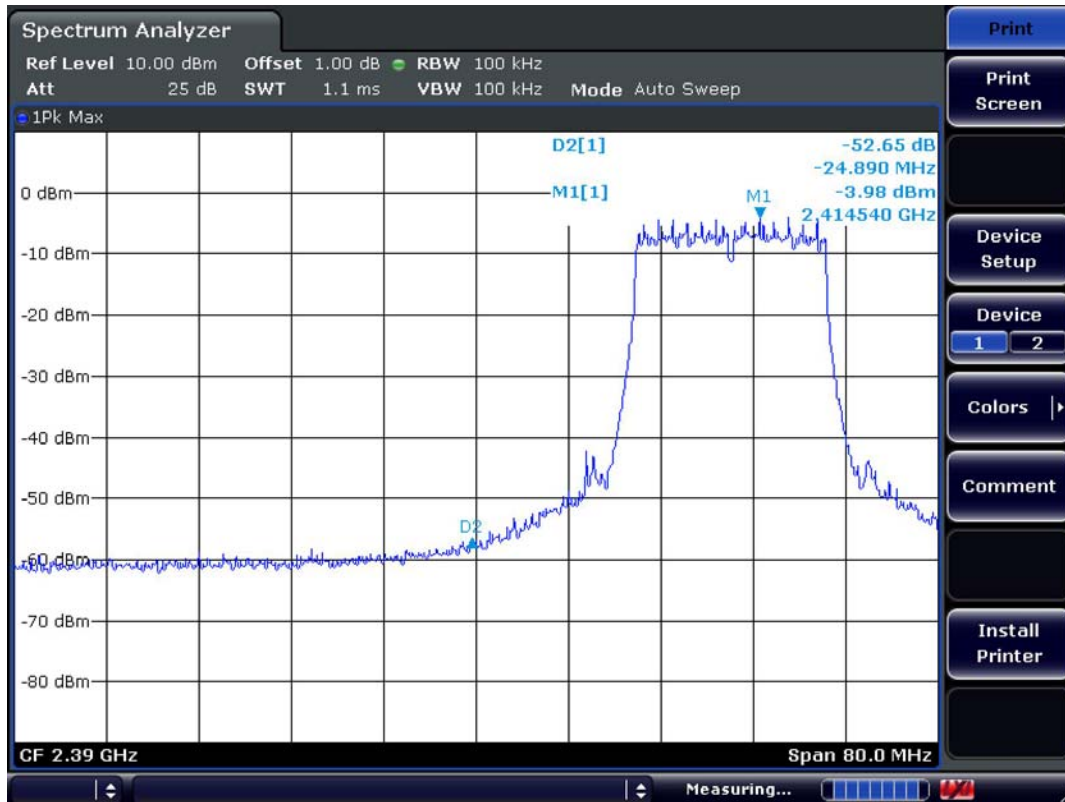
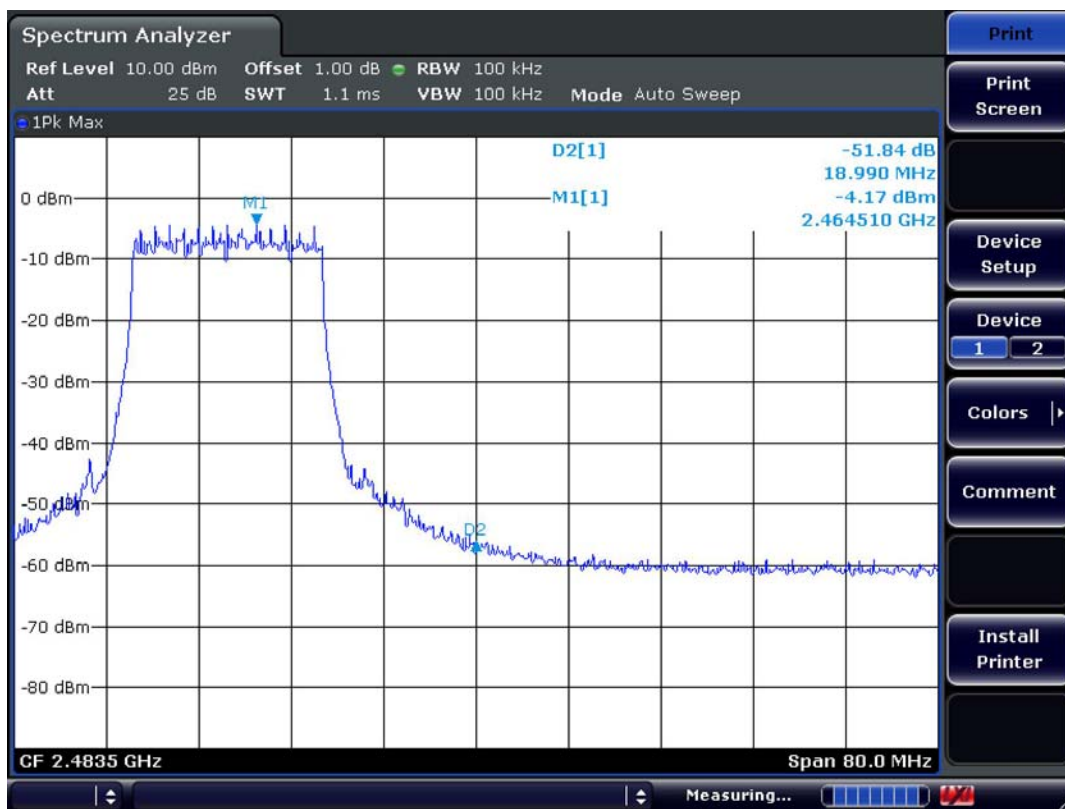
**Band-edges in the restricted band 2483.5-2500 MHz measurement**

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	43.9	52.4	V	26.0	36.0	8.2	54.0	74.0	42.1	50.6	11.9	23.4

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



## 802.11g Band-edge : Conducted Measurements





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

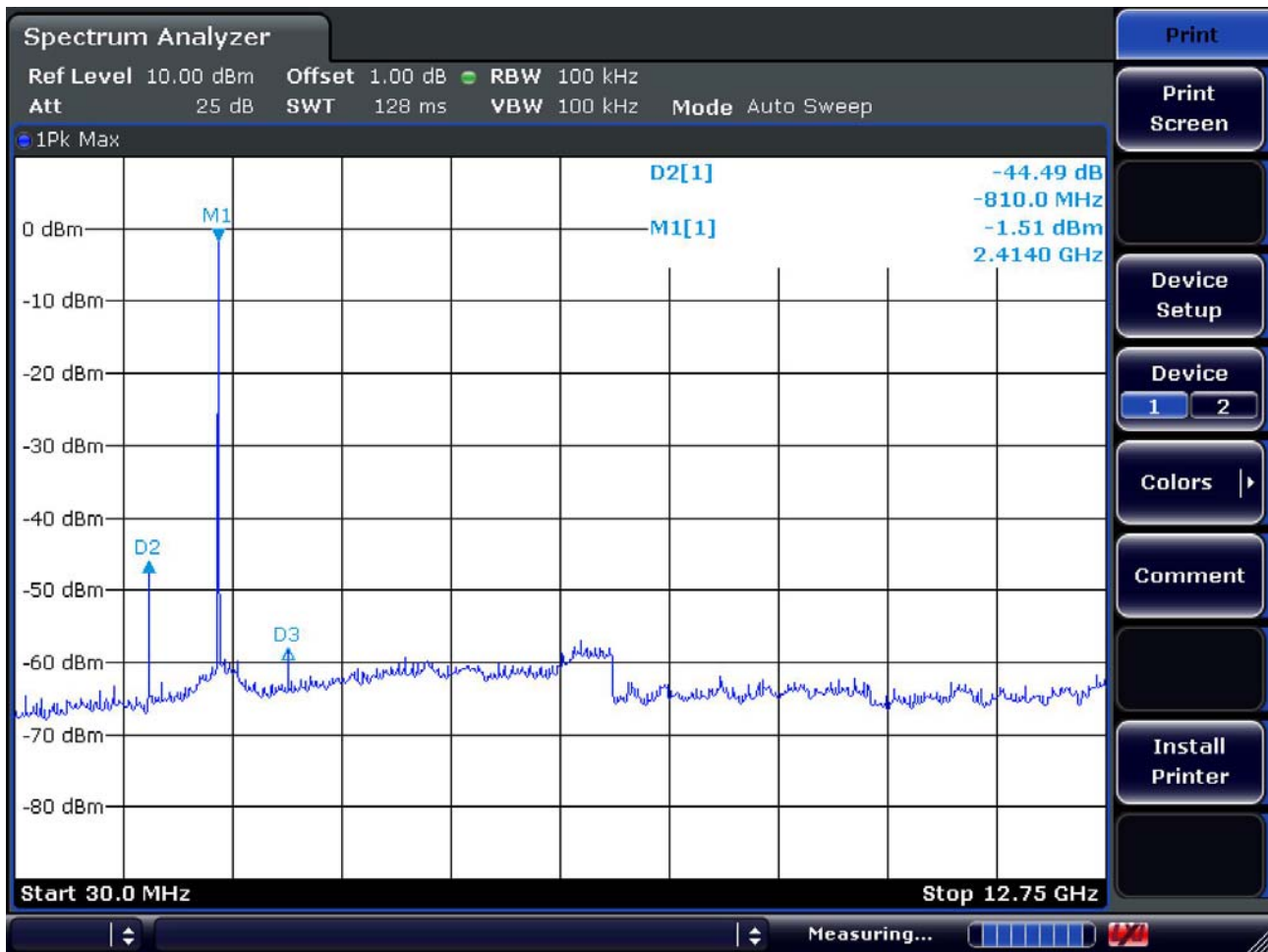
Frequency	Reading		Pol.	Correction			Limits		Result		Margin	
	[dBuV/m]			Factor			[dBuV/m]		[dBuV/m]		[dB]	
[MHz]	AV / Peak			Antenna	Amp. Gain	Cable	AV / Peak		AV / Peak		AV / Peak	
2390	41.5	56.3	V	26.0	36.0	8.2	54.0	74.0	39.7	54.5	14.3	19.5

**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	49.5	66.8	V	26.0	36.0	8.2	54.0	74.0	47.7	65.0	6.3	9.0

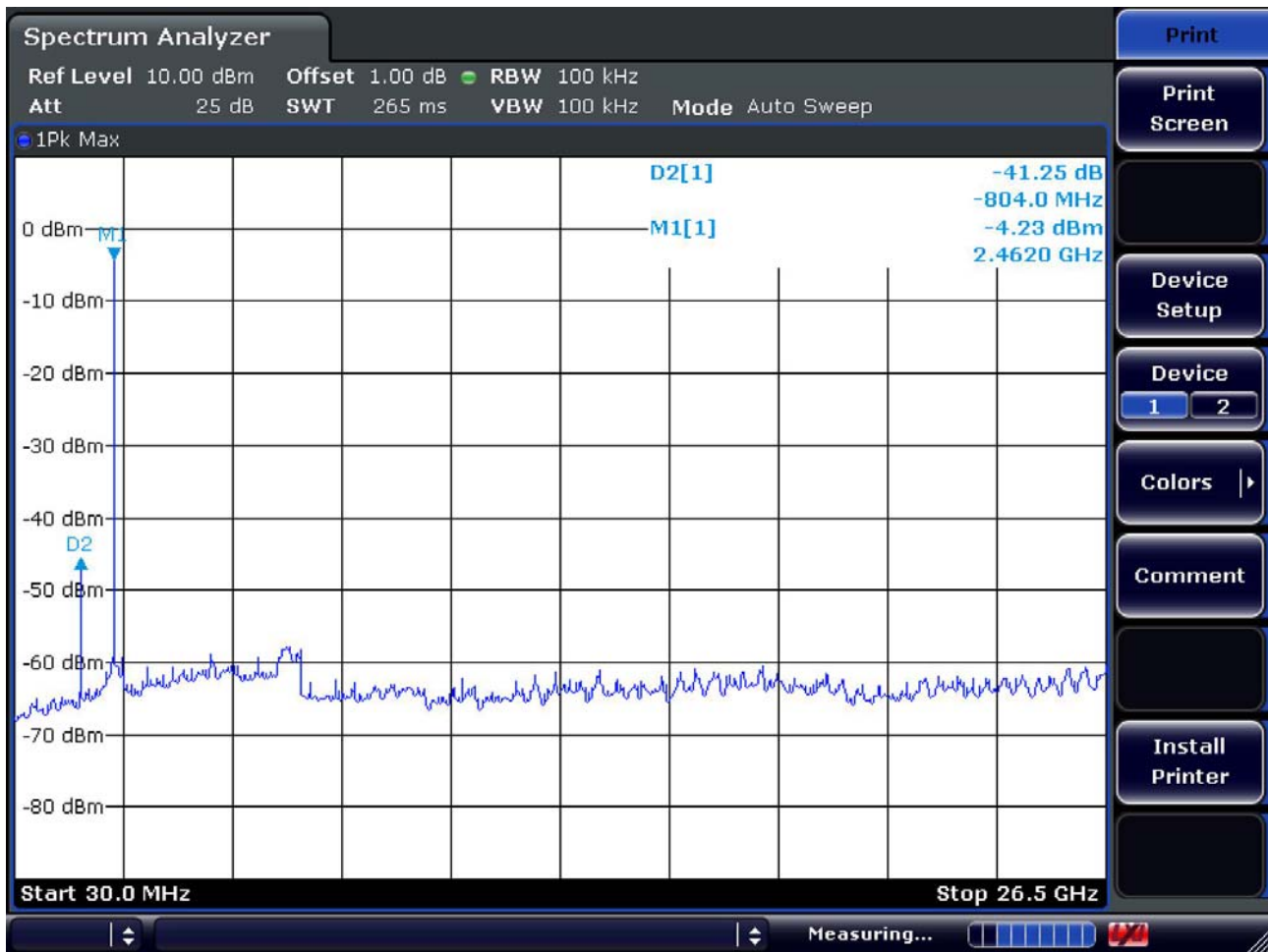
**Note : This EUT was tested in 3 orthogonal positions and the worst-case data was presented**

**802.11b - Low channel**  
**Frequency Range = 30 MHz ~ 10<sup>th</sup> harmonic.**

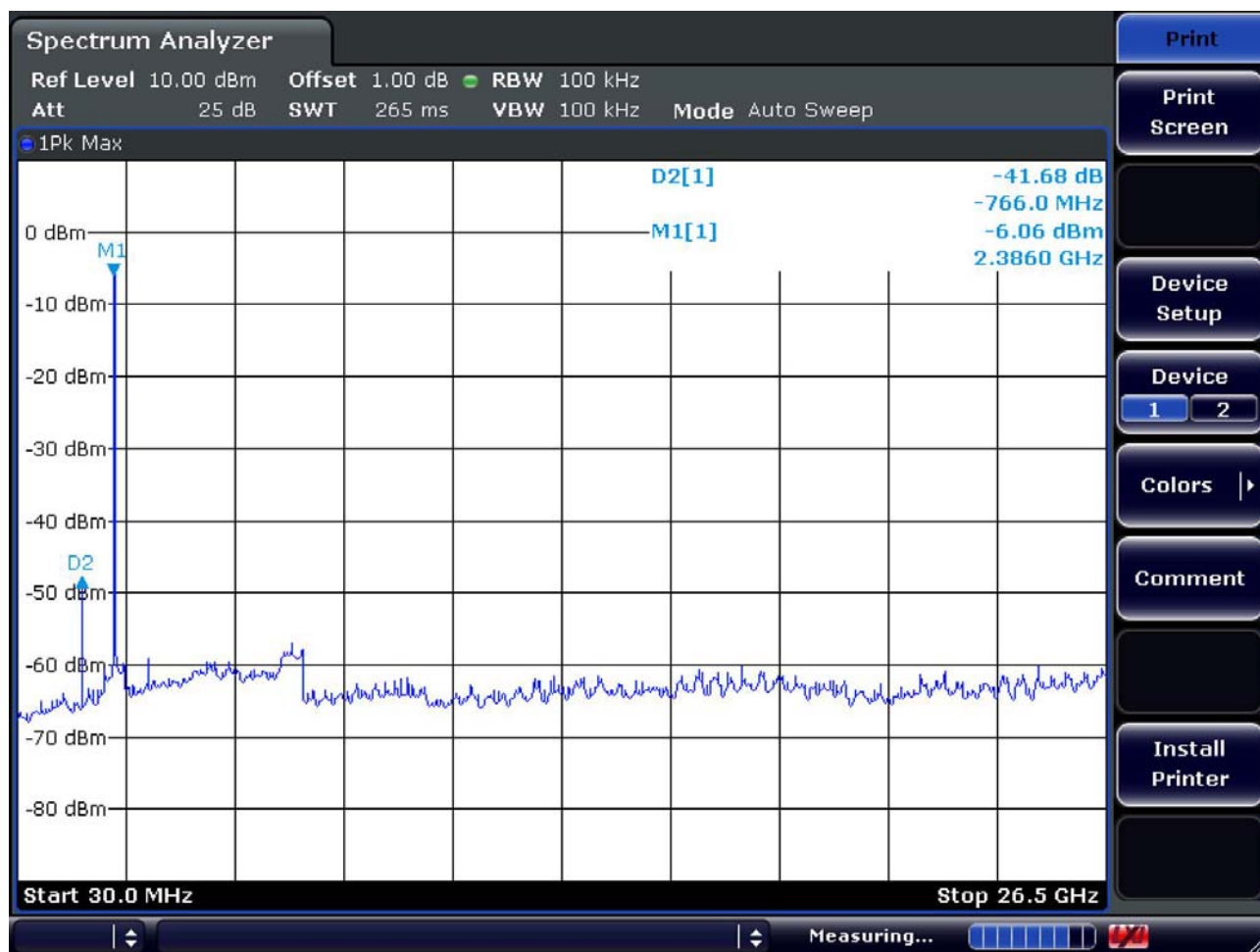


**Frequency Range = 30 MHz ~ 10<sup>th</sup> harmonic.**

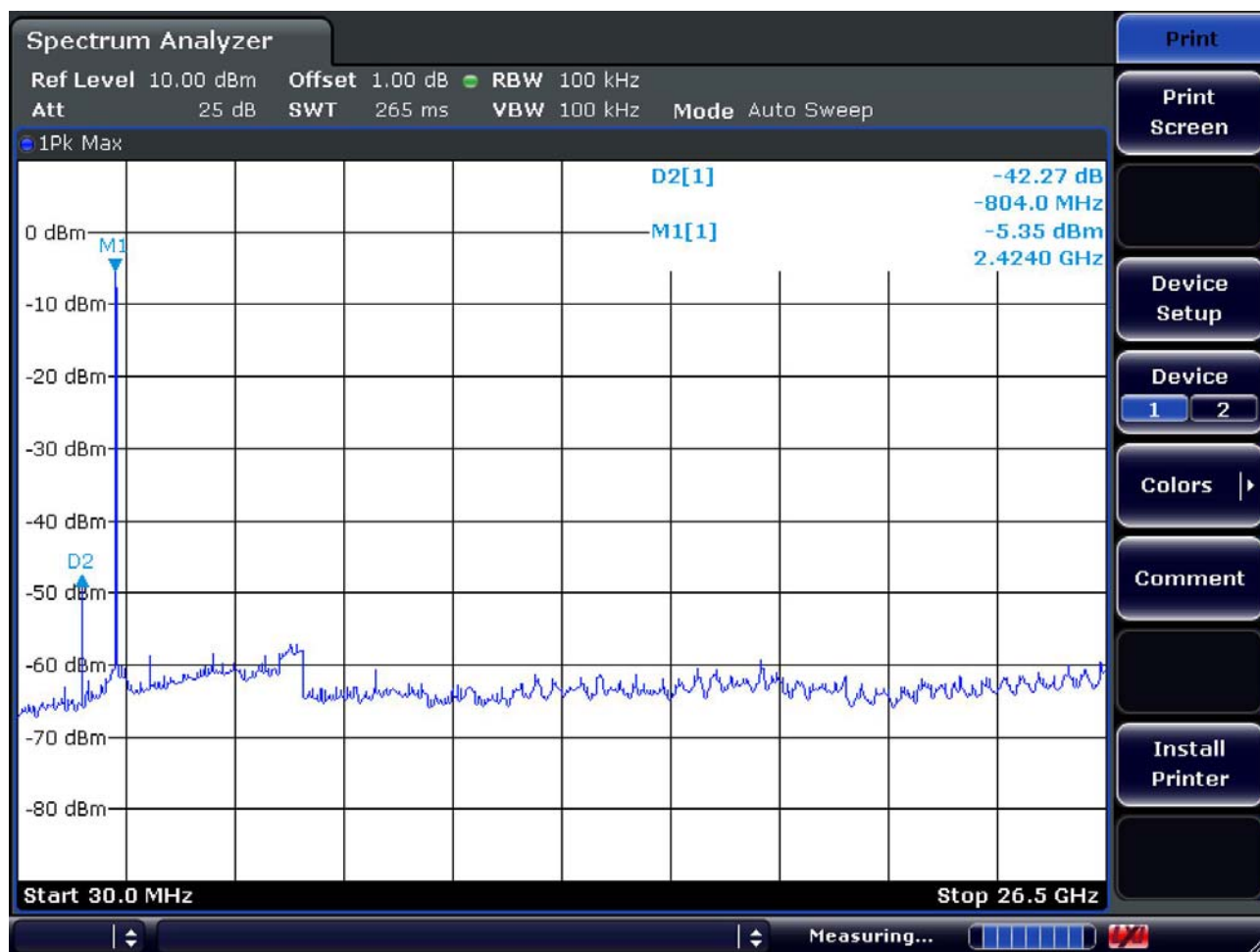
**802.11b – High channel**  
**Frequency Range = 30 MHz ~ 10<sup>th</sup> harmonic.**



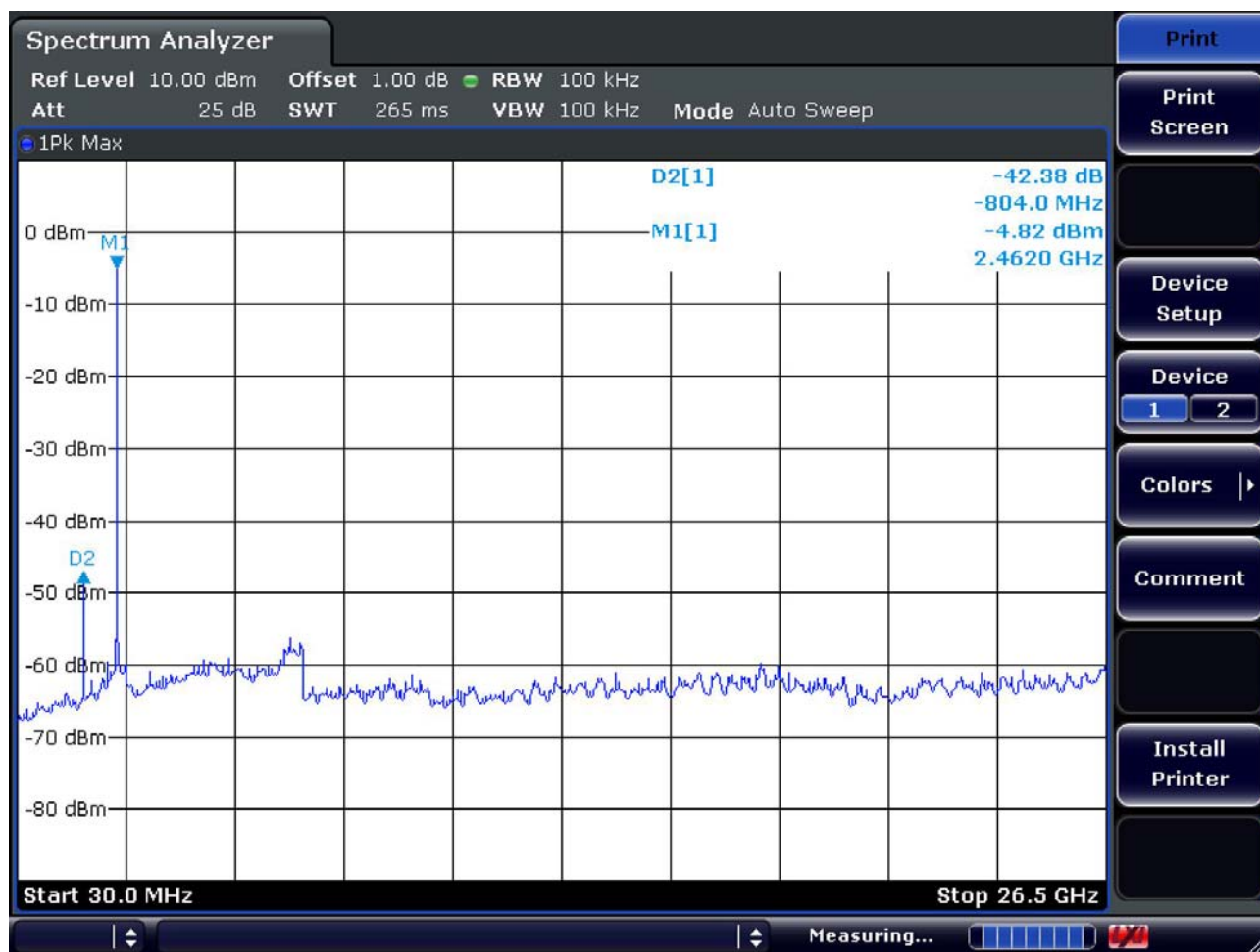
**802.11g - Low channel**  
**Frequency Range = 30 MHz ~ 10<sup>th</sup> harmonic.**



**802.11g - Mid channel**  
**Frequency Range = 30 MHz ~ 10<sup>th</sup> harmonic.**



**802.11g – High channel**  
**Frequency Range = 30 MHz ~ 10<sup>th</sup> harmonic.**



### 3.2.5 Field Strength of Harmonics

#### 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.

The spectrum analyzer is set to:

Center frequency = the worst channel

Frequency Range = 30 MHz ~ 10<sup>th</sup> harmonic.

RBW = 100 kHz ( 30MHz ~ 1 GHz)

VBW ≥ RBW

= 1 MHz (1 GHz ~ 10<sup>th</sup> harmonic )

Span = 100 MHz

Detector function = peak

Trace = max hold

Sweep = auto

#### Measurement Data: Complies

- See next pages for actual measured data.

#### 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.

#### Minimum Standard: FCC Part 15.109

Frequency (MHz)	Limit (uV/m) @ 10m
30 ~ 88	90
88 ~ 216	150
216 ~ 960	210
Above 960	300



**802.11b 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 emissions were detected at a level greater than 20dB below limit.

**802.11g 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 emissions were detected at a level greater than 20dB below limit.

**Radiated Emissions – Active Sync+Camera+WIFI Mode**

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

EUT/Model No.: SmartPay Plus

TEST MODE: Active Sync+Camera+WIFI mode

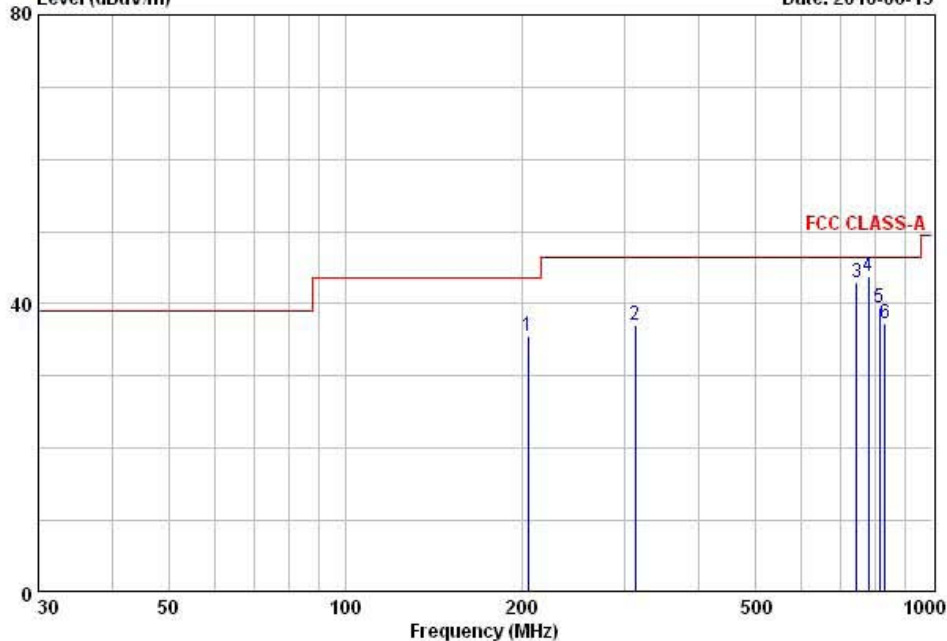
Temp Humi : 26 / 47

Tested by: KIM.K.I

Data: 94

Level (dBuV/m)

Date: 2010-06-15



	Freq	Reading	C.F	Result	Limit	Margin	Height	Angle	Polarity
	MHz	dBuV/m	dB/m	dBuV/m	dBuV/m	dB	cm	deg	
1	204.75	47.80	-12.26	35.54	40.00	4.46	400	211	HORIZONTAL
2	311.98	45.30	-8.27	37.03	47.00	9.97	400	145	HORIZONTAL
3	745.29	43.20	-0.16	43.04	47.00	3.96	152	27	HORIZONTAL
4	779.96	43.30	0.46	43.76	47.00	3.24	138	36	HORIZONTAL
5	814.62	38.50	0.92	39.42	47.00	7.58	120	28	HORIZONTAL
6	831.95	36.20	1.04	37.24	47.00	9.76	108	29	HORIZONTAL

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

**Radiated Emissions – Active Sync+Finger print+WIFI Mode**

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

EUT/Model No.: SmartPay Plus

TEST MODE: Active Sync+Finger print+WIFI mode

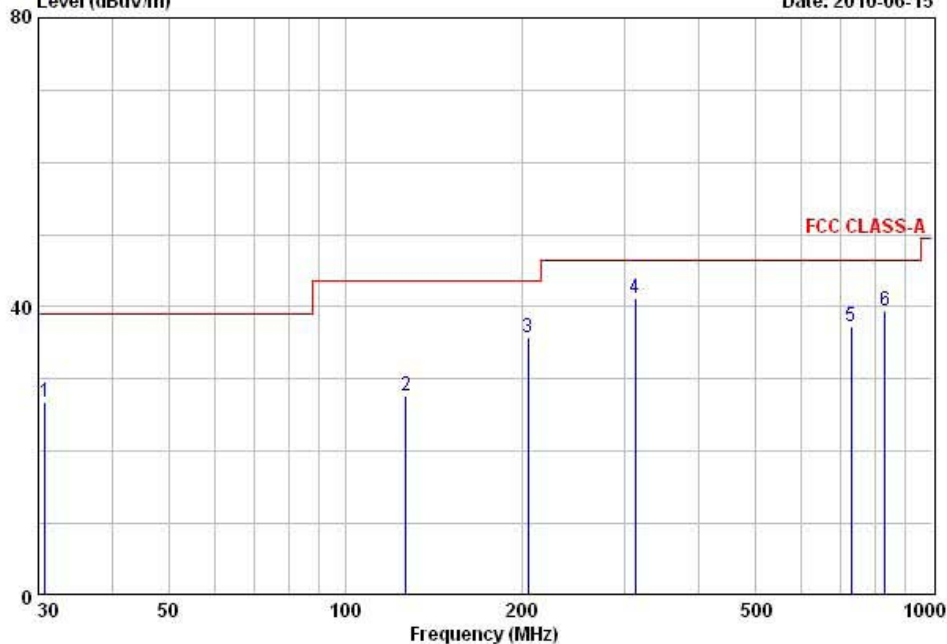
Temp Humi : 26 / 47

Tested by: KIM.K.I

Data: 91

Level (dBuV/m)

Date: 2010-06-15



	Freq	Reading	C.F	Result	Limit	Margin	Height	Angle	Polarity
	MHz	dBuV/m	dB/m	dBuV/m	dBuV/m	dB	cm	deg	
1	30.82	42.60	-15.69	26.91	40.00	13.09	100	35	VERTICAL
2	126.75	41.10	-13.35	27.75	40.00	12.25	100	216	VERTICAL
3	204.75	48.10	-12.26	35.84	40.00	4.16	400	35	HORIZONTAL
4	311.98	49.50	-8.27	41.23	47.00	5.77	254	276	HORIZONTAL
5	727.96	37.80	-0.49	37.31	47.00	9.69	130	29	HORIZONTAL
6	831.96	38.50	1.04	39.54	47.00	7.46	127	270	HORIZONTAL

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

**Radiated Emissions – Active Sync+Printing+WIFI Mode**

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

EUT/Model No.: SmartPay Plus

TEST MODE: Active Sync+Printing+WIFI mode

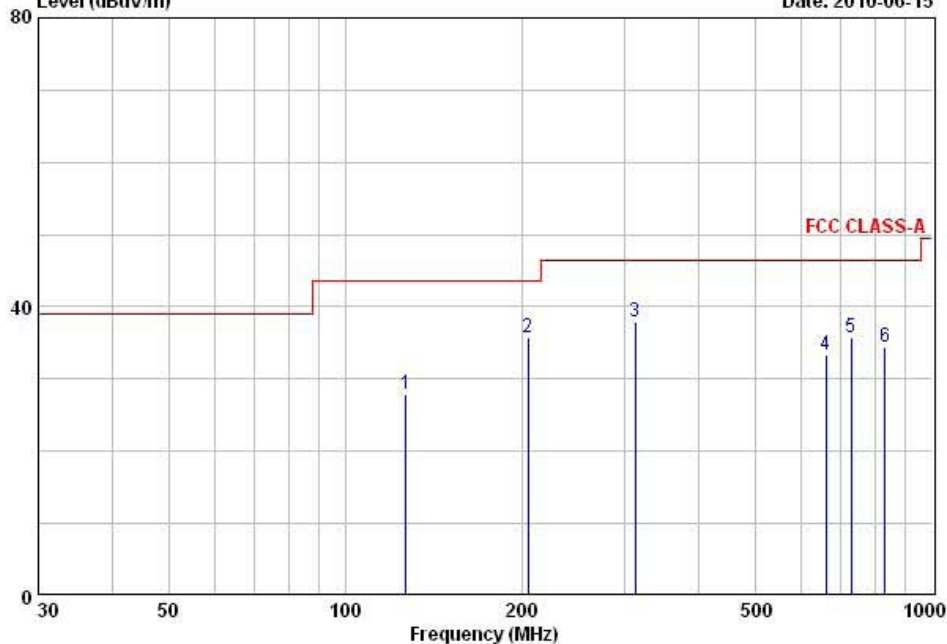
Temp Humi : 26 / 47

Tested by: KIM.K.I

Data: 93

Level (dBuV/m)

Date: 2010-06-15



	Freq	Reading	C.F	Result	Limit	Margin	Height	Angle	Polarity
	MHz	dBuV/m	dB/m	dBuV/m	dBuV/m	dB	cm	deg	
1	126.75	41.30	-13.35	27.95	40.00	12.05	100	105	VERTICAL
2	204.75	47.90	-12.26	35.64	40.00	4.36	400	214	HORIZONTAL
3	311.98	46.30	-8.27	38.03	47.00	8.97	289	36	HORIZONTAL
4	660.10	35.10	-1.64	33.46	47.00	13.54	400	201	HORIZONTAL
5	727.96	36.30	-0.49	35.81	47.00	11.19	153	164	HORIZONTAL
6	831.95	33.50	1.04	34.54	47.00	12.46	400	352	HORIZONTAL

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

**Radiated Emissions – Active Sync+Scanning+WIFI Mode**

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

EUT/Model No.: SmartPay Plus

TEST MODE: Active Sync+Scanning+WIFI mode

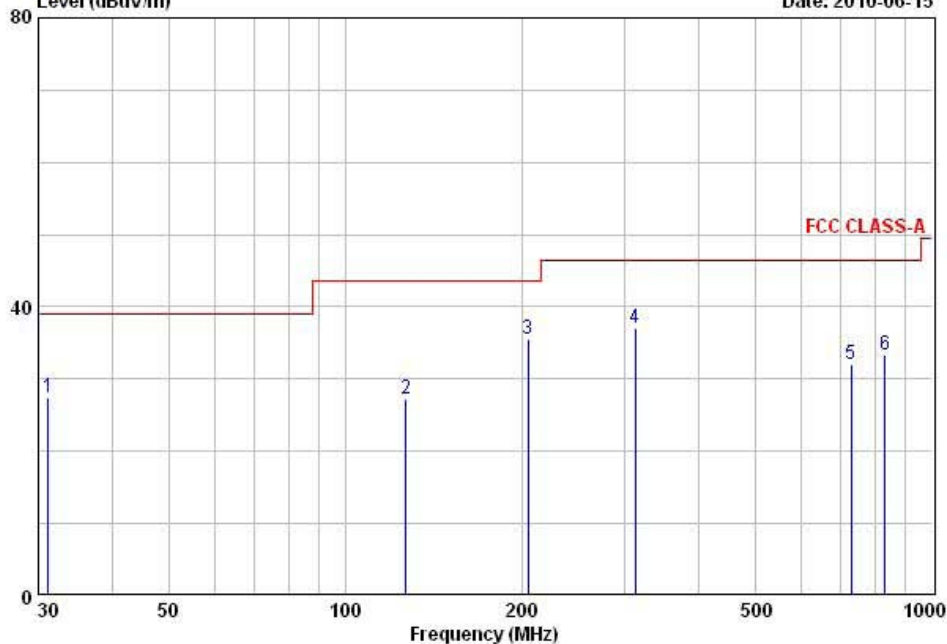
Temp Humi : 26 / 47

Tested by: KIM.K.I

Data: 92

Level (dBuV/m)

Date: 2010-06-15



	Freq	Reading	C.F	Result	Limit	Margin	Height	Angle	Polarity
	MHz	dBuV/m	dB/m	dBuV/m	dBuV/m	dB	cm	deg	
1	31.20	43.10	-15.65	27.45	40.00	12.55	100	223	VERTICAL
2	126.75	40.50	-13.35	27.15	40.00	12.85	100	132	VERTICAL
3	204.75	47.80	-12.26	35.54	40.00	4.46	400	211	HORIZONTAL
4	311.98	45.30	-8.27	37.03	47.00	9.97	400	145	HORIZONTAL
5	727.96	32.50	-0.49	32.01	47.00	14.99	287	145	HORIZONTAL
6	831.96	32.40	1.04	33.44	47.00	13.56	400	272	HORIZONTAL

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

### 3.2.8 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

- See next pages for actual measured spectrum plots.
- No emissions were detected at a level greater than 10dB below limit.

#### 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

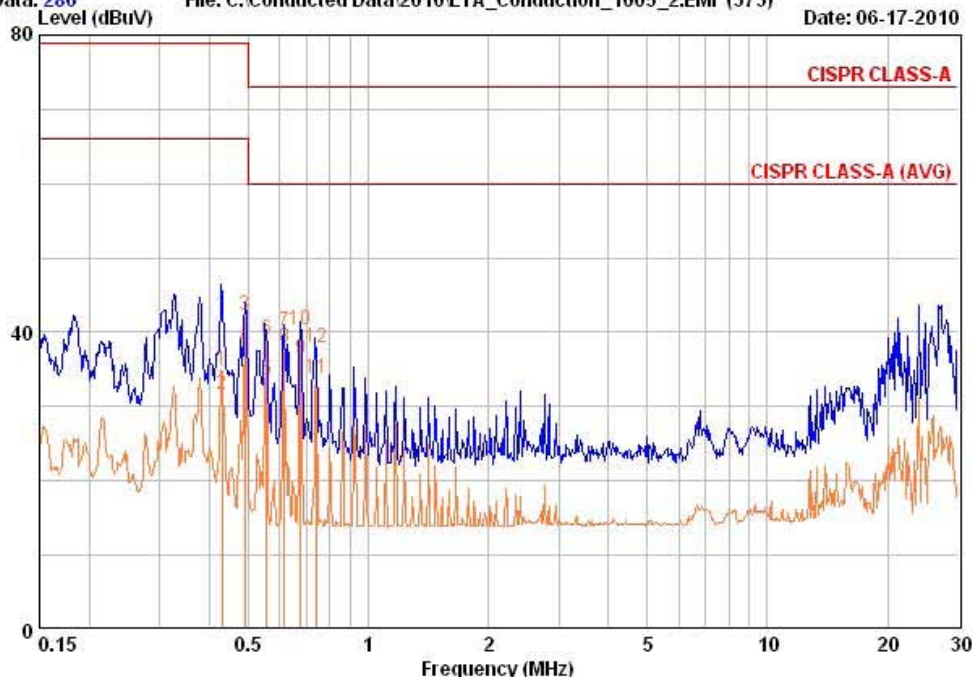
\* Decreases with the logarithm of the frequency

**AC Conducted Emissions – Active Sync+Camera+WIFI Mode – 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. :	SmartPay Plus	Phase :	LINE
Test Mode :	Active Sync+Camera+WIFI mode	Test Power :	120 / 60
Temp./Humi. :	22 / 54	Test Engineer :	KIM.K.I

Data: 286 File: C:\Conducted Data\2010\LTA\_Conduction\_1005\_2.EMI (373) Date: 06-17-2010



Freq	RD	RD	C.F	Result	Result	Limit	Limit	Margin	Margin
MHz	QP	AV		QP	AV	QP	AV	QP	AV
	dBuV	dBuV	dB	dBuV	dBuV	dBuV	dBuV	dB	dB
0.430	25.25	21.85	9.67	34.92	31.52	79.00	66.00	44.08	34.48
0.491	32.55	28.25	9.67	42.22	37.92	79.00	66.00	36.78	28.08
0.555	29.35	23.95	9.70	39.05	33.65	73.00	60.00	33.95	26.35
0.616	30.46	28.16	9.73	40.19	37.89	73.00	60.00	32.81	22.11
0.678	30.46	26.56	9.76	40.22	36.32	73.00	60.00	32.78	23.68
0.738	28.16	23.96	9.77	37.93	33.73	73.00	60.00	35.07	26.27

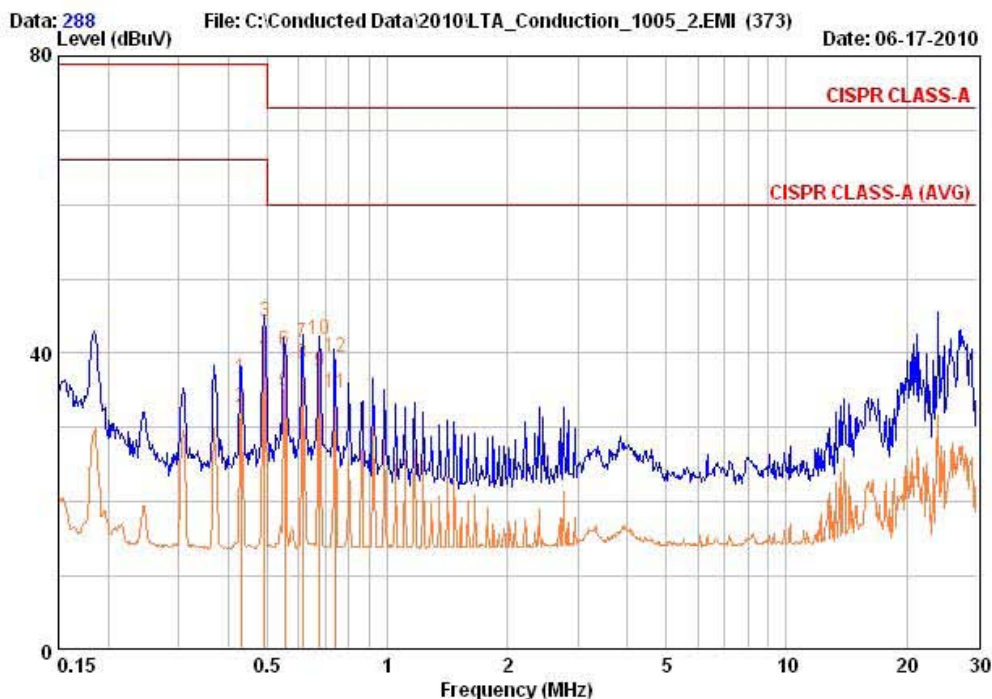
Remarks: C.F (Correction Factor) = Insertion loss + Cable loss



**AC Conducted Emissions – Active Sync+Camera+WIFI Mode – 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. : SmartPay Plus	Phase : NEUTRAL
Test Mode : Active Sync+Camera+WIFI mode	Test Power : 120 / 60
Temp./Humi. : 22 / 54	Test Engineer : KIM.K.I



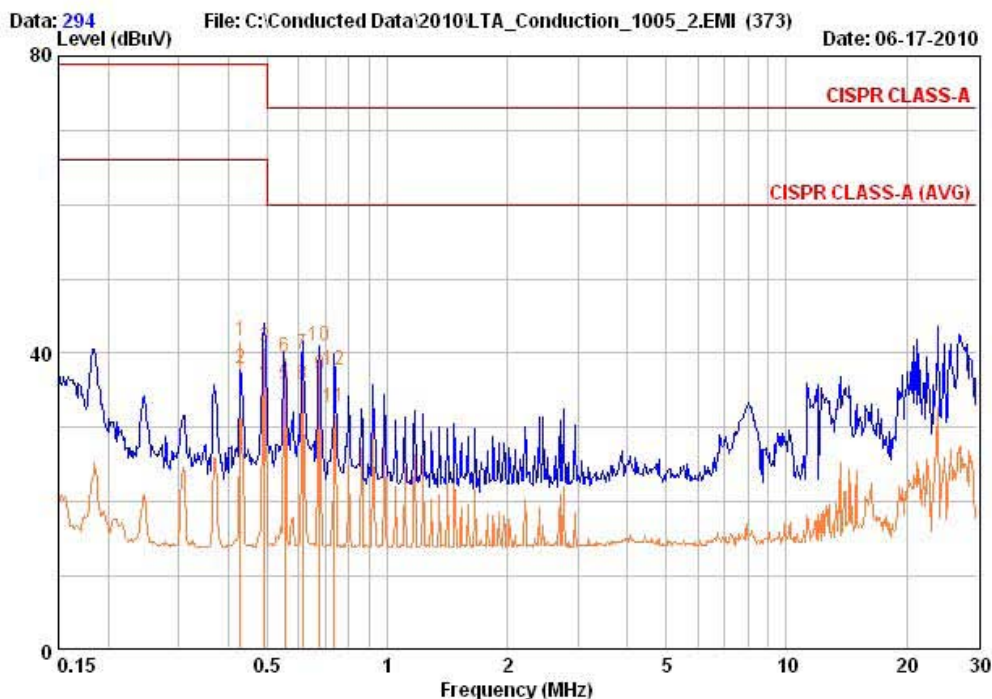
Freq	RD	RD	C.F	Result	Result	Limit	Limit	Margin	Margin
MHz	QP	AV	dB	QP	AV	QP	AV	QP	AV
	dBuV	dBuV		dBuV	dBuV	dBuV	dBuV	dB	dB
0.431	27.05	23.05	9.66	36.71	32.71	79.00	66.00	42.29	33.29
0.492	34.65	30.35	9.66	44.31	40.01	79.00	66.00	34.69	25.99
0.553	30.65	25.25	9.69	40.35	34.95	73.00	60.00	32.65	25.05
0.614	31.66	28.76	9.73	41.38	38.48	73.00	60.00	31.62	21.52
0.678	32.16	27.66	9.76	41.92	37.42	73.00	60.00	31.08	22.58
0.739	29.66	24.86	9.77	39.43	34.63	73.00	60.00	33.57	25.37

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

**AC Conducted Emissions – Active Sync+Finger print+WIFI – 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. : SmartPay Plus Phase : LINE  
Test Mode : Active Sync+Finger Print+WIFI modest Power : 120 / 60  
Temp./Humi. : 22 / 54 Test Engineer : KIM.K.I



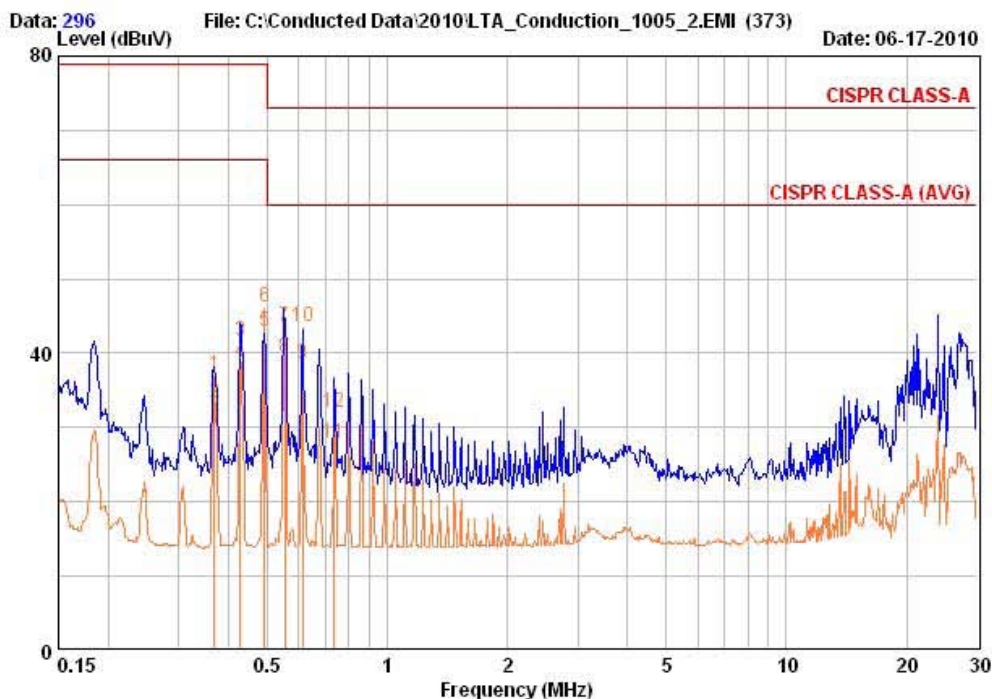
Freq	RD	RD	C.F	Result	Result	Limit	Limit	Margin	Margin
MHz	QP	AV	dB	QP	AV	QP	AV	QP	AV
	dBuV	dBuV		dBuV	dBuV	dBuV	dBuV	dB	dB
0.429	32.05	28.35	9.67	41.72	38.02	79.00	66.00	37.28	27.98
0.493	31.15	26.95	9.67	40.82	36.62	79.00	66.00	38.18	29.38
0.553	29.85	25.95	9.70	39.55	35.65	73.00	60.00	33.45	24.35
0.614	30.06	25.96	9.73	39.79	35.69	73.00	60.00	33.21	24.31
0.676	31.16	27.26	9.76	40.92	37.02	73.00	60.00	32.08	22.98
0.737	27.86	22.86	9.77	37.63	32.63	73.00	60.00	35.37	27.37

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

**AC Conducted Emissions – Active Sync+Finger print+WIFI – 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. : SmartPay Plus Phase : NEUTRAL  
Test Mode : Active Sync+Finger Print+WIFI modest Power : 120 / 60  
Temp./Humi. : 22 / 54 Test Engineer : KIM.K.I



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
0.368	27.45	23.65	9.66	37.11	33.31	79.00	66.00	41.89	32.69
0.429	31.95	29.25	9.66	41.61	38.91	79.00	66.00	37.39	27.09
0.492	36.65	33.35	9.66	46.31	43.01	79.00	66.00	32.69	22.99
0.554	33.95	29.85	9.69	43.65	39.55	73.00	60.00	29.35	20.45
0.614	33.96	28.76	9.73	43.68	38.48	73.00	60.00	29.32	21.52
0.736	22.36	18.06	9.77	32.13	27.83	73.00	60.00	40.87	32.17

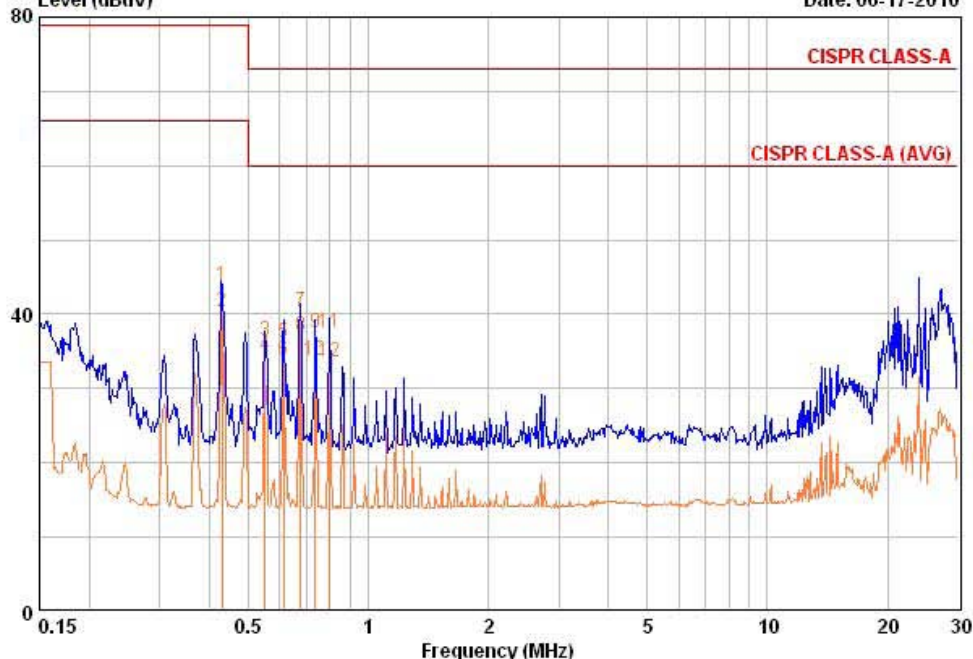
Remarks: C.F (Correction Factor) = Insertion loss + Cable loss

**AC Conducted Emissions – Active Sync+Printing+WIFI Mode – 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. :	SmartPay Plus	Phase :	LINE
Test Mode :	Active Sync+Printing+WIFI mode	Test Power :	120 / 60
Temp./Humi. :	22 / 54	Test Engineer :	KIM.K.I

Data: 300 File: C:\Conducted Data\2010\LTA\_Conduction\_1005\_2.EMI (373) Date: 06-17-2010  
Level (dBuV)



Freq	RD	RD	C.F	Result	Result	Limit	Limit	Margin	Margin
MHz	QP	AV		QP	AV	QP	AV	QP	AV
	dBuV	dBuV	dB	dBuV	dBuV	dBuV	dBuV	dB	dB
0.430	34.15	30.65	9.67	43.82	40.32	79.00	66.00	35.18	25.68
0.552	26.65	24.75	9.70	36.35	34.45	73.00	60.00	36.65	25.55
0.614	26.46	23.96	9.73	36.19	33.69	73.00	60.00	36.81	26.31
0.677	30.46	27.26	9.76	40.22	37.02	73.00	60.00	32.78	22.98
0.736	27.76	24.06	9.77	37.53	33.83	73.00	60.00	35.47	26.17
0.801	27.66	23.86	9.78	37.44	33.64	73.00	60.00	35.56	26.36

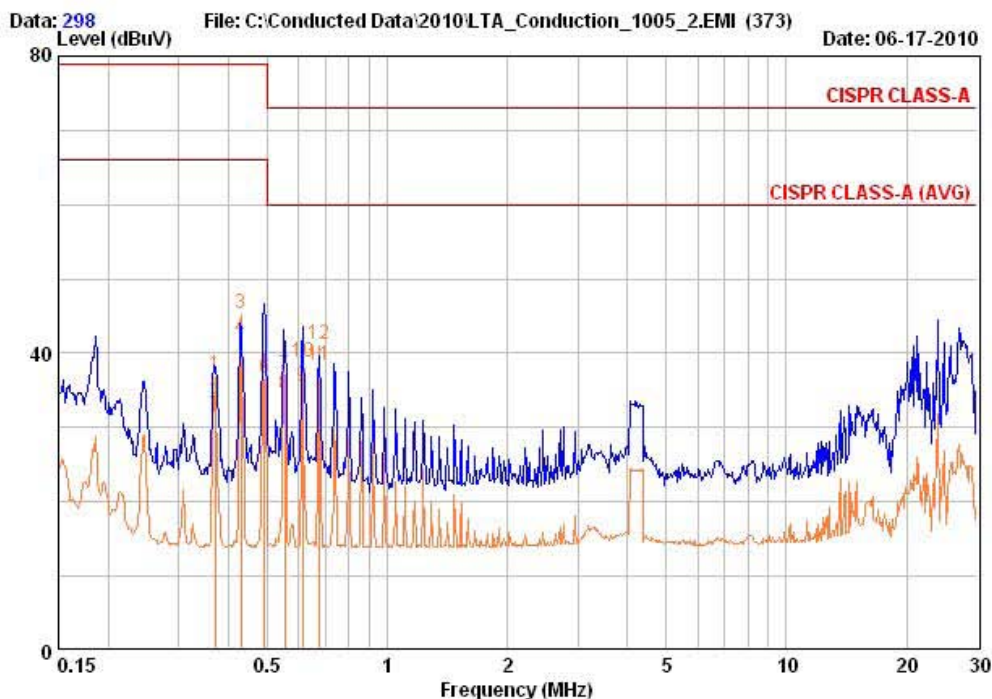
Remarks: C.F (Correction Factor) = Insertion loss + Cable loss



**AC Conducted Emissions – Active Sync+Printing+WIFI Mode – 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. : SmartPay Plus	Phase : NEUTRAL
Test Mode : Active Sync+Printing+WIFI mode	Test Power : 120 / 60
Temp./Humi. : 22 / 54	Test Engineer : KIM.K.I



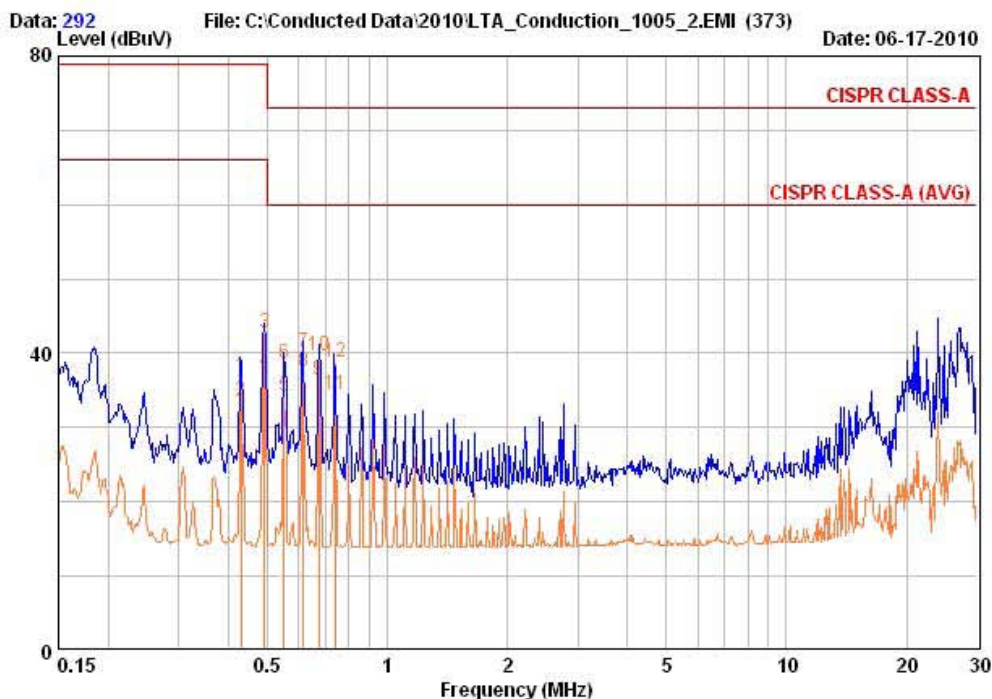
Freq	RD	RD	C.F	Result	Result	Limit	Limit	Margin	Margin
MHz	QP	AV	dB	QP	AV	QP	AV	QP	AV
	dBuV	dBuV		dBuV	dBuV	dBuV	dBuV	dB	dB
0.370	27.35	23.65	9.66	37.01	33.31	79.00	66.00	41.99	32.69
0.430	35.65	32.45	9.66	45.31	42.11	79.00	66.00	33.69	23.89
0.492	26.95	23.25	9.66	36.61	32.91	79.00	66.00	42.39	33.09
0.554	27.35	24.85	9.69	37.05	34.55	73.00	60.00	35.95	25.45
0.613	29.06	25.86	9.73	38.78	35.58	73.00	60.00	34.22	24.42
0.675	31.46	28.66	9.76	41.22	38.42	73.00	60.00	31.78	21.58

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

**AC Conducted Emissions – Active Sync+Scanning+WIFI – 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. :	SmartPay Plus	Phase :	LINE
Test Mode :	Active Sync+Scanning+WIFI mode	Test Power :	120 / 60
Temp./Humi. :	22 / 54	Test Engineer :	KIM.K.I



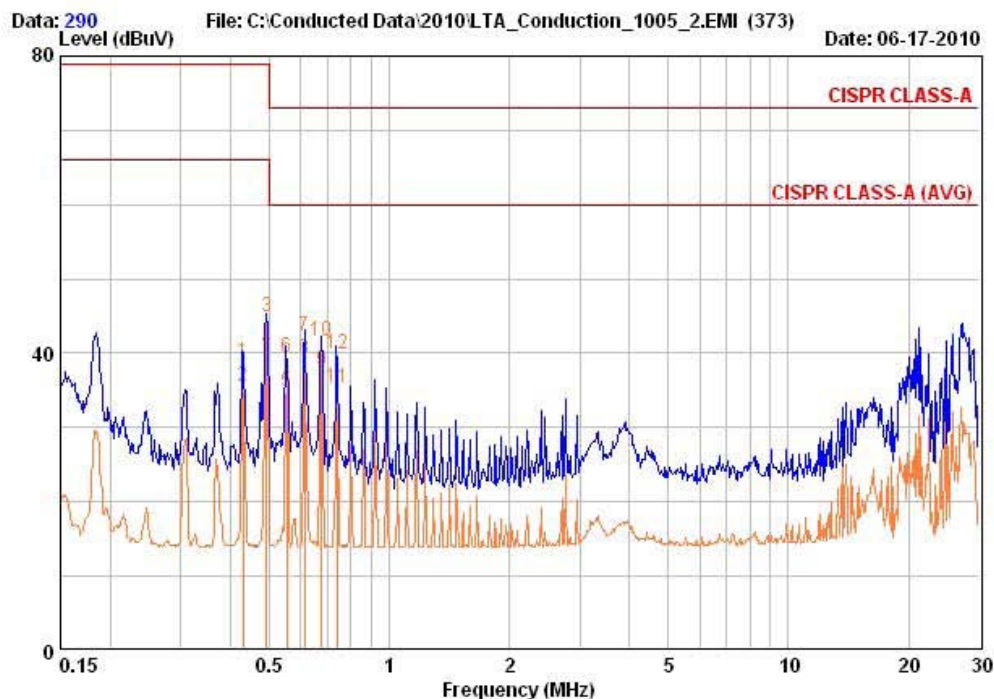
Freq	RD	RD	C.F	Result	Result	Limit	Limit	Margin	Margin
MHz	QP	AV	dB	QP	AV	QP	AV	QP	AV
	dBuV	dBuV		dBuV	dBuV	dBuV	dBuV	dB	dB
0.430	27.15	23.85	9.67	36.82	33.52	79.00	66.00	42.18	32.48
0.493	33.15	27.85	9.67	42.82	37.52	79.00	66.00	36.18	28.48
0.552	28.85	24.55	9.70	38.55	34.25	73.00	60.00	34.45	25.75
0.616	30.36	27.66	9.73	40.09	37.39	73.00	60.00	32.91	22.61
0.675	29.96	26.66	9.76	39.72	36.42	73.00	60.00	33.28	23.58
0.738	29.06	24.66	9.77	38.83	34.43	73.00	60.00	34.17	25.57

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

**AC Conducted Emissions – Active Sync+ Scanning +WIFI – 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. :	SmartPay Plus	Phase :	NEUTRAL
Test Mode :	Active Sync+Scanning+WIFI mode	Test Power :	120 / 60
Temp./Humi. :	22 / 54	Test Engineer :	KIM.K.I



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
0.431	29.25	25.85	9.66	38.91	35.51	79.00	66.00	40.09	30.49
0.492	35.15	30.85	9.66	44.81	40.51	79.00	66.00	34.19	25.49
0.553	29.85	25.15	9.69	39.55	34.85	73.00	60.00	33.45	25.15
0.615	32.66	29.56	9.73	42.38	39.28	73.00	60.00	30.62	20.72
0.676	31.96	27.86	9.76	41.72	37.62	73.00	60.00	31.28	22.38
0.740	30.16	25.46	9.77	39.93	35.23	73.00	60.00	33.07	24.77

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

## APPENDIX

### TEST EQUIPMENT USED FOR TESTS



	Description	Model No.	Serial No.	Manufacturer	Next Cal. Date
1	Spectrum Analyzer	FSV-30	100757	R&S	Feb-11
2	Spectrum Analyzer	8563E	3425A02505	HP	Mar-11
3	Spectrum Analyzer	8594E	3710A04074	HP	Oct-10
4	Signal Generator	8648C	3623A02597	HP	Mar-11
5	Signal Generator	83711B	US34490456	HP	Mar-11
6	Attenuator (3dB)	8491A	37822	HP	Oct-10
7	Attenuator (10dB)	8491A	63196	HP	Oct-10
8	Attenuator (30dB)	8498A	1801A06689	HP	Oct-10
9	EMI Test Receiver	ESVD	843748/001	R&S	Mar-11
10	Horn Antenna(18 ~ 40GHz)	SAS-574	154	Schwarzbeck	Nov-10
11	Horn Antenna(18 ~ 40GHz)	SAS-574	155	Schwarzbeck	Nov-10
12	RF Amplifier	8447D	2949A02670	HP	Oct-10
13	RF Amplifier	8449B	3008A02126	HP	Mar-11
14	Test Receiver	ESHS10	828404/009	R&S	Mar-11
15	TRILOG Antenna	VULB 9160	9160-3212	SCHWARZBECK	Apr-11
16	Log.-Per. Antenna	VULP 9118	9118 A 401	SCHWARZBECK	Apr-11
17	Biconical Antenna	BBA 9106	VHA 9103-2315	SCHWARZBECK	Apr-11
18	Horn Antenna	3115	00055005	ETS LINDGREN	Mar-11
19	Horn Antenna	BBHA 9120D	9120D122	SCHWARZBECK	Dec-11
20	Dipole Antenna	VHA9103	2116	SCHWARZBECK	Nov-10
21	Dipole Antenna	VHA9103	2117	SCHWARZBECK	Nov-10
22	Dipole Antenna	VHA9105	2261	SCHWARZBECK	Nov-10
23	Dipole Antenna	VHA9105	2262	SCHWARZBECK	Nov-10
24	Hygro-Thermograph	THB-36	0041557-01	ISUZU	Mar-11
25	Splitter (SMA)	ZFSC-2-2500	SF617800326	Mini-Circuits	-
26	RF Switch	MP59B	6200414971	ANRITSU	-
27	Power Divider	11636A	6243	HP	Oct-10
28	DC Power Supply	6622A	3448A03079	HP	Oct-10
29	Frequency Counter	5342A	2826A12411	HP	Mar-11
30	Power Meter	EPM-441A	GB32481702	HP	Mar-11
31	Power Sensor	8481A	2702A64048	HP	Mar-11
32	Audio Analyzer	8903B	3729A18901	HP	Oct-10
33	Modulation Analyzer	8901B	3749A05878	HP	Oct-10
34	TEMP & HUMIDITY Chamber	YJ-500	LTAS06041	JinYoung Tech	Oct-10
35	LOOP-ANTENNA	FMZB 1516	151602/94	SCHWARZBECK	Mar-11
36	Stop Watch	HS-3	601Q09R	CASIO	Mar-11
37	LISN	ENV216	100408	R&S	Oct-10
38	UNIVERSAL RADIO COMMUNICATION TESTER	CMU200	106243	R&S	May-12