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Dates of Tests: April 12~28, 2010
 Test Report S/N: LR500191004C
 Test Site : LTA CO., LTD.

CERTIFICATION OF COMPLIANCE

FCC ID.

QH7HIT731

APPLICANT

HANA Micron Inc.

FCC Classification	:	FHSS Sequence Spread Spectrum (FHSS)
Manufacturing Description	:	Handheld RFID Reader
Manufacturer	:	HANA Micron Inc.
Model name	:	HIT731-UHF
Test Device Serial No.:	:	-
Rule Part(s)	:	FCC Part 15.247 Subpart C; ANSI C-63.4-2003
Frequency Range	:	910 ~ 920MHz
RF power	:	0.88 W - Conducted
Data of issue	:	April 28, 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.
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	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	2010-05-03	IC filing

2. Information's about test item

2-1 Client

Company name : HANA Micron Inc.
 Address : 2F, Fortis B/D, 106-3, Imae-dong Bundang-guSeongnam-City,
 Gyeonggi-Do South Korea
 Tel / Fax : +82-31-697-7029 / +82-31-697--7033

2-2 Equipment Under Test (EUT)

Trade name : Handheld RFID Reader
 FCC ID : QH7HIT731
 Model name : HIT731-UHF
 Serial number : Identification
 Date of receipt : April 09, 2010
 EUT condition : Pre-production, not damaged
 Frequency Range : 910 ~ 920MHz
 RF output power : 0.88 W- Conducted
 Number of channels : 50
 Channel spacing : 200KHz
 Channel Access Protocol : Frequency Hopping
 Power Source : 7.4VDC by Battery

2-3 Tested frequency

	LOW	MID	HIGH
Frequency (MHz)	910	915	920

2-4 Ancillary Equipment

Equipment	Model No.	Serial No.	Manufacturer
PC	HP Compaq dx7400 Microtower	CNG8330J95	HP
Monitor	HPL1710	CNC816QHF2	HP
KEYBOARD	SK-8115	68A-04Q6	DELL
MOUSE	MO56UO	520107013	DELL
PRINTER	STYLUS C65	-	EPSON

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	≥ 50 hops		C
15.247(a)	20 dB Bandwidth	-		C
15.247	Dwell Time	< 0.4 seconds		C
15.247(b)	Transmitter Output Power	< 1Watt		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
15.207 /15.107	AC Conducted Emissions	EN 55022	Line Conducted	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.

The sample was tested according to the following specification:

FCC Parts 15.247; ANSI C-63.4-2003

→ Antenna Requirement

The HANA Micron Inc. HIT731-UHF unit complies with the requirement of §15.203.

The Antenna type is Internal Type ; Refer to the Internal photo

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 = 1 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 (KHz)	Result
200.4	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 the 20dB bandwidth of the hopping channel, whichever is greater.

Measurement Setup

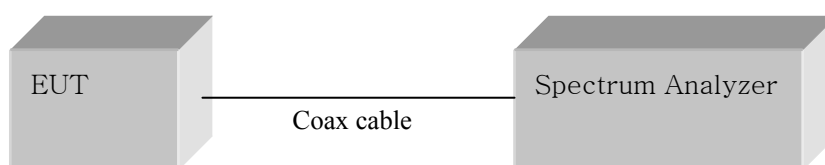
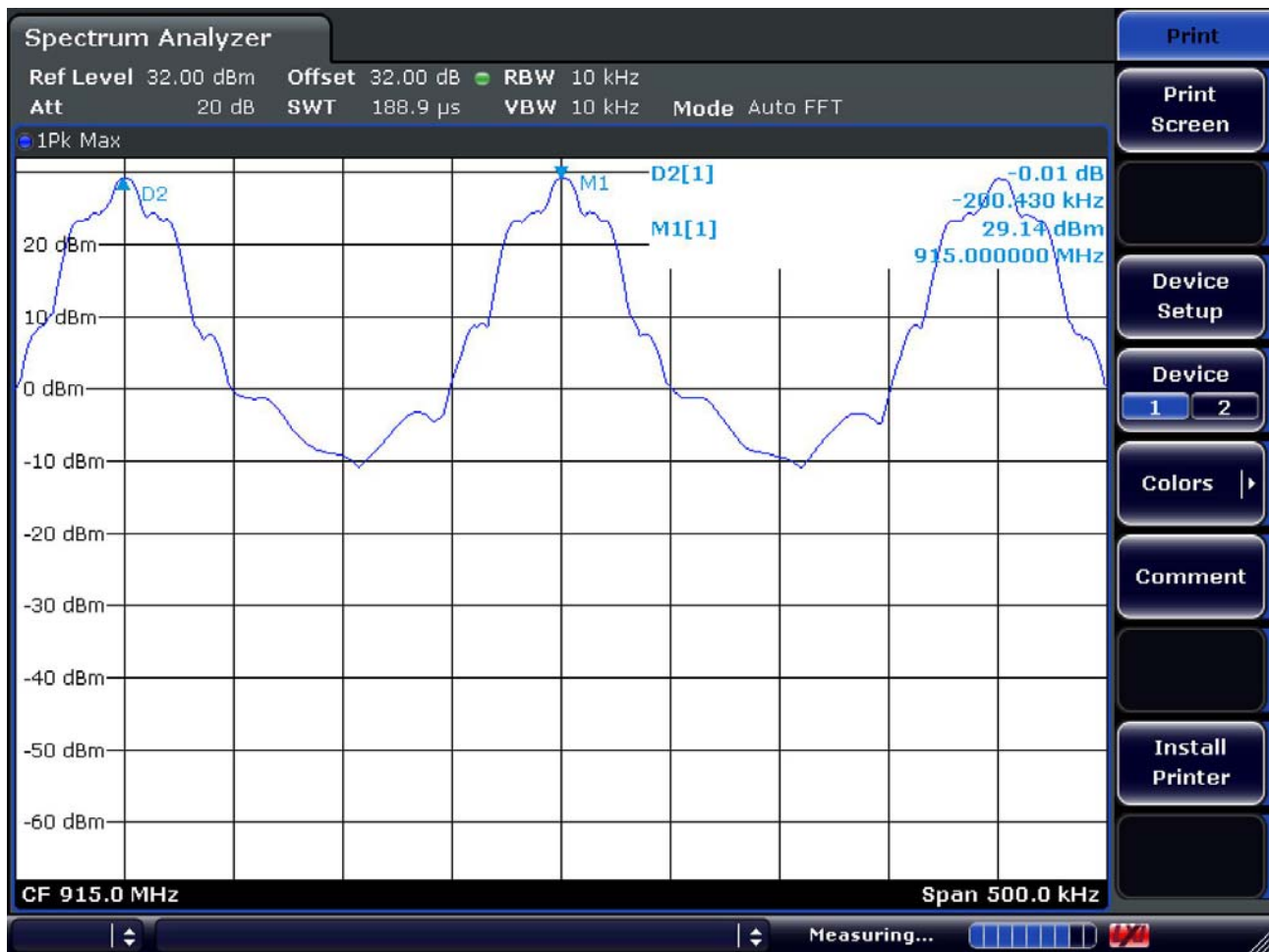


Figure 1: Measurement setup for the carrier frequency separation

Carrier Frequency Separation



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 902 ~ 928 MHz FH band were examined.

The spectrum analyzer is set to:

Frequency range 1: Start = 900 MHz, Stop = 930 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 = 30MHz

Measurement Data: Complies

Total number of Hopping Channels	50
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- See next pages for actual measured spectrum plots.

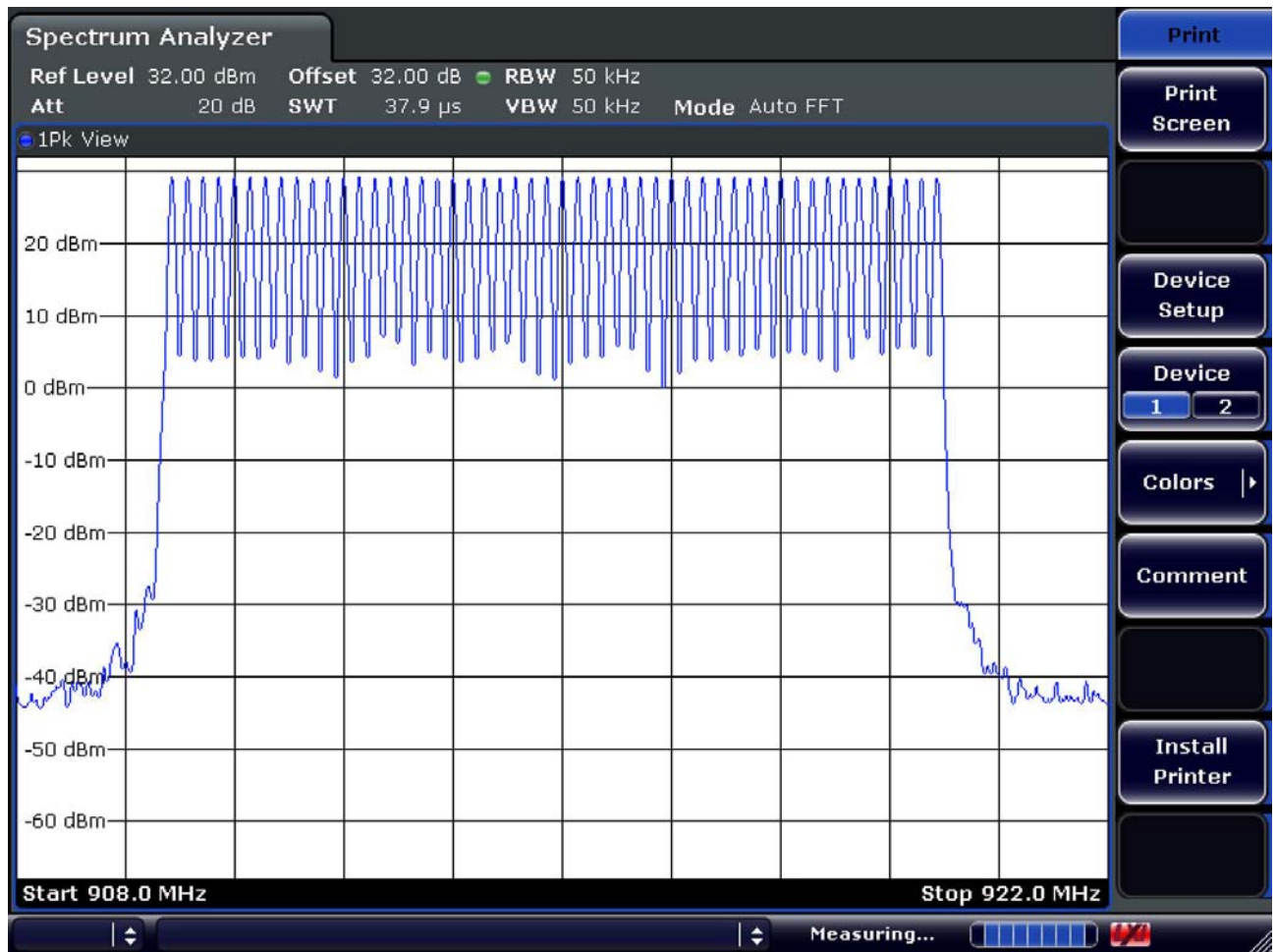
Minimum Standard:

At least 50 hopes

Measurement Setup

Same as the Chapter 3.2.1 (Figure 1)

Number of Hopping Frequencies



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 = 1 MHz (approximately 2 or 3 times of the 20 dB bandwidth)

RBW = 10 kHz

Sweep = auto

VBW = 10 kHz (VBW $\geq$ RBW)

Detector function = peak

Trace = max hold

Measurement Data:

Frequency (MHz)	Test Results	
	Measured Bandwidth (kHz)	Result
910	54.12	Complies
915	54.70	Complies
920	54.99	Complies

- See next pages for actual measured spectrum plots.

Minimum Standard:

-

Measurement Setup

Same as the Chapter 3.2.1 (Figure 1)

20 dB 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 = 914.9 MHz

Span = zero

RBW = 10 MHz

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

Trace = max hold

Detector function = peak

Measurement Data:

Channel Frequency (MHz)	Test Results			
	Length (ms)	number	Dwell Time (ms)	Result
915	59.565	2	119.13	Complies

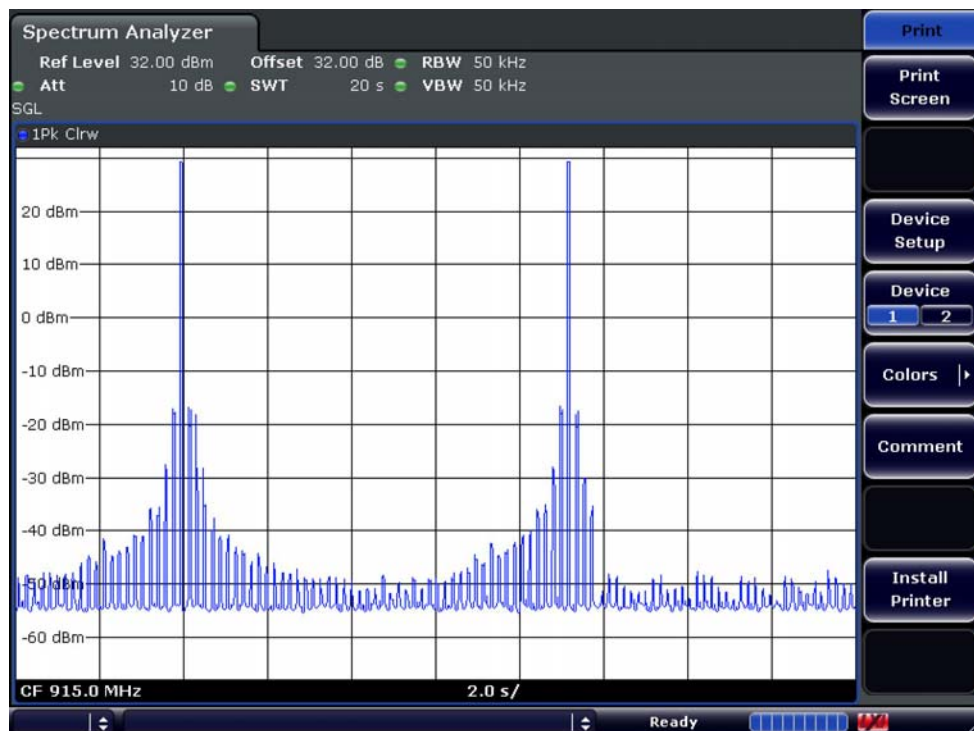
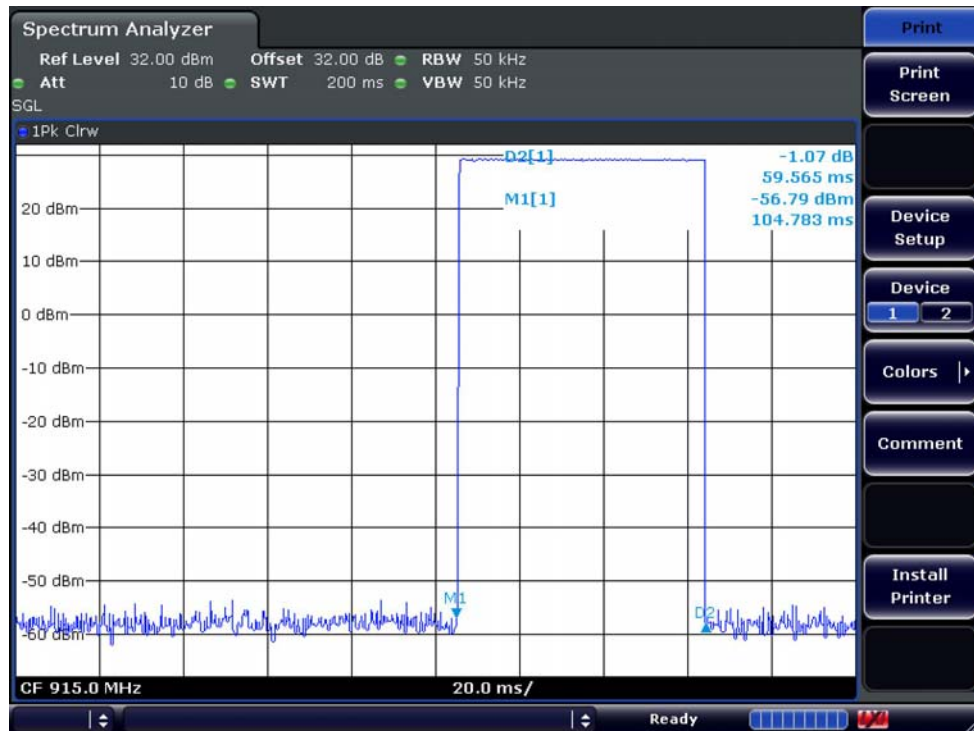
- See next pages for actual measured spectrum plots.

Minimum Standard:

0.4 seconds within a 20 second period per any frequency

Measurement Setup

Same as the Chapter 3.2.1 (Figure 1)



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

RBW = 1 MHz (greater than the 20dB bandwidth of the emission being measured)

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

Detector function = peak

Trace = max hold

Sweep = auto

Measurement Data:

Frequency (MHz)	Test Results		
	dBm	W	Result
910	29.37	0.86	Complies
915	29.43	0.88	Complies
920	29.31	0.85	Complies

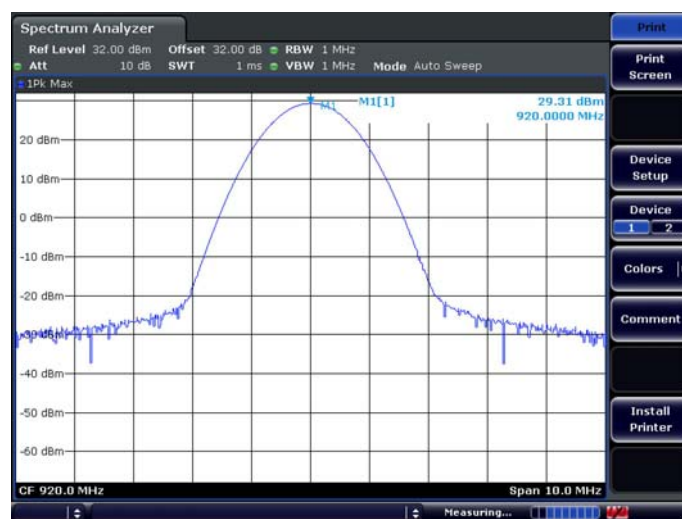
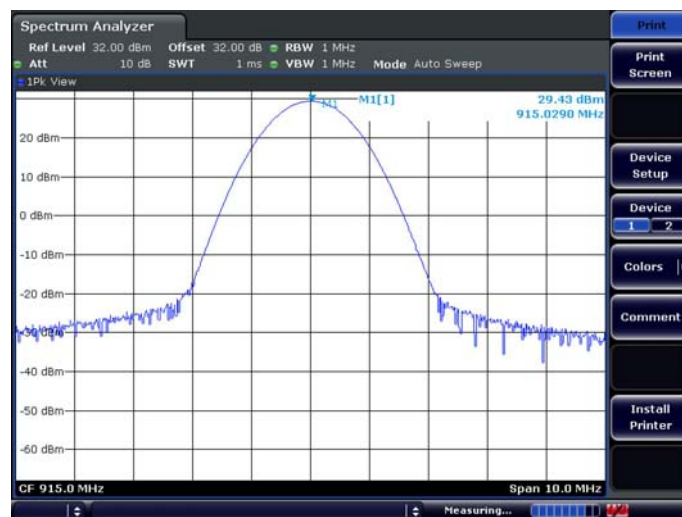
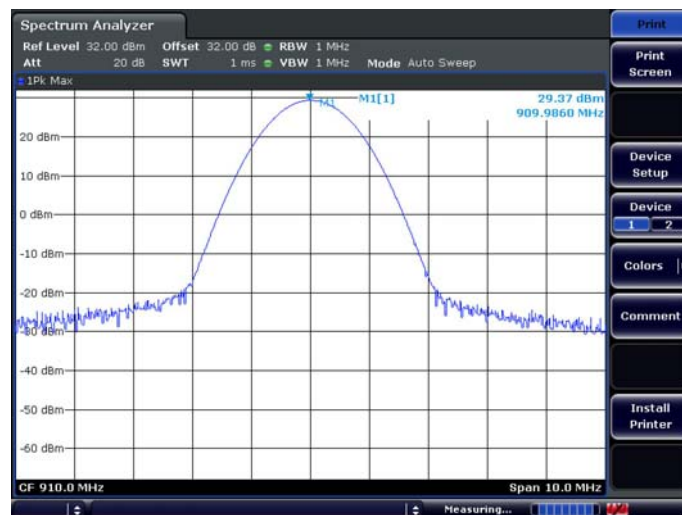
- See next pages for actual measured spectrum plots.

Minimum Standard:	< 1W
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Measurement Setup

Same as the Chapter 3.2.1 (Figure 1)

Peak Output Power



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 MHz

Detector function = peak

Trace = max hold

Sweep = auto

Measurement Data: Complies

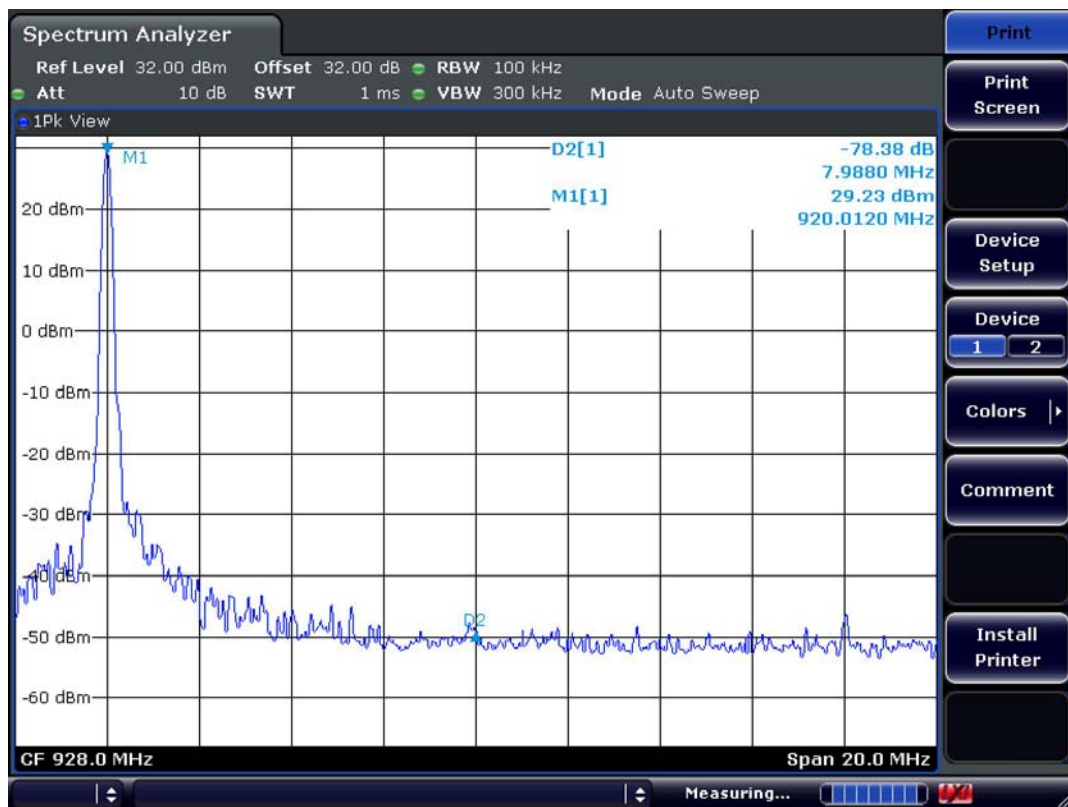
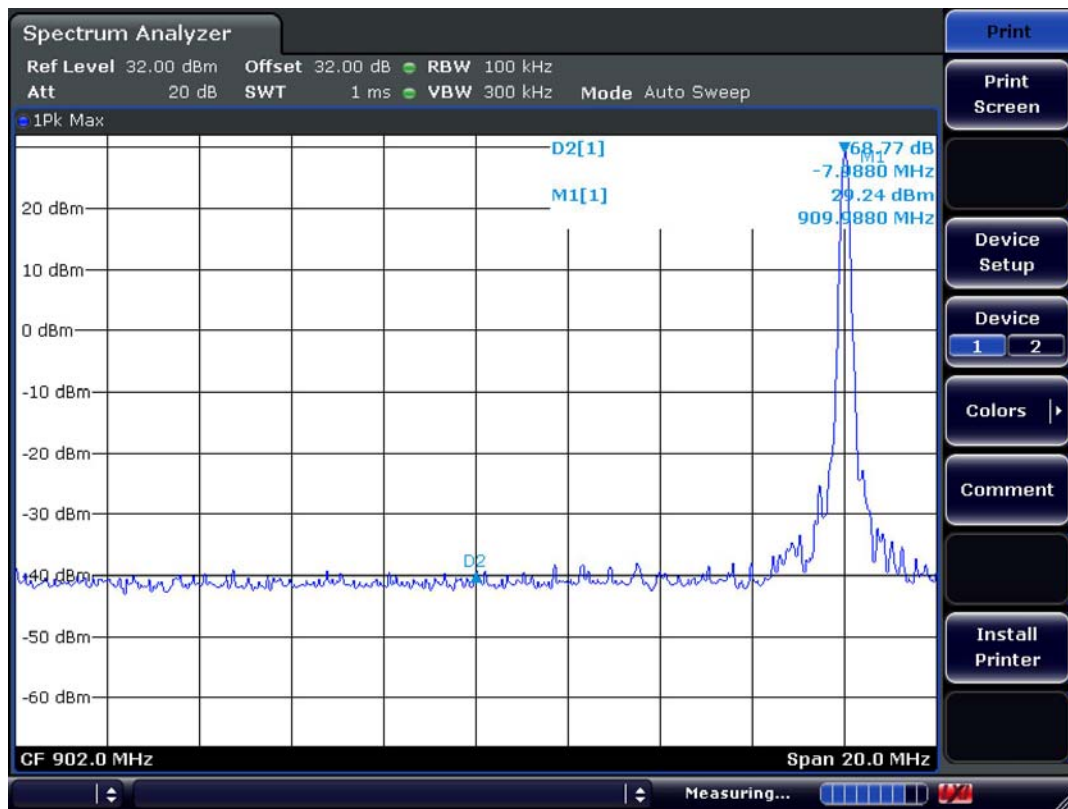
- All conducted emission in any 100kHz bandwidth outside of the spread spectrum band was at least 20dB lower than the highest inband spectral density. Therefore the applying equipment meets the requirement.
- See next pages for actual measured spectrum plots.

Minimum Standard:	> 20 dBc
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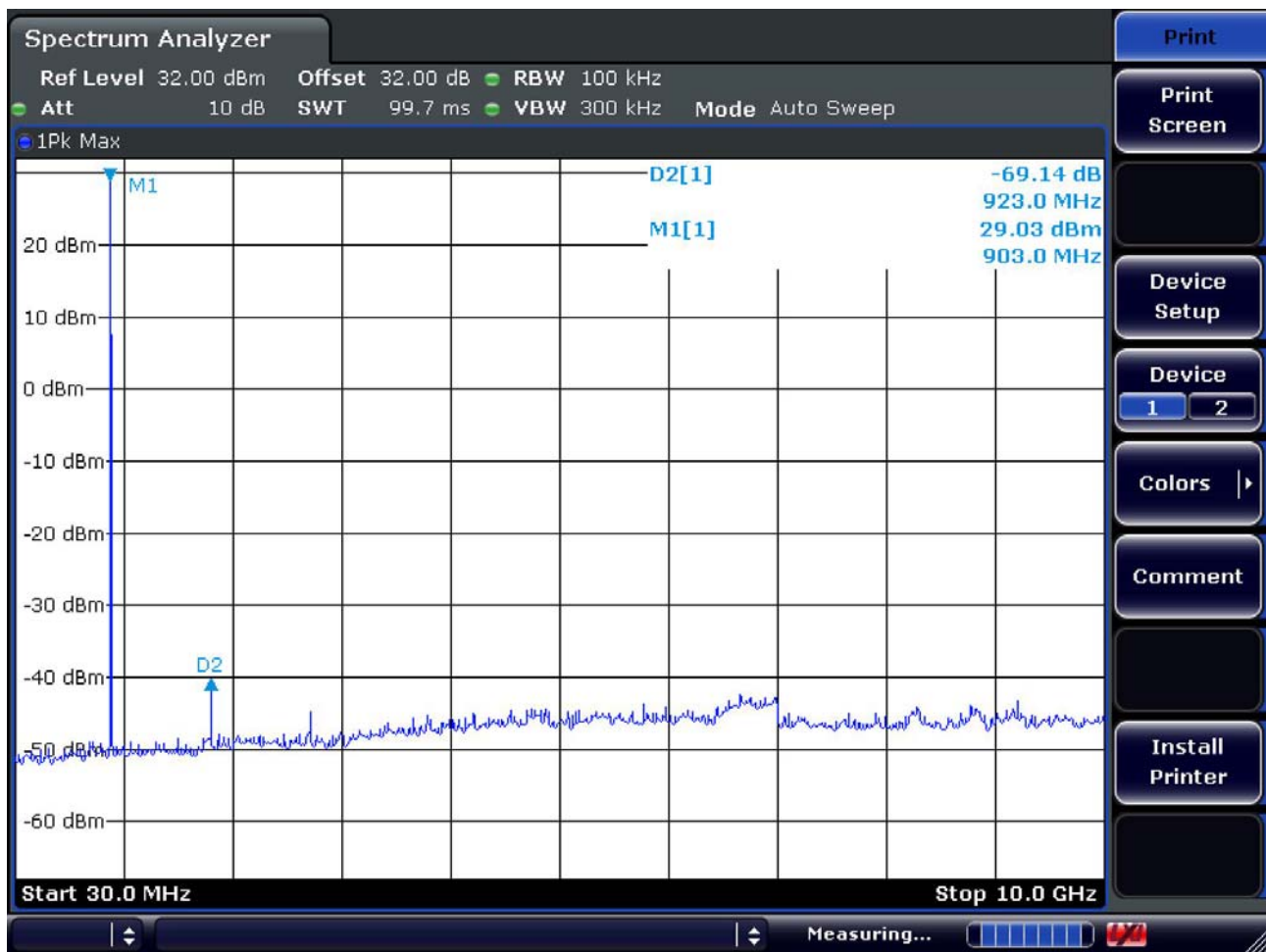
Measurement Setup

Same as the Chapter 3.2.1 (Figure 1)

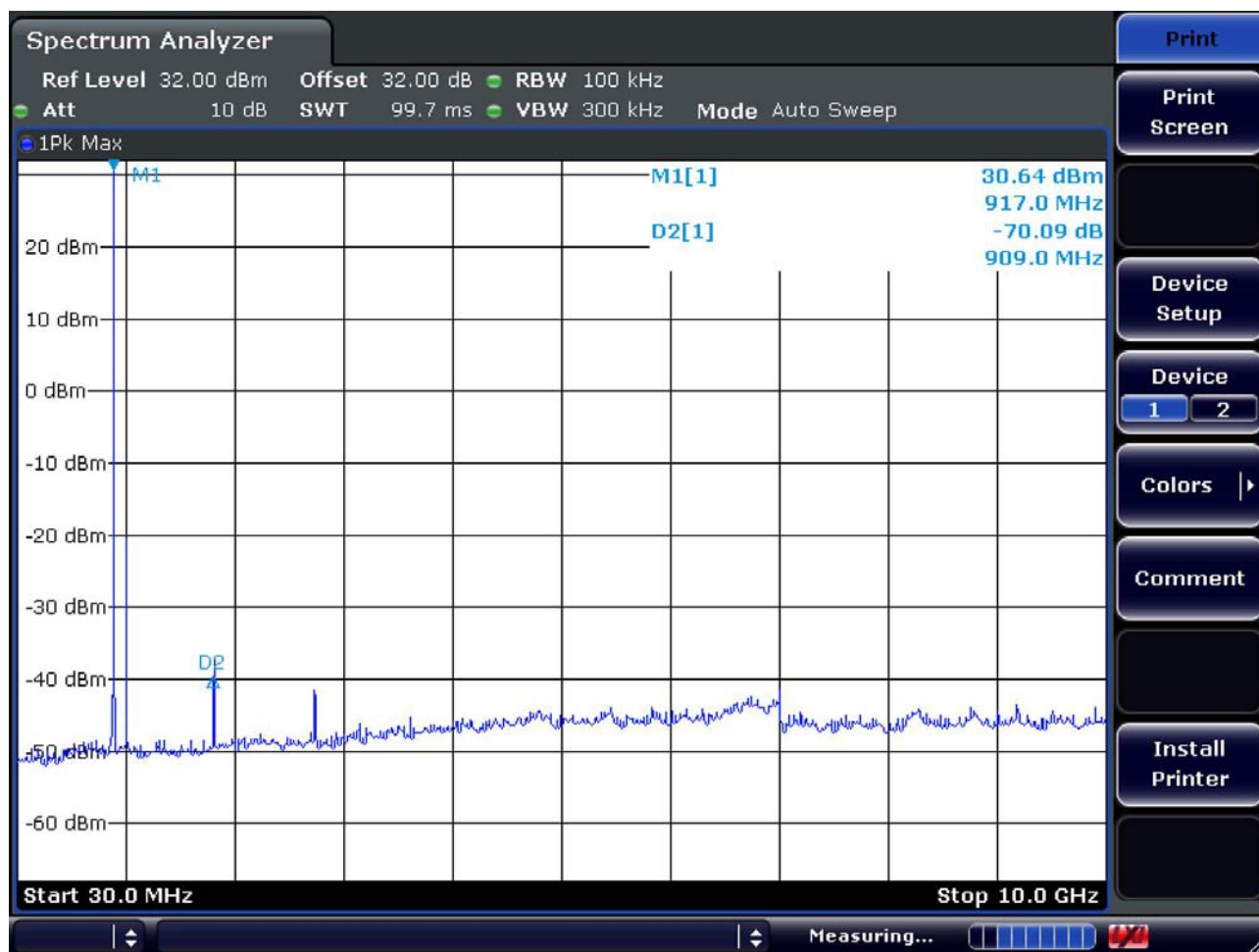
Band - edge



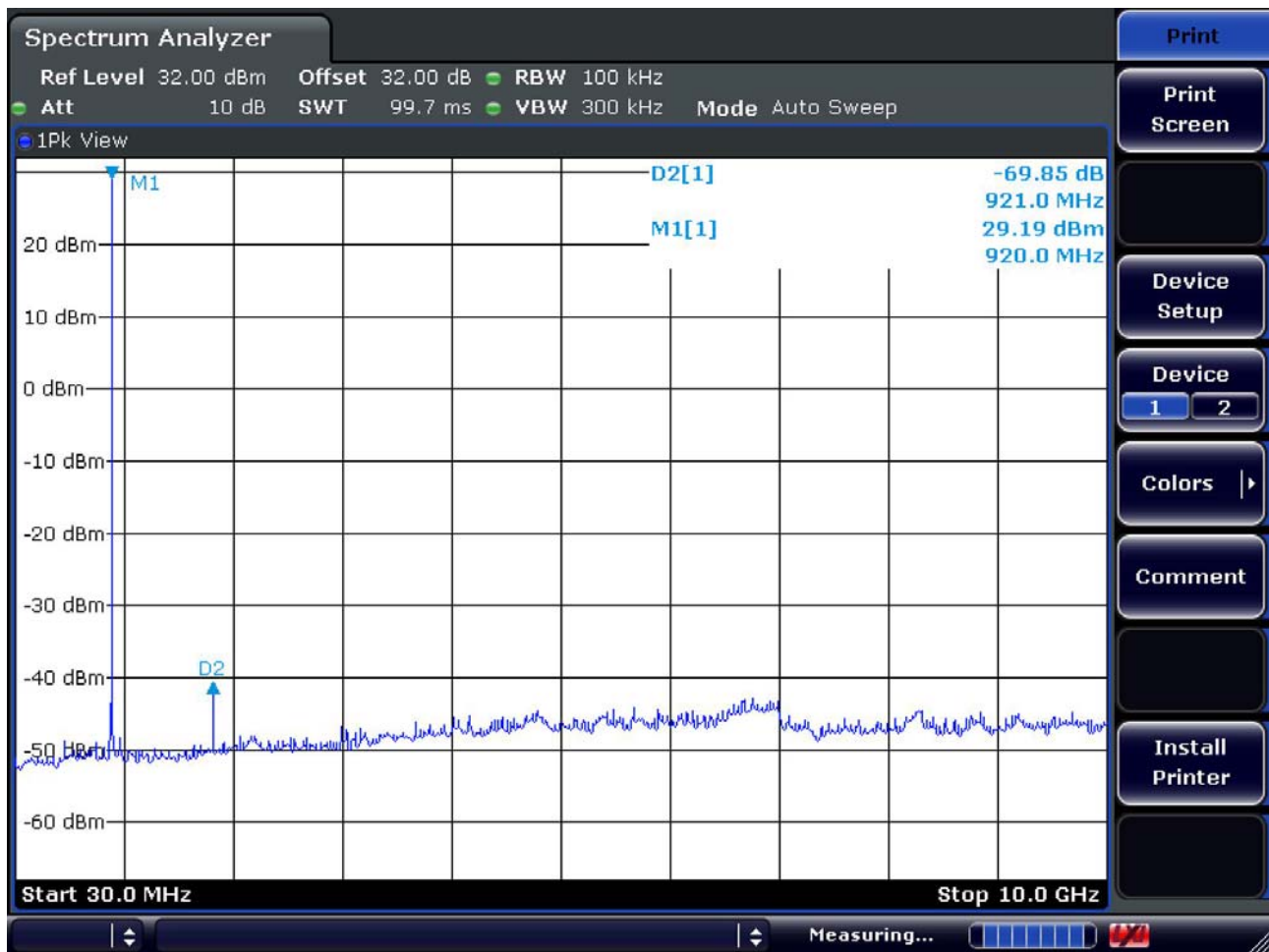
Band - edge (at 20 dB blow) – Low channel
Frequency Range = 30 MHz ~ 10th harmonic.



Band - edge (at 20 dB blow) – Mid channel
Frequency Range = 30 MHz ~ 10th harmonic.



Band - edge (at 20 dB blow) – High channel
Frequency Range = 30 MHz ~ 10th harmonic.



3.2.7 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 ~ 10th harmonic.

RBW = 100 kHz (30MHz ~ 1 GHz)

= 1 MHz (1 GHz ~ 10th harmonic)

Span = 100 MHz

Trace = max hold

Peak mode: VBW = 1 MHz

Average mode: VBW = 10Hz

Detector function = Peak & average

Sweep = auto

Measurement Data:

→ Refer to the Next page

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

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	
1804.40		53.5	57.5	H	26.0	38.2	3.5	54.0	74.0	44.8	48.8	9.2	25.2
-		-	-	-	-	-	-	-	-	-	-	-	-
-		-	-	-	-	-	-	-	-	-	-	-	-
-		-	-	-	-	-	-	-	-	-	-	-	-
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	
1830.60		53.8	57.2	H	26.0	38.2	3.5	54.0	74.0	45.1	48.5	8.9	25.5
-		-	-	-	-	-	-	-	-	-	-	-	-
-		-	-	-	-	-	-	-	-	-	-	-	-
-		-	-	-	-	-	-	-	-	-	-	-	-
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	
1853.00		53.6	57.8	H	26.0	38.2	3.5	54.0	74.0	44.9	49.1	9.1	24.9
-		-	-	-	-	-	-	-	-	-	-	-	-
-		-	-	-	-	-	-	-	-	-	-	-	-
-		-	-	-	-	-	-	-	-	-	-	-	-

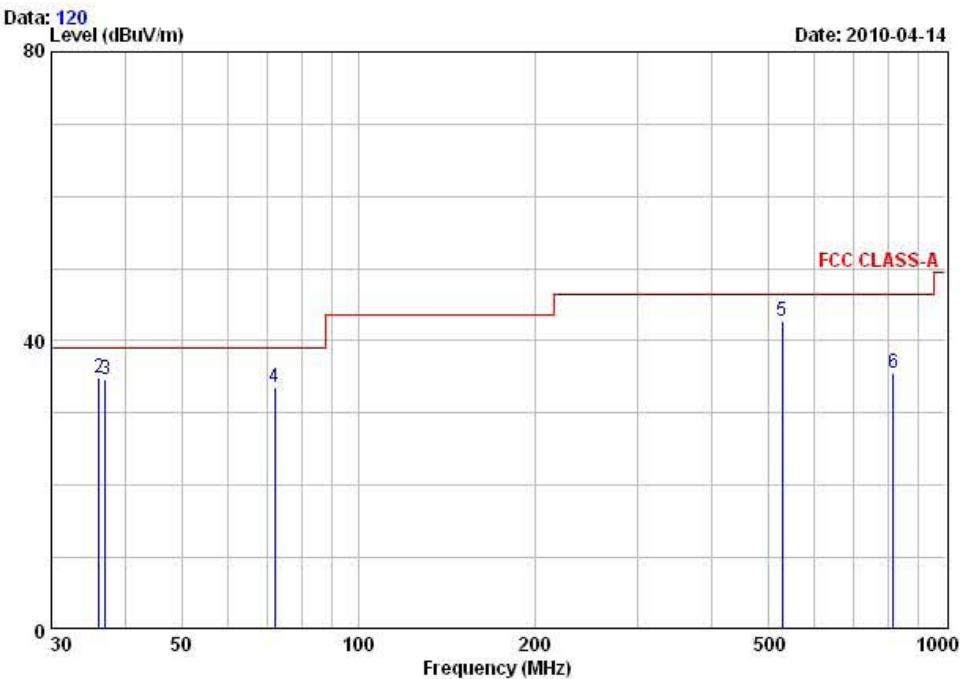
No other emissions were detected at a level greater than 20dB below limit.

Radiated Emissions - PC



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EUT/Model No.: HIT731-UHF TEST MODE: PC mode
Temp Humi : 9 / 53 Tested by: KIM.K.I



Freq	Reading	C.F	Result	Limit	Margin	Height	Angle	Polarity
MHz	dBuV/m	dB/m	dBuV/m	dBuV/m	dB	cm	deg	
1	30.00	49.80	-15.78	34.02	39.00	4.98	100	135 VERTICAL
2	36.20	50.08	-15.14	34.94	39.00	4.06	100	213 VERTICAL
3	37.12	49.80	-15.04	34.76	39.00	4.24	100	210 VERTICAL
4	72.02	49.60	-16.13	33.47	39.00	5.53	100	106 VERTICAL
5	527.99	47.30	-4.49	42.81	46.40	3.59	153	203 VERTICAL
6	815.99	34.50	0.93	35.43	46.40	10.97	124	220 HORIZONTAL

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

Radiated Emissions - Printer

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

EUT/Model No.: HIT731-UHF

TEST MODE: Printer mode

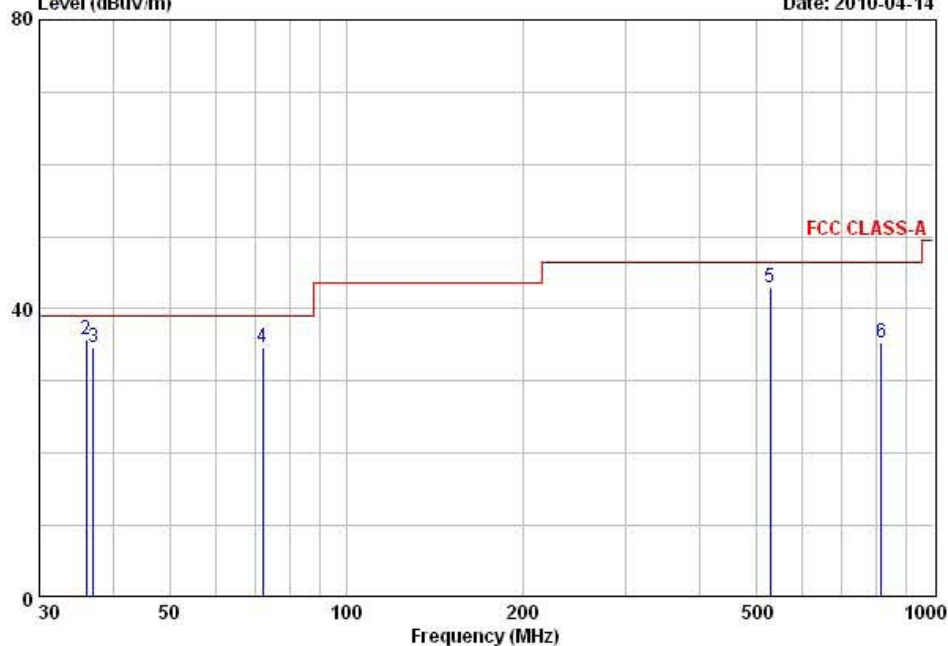
Temp Humi : 9 / 53

Tested by: KIM.K.I

Data: 119

Level (dBuV/m)

Date: 2010-04-14



	Freq	Reading	C.F	Result	Limit	Margin	Height	Angle	Polarity
	MHz	dBuV/m	dB/m	dBuV/m	QP	dB	cm	deg	
1	30.00	51.30	-15.78	35.52	39.00	3.48	100	195	VERTICAL
2	36.01	50.90	-15.16	35.74	39.00	3.26	100	106	VERTICAL
3	37.05	49.80	-15.05	34.75	39.00	4.25	100	360	VERTICAL
4	72.03	50.80	-16.13	34.67	39.00	4.33	100	106	VERTICAL
5	527.99	47.40	-4.49	42.91	46.40	3.49	178	66	VERTICAL
6	815.98	34.40	0.93	35.33	46.40	11.07	130	142	HORIZONTAL

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

Radiated Emissions - RFID

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

EUT/Model No.: HIT731-UHF

TEST MODE: RFID mode

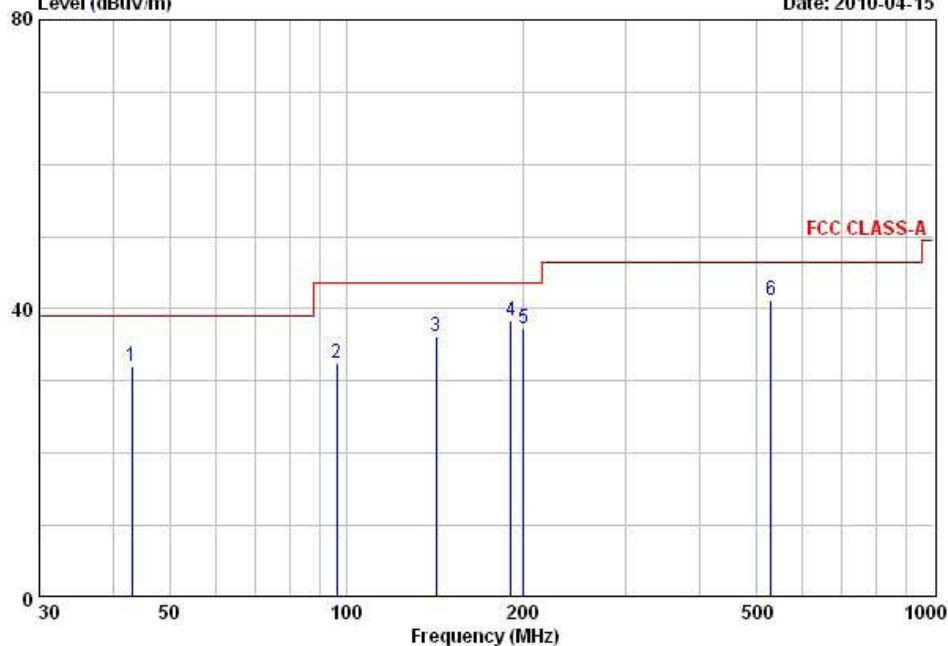
Temp Humi : 17 / 27

Tested by: KIM.K.I

Data: 144

Level (dBuV/m)

Date: 2010-04-15



	Freq	Reading	C.F	Result	Limit	Margin	Height	Angle	Polarity
	MHz	dBuV/m	dB/m	dBuV/m	QP	dB	cm	deg	
1	43.20	46.20	-14.12	32.08	39.00	6.92	100	210	VERTICAL
2	96.52	48.90	-16.37	32.53	43.50	10.97	215	132	HORIZONTAL
3	142.13	48.30	-12.05	36.25	43.50	7.25	201	122	HORIZONTAL
4	191.21	50.60	-12.22	38.38	43.50	5.12	201	122	HORIZONTAL
5	200.52	49.80	-12.46	37.34	43.50	6.16	400	132	HORIZONTAL
6	530.23	45.70	-4.43	41.27	46.40	5.13	253	302	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

Class B

Frequency Range	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

Class A

Frequency Range	quasi-peak	Average
0.15 ~ 0.5 MHz	79 dBuV	66 dBuV
0.5 ~ 30 MHz	73 dBuV	60 dBuV

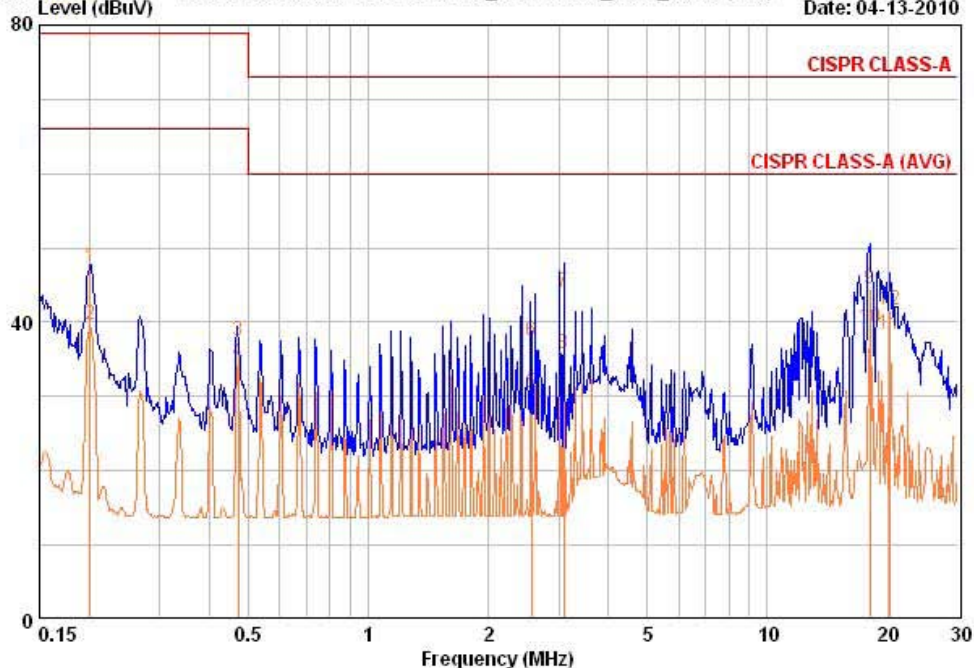
AC Conducted Emissions – PC – Line



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Gyeonggi-do 449-822 Korea
Tel +82-31-3236008,9
Fax: +82-31-3236010

EUT / Model No. :	HIT731-UHF	Phase :	LINE
Test Mode :	PC mode	Test Power :	120 / 60
Temp./Humi. :	18 / 24	Test Engineer :	KIM.K.I

Data: 400 Level (dBuV) File: C:\Conducted Data\2010\LTA_Conduction_1003_2.EMI (414) Date: 04-13-2010



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
0.201	37.69	29.99	9.65	47.34	39.64	79.00	66.00	31.66	26.36
0.472	27.75	24.95	9.67	37.42	34.62	79.00	66.00	41.58	31.38
2.559	27.65	20.65	9.83	37.49	30.49	73.00	60.00	35.51	29.51
3.097	34.24	25.84	9.85	44.09	35.69	73.00	60.00	28.91	24.31
18.049	33.91	28.81	10.52	44.44	39.34	73.00	60.00	28.56	20.66
20.275	31.13	27.73	10.60	41.72	38.32	73.00	60.00	31.28	21.68

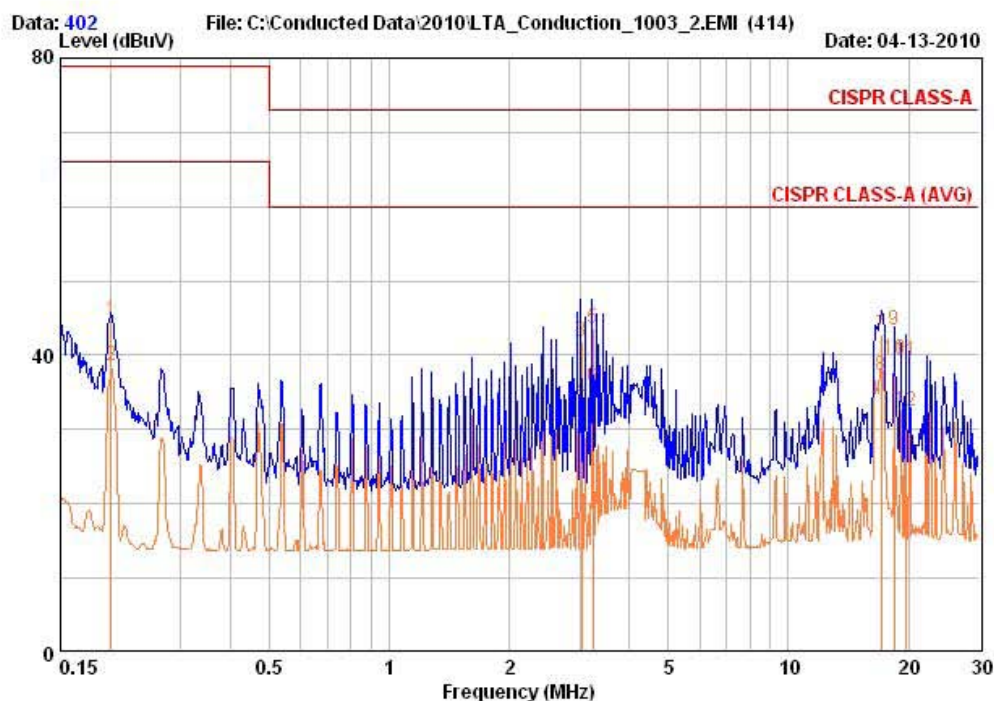
Remarks: C.F (Correction Factor) = Insertion loss + Cable loss

AC Conducted Emissions – PC – 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. : HIT731-UHF	Phase : NEUTRAL
Test Mode : PC mode	Test Power : 120 / 60
Temp./Humi. : 18 / 24	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
0.201	34.99	28.89	9.66	44.65	38.55	79.00	66.00	34.35	27.45
3.030	32.04	24.14	9.85	41.89	33.99	73.00	60.00	31.11	26.01
3.233	33.64	25.84	9.86	43.50	35.70	73.00	60.00	29.50	24.30
17.114	32.31	26.81	10.50	42.81	37.31	73.00	60.00	30.19	22.69
18.395	32.92	28.92	10.54	43.46	39.46	73.00	60.00	29.54	20.54
19.675	28.72	21.92	10.59	39.31	32.51	73.00	60.00	33.69	27.49

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

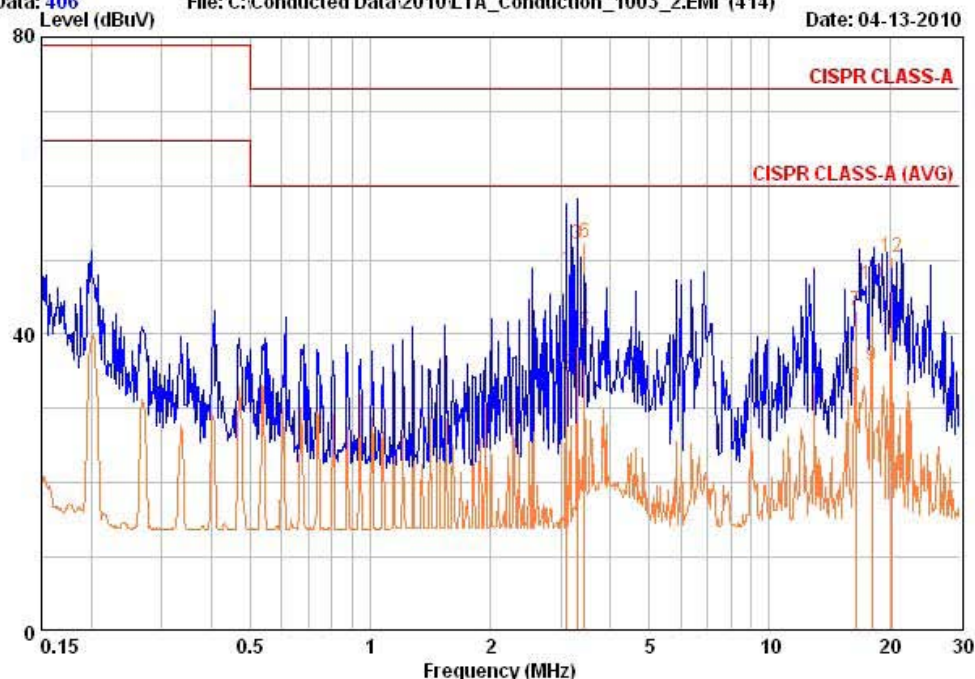
AC Conducted Emissions – Printer – Line



243 Jubug-ri, yangji-Myeon, Youngin-si,
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Tel +82-31-3236008,9
Fax: +82-31-3236010

EUT / Model No. :	HIT731-UHF	Phase :	LINE
Test Mode :	Printer mode	Test Power :	120 / 60
Temp./Humi. :	18 / 24	Test Engineer :	KIM.K.I

Data: 406 File: C:\Conducted Data\2010\LTA_Conduction_1003_2.EMI (414) Date: 04-13-2010



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
3.100	38.74	24.74	9.85	48.59	34.59	73.00	60.00	24.41	25.41
3.299	42.14	30.34	9.86	52.00	40.20	73.00	60.00	21.00	19.80
3.435	42.44	30.44	9.86	52.30	40.30	73.00	60.00	20.70	19.70
16.445	32.70	22.40	10.46	43.17	32.87	73.00	60.00	29.83	27.13
18.037	36.11	25.31	10.52	46.63	35.83	73.00	60.00	26.37	24.17
20.206	39.73	28.53	10.59	50.32	39.12	73.00	60.00	22.68	20.88

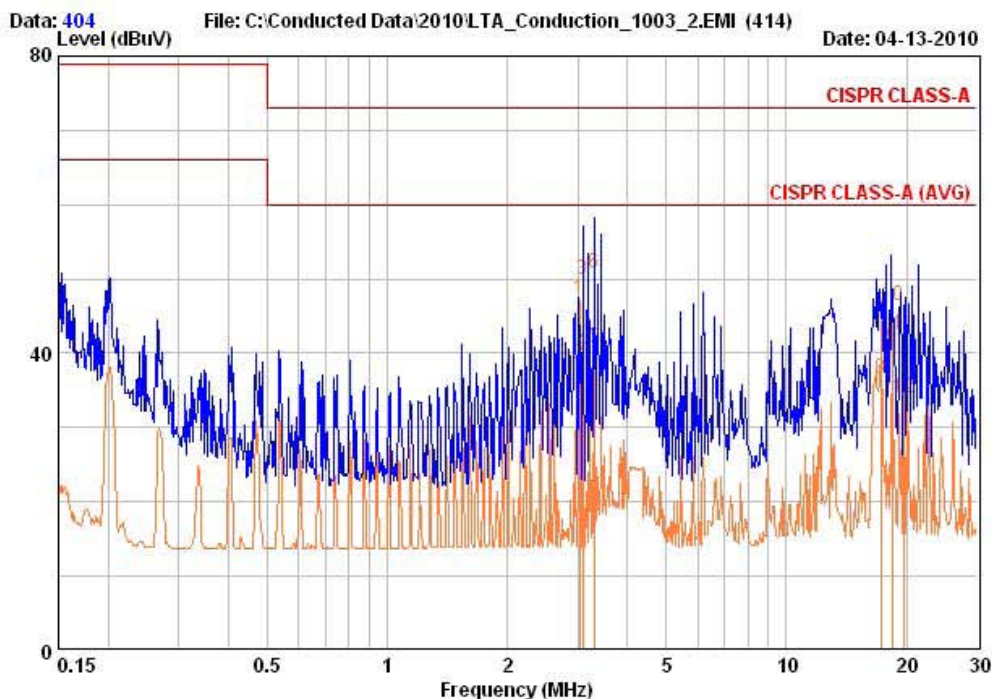
Remarks: C.F (Correction Factor) = Insertion loss + Cable loss

AC Conducted Emissions – Printer – Neutral



243 Jubug-ri, yangji-Myeon, Youngin-si,
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Fax: +82-31-3236010

EUT / Model No. :	HIT731-UHF	Phase :	NEUTRAL
Test Mode :	Printer mode	Test Power :	120 / 60
Temp./Humi. :	18 / 24	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
3.033	37.44	28.64	9.85	47.29	38.49	73.00	60.00	25.71	21.51
3.095	40.14	30.24	9.85	49.99	40.09	73.00	60.00	23.01	19.91
3.296	41.04	30.84	9.86	50.90	40.70	73.00	60.00	22.10	19.30
17.216	33.91	26.21	10.50	44.41	36.71	73.00	60.00	28.59	23.29
18.426	35.82	30.22	10.55	46.36	40.76	73.00	60.00	26.64	19.24
19.634	31.92	23.42	10.59	42.51	34.01	73.00	60.00	30.49	25.99

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

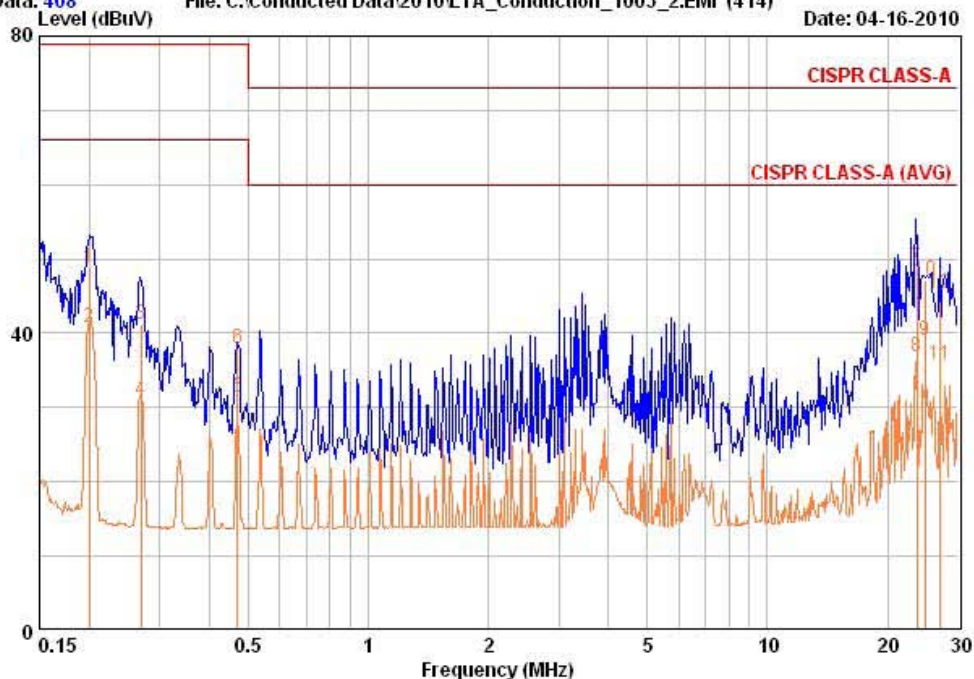
AC Conducted Emissions – RFID – Line



243 Jubug-ri, yangji-Myeon, Youngin-si,
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Fax: +82-31-3236010

EUT / Model No. :	HIT731-UHF	Phase :	LINE
Test Mode :	RFID mode	Test Power :	120 / 60
Temp./Humi. :	19 / 27	Test Engineer :	KIM.K.I

Data: 408 File: C:\Conducted Data\2010\LTA_Conduction_1003_2.EMI (414) Date: 04-16-2010



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
0.200	39.19	31.09	9.65	48.84	40.74	79.00	66.00	30.16	25.26
0.270	31.47	21.27	9.66	41.13	30.93	79.00	66.00	37.87	35.07
0.471	28.15	21.65	9.67	37.82	31.32	79.00	66.00	41.18	34.68
23.644	38.25	26.15	10.66	48.91	36.81	73.00	60.00	24.09	23.19
24.782	36.36	28.26	10.69	47.05	38.95	73.00	60.00	25.95	21.05
27.005	34.57	24.97	10.72	45.29	35.69	73.00	60.00	27.71	24.31

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

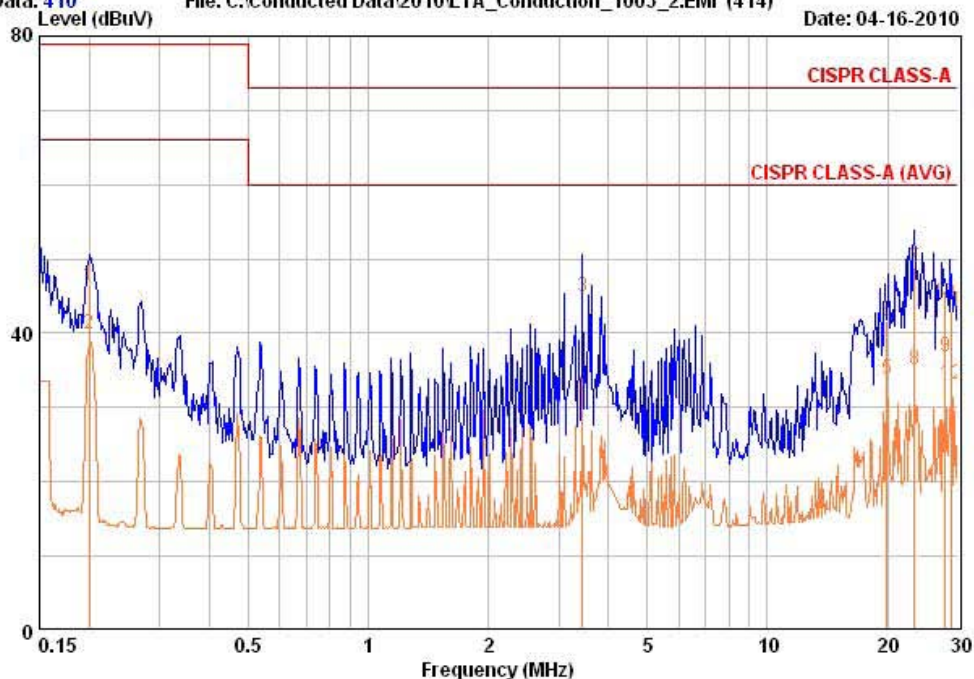
AC Conducted Emissions – RFID – Neutral



243 Jubug-ri, yangji-Myeon, Youngin-si,
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Tel +82-31-3236008,9
Fax: +82-31-3236010

EUT / Model No. : HIT731-UHF	Phase : NEUTRAL
Test Mode : RFID mode	Test Power : 120 / 60
Temp./Humi. : 19 / 27	Test Engineer : KIM.K.I

Data: 410 File: C:\Conducted Data\2010\LTA_Conduction_1003_2.EMI (414) Date: 04-16-2010



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
0.200	36.69	30.19	9.66	46.35	39.85	79.00	66.00	32.65	26.15
3.435	34.94	22.34	9.86	44.80	32.20	73.00	60.00	28.20	27.80
19.950	31.12	23.12	10.60	41.72	33.72	73.00	60.00	31.28	26.28
23.386	38.05	24.45	10.67	48.72	35.12	73.00	60.00	24.28	24.88
27.862	33.38	26.18	10.76	44.14	36.94	73.00	60.00	28.86	23.06
28.919	32.09	22.29	10.77	42.86	33.06	73.00	60.00	30.14	26.94

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