



Dates of Tests: June 23~ July 5, 2011

Test Report S/N: LR500111107B

Test Site : LTA CO., LTD.

CERTIFICATIO OF COMPLIANCE

FCC ID.

P65ALH9001

APPLICANT

Alien Technology Corporation

FCC Classification	:	Licensed Portable Transmitter Worn on body (PCT)
Manufacturing Description	:	Industrial PDA
Manufacturer	:	ATID CO., Ltd.
Model name	:	ALH-9001
Varient Model name	:	ALH-9001-EMA , Si203
Test Device Serial No.:	:	Identical prototype
Rule Part(s)	:	§24(E), §22(H), §2
TX Frequency Range	:	824.2 ~ 848.8 MHz (GSM850)/1850.2 ~ 1909.8 MHz (PCS1900)
	:	826.40~846.60 MHz (Cellular WCDMA)
	:	1852.4~1907.6 MHz (PCS WCDMA)
RX Frequency Range	:	869.2 ~ 893.8 MHz (GSM850)/1930.2 ~ 1989.8 MHz (PCS1900)
	:	1932.4~1987.6 MHz (Cellular WCDMA)
	:	871.40~891.60 MHz (PCS WCDMA)
RF Output Power	:	1.56 W ERP GSM850/ 0.73 W EIRP GSM1900
	:	0.14 W ERP Cellular WCDMA/ 0.12 W EIRP PCS WCDMA

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. The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.



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.
KCC	KOREA	KR0049	2013-04-24	EMC accredited Lab.
FCC	U.S.A	610755	2014-04-27	FCC filing
FCC	U.S.A	649054	2013-04-13	FCC CAB
VCCI	JAPAN	R2133(10m), C2307	2014-06-21	VCCI registration
VCCI	JAPAN	T-2009	2013-12-23	VCCI registration
IC	CANADA	IC5799	2012-05-14	IC filing

2. Information's about test item

2-1 Client

Company name : Alien Technology Corporation
Address : 18220 Butterfield Blvd Morgan Hill, CA 95037, USA
Tel / Fax : Tel : 408-201-7475 / Fax : 408-201-7475

2-2 Manufacturer

Company name : ATID CO., Ltd
Address : 205 Migun Technoworld 1, 533, Yongsan-dong, Yuseong-gu,
Daejeon, Korea, 305-500
Tel / Fax : Tel : 82-2-544-1436 / Fax : 82-2-544-1438

2-3 Equipment Under Test (EUT)

Trade name : Industrial PDA
Model name : ALH-9001
Variant Model name : ALH-9001-EMA , Si203
Serial number : Identical prototype
Date of receipt : June 23, 2011
EUT condition : Pre-production, not damaged
GSM/WCDMA Module : Siemens Cellular Engine (HC25)
Antenna type : PIFA Antenna(SK-GWMQ-Si203)/
: 3.076dBi@GSM850, Cellular WCDMA
: 5.459dBi@PCS1900, PCS WCDMA
RF output power : 1.56 W ERP GSM850 (31.93dBm)
: 0.73 W EIRP GSM1900 (28.64dBm)
: 0.14 W ERP Cellular WCDMA (21.58dBm)
: 0.12 W EIRP PCS WCDMA (20.94dBm)
Modulation : GMSK, 8PSK, QPSK
Power Source : 3.7 Vdc from Battery (Li-Ion Polymer Battery)
Power for Adaptor. : Input: 100-240VAC, 0.4A Output: 5.0VDC, 3A
Firmware version : CE50203ENGALI_0404_T0

2-4 Tested frequency

Frequency	Ch.	GSM 850	Ch	GSM1900
Low frequency (MHz)	128	824.2	512	1850.2
Middle frequency (MHz)	190	836.6	661	1880.0
High frequency (MHz)	251	848.8	810	1909.8

Frequency	Ch.	Cellular WCDMA	Ch	PCS WCDMA
Low frequency (MHz)	4132	826.4	9262	1852.4
Middle frequency (MHz)	4182	836.4	9400	1880.0
High frequency (MHz)	4233	846.6	9538	1907.6

2.5 Test conditions

Temperature	: +15~35 ℃	Humidity	: 30~65 %RH
Pressure	: 860~1030 mbar	Operating mode	: Air link mode

2-6 Ancillary Equipment

Equipment	Model No.	Serial No.	Manufacturer
Notebook	Vostro 1015	DN9RBN1	DELL
Cradle	ATUHF	N/A	ATID
Earphone	N/A	N/A	N/A

3. Test Report

3.1 Summary of tests

FCC Part Section(s)	Parameter	Test Condition	Status (note 1)
22.913(a)(2)	Effective radiated power	Radiated	C
24.232(c)	Effective isotropic radiated power		C
2.1053 22.917(a) 24.238(a)	Spurious radiated emission		C
15.209	Field Strength of Harmonics		C
15.207	AC Conducted Emissions	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:

ANSI C-63.4-2003

3.2 Technical Characteristics Test

3.3.1 Conducted Output Power

Band	Frequency	GSM	GPRS Data	
			GPRS	GPRS
			1 Tx Slot	2 Tx Slot
	(MHz)	(dBm)	(dBm)	(dBm)
GSM850	824.2	32.34	32.11	32.09
	836.6	32.21	32.00	31.98
	848.8	32.23	32.02	32.01
GSM1900	1950.2	29.81	29.25	29.24
	1880.0	30.05	29.43	29.41
	1909.8	29.93	29.31	29.30

Mode		WCDMA(dBm)
Subtests		
BAND	Channel	
V	4132	25.93
	4182	26.00
	4233	25.95
II	9262	25.43
	9400	25.92
	9538	25.51

Mode		HSDPA(dBm)			
Subtests		1	2	3	4
BAND	Channel				
V	4132	25.91	25.90	25.88	25.87
	4182	25.98	25.96	25.94	25.93
	4233	25.94	25.92	25.91	25.90
II	9262	25.41	25.40	25.36	25.35
	9400	25.90	25.88	25.87	25.42
	9538	25.50	25.47	25.46	25.34

We found out the test mode with the highest power level after we analyzer all the data rates. So we chose GSM850/GSM1900/WCDMAV/WCDMA II as a representative

3.2.2 Effective Radiated Power Output

Effective Radiated Power Output Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden turn table 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. For GSM signals, an average detector is used, with RBW=VBW=3MHz, SPAN=10MHz. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same receive spectrum analyzer reading. The conducted power at the terminals of the dipole is measured. The ERP is recorded.

3.2.2 Radiation Spurious and Harmonic Emissions

Effective Radiated Power Output Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

Radiation and harmonic emissions are measured outdoors at our 3-meter test range. The equipment under test is placed on a wooden turntable 3-meters from the receive antenna. The receive antenna height and turntable rotations were adjusted for the highest reading on the receive spectrum analyzer. The Spectrum was investigated from 30MHz to the 10th Harmonic of the fundamental. A peak detector is used. With RBW=VBW=1MHz. The value that we could measure was only reported. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator with the level of the signal generator being adjusted to obtain the same receive spectrum analyzer reading. This level is recorded. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

Effective Radiated Power Output (GSM850)

Measurement Data: GSM850

Channel	Frequency (MHz)	TEST CONDITIONS Power Step: 5			
		Ref. level (dBm)	Pol. (H/V)	ERP (dBm)	ERP (W)
128	824.2	-12.44	H	31.82	1.52
190	836.6	-12.55	H	31.93	1.56
251	848.8	-12.71	H	31.76	1.50

Note 1: Radiated measurements at 3 meters by Substitution Method.

Equivalent Isotropic Radiated Power (PCS1900)

Measurement Data: PCS1900

Channel	Frequency (MHz)	TEST CONDITIONS Power Step: 0			
		Ref. level (dBm)	Pol. (H/V)	EIRP (dBm)	EIRP (W)
512	1850.2	-14.85	H	28.64	0.73
661	1880.0	-13.08	H	28.59	0.72
810	1909.8	-12.94	H	28.60	0.72

Note 2: Radiated measurements at 3 meters by Substitution Method.

Effective Radiated Power Output (Cellular WCDMA)

Measurement Data: Cellular WCDMA

Channel	Frequency (MHz)	TEST CONDITIONS			
		Ref. level (dBm)	Pol. (H/V)	ERP (dBm)	ERP (W)
4132	826.4	-18.90	H	21.34	0.14
4182	836.4	-18.54	H	21.58	0.14
4233	846.6	-18.74	H	21.39	0.14

Note 1: Radiated measurements at 3 meters by Substitution Method.

Equivalent Isotropic Radiated Power (PCS WCDMA)

Measurement Data: PCS WCDMA

Channel	Frequency (MHz)	TEST CONDITIONS			
		Ref. level (dBm)	Pol. (H/V)	EIRP (dBm)	EIRP (W)
9262	1852.4	-22.90	H	20.59	0.11
9400	1880.0	-20.73	H	20.94	0.12
9538	1907.6	-20.78	H	20.76	0.12

Note 2: Radiated measurements at 3 meters by Substitution Method.

3.3.3 Field Strength of spurious Radiation

OPERATING FREQUENCY : 824.2 MHz
 CHANNEL : 128(Low)
 MEASURED OUTPUT POWER : 29.93 dBm = 0.98 W
 MODULATION : GSM850
 DISTANCE : 3 meters
 LIMIT : $43 + 10 \log_{10} (W)$ = 42.91 dBc

Freq. (MHz)	LEVEL@ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBd)	CORRECT GENERATOR LEVEL (dBm)	POL (H/V)	(dBc)
-	-	-	-	-	-
No emissions were detected are a level greater than 20dB below limit.					
-	-	-	-	-	-

Note1: Radiated measurements at 3 meters by Substitution Method.

--- Blank ---

3.3.3 Field Strength of spurious Radiation**--- Continue**

OPERATING FREQUENCY : 836.6 MHz
 CHANNEL : 190(Mid)
 MEASURED OUTPUT POWER : 29.93 dBm = 0.98 W
 MODULATION : GSM850
 DISTANCE : 3 meters
 LIMIT : $43 + 10 \log_{10} (W)$ = 42.91 dBc

Freq. (MHz)	LEVEL@ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBd)	CORRECT GENERATOR LEVEL (dBm)	POL (H/V)	(dBc)
-	-	-	-	-	-
No emissions were detected are a level greater than 20dB below limit.					
-	-	-	-	-	-

Note1: Radiated measurements at 3 meters by Substitution Method.

--- Blank ---

3.3.3 Field Strength of spurious Radiation**--- Continue**

OPERATING FREQUENCY : 848.8 MHz
 CHANNEL : 251(High)
 MEASURED OUTPUT POWER : 29.93 dBm = 0.98 W
 MODULATION : GSM850
 DISTANCE : 3 meters
 LIMIT : $43 + 10 \log_{10} (W)$ = 42.91 dBc

Freq. (MHz)	LEVEL@ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBd)	CORRECT GENERATOR LEVEL (dBm)	POL (H/V)	(dBc)
-	-	-	-	-	-
No emissions were detected are a level greater than 20dB below limit.					
-	-	-	-	-	-

Note1: Radiated measurements at 3 meters by Substitution Method.

--- Blank ---

OPERATING FREQUENCY : 1850.2 MHz
 CHANNEL : 512(Low)
 MEASURED OUTPUT POWER : 28.64 dBm = 0.73 W
 MODULATION : GSM1900
 DISTANCE : 3 meters
 LIMIT : $43 + 10 \log_{10} (W) =$ 41.63 dBc

Freq. (MHz)	LEVEL@ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	CORRECT GENERATOR LEVEL (dBm)	POL (H/V)	(dBc)
-	-	-	-	-	-
No emissions were detected are a level greater than 20dB below limit.					
-	-	-	-	-	-

Note1: Radiated measurements at 3 meters by Substitution Method.

--- Blank ---

3.3.3 Field Strength of spurious Radiation**--- Continue**

OPERATING FREQUENCY : 1880.0 MHz

CHANNEL : 661(Mid)

MEASURED OUTPUT POWER : 28.64 dBm = 0.73 W

MODULATION : GSM1900

DISTANCE : 3 meters

LIMIT : $43 + 10 \log_{10} (W)$ = 41.63 dBc

Freq. (MHz)	LEVEL@ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	CORRECT GENERATOR LEVEL (dBm)	POL (H/V)	(dBc)
-	-	-	-	-	-
No emissions were detected are a level greater than 20dB below limit.					
-	-	-	-	-	-

Note1: Radiated measurements at 3 meters by Substitution Method.

3.3.3 Field Strength of spurious Radiation**--- Continue**

OPERATING FREQUENCY : 1909.8 MHz
 CHANNEL : 810 (High)
 MEASURED OUTPUT POWER : 28.64 dBm = 0.73 W
 MODULATION : GSM1900
 DISTANCE : 3 meters
 LIMIT : $43 + 10 \log_{10} (W)$ = 41.63 dBc

Freq. (MHz)	LEVEL@ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	CORRECT GENERATOR LEVEL (dBm)	POL (H/V)	(dBc)
-	-	-	-	-	-
No emissions were detected are a level greater than 20dB below limit.					
-	-	-	-	-	-

Note1: Radiated measurements at 3 meters by Substitution Method.

3.3.3 Field Strength of spurious Radiation

OPERATING FREQUENCY : 826.4 MHz
 CHANNEL : 4132(Low)
 MEASURED OUTPUT POWER : 21.58 dBm = 0.14 W
 MODULATION : Cellular WCDMA
 DISTANCE : 3 meters
 LIMIT : $43 + 10 \log_{10} (W) =$ 34.46 dBc

Freq. (MHz)	LEVEL@ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBd)	CORRECT GENERATOR LEVEL (dBm)	POL (H/V)	(dBc)
-	-	-	-	-	-
No emissions were detected are a level greater than 20dB below limit.					
-	-	-	-	-	-

Note1: Radiated measurements at 3 meters by Substitution Method.

--- Blank ---

3.3.3 Field Strength of spurious Radiation**--- Continue**

OPERATING FREQUENCY : 836.4 MHz
 CHANNEL : 4182(Mid)
 MEASURED OUTPUT POWER : 21.58 dBm = 0.14 W
 MODULATION : Cellular WCDMA
 DISTANCE : 3 meters
 LIMIT : $43 + 10 \log_{10} (W)$ = 34.46 dBc

Freq. (MHz)	LEVEL@ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBd)	CORRECT GENERATOR LEVEL (dBm)	POL (H/V)	(dBc)
-	-	-	-	-	-
No emissions were detected are a level greater than 20dB below limit.					
-	-	-	-	-	-

Note1: Radiated measurements at 3 meters by Substitution Method.

--- Blank ---

3.3.3 Field Strength of spurious Radiation

--- Continue

OPERATING FREQUENCY : 846.6 MHz
 CHANNEL : 4233(High)
 MEASURED OUTPUT POWER : 21.58 dBm = 0.14 W
 MODULATION : Cellular WCDMA
 DISTANCE : 3 meters
 LIMIT : $43 + 10 \log_{10}(W)$ = 34.46 dBc

Freq. (MHz)	LEVEL@ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBd)	CORRECT GENERATOR LEVEL (dBm)	POL (H/V)	(dBc)
-	-	-	-	-	-
No emissions were detected are a level greater than 20dB below limit.					
-	-	-	-	-	-

Note1: Radiated measurements at 3 meters by Substitution Method.

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OPERATING FREQUENCY : 1852.4 MHz
 CHANNEL : 9262(Low)
 MEASURED OUTPUT POWER : 20.94 dBm = 0.12 W
 MODULATION : PCS WCDMA
 DISTANCE : 3 meters
 LIMIT : $43 + 10 \log_{10} (W)$ = 33.79 dBc

Freq. (MHz)	LEVEL@ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	CORRECT GENERATOR LEVEL (dBm)	POL (H/V)	(dBc)
-	-	-	-	-	-
No emissions were detected are a level greater than 20dB below limit.					
-	-	-	-	-	-

Note1: Radiated measurements at 3 meters by Substitution Method.

--- Blank ---

3.3.3 Field Strength of spurious Radiation**--- Continue**

OPERATING FREQUENCY : 1880.0 MHz
 CHANNEL : 9400(Mid)
 MEASURED OUTPUT POWER : 20.94 dBm = 0.12 W
 MODULATION : PCS WCDMA
 DISTANCE : 3 meters
 LIMIT : $43 + 10 \log_{10} (W)$ = 33.79 dBc

Freq. (MHz)	LEVEL@ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	CORRECT GENERATOR LEVEL (dBm)	POL (H/V)	(dBc)
-	-	-	-	-	-
No emissions were detected are a level greater than 20dB below limit.					
-	-	-	-	-	-

Note1: Radiated measurements at 3 meters by Substitution Method.

--- Blank ---

3.3.3 Field Strength of spurious Radiation**--- Continue**

OPERATING FREQUENCY : 1907.6 MHz
 CHANNEL : 9538 (High)
 MEASURED OUTPUT POWER : 20.94 dBm = 0.12 W
 MODULATION : PCS WCDMA
 DISTANCE : 3 meters
 LIMIT : $43 + 10 \log_{10} (W)$ = 33.79 dBc

Freq. (MHz)	LEVEL@ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	CORRECT GENERATOR LEVEL (dBm)	POL (H/V)	(dBc)
-	-	-	-	-	-
No emissions were detected are a level greater than 20dB below limit.					
-	-	-	-	-	-

Note1: Radiated measurements at 3 meters by Substitution Method.

--- Blank ---

3.2.3 Field Strength

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)

VBW $\geq$ RBW

= 1 MHz (1 GHz ~ 10th harmonic)

Span = 100 MHz

Detector function = Quasi-peak

Trace = max hold

Sweep = auto

Measurement Data: Complies

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

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.

1. Measurement Data:

Radiated Emissions –GPRS+Activesync+“H”+MP3+Cam

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

EUT/Model No.: ALH-9001

TEST MODE: GPRS+Activesync+“H”+MP3+Cam mode

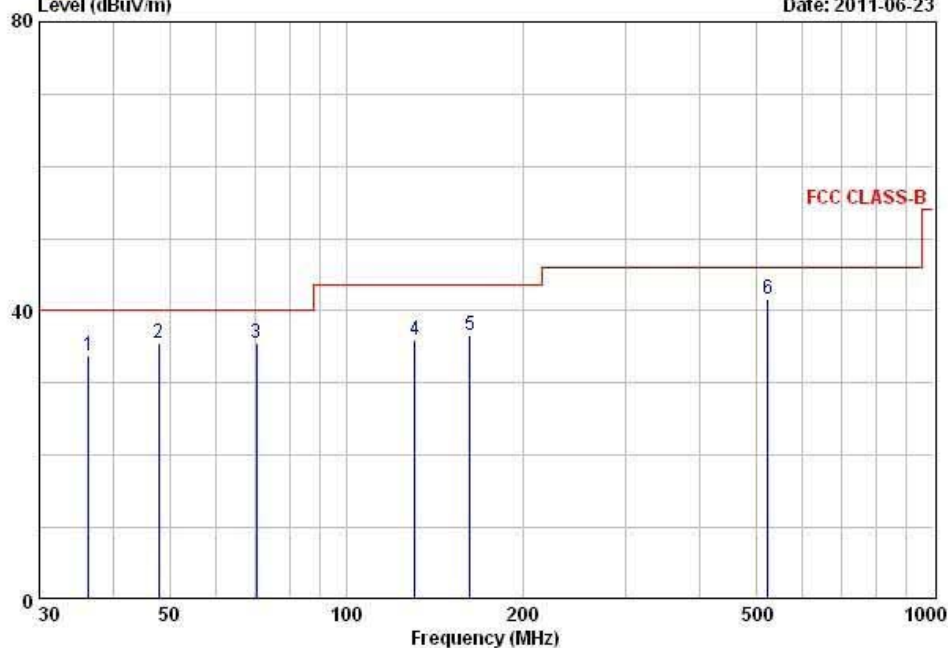
Temp Humi : 24 / 82

Tested by: PARK.H.W

Data: 86

Level (dBuV/m)

Date: 2011-06-23



	Freq	Reading	C.F	Result	Limit	Margin	Height	Angle	Polarity
	MHz	dBuV/m	dB/m	dBuV/m	QP	dB	cm	deg	
1	36.38	45.60	-11.90	33.70	40.00	6.30	100	187	VERTICAL
2	47.99	46.20	-10.75	35.45	40.00	4.55	100	143	VERTICAL
3	70.34	48.10	-12.46	35.64	40.00	4.36	100	159	VERTICAL
4	130.84	46.50	-10.57	35.93	43.50	7.57	205	134	HORIZONTAL
5	162.61	45.60	-8.89	36.71	43.50	6.79	211	125	HORIZONTAL
6	522.72	44.10	-2.54	41.56	46.00	4.44	342	187	HORIZONTAL

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

Radiated Emissions –WCDMA+Activesync+“H”+MP3+Cam

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

EUT/Model No.: ALH-9001

TEST MODE: WCDMA+Activesync+“H”+MP3+Cam mode

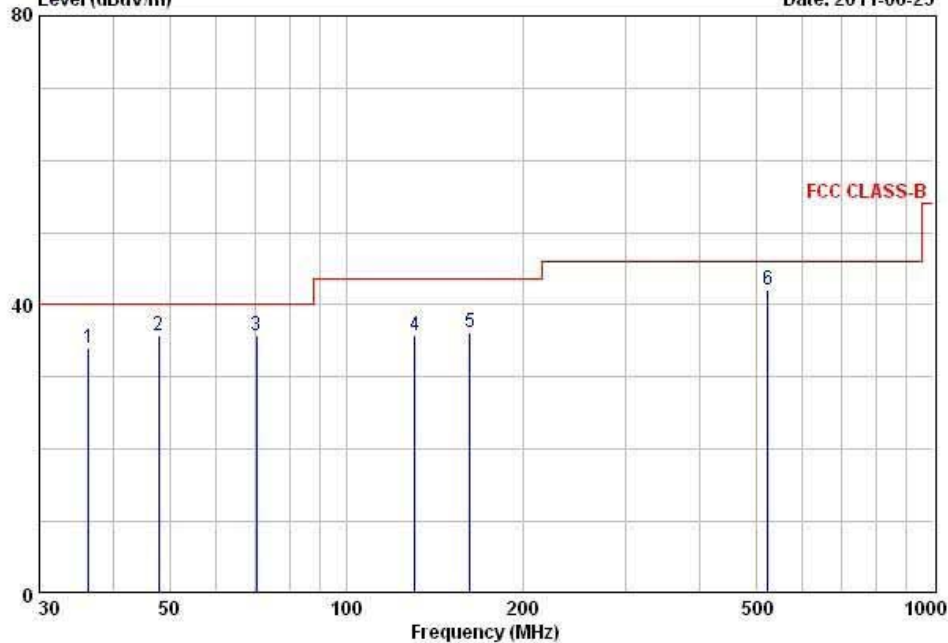
Temp Humi : 24 / 82

Tested by: PARK.H.W

Data: 89

Level (dBuV/m)

Date: 2011-06-23



	Freq	Reading	C.F	Result	Limit	Margin	Height	Angle	Polarity
	MHz	dBuV/m	dB/m	dBuV/m	dBuV/m	dB	cm	deg	
1	36.38	45.90	-11.90	34.00	40.00	6.00	100	196	VERTICAL
2	47.99	46.40	-10.75	35.65	40.00	4.35	100	148	VERTICAL
3	70.34	48.20	-12.46	35.74	40.00	4.26	100	164	VERTICAL
4	130.84	46.30	-10.57	35.73	43.50	7.77	205	131	HORIZONTAL
5	162.61	45.10	-8.89	36.21	43.50	7.29	211	121	HORIZONTAL
6	522.72	44.60	-2.54	42.06	46.00	3.94	342	187	HORIZONTAL

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

3.2.4 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.
- No other emissions were detected at a level greater than 20dB below limit
- It gave the worse case emissions

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

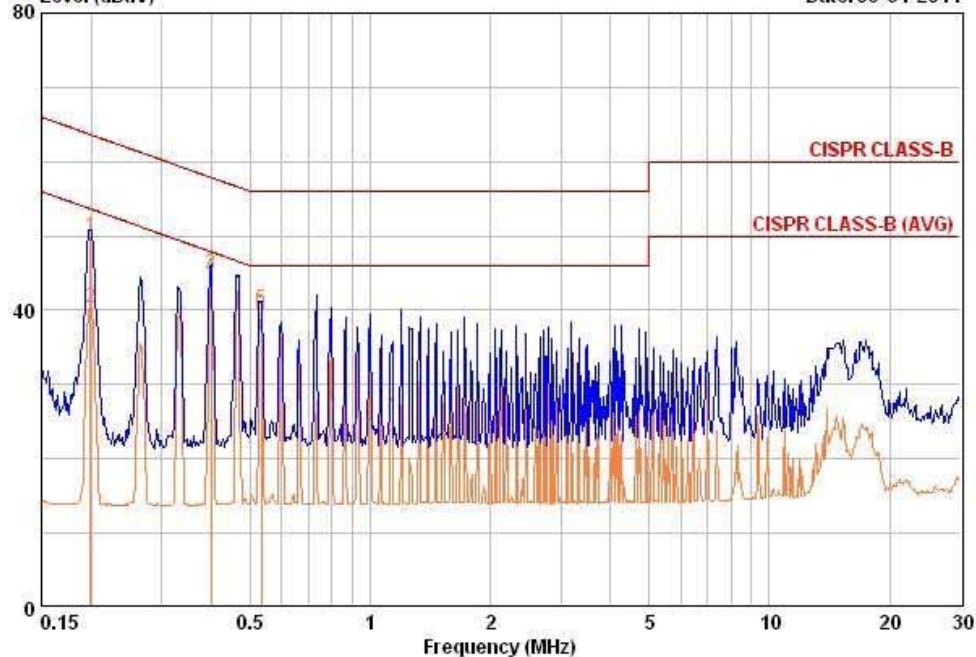
* Decreases with the logarithm of the frequency

Radiated Emissions – GPRS+Activesync+“H”+MP3 LINE

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

EUT / Model No. : ALH-9001 Phase : LINE
Test Mode : GPRS+Activesync+“H”+MP3+Cam modeTest Power : 120 / 60
Temp./Humi. : 23 / 55 Test Engineer : PARK.H.W

Data: 210 File: C:\Conducted Data\2011\LTA_Conduction_1105-2.EMI (210) Date: 06-31-2011
Level (dBuV)



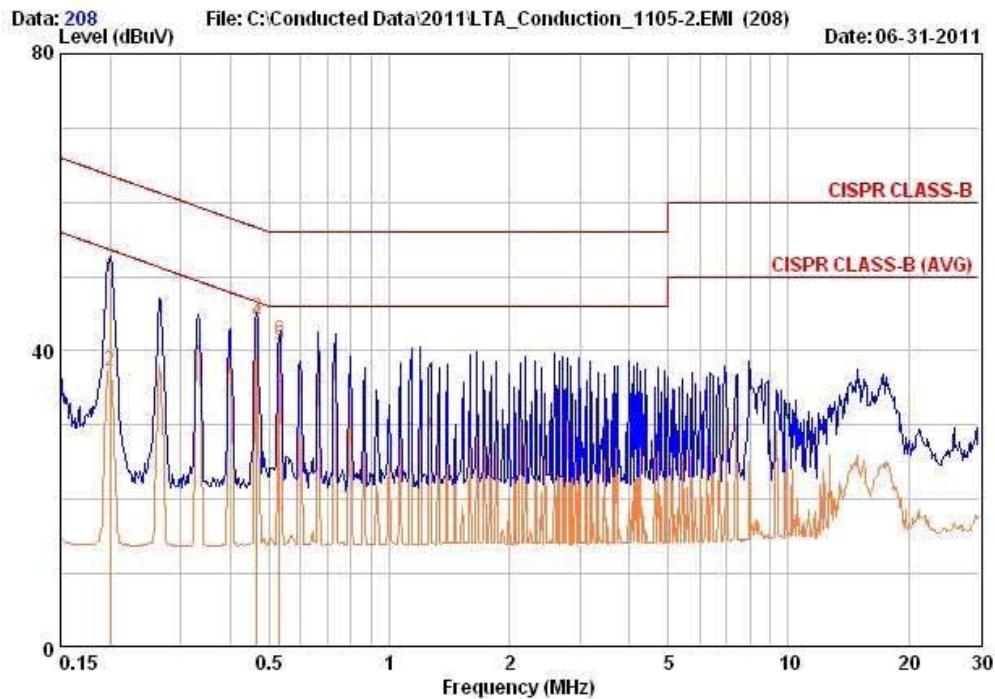
Freq	RD	RD	C.F	Result	Result	Limit	Limit	Margin	Margin
MHz	QP	AV		QP	AV	QP	AV	QP	AV
	dBuV	dBuV	dB	dBuV	dBuV	dBuV	dBuV	dB	dB
0.199	40.34	30.74	9.64	49.98	40.38	63.65	53.65	13.67	13.27
0.400	35.33	34.73	9.67	45.00	44.40	57.85	47.85	12.85	3.45
0.533	30.52	29.62	9.67	40.19	39.29	56.00	46.00	15.81	6.71

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

Radiated Emissions – GPRS+Activsync+“H”+MP3 NEUTRAL

243 Jibug-ni, yangji-Myeon, Youngin-si,
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Fax:+82-31-3236010

EUT / Model No. :	ALH-9001	Phase :	NEUTRAL
Test Mode :	GPRS+Activsync+“H”+MP3+Cam mode	Test Power :	120 / 60
Temp./Humi. :	23 / 55	Test Engineer :	PARK.H.W



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
0.200	40.34	27.54	9.64	49.98	37.18	63.61	53.61	13.63	16.43
0.465	34.82	34.22	9.66	44.49	43.89	56.60	46.60	12.12	2.72
0.530	31.72	31.02	9.67	41.39	40.69	56.00	46.00	14.61	5.31

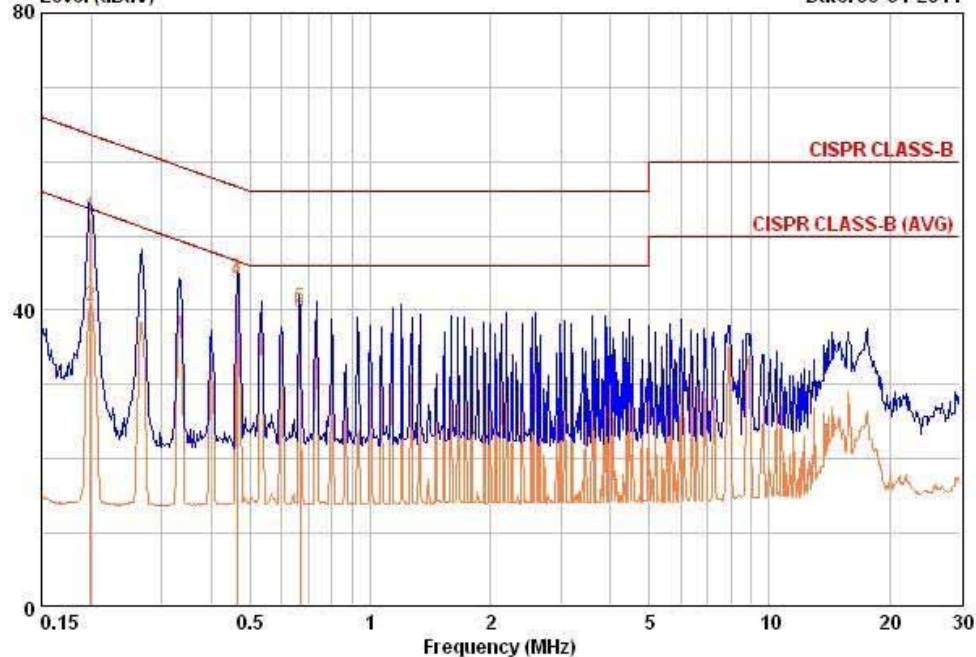
Remarks: C.F (Correction Factor) = Insertion loss + Cable loss

Radiated Emissions – WCDMA+Activesync+“H”+MP3 LINE

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

EUT / Model No. : ALH-9001 Phase : LINE
Test Mode : WCDMA+Activesync+“H”+MP3+Cam modeest Power : 120 / 60
Temp./Humi. : 23 / 55 Test Engineer : PARK.H.W

Data: 204 File: C:\Conducted Data\2011\LTA_Conduction_1105-2.EMI (204) Date: 06-31-2011
Level (dBuV)



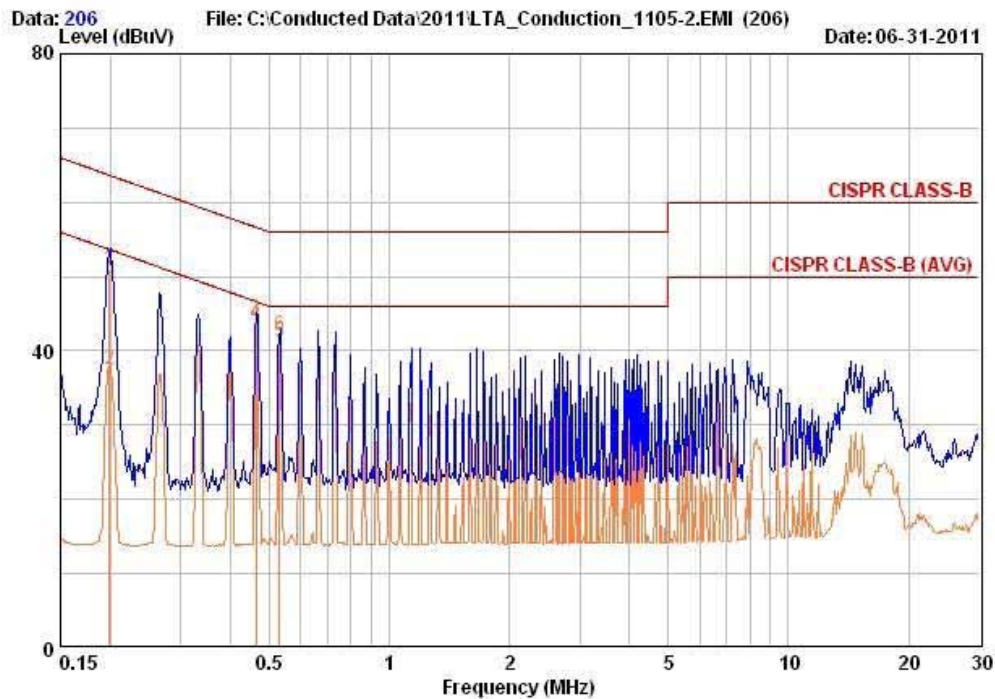
Freq	RD	RD	C.F	Result	Result	Limit	Limit	Margin	Margin
MHz	QP	AV		QP	AV	QP	AV	QP	AV
	dBuV	dBuV	dB	dBuV	dBuV	dBuV	dBuV	dB	dB
0.199	42.84	30.84	9.64	52.48	40.48	63.65	53.65	11.17	13.17
0.464	34.52	34.42	9.67	44.19	44.09	56.62	46.62	12.43	2.53
0.667	30.72	30.02	9.66	40.38	39.68	56.00	46.00	15.62	6.32

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

Radiated Emissions – WCDMA+Activesync+“H”+MP3 NEUTRAL

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Fax:+82-31-3236010

EUT / Model No. : ALH-9001 Phase : NEUTRAL
Test Mode : WCDMA+Activesync+“H”+MP3+Cam modeest Power : 120 / 60
Temp./Humi. : 23 / 55 Test Engineer : PARK.H.W



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
0.199	41.44	27.94	9.64	51.08	37.58	63.67	53.67	12.59	16.09
0.464	34.62	33.92	9.66	44.29	43.59	56.62	46.62	12.33	3.03
0.532	32.42	31.62	9.67	42.09	41.29	56.00	46.00	13.91	4.71

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 (~30GHz)	FSV-30	100757	R&S	1 year	2011-01-24
2	Spectrum Analyzer (~2.9GHz)	8594E	3710A04074	HP	2 year	2009-10-12
3	Signal Generator (~3.2GHz)	8648C	3623A02597	HP	1 year	2011-03-30
4	Signal Generator (1~20GHz)	83711B	US34490456	HP	1 year	2011-03-30
5	Attenuator (3dB)	8491A	37822	HP	2 year	2010-10-08
6	Attenuator (10dB)	8491A	63196	HP	2 year	2010-10-08
7	Attenuator (30dB)	8498A	3318A10929	HP	2 year	2011-01-05
8	Test Receiver (~30MHz)	ESHS10	828404/009	R&S	1 year	2011-03-30
9	EMI Test Receiver (~1GHz)	ESCI7	100722	R&S	1 year	2010-10-08
10	RF Amplifier (~1.3GHz)	8447D	2439A09058	HP	2 year	2010-10-08
11	RF Amplifier (1~18GHz)	8449B	3008A02126	HP	2 year	2010-03-29
12	Horn Antenna (1~18GHz)	BBHA 9120D	9120D122	SCHWARZBECK	2 year	2010-12-24
13	Horn Antenna (18 ~ 40GHz)	SAS-574	154	Schwarzbeck	2 year	2010-11-25
14	Horn Antenna (18 ~ 40GHz)	SAS-574	155	Schwarzbeck	2 year	2010-11-25
15	TRILOG Antenna	VULB 9160	9160-3172	SCHWARZBECK	2 year	2010-10-07
16	Dipole Antenna	VHA9103	2116	SCHWARZBECK	2 year	2010-11-25
17	Dipole Antenna	VHA9103	2117	SCHWARZBECK	2 year	2010-11-25
18	Dipole Antenna	VHA9105	2261	SCHWARZBECK	2 year	2010-11-25
19	Dipole Antenna	VHA9105	2262	SCHWARZBECK	2 year	2010-11-25
20	Hygro-Thermograph	THB-36	0041557-01	ISUZU	2 year	2010-04-12
21	Splitter (SMA)	ZFSC-2-2500	SF617800326	Mini-Circuits	-	-
22	Power Divider	11636A	6243	HP	2 year	2010-10-08
23	DC Power Supply	6622A	3448A03079	HP	-	-
24	Frequency Counter	5342A	2826A12411	HP	1 year	2011-03-30
25	Power Meter	EPM-441A	GB32481702	HP	1 year	2011-03-30
26	Power Sensor	8481A	US41030291	HP	1 year	2010-10-08
27	Audio Analyzer	8903B	3729A18901	HP	1 year	2010-10-08
28	Modulation Analyzer	8901B	3749A05878	HP	1 year	2010-10-08
29	TEMP & HUMIDITY Chamber	YJ-500	LTAS06041	JinYoung Tech	1 year	2010-10-08
30	Stop Watch	HS-3	601Q09R	CASIO	2 year	2010-03-31
31	LISN	ENV216	100408	R&S	1 year	2010-10-08
32	UNIVERSAL RADIO COMMUNICATION TESTER	CMU200	106243	R&S	2 year	2010-05-13
33	Highpass Filter	WHKX1.5/15G-10SS	74	Wainwright Instruments	-	-
34	Highpass Filter	WHKX3.0/18G-10SS	118	Wainwright Instruments	-	-