

Page 1 of 20

# **Certificate of Compliance**

•	crimicate or c	Joinpilan	CC		
Test Report No.:	SKTTRT-080703-010				
Applicant:	SEWON TELETECH, IN	IC.			
Applicant Address:	881 Gwanyang2, Dongan, An	yang, Gyeonggi, South	Korea		
Manufacturer:	SEWON TELETECH, IN	IC.			
Manufacturer Address:	881 Gwanyang2, Dongan, An	yang, Gyeonggi, South	Korea		
Device Under Test:	Slim RU				
FCC ID:	WGUSTS1943HMAAD	Model Name:	STS1900-43HM-AAD		
Brand/Trade Name:	-	-			
Receipt No.:	SKTEU08-0546	Date of receipt:	June 23, 2008		
Date of Issue:	Pate of Issue: July 3, 2008				
Location of Testing:  SK TECH CO., LTD.  #820-2, Wolmoon-ri, Wabu-up, Namyangju-si, Kyunggi-do, 472-905			ggi-do, 472-905 South Korea		
Test Procedure:	TIA-603-C (December 2004)	), ANSI C63.4			
Test Specification:	FCC Part 24E, Part 15B				
FCC Equipment Class:	AMP-Amplifier				
Test Result:	The above-mentioned devi	I device has been tested and passed.			
Tested & Reported by: Sea	ung-Taek, Shim	Approved by: Jong-So	o, Yoon		
7	2008. 07. 03		2008, 07, 03		
Signature	Date	Signo	-		
Other Aspects:	-				
Abbreviations:	Abbreviations: $\cdot$ OK, Pass = passed $\cdot$ Fail = failed $\cdot$ N/A = not applicable				

- > This test report is not permitted to copy partly and entirely without our permission.
  - ➤ This test result is dependent on only equipment to be used.
  - > This test result is based on a single evaluation of submitted samples of the above mentioned.



Page 2 of 20

# >> CONTENTS <<

1. GENERAL	··· 4
2. TEST SITE	
2.1 Location	
2.2 List of Test and Measurement Instruments	
2.3 Test Date	_
2.4 Test Environment	5
3. DESCRIPTION OF THE EQUIPMENT UNDER TEST	··· 6
3.1 Rating and Physical Characteristics	
3.2 Equipment Modifications	6
3.3 Submitted Documents	
4. MEASUREMENT CONDITIONS	
4.1 Description of test configuration	7
4.2 List of Peripherals ·····	7
4.3 Type of Used Cables ·····	
4.4 Uncertainty	··· 7
5. TEST AND MEASUREMENTS	··· 8
5.1 RF POWER OUTPUT	··· 8
5.1.1 Regulation	8
5.1.2 Test Procedure	9
5.1.3 Test Results	9
Table 1: Measured values of the RF Power Output	9
Figure 1: Photographs of the measurement of RF Power Output	·· 10
5.2 OCCUPIED BANDWIDTH	··11
	··11
5.2.1 Regulation ·····	
5.2.1 Regulation	
· · · · · · · · · · · · · · · · · · ·	11
5.2.2 Test Procedure	··11 ··11
5.2.2 Test Procedure 5.2.3 Test Results	··11 ··11 ···11
5.2.2 Test Procedure  5.2.3 Test Results  Table 2: Measured values of the Occupied Bandwidth  Figure 2: Plot of the Occupied Bandwidth  5.3 SPURIOUS EMISSIONS AT ANTENNA TERMINALS	··11 ···11 ···11 ···12
5.2.2 Test Procedure  5.2.3 Test Results  Table 2: Measured values of the Occupied Bandwidth  Figure 2: Plot of the Occupied Bandwidth	··11 ···11 ···11 ···12
5.2.2 Test Procedure  5.2.3 Test Results  Table 2: Measured values of the Occupied Bandwidth  Figure 2: Plot of the Occupied Bandwidth  5.3 SPURIOUS EMISSIONS AT ANTENNA TERMINALS	··11 ···11 ···11 ···12 ··13
5.2.2 Test Procedure  5.2.3 Test Results  Table 2: Measured values of the Occupied Bandwidth  Figure 2: Plot of the Occupied Bandwidth  5.3 SPURIOUS EMISSIONS AT ANTENNA TERMINALS  5.3.1 Regulation	··11 ···11 ···12 ··13 ··13



Page 3 of 20

5.4 FIELD STRENGTH OF SPURIOUS RADIATION	16
5.4.1 Regulation ·····	16
5.4.2 Test Procedure	16
5.4.3 Test Results	17
Table 3: Measured values of the spurious emissions (Radiated) ··················	17
5.5 AC POWER LINE CONDUCTED EMISSIONS	18
5.5.1 Regulation ·····	18
5.5.2 Test Procedure	
5.5.3 Test Results	19
Table 4: Measured values of the AC Power Line Conducted Emissions ···	19
Figure 4: Plot of the AC Power Line Conducted Emissions	20



Page 4 of 20

### 1. GENERAL

These tests were performed using the test procedure outlined in TIA-603-C and ANSI C63.4, 2003, and in accordance with the limits set forth in FCC Part 24, Part 15 and Part 2. The EUT (Equipment Under Test) has been shown to be capable of compliance with the applicable technical standards.

We attest to the accuracy of data. All measurements reported herein were performed by SK TECH CO., LTD. and were made under Chief Engineer's supervision.

We assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

### 2. TEST SITE

SK TECH CO., LTD.

### 2.1 Location

#820-2, Wolmoon-ri, Wabu-up, Namyangju-si, Kyunggi-do, 472-905 South Korea (FCC Registered Test Site Number: 90752)

This test site is in compliance with ISO/IEC 17025 for general requirements for the competence of testing and calibration laboratories.

This laboratory is recognized as a Conformity Assessment Body (CAB) for CAB's Designation Number:

**KR0007** by FCC, is accredited by NVLAP for NVLAP Lab. Code: **200220-0**.



 $Page\ 5\ of\ 20$ 

### 2.2 List of Test and Measurement Instruments

No.	Description	Manufacturer	Model #	Serial #	Calibrated until	Used
1	Spectrum Analyzer	Agilent	E4405B	US40520856	2008.07	
2	EMC Spectrum Analyzer	Agilent	E7405A	US40240203	2009.02	
3	EMI Test Receiver	Rohde&Schwarz	ESIB40	100277	2009.02	
4	EMI Test Receiver	Rohde&Schwarz	ESVS10	825120/008	2008.08	
5	EMI Test Receiver	Rohde&Schwarz	ESHS10	862970/019	2008.07	$\boxtimes$
6	Artificial Mains Network	Rohde&Schwarz	ESH3-Z5	836679/018	2008.07	$\boxtimes$
7	Pre-amplifier	HP	8447F	3113A05153	2009.02	$\boxtimes$
8	Pre-amplifier	MITEQ	AFS44	1116321	2009.02	
9	Pre-amplifier	MITEQ	AFS44	1116322	2009.03	$\boxtimes$
10	Power Meter	Agilent	E4417A	MY45100426	2008.07	
11	Power Meter	Agilent	E4418B	US39402176	2009.01	$\boxtimes$
12	Power Sensor	Agilent	E9327A	MY44420696	2008.07	
13	Power Sensor	Agilent	8482A	MY41094094	2008.07	$\boxtimes$
14	Attenuator (30dB)	BIRD	75-A-MFN-30	9640	2008.07	$\boxtimes$
15	Attenuator (20dB)	Weinschel	40-20-34	1003	2008.07	$\boxtimes$
16	Attenuator (10dB)	HP	8491B	38067	2008.07	$\boxtimes$
17	Oscilloscope	Agilent	54820A	US40240160	2009.03	
18	Diode detector	Agilent	8473C	1882A03173	2009.02	
19	High Pass Filter	Wainwright	WHKX3.0/18G	8	2008.07	$\boxtimes$
20	VHF Precision Dipole Antenna (TX/RX)	Schwarzbeck	VHAP	1014 / 1015	2008.11	$\boxtimes$
21	UHF Precision Dipole Antenna (TX/RX)	Schwarzbeck	UHAP	989 / 990	2008.11	$\boxtimes$
22	Loop Antenna	Schwarzbeck	HFH2-Z2	863048/019	2008.12	
23	TRILOG Broadband Antenna	Schwarzbeck	VULB9160	3141	2009.05	$\boxtimes$
24	Horn Antenna	AH Systems	SAS-200/571	304	N/A	$\boxtimes$
25	Horn Antenna	EMCO	3115	00040723	2009.03	$\boxtimes$
26	Horn Antenna	EMCO	3115	00056768	2009.05	$\boxtimes$
27	Vector Signal Generator	Agilent	E4438C	MY42080359	2008.07	$\boxtimes$
28	PSG analog signal generator	Agilent	E8257D-520	MY45141255	2008.07	$\boxtimes$
29	DC Power Supply	HP	6622A	3448A03950	2008.07	
30	DC Power Supply	HP	6268B	2542A-07856	2008.07	$\boxtimes$
31	Digital Multimeter	HP	HP3458A	2328A14389	2009.03	
32	PCS Interface	HP	83236B	3711J00881	2009.03	
33	CDMA Mobile Test Set	HP	8924C	US35360253	2009.03	
34	Hygro/Thermo Graph	SATO	PC-5000TRH-II	-	2009.03	
35	Temperature/Humidity Chamber	All Three	ATM-50M	20030425	2009.03	
36	Temperature/Humidity Chamber	DAEJIN	DJ-THC02	06071	2009.03	

## 2.3 Test Date

Date of Test: June 26, 2008 ~ July 02, 2008

## **2.4 Test Environment**

See each test item's description.



Page 6 of 20

## 3. DESCRIPTION OF THE EQUIPMENT UNDER TEST

The EUT is a 20 Watt CDMA single channel power amplifier. This power amplifier is used in BTS (Base station Transceiver Subsystem) in the downlink spectrum of 1900 PCS band.

3.1 Rating and Physical Characteristics

Power source		100 ~ 240 VAC				
Frequency Range		DL / 1930 ~ 1950 MHz (20 MHz)				
Modulation		CDMA				
Total Rated Outpu	t Power	20 W / 1 FA				
Input Power range		-10 dBm				
Engavener Transla	4:	⊠ F1 - F1	☐ F1 - F2	□ NA		
Frequency Translation		Software	☐ Duplexer Change	☐ Full Band Coverage		
TX Gain		$53.0 \pm 1.0 \text{ dB}$				
RX Gain		24 ± 1.0 dB				
In/Out VSWR		1.5:1				
Over Power / VSV	VR Protection	45 + 0.7 dBm / Alarm 3:1				
Dimension		19" Rack Enclosure. Max 2U heights				
	TX/RX_A ANT	(N Female) DL Transmitter antenna / UL receiver antenna port				
	RX_B ANT	(N Female) UL receiver antenna port				
	RF TX IN	(SMA Female) DL signal source from Transceiver Block in BTS				
	RF RX_A OUT	(SMA Female) UP signal to Transceiver Block in BTS				
	RF RX_B OUT	(SMA Female) UP signal to Transceiver Block in BTS				
External Ports	TX_TP	(SMA Female) Coupling Test point (DL TX)				
	RX ATP		(SMA Female) Coupling Test point (UP RX)			
	RX_B TP	(SMA Female) Coupling Test point (UP RX)				
	MASTER	(RJ-45, RS485) signal p	oort from/to BTS			
	SLAVE (× 2)	(RJ-45, RS485) signal p	ort from/to 2nd RU, 3rd	RU		
	TEST	(RJ45, RS232C)Debug/Test port				

## 3.2 Equipment Modifications

None

### 3.3 Submitted Documents

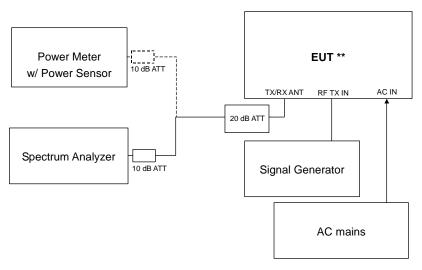
Block diagram / Schematic diagram / Tune up procedure / Part List / Instruction manual



Page 7 of 20

## 4. MEASUREMENT CONDITIONS

## 4.1 Description of test configuration



<sup>\*\*</sup> Non-used RF ports were terminated during the tests.

### [System Block Diagram of Test Configuration]

## **4.2** List of Peripherals

Equipment Type	Equipment Type Manufacturer		S/N	
None	-	-	-	

## 4.3 Type of Used Cables

#	START		START END		CABLE	
#	NAME	I/O PORT	NAME	I/O PORT	LENGTH(m)	SHIELDED
1	EUT	AC IN	AC mains	AC mains	1.8	NO

## 4.4 Uncertainty

in the care of the				
Measurement Item	Combined Standard Uncertainty Uc	Expanded Uncertainty $U = kUc (k = 2)$		
Conducted RF power	± 1.49 dB	± 2.98dB		
Radiated disturbance	± 2.30 dB	± 4.60 dB		
Conducted disturbance	± 1.96 dB	± 3.92 dB		



Page 8 of 20

### 5. TEST AND MEASUREMENTS

#### **Summary of Test Results**

Requirement	CFR 47 Section	Report Section	Test Result
RF Power Output	2.1046	5.1	PASS
Modulation Characteristics	2.1047	N/A	N/A*
Occupied Bandwidth	2.1049	5.2	PASS
Spurious Emissions at Antenna Terminals	2.1051; 24.238	5.3	PASS
Field Strength of Spurious Radiation	2.1053; 24.238	5.4	PASS
Frequency Stability	2.1055; 24.235	N/A	N/A**
AC Power line conducted emissions	15.107	5.5	PASS

<sup>\*</sup> The EUT does not support the ability to modulate voice.

#### 5.1 RF POWER OUTPUT

#### 5.1.1 Regulation

According to §2.1046(a), for transmitters other than single sideband, independent sideband and controlled carrier radiotelephone, power output shall be measured at the RF output terminals when the transmitter is adjusted in accordance with the tune-up procedure to give the values of current and voltage on the circuit elements specified in 2.1033(c)(8). The electrical characteristics of the radio frequency load attached to the output terminals when this test is made shall be stated.

According to §2.1046(b), for single sideband, independent sideband, and single channel, controlled carrier radiotelephone transmitters, the procedure specified in paragraph (a) of this section shall be employed and, in addition, the transmitter shall be modulated during the test as specified and as applicable in 2.1046(b) (1-5). In all tests, the input level of the modulating signal shall be such as to develop rated peak envelope power or carrier power, as appropriate, for the transmitter.

According to §2.1046(c), for measurements conducted pursuant to paragraphs (a) and (b) of this section, all calculations and methods used by the applicant for determining carrier power or peak envelope power, as appropriate, on the basis of measured power in the radio frequency load attached to the transmitter output terminals shall be shown. Under the test conditions specified, no components of the emission spectrum shall exceed the limits specified in the applicable rule parts as necessary for meeting occupied bandwidth or emission limitations.

<sup>\*\*</sup> The EUT does not contain frequency translation.



Page 9 of 20

#### **5.1.2 Test Procedure**

RF power output measurements were made at the RF output terminals using an attenuator and spectrum analyzer or power meter. This test was performed in all applicable modulations.

### **5.1.3 Test Results:**

### **PASS**

Table 1: Measured values of the RF Power Output							
Modulation	Frequency	Input Power	Modulated Power Output				
	(MHz)	(dBm)	(W)				
CDMA	1931.25	-9.02	20.03				
	1940.00	-9.09	20.03				
	1948.75	-8.91	20.04				

We took the insertion loss of the cables and attenuators into consideration within the measuring instrument as an offset.



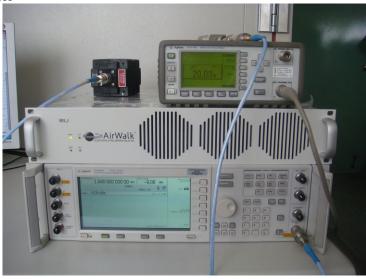
Page 10 of 20

Figure 1: Photographs of the measurement of RF Power Output

CDMA Downlink Low CH



CDMA Downlink Mid CH



CDMA Downlink Hi CH





Page 11 of 20

### 5.2 OCCUPIED BANDWIDTH

#### 5.2.1 Regulation

According to §2.1049, the occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission shall be measured under the specified conditions of part 2.1049 (a) through (i) as applicable.

#### **5.2.2 Test Procedure**

The modulation characteristics of signal generator's carrier was measured first at a maximum RF level declared by the applicant. The signal generator was then connected to either the Uplink or Downlink input at the appropriate RF level. The resulting modulated signal through the EUT was measured and compared against the original signal.

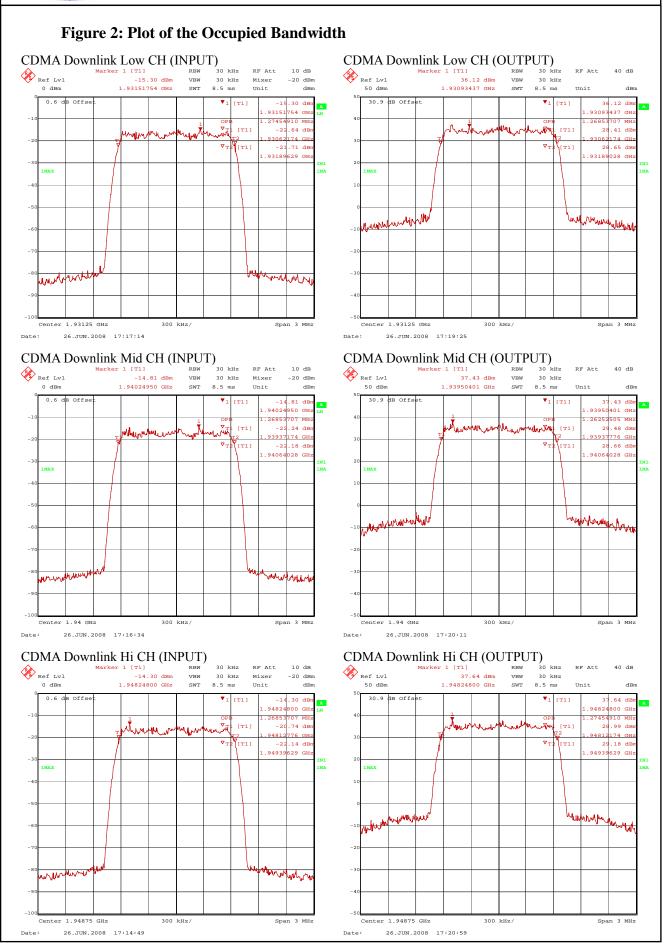
#### **5.2.3 Test Results:**

#### **PASS**

Table 2: Measured values of the Occupied Bandwidth					
Modulation	Frequency	Occupied Bandwidth (MHz)			
Modulation	(MHz)	INPUT	OUTPUT		
CDMA	1931.25	1.27	1.27		
	1940.00	1.27	1.26		
	1948.75	1.27	1.27		



Page 12 of 20





Page 13 of 20

### 5.3 SPURIOUS EMISSIONS AT ANTENNA TERMINALS

#### 5.3.1 Regulation

According to §2.1051, measurement required: Spurious emissions at antenna terminals, the radio frequency voltage or powers generated within the equipment and appearing on a spurious frequency shall be checked at the equipment output terminals when properly loaded with a suitable artificial antenna. Curves or equivalent data shall show the magnitude of each harmonic and other spurious emission that can be detected when the equipment is operated under the conditions specified in §2.1049 as appropriate. The magnitude of spurious emissions which are attenuated more than 20 dB below the permissible value need not be specified.

According to §24.238 Emission Limitations for Broadband PCS equipment, the rules in this section govern the spectral characteristics of emissions in the Broadband Personal Communications Service.

According to §24.238 (a) Out of band emissions, the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43+10log(P) dB.

#### **5.3.2 Test Procedure**

A modulated carrier generated by the signal generator carrier was connected to either the Uplink or Downlink RF port at a maximum level as declared by the applicant. A spectrum analyzer was connected to either the Uplink or Downlink port depending on the circuitry being measured. The spectrum analyzer was set to 1 MHz RBW. The spectrum was investigated from 30 MHz to the 10th harmonic of the carrier.

The inter-modulation measurements were performed in a similar manner as described above. The spectrum analyzer was set to 100 kHz. Two modulated carriers were injected into the EUT. The two channels near each other should be separated by at least one operating channel width. One carrier was set at the band edge of either the Uplink or Downlink band and the other was separated by at least one operating channel width. The in band spurious emissions were investigated.

Out of Band Rejection was measured by injecting the swept CW signal into the EUT.

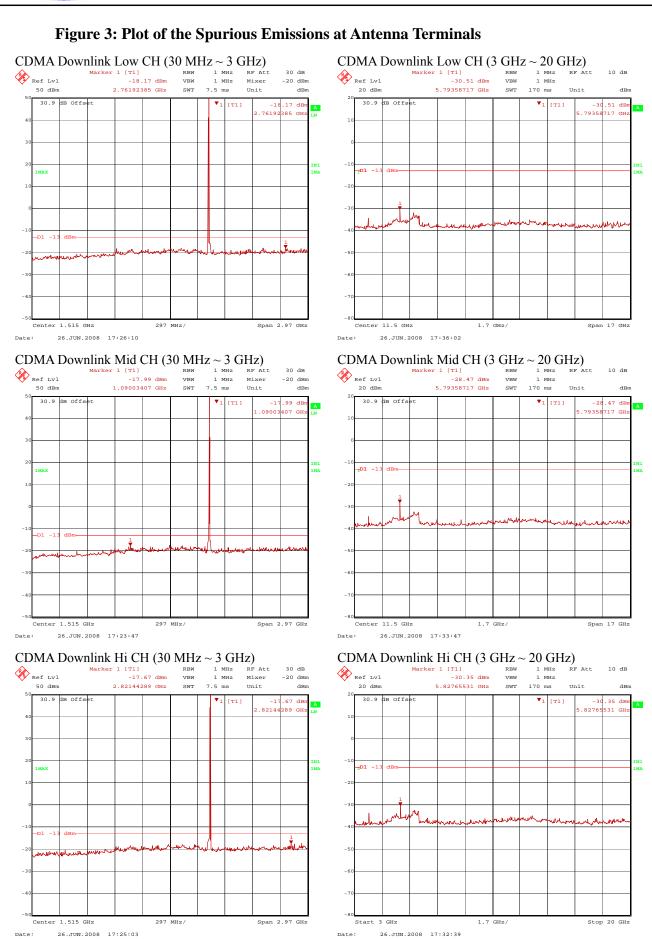
With the aid of a signal generator and spectrum analyzer, measure the 20 dB bandwidth of the amplifier (i.e. at the point where the gain has fallen by 20 dB). Measure the gain-versus-frequency response of the amplifier from the midband frequency f0 of the passband up to at least f0  $\pm 250\%$  of the 20 dB bandwidth. [Remark: RF input level was about -23 dBm because the EUT is designed to be shutdown, when RF input level, which produces the maximum RF output power, is applied at the vicinity of pass bands]

#### 5.3.3 Test Results: PASS

The EUT complies with the requirements of this section.

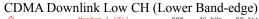


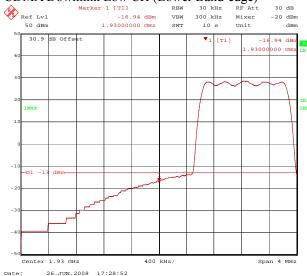
Page 14 of 20





Page 15 of 20





CDMA Downlink Low CH (Inter-modulation)

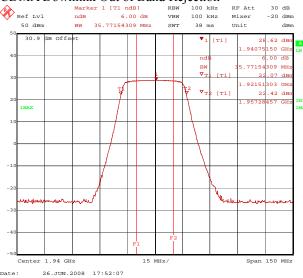
Not needed for Single Channel systems.

### CDMA Downlink Hi CH (Upper Band-edge)

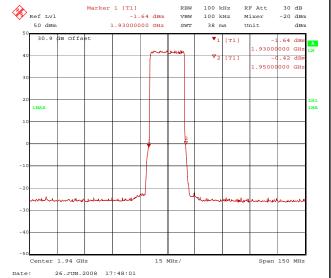


CDMA Downlink Hi CH (Inter-modulation)
Not needed for Single Channel systems.

### CDMA Downlink Out of Band Rejection



INPUT: swept (in-band & out-band) CW signal



INPUT: swept (in-band) CDMA signal



Page 16 of 20

#### 5.4 FIELD STRENGTH OF SPURIOUS RADIATION

#### 5.4.1 Regulation

According to §2.1053(a), measurements shall be made to detect spurious emissions that may be radiated directly from the cabinet, control circuits, power leads, or intermediate circuit elements under normal conditions of installation and operation. Curves or equivalent data shall be supplied showing the magnitude of each harmonic and other spurious emission. For this test, single sideband, independent sideband, and controlled carrier transmitters shall be modulated under the conditions specified in paragraph (c) of §2.1049, as appropriate. In the event it is either impractical or impossible to make open field measurements (e.g. a broadcast transmitter installed in a building) measurements will be accepted of the equipment as installed. Such measurements must be accompanied by a description of the site where the measurements were made showing the location of any possible source of reflections which might distort the field strength measurements. Information submitted shall include the relative radiated power of each spurious emission with reference to the rated power output of the transmitter, assuming all emissions are radiated from half-wave dipole antennas.

According to §2.1053(b), the measurements specified in paragraph (a) of this section shall be made for the following equipment:

- (1) Those in which the spurious emissions are required to be 60 dB or more below the mean power of the transmitter.
- (2) All equipment operating on frequencies higher than 25MHz.
- (3) All equipment where the antenna is an integral part of, and attached directly to the transmitter.
- (4) Other types of equipment as required, when deemed necessary by the commission.

According to §24.238 Emission Limitations for Broadband PCS equipment, the rules in this section govern the spectral characteristics of emissions in the Broadband Personal Communications Service.

According to §24.238 (a) Out of band emissions, the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43+10log(P) dB.

#### **5.4.2 Test Procedure**

The measurements were made in accordance with the procedures of TIA-603-C.

- 1. The EUT was set at a distance of 3 m from the receiving antenna.
- 2. The EUT RF ports were terminated to 50 ohm load.
- 3. The EUT was set to transmit at the low, middle and high channels of the transmitter frequency range at its maximum power level.
- 4. The EUT was rotated about 360° and the receiving antenna scanned from 1-4m in order to capture the maximum emission.
- 5. A calibrated antenna source was positioned in place of the EUT and the previously recorded signal was duplicated.
- 6. The maximum EIRP of the emission was calculated by adding the forward power to the calibrated source plus its appropriate gain value.



Page 17 of 20

- 7. These steps were carried out with the receiving antenna in both vertical and horizontal polarization.
- 8. Harmonic emissions up to the 10th or 40GHz, which ever was the lesser, were investigated.

### 5.4.3 Test Results: PASS

Table 3: Measured values of the spurious emissions (Radiated)								
Frequency	RBW Pol. Reading Substitution Antenna Gain Power into Substitution Antenna						Margin	
(MHz)	(kHz)	(V/H)	(dBm)	(dBi)	(dBm)	(dB/m)	(dBm)	[dB]
	No ei	nissior	ns were dete	ected at a level gi	reater than 20 d <mark>1</mark>	B below the	Limit.	
	I							

EIRP (dBm) = Power into Substitution Antenna (dBm) + Substitution Antenna Gain (dBi)

Margin (dB) = Limit (dBm) - EIRP (dBm)



Page 18 of 20

#### 5.5 AC POWER LINE CONDUCTED EMISSIONS

#### 5.5.1 Regulation

According to  $\S15.107(a)$ , Except for Class A digital devices, for equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50  $\mu$ H/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal.

According to  $\S15.107(b)$ , For a Class A digital device that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50  $\mu$ H/50 ohms LISN. Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal.

Frequency of emission (MHz)	15.107(b) Class	A Limits (dBμV)	15.107(a) Class B Limits (dBµV)					
	Quasi-peak	Average	Quasi-peak	Average				
0.15 - 0.5	79	66	66-56	56-46				
0.5 – 5	73	60	56	46				
5 – 30	73	60	60	50				
NOTE: The lower limit shall apply at the transition frequencies.								

#### 5.5.2 Test Procedure

- 1. The EUT was placed on a wooden table of size, 1 m by 1.5 m, raised 80 cm in which is located 40 cm away from the vertical wall and 1.5m away from the side wall of the shielded room.
- 2. Each current-carrying conductor of the EUT power cord was individually connected through a  $50\Omega/50\mu H$  LISN, which is an input transducer to a Spectrum Analyzer or an EMI/Field Intensity Meter, to the input power source.
- 3. Exploratory measurements were made to identify the frequency of the emission that had the highest amplitude relative to the limit by operating the EUT in a range of typical modes of operation, cable position, and with a typical system equipment configuration and arrangement. Based on the exploratory tests of the EUT, the one EUT cable configuration and arrangement and mode of operation that had produced the emission with the highest amplitude relative to the limit was selected for the final measurement.
- 4. The final test on all current-carrying conductors of all of the power cords to the equipment that comprises the EUT (but not the cords associated with other non-EUT equipment is the system) was then performed over the frequency range of 0.15 MHz to 30 MHz.
- 5. The measurements were made with the detector set to PEAK amplitude within a bandwidth of 10 kHz or to QUASI-PEAK and AVERAGE within a bandwidth of 9 kHz. The EUT was in transmitting mode during the measurements.



Page 19 of 20

### **5.5.3 Test Results:**

## PASS (Class A digital device)

Table 4: Measured values of the AC Power Line Conducted Emissions										
Frequency [MHz]	Reading [dBμV]	L/N	CF [dB]	CL [dB]	Actual [dΒμV]	Limit [dBµV]	Margin [dB]			
QUASI-PEAK DATA										
0.20	57.41	N	0.14	0.02	57.57	79.00	21.43			
5.72	49.41	L	0.12	0.15	49.68	73.00	23.32			
5.95	46.28	L	0.12	0.15	46.55	73.00	26.45			
6.19	57.52	N	0.22	0.15	57.89	73.00	15.11			
7.38	51.54	L	0.42	0.18	52.14	73.00	20.86			
7.62	51.67	N	0.32	0.18	52.17	73.00	20.83			
9.53	46.59	N	0.32	0.18	47.09	73.00	25.91			
9.76	48.49	L	0.42	0.18	49.09	73.00	23.91			
10.24	47.66	L	0.44	0.24	48.34	73.00	24.66			
18.34	46.68	L	0.67	0.31	47.66	73.00	25.34			
22.40	52.35	L	0.76	0.36	53.47	73.00	19.53			
22.40	51.61	N	0.57	0.36	52.54	73.00	20.46			
24.06	48.85	N	0.57	0.36	49.78	73.00	23.22			
	AVERAGE DATA									
0.20	53.2	N	0.14	0.02	53.36	66.00	12.64			
5.72	48	L	0.12	0.15	48.27	60.00	11.73			
5.95	45.16	L	0.12	0.15	45.43	60.00	14.57			
6.19	57.67	N	0.22	0.15	58.04	60.00	1.96			
7.38	51.44	L	0.42	0.18	52.04	60.00	7.96			
7.62	50.34	N	0.32	0.18	50.84	60.00	9.16			
9.53	45.4	N	0.32	0.18	45.90	60.00	14.10			
9.76	46.29	L	0.42	0.18	46.89	60.00	13.11			
10.24	44.15	L	0.44	0.24	44.83	60.00	15.17			
18.34	45.89	L	0.67	0.31	46.87	60.00	13.13			
22.40	50.03	N	0.57	0.36	50.96	60.00	9.04			
23.59	48.57	N	0.57	0.36	49.50	60.00	10.50			
24.06	45.51	N	0.57	0.36	46.44	60.00	13.56			

Margin (dB) = Limit – Actual [Actual = Reading + CF + CL]

L/N = LINE / NEUTRAL

CF/CL = Correction Factor and Cable Loss

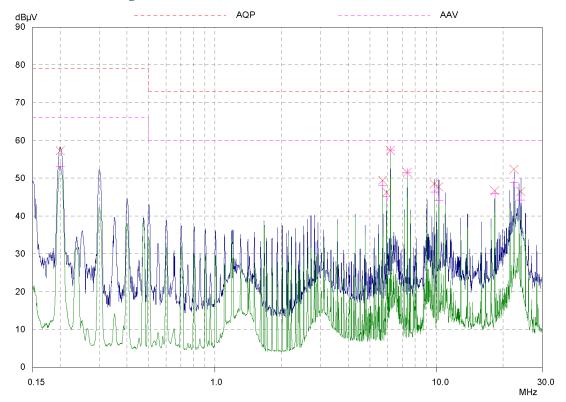
NOTE: The frequency range was scanned from 150 kHz to 30 MHz. All emissions not reported were more than 20 dB below the specified limit.



Page 20 of 20

**Figure 4. Plot of the AC Power Line Conducted Emissions** 

Line – PE (Peak and Average detector used)



Neutral – PE (Peak and Average detector used)

