



FCC CFR47 CERTIFICATION

PART 22H and 24E

TEST REPORT

FOR

LAPTOP WITH BULIT-IN 850MHZ/1900MHZ DUAL BAND GSM CARD

MODEL: IX260

FCC ID: KBCIX260MPIA755BT

REPORT NUMBER: 03U2244-1

ISSUE DATE: SEPTEMBER. 30, 2003

Prepared for ITRONIX CORPORATION SOUTH 801 STEVENS STREET, PO BOX 179 SPOKANE, WA 99210-0179

Prepared by COMPLIANCE CERTIFICATION SERVICES 561F MONTEREY ROAD, ROUTE 2 MORGAN HILL, CA 95037, USA TEL: (408) 463-0885 FAX: (408) 463-0888



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1. TEST RESULT CERTIFICATION

COMPANY NAME:	ITRONIX CORPORATION SOUTH 801 STEVEN STREET PO BOX 179 SPOKAN, WA. 999210-0179
EUT DESCRIPTION:	LAPTOP WITH BULIT-IN 850MHZ/1900MHZ DUAL BAND GSM CARD
MODEL NAME:	IX260
DATE TESTED:	SEPTEMBER 22, 03 TO SEPTEMBER 24, 2003

TYPE OF EQUIPMENT	INTENTIONAL RADIATOR
EQUIPMENT TYPE	LICENSED TX MODULE IN MOBILE APPLICATION
MEASUREMENT PROCEDURE	ANSI 63.4 / 2001, TIA/EIA 603
PROCEDURE	CERTIFICATION
FCC RULE	CFR 47 PART 22 SUBPART H AND PART 24 SUBPART E

Compliance Certification Services, Inc. tested the above equipment for compliance with the requirement set forth in CFR 47, PART 22 Subpart H and PART 24 subpart E Cellular Radiotelephone Service. The equipment in the configuration described in this report, shows the measured emission levels emanating from the equipment do not exceed the specified limit.

Note : This document reports conditions under which testing was conducted and results of tests performed. This document may not be altered or revised in any way unless done so by Compliance Certification Services and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by Compliance Certification Services will constitute fraud and shall nullify the document.

Tested By:

VIEN TRAN EMC TECHNICIAN COMPLIANCE CERTIFICATION SERVICES

Released For CCS By:

THU CHAN EMC SUPERVISOR COMPLIANCE CERTIFICATION SERVICES

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2. EUT DESCRIPTION

The laptop system approval with built-in 850MHz/1900Mz Dual band GSM Card can operate (transmit) at two different frequency bands.

The 800MHz band has:

- an output power 33.7dBm (2.344W_ERP)

- a permanent attached antenna, OdBi gain

- and the transmitting of frequency range 824 ~ 849MHz

And the 1900MHz band has:

- an output power 31.6dBm (1.445W_EIRP)

- a permanent attached antenna, 0dBi gain

- and the transmitting of frequency range $1850 \sim 1910 \text{MHz}$

3. TEST METHODOLOGY

Both conducted and radiated testing were performed according to the procedures documented on chapter 13 of ANSI C63.4 and FCC CFR 47 2.1046, 2.1047, 2.1049, 2.1051, 2.1053, 2.1055 and 2.1057.

4. TEST FACILITY

The open area test sites and conducted measurement facilities used to collect the radiated data are located at 561F Monterey Road, Morgan Hill, California, USA. The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 and CISPR Publication 22.

5. ACCREDITATION AND LISTING

The test facilities used to perform radiated and conducted emissions tests are accredited by National Voluntary Laboratory Accreditation Program for the specific scope of accreditation under Lab Code: 200065-0 to perform Electromagnetic Interference tests according to FCC PART 15 AND CISPR 22 requirements. No part of this report may be used to claim or imply product endorsement by NVLAP or any agency of the US Government. In addition, the test facilities are listed with Federal Communications Commission (reference no: 31040/SIT (1300B3) and 31040/SIT (1300F2))

6. MEASURING INSTRUMENT CALIBRATION

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipment, which is traceable to recognized national standards.

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7. TEST SETUP, PROCEDURE AND RESULT

7.1. SECTION 2.1046: RF POWER OUTPUT

INSTRUMENTS LIST

	TEST EQUIPMI	ENT LIST		
Name of Equipment	Manufacturer	Model No.	Serial No.	Due Date
LISN, 10 kHz ~ 30 MHz	FCC	50/250-25-2	114	9/6/2004
Line Filter	Lindgren	LMF-3489	497	CNR
LISN, 10 kHz ~ 30 MHz	Solar	8012-50-R-24-BNC	837990	9/6/2004
EMI Test Receiver	R & S	ESHS 20	827129/006	4/17/2004
Antenna, Horn 1 ~ 18 GHz	EMCO	3115	2238	2/4/2004
Quasi-Peak Adaptor	HP	85650A	2811A01155	5/16/2004
SA RF Section, 1.5 GHz	HP	85680B	2732A03661	5/16/2004
Preamplifier, 1300 MHz	HP	8447D	2944A06589	8/22/2004
Antenna, Bilog	Chase	CBL6112B	2586	3/6/2004
SA Display Section 2	HP	85662A	2816A16696	5/16/2004
Spectrum Analyzer	HP	E4446A	US42070220	1/13/2004
Dipole Antenna	ETS	DB-4	1629	5/15/2004
Antenna, Horn 1 ~ 18 GHz	EMCO	3115	9001-3245	2/4/2004
				_, _, .,

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MEASUREMENT PROCEDURE

1). On a test site, the EUT shall be placed on a turntable, and in the position closest to the normal use as declared by the user.

2). The test antenna shall be oriented initially for vertical polarization located 3m from the EUT to correspond to the frequency of the transmitter.

3). The output of the test antenna shall be connected to the measuring receiver and either a peak or quasi-peak detector was used for the measurement as indicated on the report. The detector selection is based on how close the emission level was approaching the limit.

4). The transmitter shall be switched on, if possible, without the modulation and the measurement receiver shall be tuned to the frequency of the transmitter under test.

5). The test antenna shall be raised and lowered through the specified range of height until a maximum signal level is detected by the measuring receiver.

6). The transmitter shall than be rotated through 360° in the horizontal plane, until the maximum signal level is detected by the measuring receiver.

7). The test antenna shall be raised and lowered again through the specified range of height until a maximum signal level is detected by the measuring receiver.

8). The maximum signal level detected by the measuring receiver shall be noted.

9). The transmitter shall be replaced by a tuned dipole (substitution antenna).

10). The substitution antenna shall be oriented for vertical polarization and the length of the substitution antenna shall be adjusted to correspond to the frequency of the transmitter.

11). The substitution antenna shall be connected to a calibrated signal generator.

12). If necessary, the input attenuator setting of the measuring receiver shall be adjusted in order to increase the sensitivity of the measuring receiver.

13). The test antenna shall be raised and lowered through the specified range of the height to ensure that the maximum signal is received.

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14). The input signal to the substitution antenna shall be adjusted to the level that produces a level detected by the measuring receiver, that is equal to the level noted while the transmitter radiated power was measured, corrected for the change of input attenuation setting of the measuring receiver.

15). The input level to the substitution antenna shall be recorded as power level in dBm, corrected for any change of input attenuator setting of the measuring receiver.

16). The measurement shall be repeated with the test antenna and the substitution antenna oriented for horizontal polarization.

17). The measure of the effective radiated power is the larger of the two levels recorded, at the input to the substitution antenna, corrected for the gain of the substitution antenna if necessary.

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Radiated Emission Measurement 30 to 1000 MHz



Radiated Emission Above 1000 MHz





Radiated Emission - Substitution Method Set-up

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MEASUREMENT RESULT:

800MHz and 1900MHz Output Power Measurement:

		ERP
	FREQUENCY	PEAK
800 MHz	(MHz)	(dBm)
LOW	824.2	32.70
MID	836.5	33.70
HI	848.8	32.60

THE ANTENNA GAIN IS 0dBi

		EIRP
	FREQUENCY	PEAK
1900 MHz	(MHz)	(dBm)
LOW	1850.2	31.20
MID	1880.0	31.60
HI	1909.8	31.50

THE ANTENNA GAIN IS 0dBi

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Radiated Emissions

800MHZ FREQUENCY BAND: The antenna of EUT at Y worst-case position Front view



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Back view



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1900MHZ FREQUENCY BAND: The antenna of EUT at X worst-case position **Front view**

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Back view

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Output Power (ERP), 800MHZ - Low / Mid / High Channels:

9/22/20	03 Co	ompliance Cer	tification Se	rvices, Morg	an Hill Ope	n Field Sit	e			
Test Engi Project #: Company EUT Deso EUT M/N Test Targ Mode Op	neer: VIEN T 03U2244 1: ITRONIX C cription: LAP 1: IX260 get: PART 22 (eration: Tx- F	RAN ORP. FOP SYSTEM 800MHz) UNDAMENTA	W/ 800/1900N L _ SUBSTIT	AHZ DUAL B	SAND GSM C DW, MID, HI	CARD	LS			
Test Equi	pment:									
EMCO H	Iorn 1-18GHz	Pre-amplif	er 1-26GHz	Spe	ctrum Analyzer			Horn > 18	8GHz	Limit
	-		-			•			•	ERP
Hi Frequ	ft) (2 ~	3 ft) 🔽 (4 ~ 6	ft) 🔽 (12 ft)		Peak Measur Fundamental: RBW>99% or VBW=RBW=2	rements: 26dB Emissi 3MHZ	ons BW	Bandedge: RBW=>1% E VBW=> 3*R	Emissions BW R BW	<u>Spurious</u> BW=1MHz VBW=1MHz
f	SA reading	SG reading	CL	Gain	Gain	ERP	Limit	Margin	Not	es
GHz	(dBuV)	(dBm)	(dB)	(dBi)	(dBd)	(dBm)	(dBm)	(dB)		
LOW CH	105 1	22.0		0.0	0.0		20.5	0		
0.824	105.1	32.9	0.2	0.0	0.0	32.7	38.5	-5.8	V	
0.024 MID CH	104.7	51.5	0.2	0.0	0.0	51.1	36.5	-7.4	н	
0.837	105.7	33.9	0.2	0.0	0.0	33.7	38.5	-4.8	v	
0.837	105.6	32.4	0.2	0.0	0.0	32.2	38.5	-6.3	Н	
HI CH										
0.849	105.0	32.8	0.2	0.0	0.0	32.6	38.5	-5.9	V	
0.849	105.3	31.8	0.2	0.0	0.0	31.6	38.5	-6.9	Н	
VBW=RB	W=3MHz									

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Output Power (EIRP), 1900MHz - Low / Mid / High Channels

9/22/200	03 C	ompliance Cer	rtification S	ervices, Mo	rgan Hill O	pen Field S	Site					
Cest Eng	ineer: VIEN	TRAN										
roject #	: 03U2244											
ompany	: ITRONIX	CORP.										
UT Des	scription: LA	PTOP SYSTEM	M W/ 800/1	900MHz DU	AL BAND	GSM CAR	D					
UT MA	N: IX260											
est Tan	get PART 2	4 (1000MHz)										
Iode Or	peration: Tx-	FUNDAMEN	TAL SUB	SITUTIO	N LOW A	IID. HI CH	IANNELS	5				
'est Equ	iipment:					_					11-11	
T73; S/2	Horn 1-18GHz N: 6717 @3m - uency Cables	Pre-amplif 3 ft) ₽ (4 ~ 6 f	(tr 1-26GHz	Agilen	ectrum Analyz E E E E E E E E E E E E E E E E E E E	suromonts: coromonts: codB Emission	ons BW	Horn > 1: Bandedge: RBW=>1%6 En VBW=>3*RB	réssions BW W	Sc RBV V	EIRP Zurious W=1MHz BW=1MHz	
IT73; S/C Hifrequ C (2)	Horn 1-18GHz N: 6717 @3m uency Cables	Sft) Pre-amplif	fer 1-26GHz	Agilen Agilen Gain	ectrum Analyz FI4446A Anal Poak Moas Fundamental RBW>99% or VBW=RBW Gain	vzer vzer suromonts: r 26dB Emissio EIRP	ons BW	Horn > 1 Bandedga: RBW=>1% En VBW=> 3*RB Margin	nissions BW W	Sg RBV V Notes	EIRP EIRP W=1MHz BW=1MHz BW=1MHz	
f GHz	Horn 1-18GHz N: 6717 @3m _ uency Cables	Sft) Z (4~6f SG reading (dBuV)	tion 1-26GHz	Gain (dBi)	Poak Moas Fundamental RBW>09% or VBW=RBW Gain (dBd)	vzer vzer r 26dB Emissi EIRP (dBm)	ons BW Limit (dBm)	Horn > 1: Bandedga: RBW=>1% En VBW=> 3*RB Margin (dB)	nissions BW W	Sr RBV V	EIRP EIRP W=1MHz BW=1MHz	
FMCO F T73; S/T F Frequencies (2) f GHz OW CH	Horn 1-18GHz N: 6717 @3m - uency Cables	Sft) I (4~6f SG reading (dBuV)	(dB)	Gain (dBi)	Peak Meas Fundamental RBW>90% or VBW=RBW Gain (dBd)	vzer vzer 26dB Emissi EIRP (dBm)	ons BW Limit (dBm)	Horn > 1 Bandedga: RBW=>1% En VBW=> 3*RB Margin (dB)	nissions BW W	Sr RBV V Notes	EIRP <u>EIRP</u> <u>N=1MHz</u> BW=1MHz S	
FMCO F T73; S/T H frequ C (2) f GHz OW CH 850	Horn 1-18GHz N: 6717 @3m - uency Cables - n) □ (2~ SA reading (dBuV) 92.1	Pre-amplif	(dB)	Gain (dBi)	ectrum Analyz E4446A Anal Peak Meas Fundamental RBW>99% or VBW=RBW Gain (dBd) 0.0	vzer vzer zodB Emissi EIRP (dBm) 23.4	ons BW Limit (dBm) 33.0	Horn > 1 Bandedga: RBW=>1% En VBW=> 3*RB Margin (dB) -9.6	nissions BW W	Sr RBV V Notes	EIRP Zurious W=1MHz BW=1MHz S	
EMCO E 173; S.0 H Frequ C (2) f GHz 0W CH 850 850	Horn 1-18GHz N: 6717 @3m - uency Cables - n) □ (2 - SA reading (dBuV) 92.1 101.9	Pre-amplif 3ft) SG reading (dBuV) 16.0 23.8	ter 1-26GHz ▼ t) □ (12 th) CL (dB) 0.4 0.4	Gain (dBi)	ectrum Analyz E4446A Anal Peak Meas Fundamental RBW>99% or VBW=RBW Gain (dBd) 0.0 0.0	vzer vzer 26dB Emissi EIRP (dBm) 23.4 31.2	ons BW Limit (dBm) 33.0 33.0	Horn > 1: Bandedge: RBW=>1% En VBW=> 3*RB Margin (dB) -9.6 -1.8	nissions BW W	Sr RBV V Notes	EIRP Purious W=1MHz BW=1MHz	
EMCO F 173; S/I H Frequ C (2 1 6 GHz 0W CH 850 850 ED CH	Horn 1-18GHz N: 6717 @3m - uency Cebles - n) [2 (2~ SA reading (dBuV) 92.1 101.9	SG reading (dBuV) 16.0 23.8	t) [(12 a) (12 a)	Gain (dBi) 7.8 7.8	ectrum Analyz E4446A Anal Peak Meas Fundamental RBW>99% or VBW=RBW Gain (dBd) 0.0 0.0	viromonts: viromo	ons BW Limit (dBm) 33.0 33.0	Horn > 1: Bandedge: RBW=>1% En VBW=> 3*RB Margin (dB) -9.6 -1.8	nissions BW W	Sg RBV V Notes	EIRP Nutious W=1MHz BW=1MHz S	
EMCO F 173; S/I H Frequencies (2 1) (2 1)	Horn 1-18GHz N: 6717 @3m - uency Cables n) [(2~ SA reading (dBuV) 92.1 101.9 92.5	Pre-amplif 3 ft)	(dB) 0.4 0.4 0.4	Gain (dBi) 7.8 7.9	ectrum Analyz E4446A Anal Peak Meas Fundamental RBW>99% or VBW=RBW Gain (dBd) 0.0 0.0 0.0	ver ver ver ver ver ver ver ver	ons BW Limit (dBm) 33.0 33.0 33.0	Horn > 1: Bandedge: RBW=>1%En VBW=>3%BB Margin (dB) -9.6 -1.8 -9.2	tissions BW W	Sg RBV V Notes V H	EIRP Nutious N=1MHz BW=1MHz S	
EMCO E 173; S/2 H Frequence (2) (2) (2) (2) (2) (2) (2) (2)	Horn 1-18GHz N: 6717 @3m _ uency Cables - ft) [(2~ SA reading (dBuV) 92.1 101.9 92.5 102.1	Pre-amplif 3 ft) SG reading (dBuV) 16.0 23.8 16.4 24.2	t) □ (12 tr) CL (dB) 0.4 0.4 0.4 0.4	Gain (dBi) 7.8 7.9 7.9 7.9 7.9	Poak Moas Fundamental RBW>99% or VBW=RBW Gain (dBd) 0.0 0.0 0.0 0.0	vromonts: void B Emission 26dB Emission EIRP (dBm) 23.4 31.2 23.8 31.6	ons BW Limit (dBm) 33.0 33.0 33.0	Horn > 1: Bandedge: RBW=>1% En VBW=> 3%RB Margin (dB) -9.6 -1.8 -9.2 -1.4	rássions BW W	Notes V H V	EIRP Nations N=1MHz BW=1MHz	
FMCO F 173; SA 173; SA 174;	Horn 1-18GHz N: 6717 @3m - uency Cables - r) □ (2~ SA reading (dBuV) 92.1 101.9 92.5 102.1	Pre-amplif 3 ft) SG reading (dBuV) 16.0 23.8 16.4 24.2	(12 ft) (12 ft) (Gain (dBi) 7.8 7.8 7.9 7.9 7.9	ectrum Analyz E4446A Anal Peak Meas Fundamental RBW>90% or VBW=RBW Gain (dBd) 0.0 0.0 0.0	vzer vzer vzer varomonts: r26dB Emissi EIRP (dBm) 23.4 31.2 23.8 31.6	ons BW Limit (dBm) 33.0 33.0 33.0	Horn ≥ 1: Bandedge: RBW⇒>1% En VBW⇒>3*RB Margin (dB) 	nissions BW W	Sr RBV V Notes V H V H	EIRP SUTIOUS V=1MHz BW=1MHz 3	
EMCO E 173; SA 173; SA 174;	Horn 1-18GHz N: 6717 @3m - uency Cebles - n)	Pre-amplif 3 ft)	(12 R) (12 R) (Gain (dBi) 7.8 7.8 7.9 7.9 7.9	etrum Analyz E4446A Anal Peak Meas Fundamental RBW>99% or VBW=RBW Gain (dBd) 0.0 0.0 0.0 0.0	xuromonts: xuromonts: x26dB Emissi EIRP (dBm) 23.4 31.2 23.8 31.6 23.3	ons BW Limit (dBm) 33.0 33.0 33.0 33.0	Horn > 1: Bandedge: RBW=>1% En VBW=> 3*RB Margin (dB) 	nissions BW W	Sg RBV V Notes V H V H	EIRP Parious N=IMHz BW=1MHz 3	

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7.2. SECTION 2.1053: FIELD STRENGTH OF SPURIOUS RADIATION

INSTRUMENTS LIST

	TEST EQUIPMI	ENT LIST		
Name of Equipment	Manufacturer	Model No.	Serial No.	Due Date
LISN, 10 kHz ~ 30 MHz	FCC	50/250-25-2	114	9/6/2004
Line Filter	Lindgren	LMF-3489	497	CNR
LISN, 10 kHz ~ 30 MHz	Solar	8012-50-R-24-BNC	837990	9/6/2004
EMI Test Receiver	R & S	ESHS 20	827129/006	4/17/2004
Antenna, Horn 1 ~ 18 GHz	EMCO	3115	2238	2/4/2004
Quasi-Peak Adaptor	HP	85650A	2811A01155	5/16/2004
SA RF Section, 1.5 GHz	HP	85680B	2732A03661	5/16/2004
Preamplifier, 1300 MHz	HP	8447D	2944A06589	8/22/2004
Antenna, Bilog	Chase	CBL6112B	2586	3/6/2004
SA Display Section 2	HP	85662A	2816A16696	5/16/2004
Spectrum Analyzer	HP	E4446A	US42070220	1/13/2004
Dipole Antenna	ETS	DB-4	1629	5/15/2004
Antenna, Horn 1 ~ 18 GHz	EMCO	3115	9001-3245	2/4/2004

Detector Function Setting of Test Receiver

Frequency Range (MHz)	Detector Function	Resolution Bandwidth	Video Bandwidth
Above 1000	Peak	☐ 1 MHz ☐ 1 MHz	∑ 1 MHz □ 10 Hz

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Radiated Emission Measurement

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TEST PROCEDURE

1). On a test site, the EUT shall be placed on a turntable, and in the position closest to the normal use as declared by the user.

2). The test antenna shall be oriented initially for vertical polarization located 1m from the EUT to correspond to the frequency of the transmitter.

3). The output of the test antenna shall be connected to the measuring receiver and either a peak or average detector was used for the measurement as indicated on the report. The detector selection is based on how close the emission level was approaching the limit.

4). The transmitter shall be switched on, if possible, without the modulation and the measurement receiver shall be tuned to the frequency of the transmitter under test.

5). The test antenna shall be raised and lowered through the specified range of height until a maximum signal level is detected by the measuring receiver.

6). The transmitter shall than be rotated through 360° in the horizontal plane, until the maximum signal level is detected by the measuring receiver.

7). The test antenna shall be raised and lowered again through the specified range of height until a maximum signal level is detected by the measuring receiver.

8). The maximum signal level detected by the measuring receiver shall be noted.

9). The transmitter shall be replaced by a substitution antenna.

10). The substitution antenna shall be oriented for vertical polarization.

11). The substitution antenna shall be connected to a calibrated signal generator.

12). If necessary, the input attenuator setting of the measuring receiver shall be adjusted in order to increase the sensitivity of the measuring receiver.

13). The test antenna shall be raised and lowered through the specified range of the height to ensure that the maximum signal is received.

14). The input signal to the substitution antenna shall be adjusted to the level that produces a level detected by the measuring receiver, that is equal to the level noted while the transmitter radiated power was measured, corrected for the change of input attenuation setting of the measuring receiver.

15). The input level to the substitution antenna shall be recorded as power level in dBm, corrected for any change of input attenuator setting of the measuring receiver.

16). The measurement shall be repeated with the test antenna and the substitution antenna oriented for horizontal polarization.

17). The measure of the effective radiated power is the larger of the two levels recorded, at the input to the substitution antenna, corrected for the gain of the substitution antenna if necessary.

MEASUREMENT RESULT

No non-compliance noted, as shown below

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800MHz Band - Harmonics / Spurious and Substitution Emissions, Low / Mid / High Channels:

9/23/20	003 C	ompliance Cer	rtification Se	ervices, Mo	rgan Hill O	pen Field S	Site		
Test En Project a Compan EUT De EUT M/ Test Tan Mode O Test Eq EMCO T73; S/ HI Free	gineer: VIEN #: 03U2244 by: ITRONIX escription: LA N: IX260 rget: PART 2 operation: Tx_ uipment: Horn 1-18GHz /N: 6717 @3m quency Cables ft) [2 ~	TRAN CORP. PTOP SYSTEN 2 (800MHz) 800MHz_HA Pre-amplif T63 Miteq 3 ft) 🗹 (4~6 ft	M W/ 800/19 RMONIC & fer 1-26GHz 646456 ▼	900MHz DU & SPUR _SU Spi Agilent	AL BAND UBSTITUTI ectrum Analyz E4446A Anal <u>Peak Meas</u> <u>Fundamental</u> RBW>99% or	GSM CAR ON_LOW eer yzer v urements: 26dB Emissi	D 7, MID, H	I CHANNELS Horn > 18G Bandedge: RBW=>1% Emis;	Hz Limit FRP • sions BW RBW=1MHz
					VBW=RBW	1	1	VBW=> 3*RBW	VBW=1MHz
f	SA reading	SG reading	CL	Gain	Gain	ERP	Limit	Margin	Notes
GHz	(dBuV)	(dBm)	(dB)	(dBi)	(dBd)	(dBm)	(dBm)	(dB)	
LOW CH	=824MHz								
1.648	68.9	-42.9	1.4	7.5	5.4	-38.9	-13.0	-25.9	<u>V</u>
2.473	66.9	-46.6	2.1	8.6	6.4	-42.3	-13.0	-29.3	V V
3.297	40.0	-00.5	2.7	9.3	7.2	-50.1	-13.0	-43.1	V, NOISE FLOOR
1 648	66.5	.47 2	14	75	54	-43.2	-13.0	-30.2	н
2.473	60.0	-41.1	2.1	8.6	6.4	-36.8	-13.0	-23.8	<u>н</u> Н
3.297	45.4	-59.0	2.7	9.3	7.2	-54.6	-13.0	-41.6	H, NOISE FLOOR
	1								
MID CH=	836MHz								
1.673	69.6	-43.3	1.4	7.6	5.4	-39.3	-13.0	-26.3	V
2.510	64.3	-46.0	2.2	8.6	6.4	-41.7	-13.0	-28.7	V NOISE EL COR
3.340	50.0	-50.7	2.8	9.3	7.2	-52.3	-13.0	-39.3	V, NOISE FLOOR
1.673	66.5	-46-5	1.4	7.6	5.4	-42.5	-13.0	-29.5	Н
2.510	65.0	-48.0	2.2	8.6	6.4	-43.7	-13.0	-30.7	
3.346	46.0	-59.0	2.8	9,3	7.2	-54.6	-13.0	-41.6	H, NOISE FLOOR
HI CH=84	48MHz								
1.698	69.1	-43.1	1.5	7.6	5.5	-39.1	-13.0	-26.1	V
2.547	62.0	-51.2	2.2	8.6	6.5	-46.9	-13.0	-33.9	V NOISE TI COD
	52.3	-61.0	2.8	9.4	7.2	-56.6	-13.0	-43.6	V, NOISE FLOOR
3.396	1							••	
3.396	69.9	13.0	15	76	5 5	30.0	12.0	26.0	н
3.396 1.698 2.547	68.8 62.0	-43.9	1.5	7.6	5.5	-39.9	-13.0	-26.9	H

Note: Completed Scan from 30MHz to 10th Harmonic.

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1900MHz Band- Harmonics / Spurious and Substitution Emissions, Low / Mid / High Channels:

	003 C	ompliance Cer	rtification S	ervices, Mo	organ Hill O	pen Field S	Site			
Test Eng Project # Company EUT De EUT M/ Test Tan Mode O Test Eq	gineer: VIEN #: 03U2244 y: ITRONIX (scription: LA N: IX260 rget: PART 2/ peration: Tx_ uipment:	TRAN CORP. PTOP SYSTEM 4 1900MHz_H.	M W/ 800/19 ARMONIC	000MHz DU & SPUR _S	UAL BAND SUBSTITUT	GSM CAR	D W, MID, I	HI CHANNEL	5	
EMCO	Horn 1-18GHz	Pre-amplif	fer 1-26GHz	Sp	ectrum Analy:	zer		Horn > 18G	Hz	Limit
T73; S/	N: 6717 @3m 🗸	T63 Miteq	646456 -	Agilen	E4446A Anal	yzer 🖕			-	EIRP 🗸
	•••		e (1211)		RBW>99% of VBW-RBW	r 26dB Emissi	ons BW	RBW=>1% Emis VBW=> 3*RBW	sions BW RE	W=1MHz VBW=1MHz
f	SA reading	SG reading	CL	Gain	Gain	EIRP	Limit	Margin	Note	25
f GHz	SA reading (dBuV)	SG reading (dBm)	CL (dB)	Gain (dBi)	Gain (dBd)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Note	25
f GHz OW CH	SA reading (dBuV) =1850MHz	SG reading (dBm)	CL (dB)	Gain (dBi)	Gain (dBd)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Note	25
f GHz OW CH	SA reading (dBuV) =1850MHz 46.6	SG reading (dBm) -58.8	CL (dB) 2.9	Gain (dBi) 9.6	Gain (dBd)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Note V	25 T 00P
f GHz OW CH .700 .550	SA reading (dBuV) =1850MHz 46.6 48.6	SG reading (dBm) -58.8 -57.9	CL (dB) 2.9 3.7	Gain (dBi) 9.6 11.1	Gain (dBd) 7.4 9.0	EIRP (dBm) -52.2 -50.5	Limit (dBm) -13.0 -13.0	Margin (dB) -39.2 -37.5	Note V V, NOISE I	es FLOOR
f GHz .0W CH .700 .550	SA reading (dBuV) =1850MHz 46.6 48.6 45.5	SG reading (dBm) -58.8 -57.9 -59.4	CL (dB) 2.9 3.7 2.9	Gain (dBi) 9.6 11.1 9.6	Gain (dBd) 7.4 9.0 7.4	EIRP (dBm) -52.2 -50.5 -52.8	Limit (dBm) -13.0 -13.0	Margin (dB) 39.2 37.5	Note V V, NOISE J H	es FLOOR
f GHz OW CH .700 .550 .700 .550	SA reading (dBuV) =1850MHz 46.6 48.6 45.5 46.0	SG reading (dBm) -58.8 -57.9 -59.4 -57.5	CL (dB) 2.9 3.7 2.9 3.7	Gain (dBi) 9.6 11.1 9.6 11.1	Gain (dBd) 7.4 9.0 7.4 9.0	EIRP (dBm) 52.2 -50.5 -52.8 -50.1	Limit (dBm) -13.0 -13.0 -13.0 -13.0	Margin (dB) -39.2 -37.5 	Note V V, NOISE I H H, NOISE I	es FLOOR
f GHz /OW CH .700 .550 .700 .550	SA reading (dBuV) =1850MHz 46.6 48.6 45.5 46.0 1880MHz	SG reading (dBm) -58.8 -57.9 -59.4 -57.5	CL (dB) 2.9 3.7 2.9 3.7	Gain (dBi) 9.6 11.1 9.6 11.1	Gain (dBd) 7.4 9.0 7.4 9.0	EIRP (dBm) 52.2 50.5 52.8 50.1	Limit (dBm) -13.0 -13.0 -13.0 -13.0	Margin (dB) 39.2 37.5 -39.8 -37.1	Note V V, NOISE I H, NOISE I	PS FLOOR
f GHz 20W CH 5,700 5,550 5,550 5,550 5,550 5,550 5,250	SA reading (dBuV) =1850MHz 46.6 48.6 45.5 46.0 1880MHz 48.7	SG reading (dBm) -58.8 -57.9 -59.4 -57.5 -56.0	CL (dB) 2.9 3.7 2.9 3.7 3.0	Gain (dBi) 9.6 11.1 9.6 11.1 9.6	Gain (dBd) 7.4 9.0 7.4 9.0 7.5	EIRP (dBm) 52.2 50.5 52.8 50.1 49.3	Limit (dBm) -13.0 -13.0 -13.0 -13.0 -13.0	Margin (dB) 39.2 37.5 39.8 37.1 36.3	Note V, NOISE I H, NOISE I V	PS FLOOR
f GHz .OW CH 5550 5550 5550 400 CH-1 .820 .730	SA reading (dBuV) =1850MHz 46.6 48.6 45.5 46.0 1880MHz 48.7 48.0	SG reading (dBm) -58.8 -57.9 -59.4 -57.5 -56.0 -57.4	CL (dB) 2.9 3.7 2.9 3.7 3.7 3.0 3.8	Gain (dBi) 9.6 11.1 9.6 11.1 9.6 11.3	Gain (dBd) 7.4 9.0 7.4 9.0 7.5 9.1	EIRP (dBm) 52.2 .50.5 52.8 .50.1 .49.3 .50.0	Limit (dBm) -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0	Margin (dB) 39.2 37.5 39.8 37.1 36.3 37.0	Note V V, NOISE I H, NOISE I V V, NOISE I	ELOOR
f GHz 20W CH 5550 5550 5550 40D CH-1 520 5730 5220	SA reading (dBuV) =1850HHz 46.6 48.6 45.5 46.0 1880MHz 48.7 48.0 48.0	SG reading (dBm) -58.8 -57.9 -59.4 -57.5 -56.0 -57.4 -57.0	CL (dB) 2.9 3.7 2.9 3.7 3.0 3.8 3.0	Gain (dBi) 9.6 11.1 9.6 11.1 9.6 11.3 9.6	Gain (dBd) 7.4 9.0 7.4 9.0 7.5 9.1 7.5	EIRP (dBm) 52.2 -50.5 -52.8 -50.1 	Limit (dBm) -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0	Margin (dB) 39.2 37.5 39.8 37.1 36.3 .37.0 37.3	Note V V, NOISE I H H, NOISE I V V, NOISE I	ELOOR
f GHz OW CH .700 .550 .550 .550 .550 .550 .550 .530 .53	SA reading (dBuV) =1850MHz 46.6 48.6 45.5 46.0 1880MHz 48.7 48.0 48.0 48.0 48.0	SG reading (dBm) 58.8 57.9 59.4 57.5 57.5 56.0 57.4 57.4 57.0 54.2	CL (dB) 2.9 3.7 2.9 3.7 3.0 3.8 3.0 3.8	Gain (dBi) 9.6 11.1 9.6 11.1 9.6 11.3 9.6 11.3	Gain (dBd) 7.4 9.0 7.4 9.0 7.5 9.1 7.5 9.1 7.5 9.1	EIRP (dBm) 52.2 50.5 52.8 50.1 49.3 50.0 50.3 46.8	Limit (dBm) -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0	Margin (dB) 39.2 37.5 39.8 37.1 36.3 37.0 37.3 33.8	Note V V, NOISE I H, NOISE I V V, NOISE I H H, NOISE I	ELOOR FLOOR FLOOR
f GHz .700 .550 .700 .550 .700 .550 .700 .550 .730 .520 .730 .520 .730 .730	SA reading (dBuV) =1850MHz 46.6 48.6 45.5 46.0 1880MHz 48.7 48.0 48.0 48.0 49.0	SG reading (dBm) 58.8 57.9 59.4 57.5 57.5 56.0 57.4 57.0 57.0 54.2	CL (dB) 2.9 3.7 2.9 3.7 3.0 3.8 3.0 3.8 3.0 3.8	Gain (dBi) 9.6 11.1 9.6 11.1 9.6 11.3 9.6 11.3	Gain (dBd) 7.4 9.0 7.4 9.0 7.5 9.1 7.5 9.1 7.5 9.1	EIRP (dBm) 52.2 50.5 52.8 50.1 49.3 50.0 50.3 -46.8	Limit (dBm) -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0	Margin (dB) 39.2 37.5 39.8 37.1 36.3 37.0 37.3 33.8	Note V V, NOISE J H, NOISE I V V, NOISE I H H, NOISE I	LOOR LOOR LOOR
f GHz .OW CH .700 5.550 	SA reading (dBuV) =1850MHz 46.6 48.6 45.5 46.0 1880MHz 48.7 48.7 48.0 48.0 49.0 100MHz 45.6	SG reading (dBm) 58.8 57.9 59.4 57.5 56.0 57.4 57.4 57.4 57.0 54.2 59.2	CL (dB) 2.9 3.7 2.9 3.7 3.0 3.8 3.0 3.8 3.0 3.8 2.9	Gain (dBi) 9.6 11.1 9.6 11.3 9.6 11.3 9.6 11.3 9.6	Gain (dBd) 7.4 9.0 7.4 9.0 7.5 9.1 7.5 9.1 7.5 9.1 7.5 9.1	EIRP (dBm) 52.2 50.5 52.8 50.1 49.3 50.0 50.3 46.8 52.5	Limit (dBm) -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0	Margin (dB) 39.2 37.5 39.8 37.1 36.3 37.0 37.3 33.8 33.8	Note V V, NOISE I H, NOISE I V V, NOISE I H H, NOISE I	ELOOR FLOOR FLOOR
f GHz OW CH 3,700 5,550 3,700 5,550 3,700 5,550 3,820 5,730 5,730 5,730 5,730 5,730 5,730 5,730 5,730 5,730 5,730 5,730 5,730 5,730 5,730 5,730 5,730 5,730 5,7500 5,750 5,7500 5,7500 5,7500 5,7500 5,7500 5,7500 5,750	SA reading (dBuV) =1850MHz 46.6 48.6 45.5 46.0 1880MHz 48.7 48.0 48.0 48.0 49.0 10MHz 45.6 48.0	SG reading (dBm) 58.8 57.9 59.4 57.5 56.0 57.4 57.0 57.4 57.0 54.2 59.2 57.0	CL (dB) 2.9 3.7 2.9 3.7 3.0 3.8 3.0 3.8 3.0 3.8 2.9 3.8	Gain (dBi) 9.6 11.1 9.6 11.1 9.6 11.3 9.6 11.3 9.6 11.3	Gain (dBd) 7.4 9.0 7.4 9.0 7.5 9.1 7.5 9.1 7.5 9.1 7.5 9.1 7.5 9.1	EIRP (dBm) 52.2 50.5 52.8 50.1 49.3 50.0 50.3 46.8 52.5 49.6	Limit (dBm) -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0	Margin (dB) 39.2 37.5 39.8 37.1 36.3 37.0 37.3 37.3 33.8 39.5 36.6	Note V V, NOISE J H H, NOISE I V V, NOISE I H H, NOISE I V V, NOISE J	LOOR LOOR LOOR
f GHz OW CH 3,700 5,550 3,700 5,550 3,700 5,550 3,820 5,730 5,730 5,730 5,730 5,730 5,730 5,730 5,730 5,730 5,730 5,730 5,730 5,730 5,730 5,730 5,730 5,730 5,750	SA reading (dBuV) =1850MHz 46.6 48.6 45.5 46.0 1880MHz 48.7 48.0 48.0 49.0 10MHz 45.6 48.0 49.0	SG reading (dBm) -58.8 -57.9 -59.4 -57.5 -56.0 -57.4 -57.0 -54.2 -57.0 -59.2 -57.0 -59.4 -57.0 -59.4 -57.0 -59.4 -57.0 -59.4 -57.9 -59.4 -57.9 -59.4 -57.9 -59.4 -57.9 -59.4 -57.9 -59.4 -57.9 -59.4 -57.9 -59.4 -57.9 -59.4 -57.9 -59.4 -57.9 -59.4 -57.9 -59.4 -57.9 -59.4 -57.9 -59.4 -57.9 -59.4 -57.9 -59.4 -57.5 -57.9 -59.4 -57.5 -57.9 -59.4 -57.5 -57.9 -59.4 -57.5 -57.9 -57.5 -57.9 -57.5 -57.5 -57.9 -57.5 -57.6 -	CL (dB) 2.9 3.7 2.9 3.7 3.0 3.8 3.0 3.8 3.0 3.8 2.9 3.8	Gain (dBi) 9.6 11.1 9.6 11.3 9.6 11.3 9.6 11.3 9.6 11.3 9.6 11.3	Gain (dBd) 7.4 9.0 7.4 9.0 7.5 9.1 7.5 9.1 7.5 9.1 7.4 9.0	EIRP (dBm) 52.2 50.5 52.8 50.1 49.3 50.0 50.3 46.8 52.5 49.6 52.0	Limit (dBm) -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0	Margin (dB) 39.2 37.5 39.8 37.1 36.3 37.1 36.3 37.0 37.3 33.8 39.5 36.6 30.9	Note V V, NOISE J H H, NOISE I V V, NOISE I H H, NOISE J V V, NOISE J	LOOR LOOR LOOR

Note: Completed Scan from 30MHz to 10th Harmonic.

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7.3. CO-LOCATED RADIATED EMISSIONS

TEST PROCEDURE

The EUT is placed on a non-conducting table 80 cm above the ground plane. The antenna to EUT distance is 3 meters. The EUT is configured in accordance with ANSI C63.4. The EUT is set to transmit in a continuous mode.

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 1 MHz for peak measurements and 10 Hz for average measurements.

The dominant transmitter is set to the worst case channel. The spurious emissions performance of the dominant transmitter is investigated as the settings of the non-dominant transmitter are varied. Worst case results are reported.

The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized in both the vertical and the horizontal positions.

RESULTS

No non-compliance noted:

NOTES: Dominant Sierra Wireless Air Card 755 is transmitted at mid channel with non-dominant Bluetooth Transmitter Module and Cisco MPI-350 Mini-PCI DSSS WLAN Card.

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800MHz BAND - MID CH (WORST-CASE) - CO-LOCATION -FUNDAMENTAL EMISSIONS

9/22/20	03 (ompliance Cer	tification Se	rvices, Mo	organ Hill O	pen Field S	Site				
Cest En;	gineer: VIEN	TRAN									
Project #	#: 03U2244										
ompan	y: ITRONIX	CORP.									
UT De	scription: LA	PTOP SYSTEM	I W/ 800/19	00MHz DU	AL BAND	GSM CAR	D				
UT M	N: IX260										
est Tar	get: PART 2	2 (800MHz) C	O-LOCATI	ON WITH	BLUE TOO	TH & CIS	COCAR	DS			
EMCO	uipment: Horn 1-18GHz	Pre-amplif	er 1-26GHz	Sp	ectrum Analya	er •		Hora >130	.H2 •	ERP	it .
- HiFree	quency Cables -		n F (124)		<u>Peak Meas</u> Fundamental	urements:		Bandedge:		Spurious	
a	ft) [] (2-	(3 R) № (4~01	0 1. (1210)		RBW>99% or VBW-RBW-	26dB Emissi 3MHZ	ons BW	RBW=>1% Emis VBW=> 3*RBW	sions BW	RBW=1MHz VBW=1MH	1
E C	t) 1 (2-	SG reading	CL	Gain	RBW>99% or VBW-RBW- Gain	26dB Emissi 3MHZ ERP	ons BW	RBW->1% Enis VBW-> 3*RBW	sions BW	RBW-1MHz VBW-1MH	
f GHz	R) [(2- SA reading (dBaV)	SG reading	CL (dB)	Gain (dBi)	RBW>99% or VBW-RBW- Gain (dBd)	26dB Enissi 3MHZ ERP (dBm)	Limit	RBW-⇒1% Emis VBW-⇒ 3*RBW Margin (dB)	sions BW	RBW=1MHz VBW=1MH otes	52
f GHz	R) C (2- SA reading (dBuV)	SG reading (dBm)	CL (dB)	Gain (dBi)	RBW>99% or VBW-RBW- Gain (dBd)	26dB Enissi 3MHZ ERP (dBm)	Limit (dBm)	RBW->1% Ensis VBW-> 3*RBW Margin (dB)	sions BW	RBW=1MHz VBW=1MH otes	52
f GHz ID CH .837	ft) 1 (2- SA reading (dBuV) 105.8	SG reading (dBm) 33.0	CL (dB)	Gain (dBi)	RBW>99% es VBW-RBW- Gain (dBd)	26dB Enissi 3MHZ ERP (dBm) 32.8	Limit (dBm)	RBW->1% Entis VBW-> 3*RBW Margin (dB)	sions BW	RBW=1MHz VBW=1MH otes	

RBW=VBW=3MHz

<u>NOTES</u>: Dominant Sierra Wireless Air Card 755 is transmitted at mid channel with non-dominant Bluetooth Transmitter Module and Cisco MPI-350 Mini-PCI DSSS WLAN Card.

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REPORT NO: 03U2244-1 D. EUT: LAPTOP SYSTEM W/ BUILT-IN 850/1900MHz DUAL BAND GSM CARD FCC ID: KBCIX260MPIA755BT

800MHz BAND - MID CH (WORST-CASE) - CO-LOCATION-HARMONIC AND SPUR EMISSIONS

9/23/20	03 Co	ompliance Cer	tification Se	rvices, Morg	şan Hill Ope	n Field Site	e					
Test Engi Project # Company EUT Des EUT M/N Test Tarş Mode Op <u>Test Equ</u>	ineer: VIEN T : 03U2244 y: ITRONIX C cription: LAP v: IX260 get: PART 22 peration: Tx_80 <u>ipment:</u>	RAN ORP. FOP SYSTEM (800MHz)_CO)0MHz_MID C	W/ 800/1900M -LOCATION HANNEL CO	MHz DUAL B WITH BLUH D-LOCATIO!	AND GSM (E TOOTH & N - HARMO	'ARD CISCO CA NIC & SPU	RDS JR_SUBS7	FITUTION				
EMCO F T73; S/N	EMCO Horn 1-18GHz Pre-amplifer 1-26GHz Spectrum Analyzer Horn > 18GHz Limit T73; S/N: 6717 @3n v T63 Miteq 646456 v Agilent E4446A Analyzer v Image: Comparison of the sector of the s											
Hi Freq	ft) (2 ~	3 ft) 🔽 (4 ~ 6	ft) 🔲 (12 ft)		Peak Measur Fundamental: RBW>99% or VBW=RBW	rements: 26dB Emissie	ons BW	Bandedge: RBW=>1% E VBW=> 3*R ¹	Emissions BW BW	<u>Spurious</u> RBW=1MHz VBW=1MHz		
f GHz	SA reading (dBuV)	SG reading (dBm)	CL (dB)	Gain (dBi)	Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Ν	otes		
MID CH=	836.5MHz	42.5	0.4	-		20.6	12.0			X 7		
1.673	70.0	-43.7	0.4	7.6	5.4	-38.6	-13.0	-25.6		V		
2.510	04.7 50.4	-40.4	0.6	<u> 0.0</u>	0.4	-40.5	-13.0	-27.5	V NOR	V SF FLOOR		
5.540	30.4	-0.4	0.0	7.5	1.2	-30.7	-13.0	-31.1	v, NOI2	LILOOK		
1.673	66.9	-46.9	0.4	7.6	5.4	-41.9	-13.0	-28.9		н		
2.510	65.4	-48.4	0.6	8.6	6.4	-42.5	-13.0	-29.5		Н		
	<u>-510</u> 05.4 -46.4 0.0 8.0 0.4 -42.5 -15.0 -29.5 H .346 46.4 -59.4 0.8 9.3 7.2 -53.0 -13.0 -40.0 H. NOISE FLOOR											
2.246	46.4	50.4	0.0	0.3		53.0	12.0	40.0	TT NIOTO	TE EL OOD		

<u>NOTES</u>: Dominant Sierra Wireless Air Card 755 is transmitted at mid channel with non-dominant Bluetooth Transmitter Module and Cisco MPI-350 Mini-PCI DSSS WLAN Card.

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1900MHz BAND - MID CH (WORST-CASE)-CO LOCATION- FUNDAMENTAL EMISSIONS

9/22/20	003 0	Compliance Cer	tification Se	ervices, M	organ Hill O	pen Field S	Site		
Test En Project : Compan EUT De EUT M/ Test Tan Mode O	gineer: VIEN #: 03U2244 y: ITRONIX scription: LA N: IX260 rget: PART 2 peration: Tx- uipment:	TRAN CORP. PTOP SYSTEM 4 (1900MHz) FUNDAMENT	I W/ 800/15 FAL _MID	000MHz D CHANNE	UAL BAND	GSM CAR ATION WI	D TH BLU	Е ТООТН & С	CISCO CARDS
EMCO T73; S/	Horn 1-18GHz N: 6717 @3m	Pre-amplif	er 1-26GHz •	S	pectrum Analyz nt E4446A Anal	yzer 🗸		Horn >18G	Hz Limit
Hi Free	ft) Cables	-3 ft) ▼ (4 ~ 6 f	t) 🗖 (12 ft)		Peak Meas Fundamental: RBW>99% or VBW=RBW	urements: 26dB Emissi	ons BW	Bandedge: RBW=>1% Emis: VBW=> 3*RBW	<u>Spurious</u> sions BW RBW=1MHz VBW=1MHz
f GHz	SA reading	SG reading	CL (dB)	Gain (dBi)	Gain (dBd)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
MID CH	(42/41)	(()	(aDI)	(uDu)	((()	~
1.880	92.7	16.1	0.4	7.9	0.0	23.5	33.0	-9.5	V
1.880	101.9	24.4	0.4	7 .9	0.0	31.8	33.0	-1.2	Н
RBW=VE	3W=3MHz								

NOTES: Dominant Sierra Wireless Air Card 755 is transmitted at mid channel with non-dominant Bluetooth Transmitter Module and Cisco MPI-350 Mini-PCI DSSS WLAN Card.

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1900MHz BAND -MID CH (WORST-CASE)-CO LOCATION - HARMONIC AND SPUR EMISSIONS

	003 C	Compliance Ce	rtification S	ervices, Mo	organ Hill O	pen Field S	Site			
Test En	gineer: VIEN	TRAN								
Project	#: 03U2244									
Compan	W: ITRONIX	CORP.								
UT De	escription: LA	PTOP SYSTEM	M W/ 800/1	900MHz DU	AL BAND	GSM CAR	D			
UTM	N: IX260									
est Ta	rget: PART 2	4 (1900MHz)								
Iode C	Operation: Tx-	MID CHANN	EL HARM	IONIC & SI	PUR CO-LO	OCATION	WITH B	LUE TOOT	H & CISCO CARD	s
est Eq	uipment: Horn 1-18GHz	Pre-ampli	er 1-26GHz	Sp	ectrum Analyz	ser		Horn > 1	18GHz	Limit
						-	1. C		100	L e una
T73; S	N: 6717 @3m	T63 Miteq	646456	Agilen	t E4446A Anal	yzer 👻			•	EIKP -
T73; S	(N: 6717 @3m quency Cables — 1 ft) □ (2~	-3 ft)	(646456 (12 ft)	Agilen	Peak Meas Fundamental RBW>99% or VBW-RBW	urements: 26dB Emissi	i ons BW	Bandedge: RBW->1% E VBW-> 3*RE	missions BW R SW	Spurious BW-1MHz VBW-1MHz
T73; S	vN: 6717 @3m quency Cables — 1 ft) □ (2~ SA reading	-3ft) 🔽 (4~6ft SG reading	(646456 h) [(12 ft) CL	Gain	Peak Meas Fundamental RBW>99% or VBW-RBW Gain	surements: 26dB Emissi EIRP	tons BW	Bandedge: RBW->1% E VBW-> 3*RE Margin	missions BW R BW Not	Spurious BW-1MHz VBW-1MHz tes
T73; S	vN: 6717 @3m quency Cables — 1 ft) □ (2~ SA reading (dBuV)	-3ft) 🔽 (4~6f SG reading (dBm)	(646456 a) □ (12 ft) CL (dB)	Gain (dBi)	Peak Meas Fundmental RBW>99% or VBW-RBW Gain (dBd)	surements: 26dB Emissi EIRP (dBm)	tons BW Limit (dBm)	Bandedge: RBW=>1% E VBW=> 3*RF Margin (dB)	missions BW R 3W Not	Spurious BW-1MHz VBW-1MHz tes
T73; S H Fre C (2) f GHz D CH-	(N: 6717 @3m quency Cables → (2 ft) □ (2 - SA reading (dBuV) 1880MHz	· T63 Mittee · 3 ft) ♥ (4 ~ 6 ft SG reading (dBm)	646456 t) [(12 ft CL (dB)	Agilen Gain (dBi)	Peak Meas Fundamental RBW>99% or VBW-RBW Gain (dBd)	surements: 26dB Emissi EIRP (dBm)	ons BW Limit (dBm)	Bandedge: RBW->1% E VBW-> 3*RF Margin (dB)	missions BW R BW Not	Sparious BW-1MHz VBW-1MHz tes
T73; S H Fre C (2) f GHz B CH- S20	N: 6717 @3m quency Cables → (2 ft) □ (2 - SA reading (dBuV) 1880MHz 48.7	-3ft) ♥ (4~6ft SG reading (dBm) -56.0	646456 t) (12 ft CL (dB) 0.8	Gain (dBi)	Peak Meas Fundamental RBW>99% or VBW-RBW Gain (dBd) 7.5	vzer • 26dB Emissi EIRP (dBm) -47.2	Limit (dBm)	Bandedge: RBW->1% E VBW-> 3*RF Margin (dB) -34.2	missions BW R BW Not	Spurious BW-1MHr VBW-1MHz tes
T73; S H Fre C GHz D CH- 820 730	N: 6717 @3m quency Cables → (1 ft) □ (2 - SA reading (dBuV) 1880MHz 48.7 48.0	- T63 Mittee -3 ft) ♥ (4 ~ 64 SG reading (dBm) -56.0 -57.4	646456 T (12 R) CL (dB) 0.8 1.0	Gain (dBi)	Peak Meas Fundamental RBW>99% or VBW-RBW Gain (dBd) 7.5 9.1	surements: 26dB Emissi EIRP (dBm) -47.2 -47.2	Limit (dBm) -13.0 -13.0	Bandedge. RBW->1% E VBW-> 3*RF Margin (dB) -34.2 -34.2	missions BW R BW Not	Spurious BW-IMHr VBW-IMHr tes FLOOR
T73; S H Fre GHz ID CH- 820 730	N: 6717 @3m quency Cables	- T63 Mittee -3 ft) ♥ (4~64 SG reading (dBm) -56.0 -57.4 -57.0	646456 R) [(12 R) CL (dB) 0.8 1.0 0.8	Gain (dBi) 9.6 11.3	Peak Meas Fundamental RBW>99% or VBW-RBW Gain (dBd) 7.5 9.1	EIRP (dBm)	ons BW Limit (dBm) -13.0 -13.0	Bandedge: RBW->1% E VBW-> 3*RE Margin (dB) 	missions BW R 3W Not V V,NOISE	Spurious BW-IMHz VBW-IMHz tes FLOOR

<u>NOTES</u>: Dominant Sierra Wireless Air Card 755 is transmitted at mid channel with non-dominant Bluetooth Transmitter Module and Cisco MPI-350 Mini-PCI DSSS WLAN Card.

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	TEST EQUIPMI	ENT LIST		
Name of Equipment	Manufacturer	Model No.	Serial No.	Due Date
LISN, 10 kHz ~ 30 MHz	FCC	50/250-25-2	114	9/6/2004
Line Filter	Lindgren	LMF-3489	497	CNR
LISN, 10 kHz ~ 30 MHz	Solar	8012-50-R-24-BNC	837990	9/6/2004
EMI Test Receiver	R & S	ESHS 20	827129/006	4/17/2004
Antenna, Horn 1 ~ 18 GHz	EMCO	3115	2238	2/4/2004
Quasi-Peak Adaptor	HP	85650A	2811A01155	5/16/2004
SA RF Section, 1.5 GHz	HP	85680B	2732A03661	5/16/2004
Preamplifier, 1300 MHz	HP	8447D	2944A06589	8/22/2004
Antenna, Bilog	Chase	CBL6112B	2586	3/6/2004
SA Display Section 2	HP	85662A	2816A16696	5/16/2004
Spectrum Analyzer	HP	E4446A	US42070220	1/13/2004
Dipole Antenna	ETS	DB-4	1629	5/15/2004
Antenna, Horn 1 ~ 18 GHz	EMCO	3115	9001-3245	2/4/2004

7.4. RADIATED EMISSION

TEST PERIPHERALS										
Device Type	Manufacturer	Model Number	Serial Number	FCC ID						
AC ADAPTER	DELTA ELECTRONIC	ADP-75FB B	UCT0330010749	DOC						

[TEST I / O CABLES											
ſ	Cable	I/O	# of I/O	Connector	Type of	Cable	Data						
l	No	Port	Port	Туре	Cable	Length	Traffic	Bundled	Remark				
ľ	1	AC	2	US115V	SHIELED	2m	NO	NO					
	2	DC	2	DC	SHIELED	2m	NO	NO					

Detector Setting of Spectrum Analyzer

Frequency Range (MHz)	Detector Function	Resolution Bandwidth	Video Bandwidth
30 to 1000	⊠ Peak	⊠ 100 KHz	⊠ 100 KHz
	⊠ Quasi Peak	⊠ 1 MHz	⊠ 1 MHz

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TEST SETUP

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TEST PROCEDURE

1. The EUT was placed on the turn table 0.8 meter above ground inside 3 meter Anechoic Chamber.

2. Set the resolution bandwidth to 120KHz in the test receiver and select Peak function to scan the frequency below 1 GHz.

3. Shift the interference-receiving antenna located in antenna tower upwards and downwards between 1 and 4 meters above ground and find out the local peak emission on frequency domain.

4. Locate the interference-receiving antenna at the position where the local peak reach the maximum emission.

5. Rotate the turn table and stop at the angle where the measurement device has maximum reading

6. Shift the interference-receiving antenna again to detect the maximum emission of the local peak

7. If the reading of the local peak under Peak function is lower than limit by 6dB, then Quasi Peak detection is not needed and this reading should be recorded. And if it is higher than Peak limit, then the test is fail. Others, switch the receiver to Quasi Peak function, set the resolution bandwidth to 100kHz and repeat the procedures $(3)\sim(6)$. If the reading is lower than limit, this reading should be recorded, otherwise, the test is fail.

MEASUREMENT RESULT

No non-compliance noted, as shown below.

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REPORT NO: 03U2244-1 DA EUT: LAPTOP SYSTEM W/ BUILT-IN 850/1900MHz DUAL BAND GSM CARD FCC ID: KBCIX260MPIA755BT

IDLING - 800MHz AND 1900MHz BANDS FROM 30MHz TO 1000MHz

	FC UL 561F MON PHONE: (4	ON c, vcci, tu c, csa, tu terey RC 08) 463-0	CISPR, CE CISPR, CE IV, BSMI, DAD, SAN 885	AUSTEL, DHHS, NVI JOSE, CA AX: (408)	NZ AP 95037-9001 463-0888		Proj Rep Date& Test	ject #: oort #: Tim e: Engr:	03U2244 030925B 09/25/03 Chin Pan	-1 2 11:10 AM 9	원 유 위
PHONE: (408) 463-0885 FAX: (408) 463-0888 Company: ITRONIX CORP EUT Description: LAPTOP W/BUILT-IN 850/1900MHz D Test Configuration : LAPTOP Type of Test: FCC CLASS B Mode of Operation: Idling Mode									BAND GS	M CARD	
Freq.	Reading	AF	Closs	Pre-amp	Level	Limit	Margin	Pol	Az	Height	Mark
(MHz)	(dBuV)	(dB)	(dB)	(dB)	(dBuV/m)	FCC_B	(dB)	(H/V)	(Deg)	(Meter)	(P/Q/A)
796.35	39.50	20.11	7.29	28.60	38.30	46.00	-7.70	3mH	0.00	2.00	P
432.00	45.70	16.32	5.17	28.99	30.21	46.00	-1.19	3mV 2mV	0.00	1.50	P
830.72	39.40	20.11	7.47	20.00	30.20	46.00	-1.00	3mV	0.00	1.00	E I
432.00	45.00	16 32	5.17	28.40	37.55	46.00	-0.07	3mH	0.00	2.00	þ
631 50	40.00	19.05	6.39	29.05	36.39	46.00	-9.61	3mH	0.00	1.50	P
6 Worst	Data	10.00	0.00	20.00	55.55	10.00	0.01	51111	0.00	1.00	

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Radiated Emission photos

Front view

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Back view

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7.5. POWERLINE CONDUCTED EMISSION

Detector Function Setting of Test Receiver

Frequency Range (MHz)	Detector Function	Resolution Bandwidth	Video Bandwidth
150 KHz to 30 MHz	☐ Peak ☐ CISPR Quasi Peak	9 KHz	9 KHz

TEST SETUP

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TEST PROCEDURE

1. The EUT was placed on a wooden table 40 cm from a vertical ground plane and approximately 80 cm above the horizontal ground plane on the floor. The EUT was set to transmit in a continuous mode.

2. Line conducted data was recorded for both NEUTRAL and HOT lines.

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MEASUREMENT RESULT (FOR BOTH 800MHz AND 1900MHz BANDS)

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LINE CONDUCTION DATA (FOR BOTH 800MHz AND 1900MHz BANDS)

	CONDUCTED EMISSIONS DATA (115VAC 60Hz)											
Freq.		Reading		Closs	Limit	EN_B	Marg	Margin				
(MHz)	PK (dBuV)	QP (dBuV)	AV (dBuV)	(dB)	QP	AV	QP (dB)	AV (dB)	L1 / L2			
0.33	39.80			0.00	60.86	50.86	-21.06	-11.06	L1			
17.38	38.34			0.00	60.00	50.00	-21.66	-11.66	L1			
13.91	35.86			0.00	60.00	50.00	-24.14	-14.14	L1			
0.33	42.24			0.00	60.86	50.86	-18.62	-8.62	L2			
0.27	40.75			0.00	62.69	52.69	-21.94	-11.94	L2			
13.91	37.06			0.00	60.00	50.00	-22.94	-12.94	L2			
6 Worst I	Data											

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LINE CONDUCTION - FRONT

REPORT NO: 03U2244-1

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REPORT NO: 03U2244-1 DAT: EUT: LAPTOP SYSTEM W/ BUILT-IN 850/1900MHz DUAL BAND GSM CARD FCC ID: KBCIX260MPIA755BT

LINE CONDUCTION - BACK

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8. APENDIX

- 8.1. EXTERNAL & INTERNAL PHOTOS
- 8.2. SCHEMATICS
- 8.3. BLOCK DIAGRAM
- 8.4. USER MANUAL

END OF REPORT

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