



**FCC CFR47 PART 22 SUBPART H
AND PART 24 SUBPART E
CLASS II PERMISSIVE CHANGE
CERTIFICATION TEST REPORT**

FOR

850/900/1800/1900/2100 MHZ 5-BAND MINICARD MODULE

MODEL NUMBER: MC8755

FCC ID: N7NMC8755

REPORT NUMBER: 06U10435-1, REVISION B

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Prepared for
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RICHMOND, BC V6V 3A4, CANADA**

Prepared by
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Revision History

Rev.	Issue Date	Revisions	Revised By
--	07/28/06	Initial Issue	Thu
B	08/08/06	Add Class II Change description	Thu

TABLE OF CONTENTS

1. ATTESTATION OF TEST RESULTS.....	4
2. TEST METHODOLOGY	5
3. FACILITIES AND ACCREDITATION	5
4. CALIBRATION AND UNCERTAINTY.....	5
4.1. MEASURING INSTRUMENT CALIBRATION.....	5
4.2. MEASUREMENT UNCERTAINTY.....	5
5. EQUIPMENT UNDER TEST.....	6
5.1. DESCRIPTION OF EUT	6
5.2. CLASS II CHANGE DESCRIPTION	6
5.3. MAXIMUM OUTPUT POWER	6
5.4. SOFTWARE AND FIRMWARE	6
5.5. WORST-CASE CONFIGURATION AND MODE.....	6
5.6. DESCRIPTION OF TEST SETUP	7
6. TEST AND MEASUREMENT EQUIPMENT	9
7. LIMITS AND RESULTS	10
7.1. RADIATED RF POWER OUTPUT.....	10
7.2. FIELD STRENGTH OF SPURIOUS EMISSION	16
8. SETUP PHOTOS	21

1. ATTESTATION OF TEST RESULTS

COMPANY NAME: SIERRA WIRELESS
3811 WIRELESS WAY
RICHMOND, BC V6V 3A4, CANADA

EUT DESCRIPTION: 850/900/1800/1900/2100 MHZ 5-BAND MINICARD MODULE

MODEL: MC8755

SERIAL NUMBER: 1100502

DATE TESTED: JULY 17-18, 2006

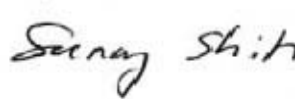
APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
FCC PART 22 SUBPART H	NO NON-COMPLIANCE NOTED
FCC PART 24 SUBPART E	NO NON-COMPLIANCE NOTED

Compliance Certification Services, Inc. tested the above equipment in accordance with the requirements set forth in the above standards. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. 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. No part of this report may be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any government agency.

Approved & Released For CCS By:

Tested By:



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EMC SUPERVISOR
COMPLIANCE CERTIFICATION SERVICES

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COMPLIANCE CERTIFICATION SERVICES

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with TIA/EIA 603C (2004), ANSI C63.4-2003, FCC CFR 47 Part 2, FCC CFR 47 Part 15 and FCC CFR 47 Part 22H and 24E.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 561F Monterey Road, Morgan Hill, California, USA. The sites are constructed in conformance with the requirements of ANSI C63.4, ANSI C63.7 and CISPR Publication 22. All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

CCS is accredited by NVLAP, Laboratory Code 200065-0. The full scope of accreditation can be viewed at <http://www.ccsemc.com>.

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

4.2. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	UNCERTAINTY
Radiated Emission, 30 to 200 MHz	+/- 3.3 dB
Radiated Emission, 200 to 1000 MHz	+4.5 / -2.9 dB
Radiated Emission, 1000 to 2000 MHz	+4.5 / -2.9 dB
Power Line Conducted Emission	+/- 2.9 dB

Uncertainty figures are valid to a confidence level of 95%.

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is an 850/900/1800/1900/2100 MHz 5-band module and manufactured by Sierra Wireless, Inc.

Only the 850/1900 MHz frequency bands were investigated under this project, and the test result documented in this report only applies to EUT operating in the 850/1900 MHz frequency bands. This device contains 900 MHz /1800 MHz/2100 MHz functions but these frequency bands are not operational in the U.S. territories.

5.2. CLASS II CHANGE DESCRIPTION

The changes files under this application are as follows:

Collocate the MC8755 with Bluetooth radio FCC ID: MCLJ07H081 and WLAN FCC ID: PPD-AR5BXB6 in a new host laptop (Z61).

5.3. MAXIMUM OUTPUT POWER

Please refer to the same output power on previous RF conducted test report under project # 05U3779.

5.4. SOFTWARE AND FIRMWARE

The test utility software used during testing was ProcommPlus for GSM and EDGE modulations.

5.5. WORST-CASE CONFIGURATION AND MODE

The worst-case channel is determined as the channel / band with the highest output power based on RF conducted measurement SAR test report.

There're four different hosts of laptops are W2 Note (ThinkPad Z61m) ABS & ABS Aluminum LCD material and M2 Note (ThinkPad Z61t) CFRP Hybrid & CFRP Aluminum LCD Materials. The laptops of W2 Note-Z61m with ABS LCD Material @ 850MHz band and M2 Note-Z61t with CFRP Aluminum LCD Material @ 1900MHz band have the worst case investigation based on the antenna's gain information.

5.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

TEST PERIPHERALS				
Device Type	Manufacturer	Model Number	Serial Number	FCC ID
Laptop	IBM	ThinkPad Z61m (W2) (ABS LCD Material)	1S8888888XX00031	DoC
AC Adaptor (Class I)	IBM	92P1103	550002920H	DoC
AC Adaptor (Class II)	IBM	92P1109	D5918E00490DF	DoC
Laptop	IBM	ThinkPad Z61t (M2) (CFRP Aluminum LCD Material)	1SSITBV24LR00061	
AC Adaptor	Lenovo	92P1160	11S92P1160Z1ZAW65C90P8	DoC DoC

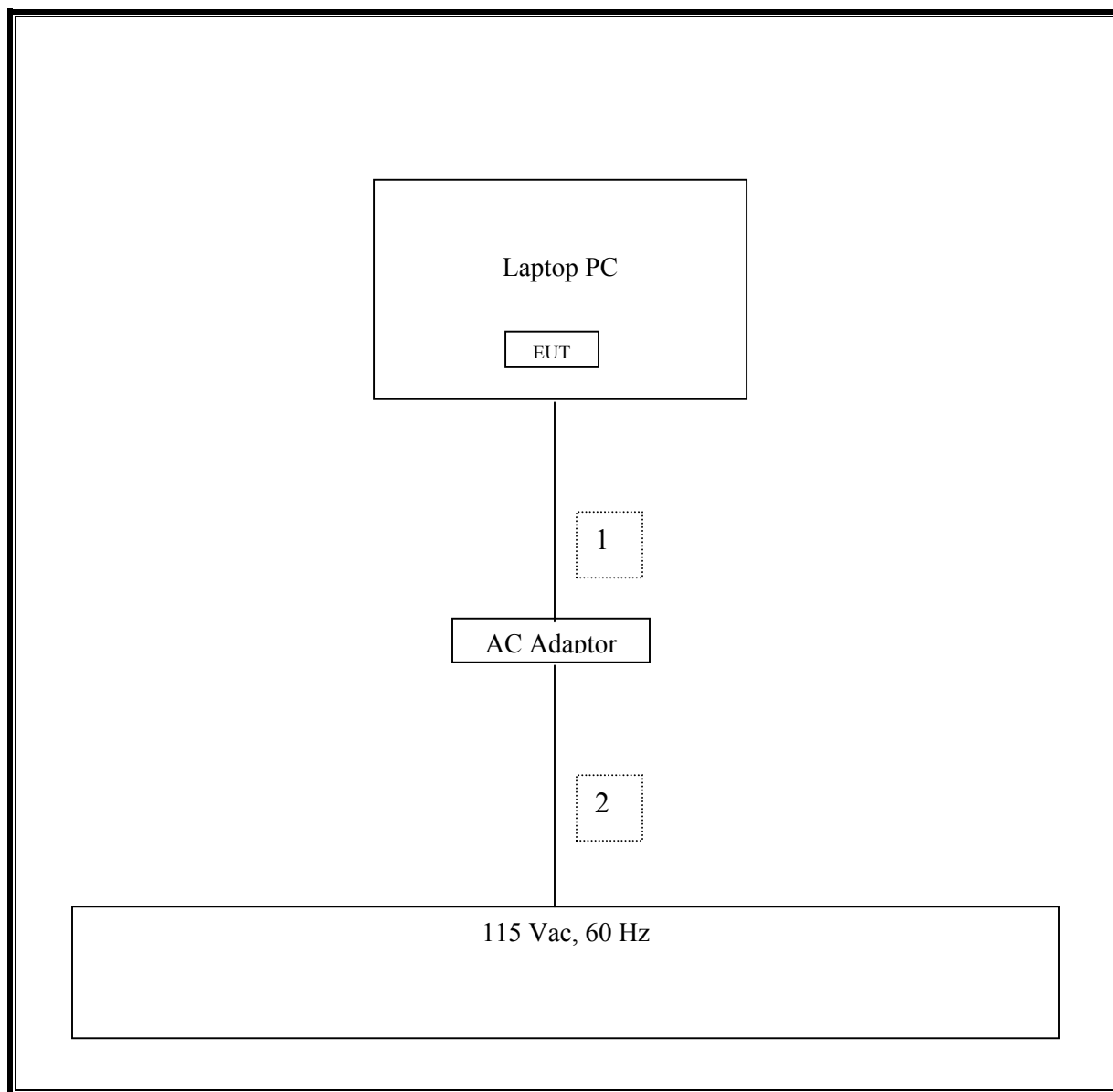
I/O CABLES

TEST I / O CABLES								
Cable No	I/O Port	# of I/O Port	Connector Type	Type of Cable	Cable Length	Data Traffic	Bundled	Remark
1	DC	1	Din	Un-shielded	1m	No	No	N/A
2	AC	1	US 115V	Un-shielded	1m	No	No	N/A

TEST SETUP

The EUT is installed in the host laptop computer during the tests. The ProcommPlus set exercised the EUT.

RADIATED TEST SETUP DIAGRAM



6. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

TEST EQUIPMENT LIST				
Description	Manufacturer	Model	Serial Number	Cal Due
Spectrum Analyzer 3 Hz ~ 44 GHz	Agilent / HP	E4446A	US42070220	07/29/06
Antenna, Horn 1 ~ 18 GHz	EMCO	3115	2238	04/22/07
Preamplifier, 1 ~ 26 GHz	Miteq	NSP2600-SP	924342	09/02/06
Antenna, Horn 1 ~ 18 GHz	ETS	3117	29301	04/22/07
Preamplifier, 1 ~ 26 GHz	Agilent / HP	8449B	3008A00931	06/24/07
EMI Receiver, 9 kHz ~ 2.9 GHz	Agilent / HP	8542E	3942A00286	02/04/07
RF Filter Section	Agilent / HP	85420E	3705A00256	02/04/07
Antenna, Bilog 30 MHz ~ 2 Ghz	Sunol Sciences	JB1	A121003	09/03/06
Wireless Communication Test Set	Agilent	E5515C	N101149	08/31/06

7. LIMITS AND RESULTS

7.1. RADIATED RF POWER OUTPUT

LIMIT

22.913(a) The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts.
24.232(b) Mobile/portable stations are limited to 2 watts e.i.r.p. peak power and the equipment must employ means to limit the power to the minimum necessary for successful communications.

TEST PROCEDURE

ANSI / TIA / EIA 603 Clause 2.2.17
The transmitter output is connected to the spectrum analyzer.

RESULTS

No non-compliance noted.

850 MHz GSM Modulation

Channel	Frequency (MHz)	ERP Peak Power (dBm)	ERP Peak Power (mW)
Low	824.2	28.70	741.31
Middle	836.5	28.60	724.44
High	848.8	29.20	831.76

1900 MHz GSM Modulation

Channel	Frequency (MHz)	EIRP Peak Power (dBm)	EIRP Peak Power (mW)
Low	1850.2	28.70	741.31
Middle	1880.00	31.30	1348.96
High	1909.8	29.80	954.99

NOTE: RBW=VBW=1MHz.

850 MHz EDGE Modulation

Channel	Frequency (MHz)	ERP Peak Power (dBm)	ERP Peak Power (mW)
Low	824.2	25.70	371.54
Middle	836.5	25.80	380.19
High	848.8	26.30	426.58

1900 MHz EDGE Modulation

Channel	Frequency (MHz)	EIRP Peak Power (dBm)	EIRP Peak Power (mW)
Low	1850.2	27.20	524.81
Middle	1880.00	28.30	676.08
High	1909.8	28.10	645.65

NOTE: RBW=VBW=1MHz

GSM850 GPRS Mode Output Power (ERP)

Cellular Fundamental Substitution Measurement

Compliance Certification Services, Morgan Hill Immunity Chamber

Company: Sierra Wireless, Inc.

Project #: 06U10435

Date: July 17, 2007

Test Engineer: Sunny Shih

Configuration: EUT Installed into ThinkPad Z61m (ABS LCD Material)

Mode: GSM850 GPRS mode

RBW=VBW=1MHz, Peak Detection

Test Equipment:

Receiving: EMCO LP T17, and 12 ft Chin SMA Cable (Setup this one for testing EUT)

Substitution: Dipole ETS S/N: 1629, and 6ft SMA Cable Warehouse S/N: 208947 002

f MHz	SA reading (dBuV/m)	Ant. Pol. (H/V)	SG reading (dBm)	CL (dB)	Gain (dBd)	ERP (dBm)	Linit (dBm)	Margin (dB)	Notes
Low Channel (128)									
824.20	103.6	V	29.2	0.5	0.0	28.7	38.5	-9.7	
824.20	101.8	H	27.5	0.5	0.0	27.0	38.5	-11.4	
Mid Channel (192)									
837.00	103.8	V	29.2	0.6	0.0	28.6	38.5	-9.8	
837.00	103.1	H	28.6	0.6	0.0	28.0	38.5	-10.5	
High Channel (251)									
848.80	104.5	V	29.9	0.7	0.0	29.2	38.5	-9.3	
848.80	102.2	H	27.6	0.7	0.0	26.9	38.5	-11.6	

GSM850 EGPRS Mode Output Power (ERP)

Cellular Fundamental Substitution Measurement

Compliance Certification Services, Morgan Hill Immunity Chamber

Company: Sierra Wireless, Inc.

Project #: 06U10435

Date: July 17, 2007

Test Engineer: Sunny Shih

Configuration: EUT Installed into ThinkPad Z61m (ABS LCD Material)

Mode: GSM850 EGPRS mode

RBW=VBW=1MHz, Peak Detection

Test Equipment:

Receiving: EMCO LP T17, and 12 ft Chin SMA Cable (Setup this one for testing EUT)

Substitution: Dipole ETS S/N: 1629, and 6ft SMA Cable Warehouse S/N: 208947 002

f MHz	SA reading (dBuV/m)	Ant. Pol. (H/V)	SG reading (dBm)	CL (dB)	Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Channel (128)									
824.20	100.7	V	26.2	0.5	0.0	25.7	38.5	-12.7	
824.20	98.5	H	24.2	0.5	0.0	23.7	38.5	-14.7	
Mid Channel (192)									
837.00	101.0	V	26.4	0.6	0.0	25.8	38.5	-12.6	
837.00	99.0	H	24.5	0.6	0.0	23.9	38.5	-14.5	
High Channel (251)									
848.80	101.5	V	27.0	0.7	0.0	26.3	38.5	-12.2	
848.80	100.2	H	25.6	0.7	0.0	24.9	38.5	-13.6	

GSM1900 GPRS Mode Output Power (EIRP)

PCS Fundamental Substitution Measurement Compliance Certification Services, Morgan Hill Immunity Chamber									
Company: Sierra Wireless, Inc. Project #: 06U10435 Date: July 18, 2007 Test Engineer: Sunny Shih Configuration: EUT Installed into ThinkPad Z61t (CFRP Aluminum LCD Material) Mode: GSM1900 GPRS Mode RBW=VBW=1MHz, Peak Detection									
Test Equipment: Receiving: Horn T59, and Chin SMA Cables 2 & 12 ft (Setup this one for testing EUT) Substitution: Horn T60, and 6ft SMA Cable Warehouse S/N: 208947 002									
f GHz	SA reading (dBuV/m)	Ant. Pol. (H/V)	SG reading (dBm)	CL (dB)	Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Channel									
1850	95.3	V	21.3	0.9	8.3	28.7	33.0	-4.3	
1850	91.0	H	14.9	0.9	8.3	22.3	33.0	-10.7	
Mid Channel									
1880	96.9	V	23.8	0.9	8.3	31.3	33.0	-1.7	
1880	95.3	H	20.5	0.9	8.3	28.0	33.0	-5.0	
High Channel									
1910	95.6	V	22.3	0.9	8.4	29.8	33.0	-3.2	
1910	92.0	H	16.9	0.9	8.4	24.4	33.0	-8.7	

GSM1900 EGPRS Mode Output Power (EIRP)

PCS Fundamental Substitution Measurement Compliance Certification Services, Morgan Hill Immunity Chamber									
Company: Sierra Wireless, Inc. Project #: 06U10435 Date: July 18, 2007 Test Engineer: Sunny Shih Configuration: EUT Installed into ThinkPad Z61t (CFRP Aluminum LCD Material) Mode: GSM1900 EGPRS Mode RBW=VBW=1MHz, Peak Detection									
Test Equipment: Receiving: Horn T59, and Chin SMA Cables 2 & 12 ft (Setup this one for testing EUT) Substitution: Horn T60, and 6ft SMA Cable Warehouse S/N: 208947 002									
f GHz	SA reading (dBuV/m)	Ant. Pol. (H/V)	SG reading (dBm)	CL (dB)	Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch# 512									
1.850	93.7	V	19.8	0.9	8.3	27.2	33.0	-5.8	
1.850	89.2	H	13.2	0.9	8.3	20.6	33.0	-12.4	
Middle Ch# 661									
1.880	94.0	V	20.9	0.9	8.3	28.3	33.0	-4.7	
1.880	93.6	H	18.8	0.9	8.3	26.2	33.0	-6.8	
High Ch# 810									
1.910	93.9	V	20.6	0.9	8.4	28.1	33.0	-5.0	
1.910	90.4	H	15.3	0.9	8.4	22.8	33.0	-10.2	

7.2. FIELD STRENGTH OF SPURIOUS EMISSION

LIMIT

§22.917 (e) and §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 $43 + 10 \log (P)$ dB.

TEST PROCEDURE

ANSI / TIA / EIA 603 Clause 3.2.12, FCC 22.917 (h), & FCC 24.238 (b)

RESULTS

No non-compliance noted.

Note: No emissions were found within 30-1000MHz of 20dB below the system noise.

850MHz Band GPRS Mode Spurious & Harmonic (ERP)

Cellular Harmonic Substitution Measurement									
Compliance Certification Services, Morgan Hill Immunity Chamber									
Company:		Sierra Wireless, Inc.							
Project #:		06U10435							
Date:		July 18 2007							
Test Engineer:		Sunny Shih							
Configuration:		EUT Installed into ThinkPad Z61m (ABS LCD Material)							
Mode:		GSM850 GPRS Mode							
RBW=VBW=1MHz, Peak Detection									
<u>Test Equipment:</u>									
Receiving: Horn T59, Pre-amp T34, Chin SMA Cables 2 & 12 ft (Setup this one for testing EUT)									
Substitution: Horn T60, 6ft SMA Cable Warehouse S/N: 208947 002									
f GHz	SA reading (dBuV/m)	Ant. Pol. (H/V)	SG reading (dBm)	CL (dB)	Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Channel (824.2MHz)									
1.648	70.2	V	-43.1	0.8	4.9	-39.0	-13.0	-26.0	
2.472	63.3	V	-47.1	1.0	7.1	-40.9	-13.0	-27.9	
1.648	69.9	H	-35.6	1.3	7.8	-29.1	-13.0	-16.1	
2.472	60.9	H	-43.2	1.5	8.8	-35.8	-13.0	-22.8	
Mid Channel (837.0MHz)									
1.674	70.7	V	-42.5	0.8	5.0	-38.3	-13.0	-25.3	
2.511	62.1	V	-47.3	1.0	7.1	-41.2	-13.0	-28.2	
1.674	68.7	H	-36.8	1.4	7.9	-30.3	-13.0	-17.3	
2.511	63.5	H	-40.0	1.5	8.9	-32.6	-13.0	-19.6	
High Channel (848.8MHz)									
1.697	71.5	V	-41.4	0.8	5.1	-37.1	-13.0	-24.1	
2.546	67.4	V	-41.4	1.0	7.1	-35.2	-13.0	-22.2	
1.697	67.2	H	-38.7	1.4	8.0	-32.1	-13.0	-19.1	
2.546	65.1	H	-37.8	1.5	8.9	-30.5	-13.0	-17.5	

850MHz Band EGPRS Mode Spurious & Harmonic (ERP)

Cellular Harmonic Substitution Measurement

Compliance Certification Services, Morgan Hill Immunity Chamber

Company:

Sierra Wireless, Inc.

Project #:

06U10435

Date:

July 18 2007

Test Engineer:

Sunny Shih

Configuration:

EUT Installed into ThinkPad Z61m (ABS LCD Material)

Mode:

GSM850 EGPRS Mode

RBW=VBW=1MHz, Peak Detection

Test Equipment:

Receiving: Horn T59, Pre-amp T34, Chin SMA Cables 2 & 12 ft (Setup this one for testing EUT)

Substitution: Horn T60, 6ft SMA Cable Warehouse S/N: 208947 002

f GHz	SA reading (dBuV/m)	Ant. Pol. (H/V)	SG reading (dBm)	CL (dB)	Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Channel (824.2MHz)									
1.648	66.7	V	-46.6	0.8	4.9	-42.5	-13.0	-29.5	
2.472	59.4	V	-50.9	1.0	7.1	-44.8	-13.0	-31.8	
1.648	65.8	H	-39.7	1.3	7.8	-33.2	-13.0	-20.2	
2.472	57.3	H	-46.7	1.5	8.8	-39.4	-13.0	-26.4	
Mid Channel (837.0MHz)									
1.674	66.2	V	-46.9	0.8	5.0	-42.7	-13.0	-29.7	
2.511	56.9	V	-52.5	1.0	7.1	-46.4	-13.0	-33.4	
1.674	64.0	H	-41.6	1.4	7.9	-35.0	-13.0	-22.0	
2.511	58.3	H	-45.2	1.5	8.9	-37.8	-13.0	-24.8	
High Channel (848.8MHz)									
1.697	67.1	V	-45.8	0.8	5.1	-41.5	-13.0	-28.5	
2.546	61.5	V	-47.3	1.0	7.1	-41.1	-13.0	-28.1	
1.697	62.7	H	-43.2	1.4	8.0	-36.6	-13.0	-23.6	
2.546	60.1	H	-42.8	1.5	8.9	-35.5	-13.0	-22.5	

8. SETUP PHOTOS

M2 Note-Z61t (CFRP Aluminium LCD Material)

RADIATED FRONT PHOTO



RADIATED BACK PHOTO



W2 Note-Z61m (ABS LCD Material)

RADIATED FRONT PHOTO



RADIATED BACK PHOTO



END OF REPORT

Page 22 of 22