



DATE: 21 June 2014

I.T.L. (PRODUCT TESTING) LTD.
FCC Radio Test Report
for
Micronet Ltd.

Equipment under test:

Mobile Data Terminal (MDT)

M317
2.4 GHz Bluetooth

Written by: Ronit Pinchuck
R. Pinchuck, Documentation

Approved by: A. Sharabi
A. Sharabi, Test Engineer

Approved by: I. Raz
I. Raz, EMC Laboratory Manager

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This report relates only to items tested.



Measurement/Technical Report for Micronet Ltd.

Mobile Data Terminal (MDT)

M317

FCC ID: U8ONB860

IC ID: 12186A-NB860

21 June 2014

This report concerns: Original Grant: X

Class I Change:

Class II Change:

Equipment type: Spread Spectrum Transmitter

Limits used: 47CFR15 Section 15.247

Measurement procedure used is Public Notice: DA 00-705 Filing and Measurement Guidelines for Frequency Hopping Spread Spectrum Systems and ANSI C63.4-2003.

Application for Certification
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1. General Information

1.1 Administrative Information

Manufacturer:	Micronet Ltd.
Manufacturer's Address:	P.O.B. 11524, 27 Hametsuda St., Azor, 58001 Israel Tel : +972-3-558 4884 Fax: +972-3-558 4885
Manufacturer's Representative:	Erez Cohen-Zedek
Equipment Under Test (E.U.T):	Mobile Data Terminal (MDT)
Equipment Model No.:	M317
Equipment Serial No.:	Not Designated
Date of Receipt of E.U.T:	01.06.14
Start of Test:	01.06.14
End of Test:	08.06.14
Test Laboratory Location:	I.T.L (Product Testing) Ltd. Kfar Bin Nun, ISRAEL 99780
Test Specifications:	FCC Part 15, Sub-Part C RSS-210, Issue 8, 2010



1.2 List of Accreditations

The EMC laboratory of I.T.L. is accredited by the following bodies:

1. The American Association for Laboratory Accreditation (A2LA) (U.S.A.), Certificate No. 1152.01.
2. The Federal Communications Commission (FCC) (U.S.A.), Registration No. 90715.
3. The Israel Ministry of the Environment (Israel), Registration No. 1104/01.
4. The Voluntary Control Council for Interference by Information Technology Equipment (VCCI) (Japan), Registration Numbers: C-1350, R-1285.
5. Industry Canada (Canada), IC File No.: 46405-4025; Site No. IC 4025B-1.

I.T.L. Product Testing Ltd. is accredited by the American Association for Laboratory Accreditation (A2LA) and the results shown in this test report have been determined in accordance with I.T.L.'s terms of accreditation unless stated otherwise in the report.



1.3 *Product Description*

The M-317 provides Original Equipment Manufacturers (OEMs) and Telematics Service Providers (TSP's) with a rugged and versatile vehicle-centric mobile-computing platform for a variety of Mobile Resource Management (MRM) applications. The E.U.T. includes new BT\WiFi 3G - approved transmitters.

1.4 *Test Methodology*

Both conducted and radiated testing was performed according to the procedures in Public Notice: DA 00705 Filing and Measurement Guidelines for Frequency Hopping Spread Spectrum Systems and ANSI C63.4: 2003. Radiated testing was performed at an antenna to EUT distance of 3 meters.

1.5 *Test Facility*

The radiated emissions tests were performed at I.T.L.'s testing facility at Kfar Bin-Nun, Israel. This site is a FCC listed test laboratory (FCC Registration No. 90715, date of listing November 21, 2012).

I.T.L.'s EMC Laboratory is also accredited by A2LA, certificate No. 1152.01.

1.6 *Measurement Uncertainty*

Radiated Emission

Radiated Emission (CISPR 11, EN 55011, CISPR 22, EN 55022, ANSI C63.4) for open site 30-1000MHz:

Expanded Uncertainty (95% Confidence, K=2):

± 4.98 dB

Note: See ITL Procedure No. PM 198.

2. System Test Configuration

2.1 **Justification**

Unit was tested at installation position, transmitting continuously at the low channel (2402MHz) the middle channel (2441MHz) and the higher channel (2480MHz), modulated with two types of modulations: standard BlueTooth modulation and Extended Data Rate modulation.

2.2 **EUT Exercise Software**

No special exercise software was used.

2.3 **Special Accessories**

No special accessories were needed to achieve compliance.

2.4 **Equipment Modifications**

No modifications were needed to achieve compliance.

2.5 **Configuration of Tested System**

The EUT was transmitting BT/WiFi modulation with SW application (MTS_WiLink6&7).

The SW application forces the module to transmit in each frequency/data rate/modulation.

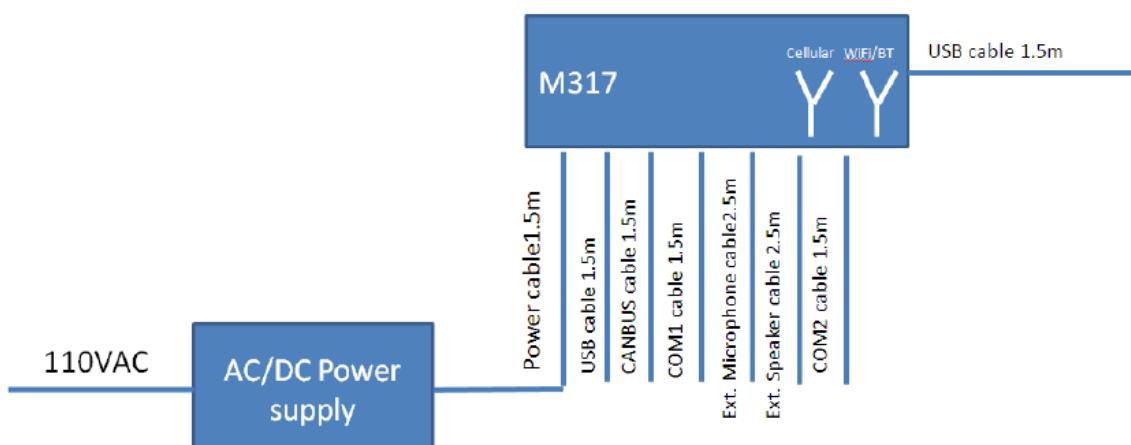


Figure 1. Configuration of Tested System

3. Radiated Measurement Test Set-up Photos

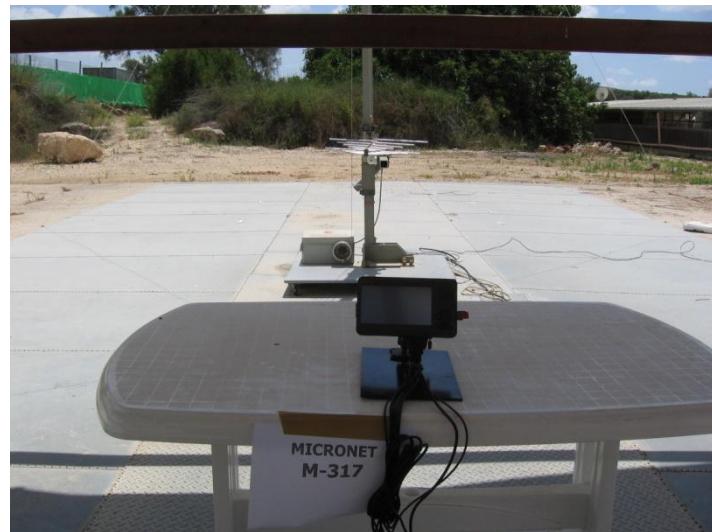


Figure 2. Radiated Emission Test

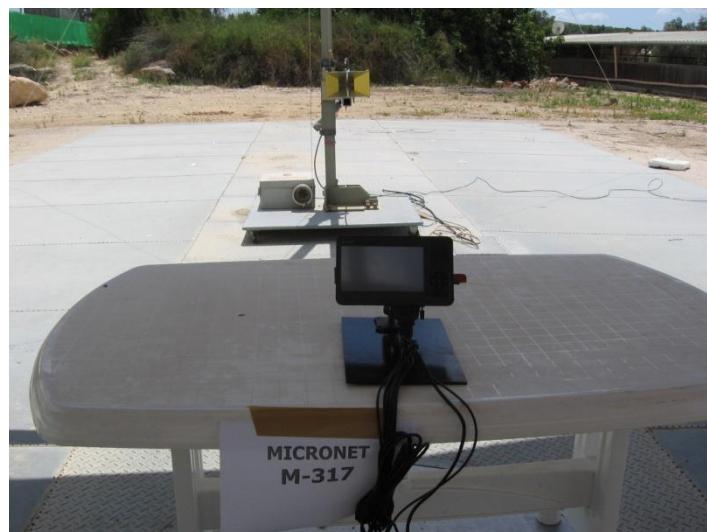


Figure 3. Radiated Emission Test



Figure 4. Radiated Emission Test

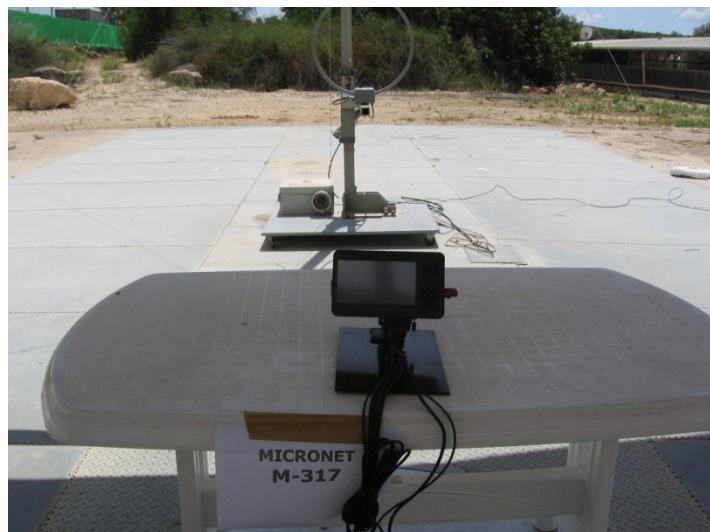


Figure 5. Radiated Emission Test



4. 6dB Minimum Bandwidth

4.1 Test Specification

F.C.C. Part 15, Subpart C: 15.247(a)(2)

4.2 Test procedure

The E.U.T was placed on a non-metallic table, 0.8 meters above the ground plane, on a remote-controlled turntable in the OATS. The test distance was 3 meters. The transmitter unit operated with normal modulation. The EMI receiver was set to 100 kHz resolution BW. The spectrum bandwidth of the transmitter unit was measured and recorded. The test was performed to measure the transmitter occupied bandwidth. The EUT was set up as shown in Figure 3, and its proper operation was checked. The transmitter occupied bandwidth was measured with the EMI receiver as frequency delta between reference points on modulation envelope. The E.U.T. was tested in three frequencies: Low, Mid and High.

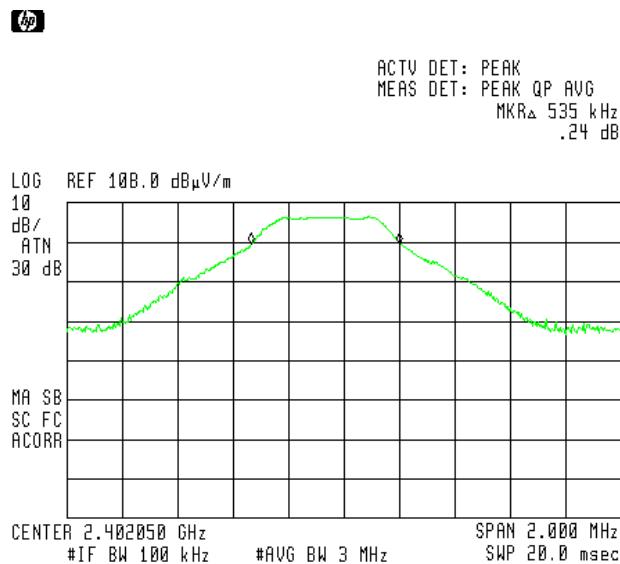


Figure 6. Low Channel , Standard Modulation



hp

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR_A 510 kHz
-1.82 dB

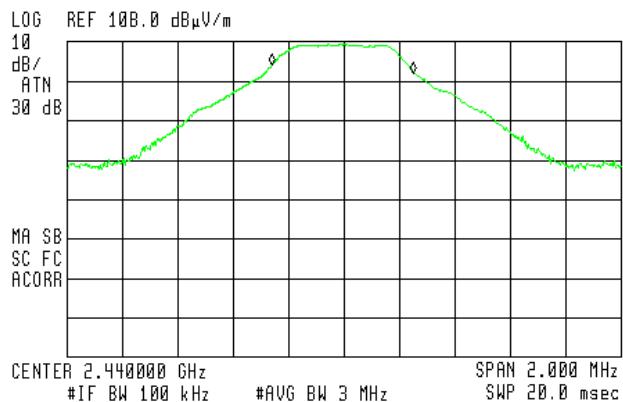


Figure 7. Mid Channel, Standard Modulation

hp

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR_A 510 kHz
1.00 dB

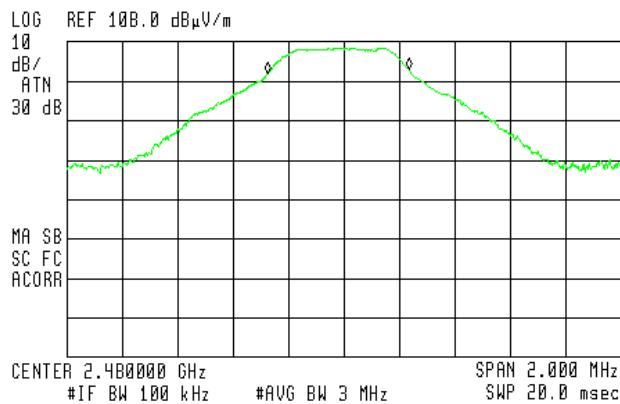


Figure 8. High Channel, Standard Modulation

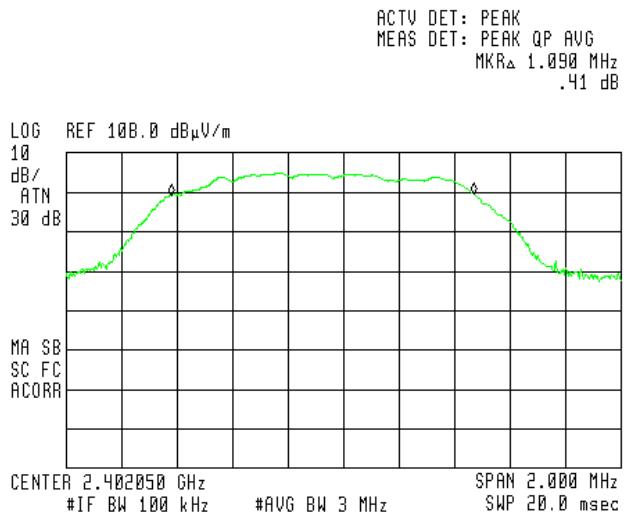


Figure 9. Low Channel , EDR Modulation

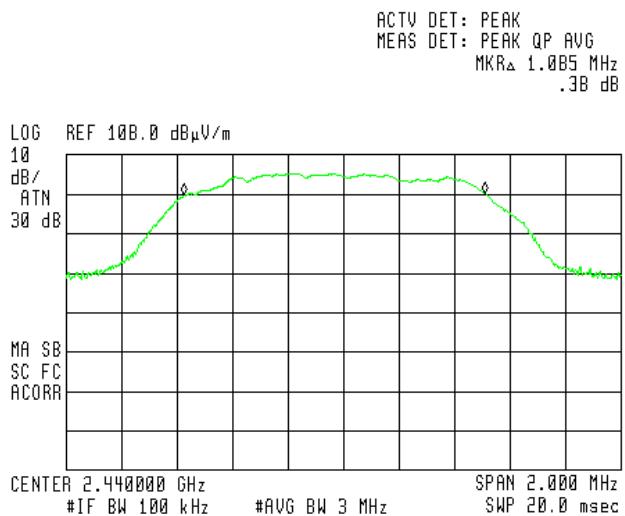


Figure 10. Mid Channel, EDR Modulation



ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR_A 1.035 MHz
.99 dB

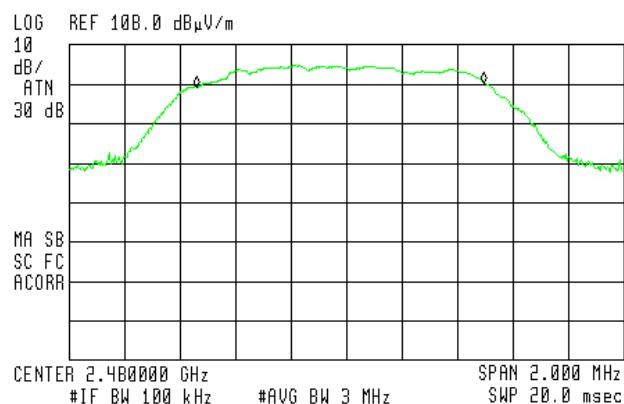


Figure 11. High Channel, EDR Modulation



4.3 **Test Results**

E.U.T Description: Mobile Data Terminal (MDT)

Model: M317

Serial Number: Not Designated

Operation Frequency (MHz)	Modulation	Bandwidth Reading (MHz)	Specification (MHz)
Low	Standard	0.535	>0.5
Mid	Standard	0.51	>0.5
High	Standard	0.51	>0.5
Low	EDR	1.090	>0.5
Mid	EDR	1.085	>0.5
High	EDR	1.035	>0.5

Figure 12 Test Results

JUDGEMENT: Passed

TEST PERSONNEL:

Tester Signature: 

Date: 22.07.14

Typed/Printed Name: A. Sharabi



4.4 Test Equipment Used; 6dB Bandwidth

Instrument	Manufacturer	Model	Serial Number	Calibration	Period
EMI Receiver	HP	85422E	3906A00276	January 15, 2014	1 year
RF Section	HP	85420E	3705A00248	January 15, 2014	1 year
Horn Antenna	ETS	3115	29845	March 14, 2012	3 Years
Antenna Mast	ARA	AAM-4A	1001	N/A	N/A
Turntable	ARA	ART-1001/4	1001	N/A	N/A
Mast & Table Controller	ARA	ACU-2/5	1001	N/A	N/A
Printer	HP	LaserJet 2200	JPKGC19982	N/A	N/A

Figure 13 Test Equipment Used



5. 26dB Bandwidth

5.1 ***Test Specification***

F.C.C. Part 15, Subpart C: 15.247(a)(2)

5.2 ***Test procedure***

The E.U.T was placed on a non-metallic table, 0.8 meters above the ground plane, on a remote-controlled turntable in the OATS. The test distance was 3 meters. The transmitter unit operated with normal modulation. The EMI receiver was set to 100 kHz resolution BW. The spectrum bandwidth of the transmitter unit was measured and recorded. The test was performed to measure the transmitter occupied bandwidth. The EUT was set up as shown in Figure 3, and its proper operation was checked. The transmitter occupied bandwidth was measured with the EMI receiver as frequency delta between reference points on modulation envelope. The E.U.T. was tested in three frequencies: Low, Mid and High

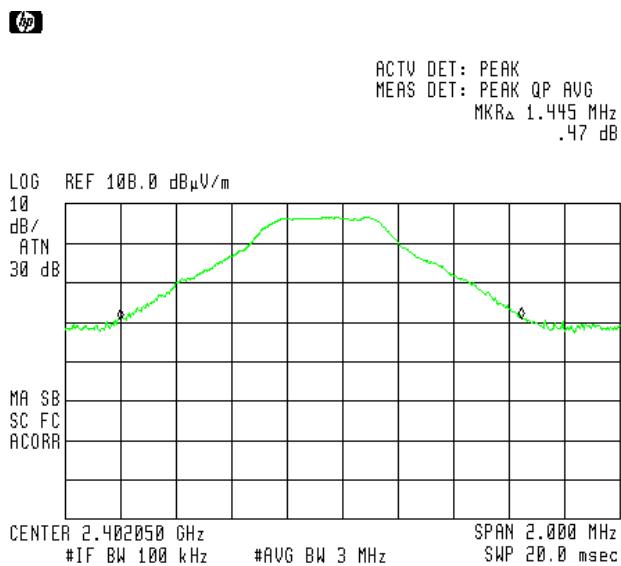


Figure 14. Low Channel , Standard Modulation



ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR_A 1.420 MHz
.99 dB

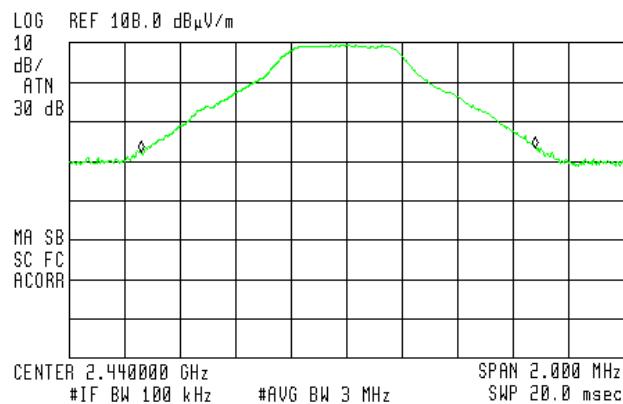


Figure 15. Mid Channel, Standard Modulation



ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR_A 1.445 MHz
-.94 dB

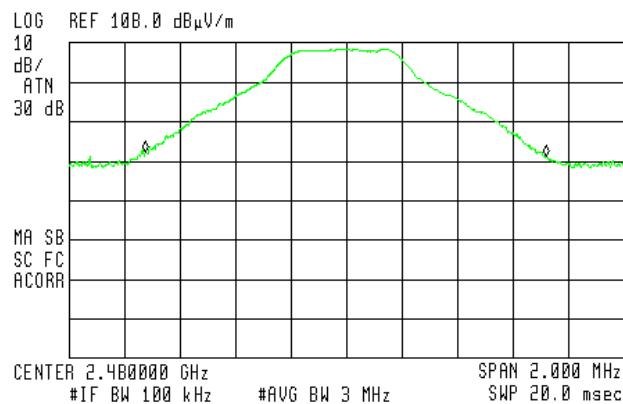


Figure 16. High Channel, Standard Modulation



ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRa 1.745 MHz
.81 dB

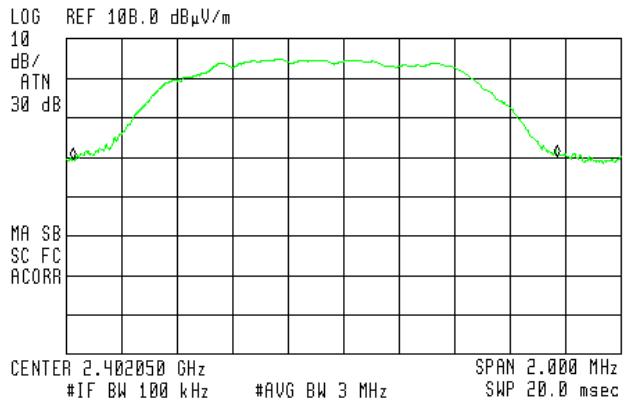


Figure 17. Low Channel , EDR Modulation



ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRa 1.725 MHz
1.01 dB

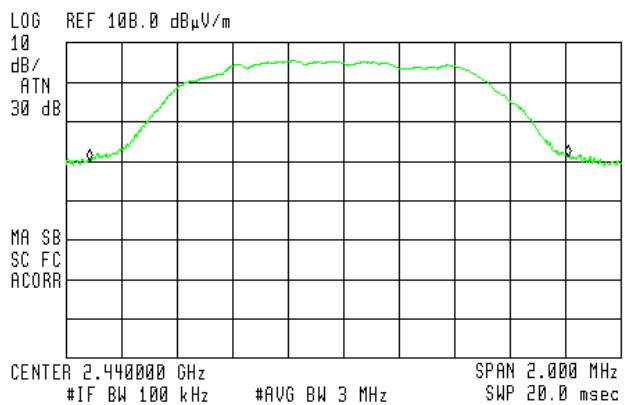


Figure 18. Mid Channel, EDR Modulation



ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR_A 1.880 MHz
-.06 dB

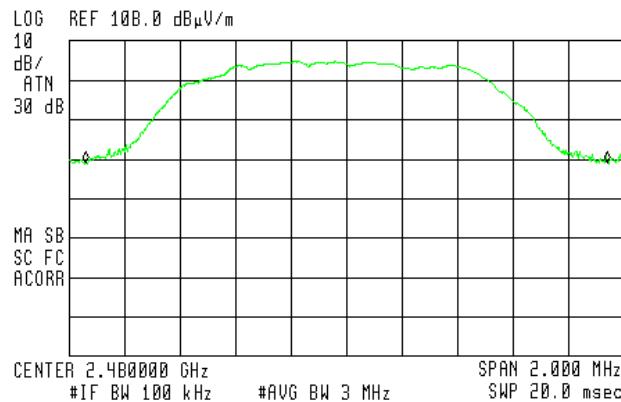


Figure 19. High Channel, EDR Modulation

5.3 Test Results

E.U.T Description: Mobile Data Terminal (MDT)

Model: M317

Serial Number: Not Designated

Operation Frequency (MHz)	Modulation	Bandwidth Reading (MHz)
Low	Standard	1.445
Mid	Standard	1.420
High	Standard	1.445
Low	EDR	1.745
Mid	EDR	1.725
High	EDR	1.880

Figure 20 26 dB Minimum Bandwidth

JUDGEMENT: Passed

TEST PERSONNEL:

Tester Signature:

Date: 22.07.14

Typed/Printed Name: A. Sharabi



5.4 **Test Equipment Used, 26 dB Bandwidth**

Instrument	Manufacturer	Model	Serial Number	Calibration	Period
EMI Receiver	HP	85422E	3906A00276	January 15, 2014	1 year
RF Section	HP	85420E	3705A00248	January 15, 2014	1 year
Horn Antenna	ETS	3115	29845	March 14, 2012	3 Years
Antenna Mast	ARA	AAM-4A	1001	N/A	N/A
Turntable	ARA	ART-1001/4	1001	N/A	N/A
Mast & Table Controller	ARA	ACU-2/5	1001	N/A	N/A
Printer	HP	LaserJet 2200	JPKGC19982	N/A	N/A

Figure 21 Test Equipment Used

6. 20dB Bandwidth

6.1 Test Specification

Specification: FCC Part 15, Subpart C (15.247-a2)

6.2 Test procedure

The E.U.T was placed on a non-metallic table, 0.8 meters above the ground plane, on a remote-controlled turntable in the OATS. The test distance was 3 meters. The transmitter unit operated with normal modulation. The EMI receiver was set to 30 kHz resolution BW. The spectrum bandwidth of the transmitter unit was measured and recorded. The test was performed to measure the transmitter occupied bandwidth. The EUT was set up as shown in Figure 3, and its proper operation was checked. The transmitter occupied bandwidth was measured with the EMI receiver as frequency delta between reference points on modulation envelope. The E.U.T. was tested in three frequencies: Low, Middle and High.

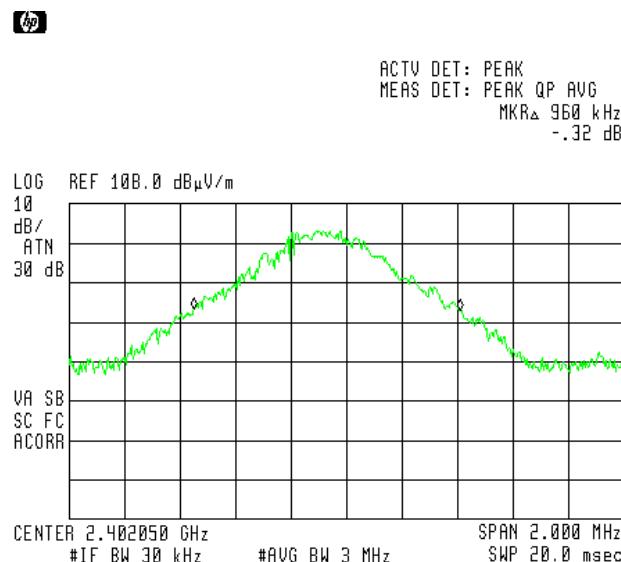


Figure 22. Low Channel , Standard Modulation

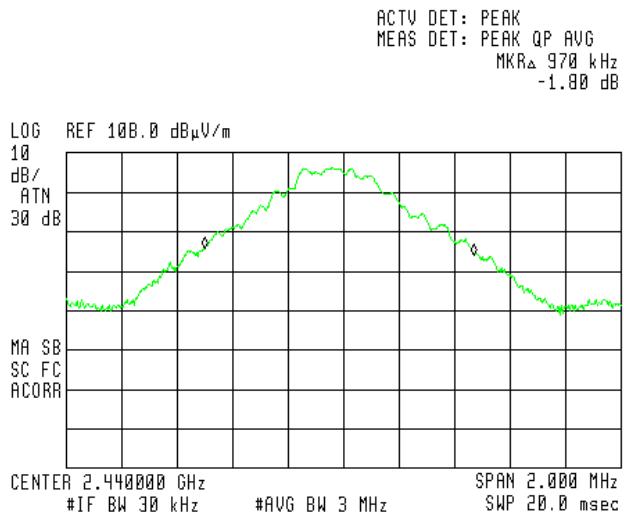


Figure 23. Mid Channel, Standard Modulation

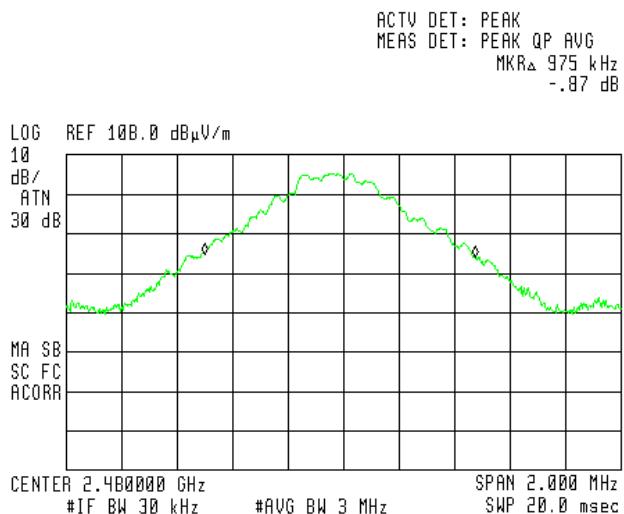


Figure 24. High Channel, Standard Modulation



hp

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRA 1.385 MHz
.29 dB

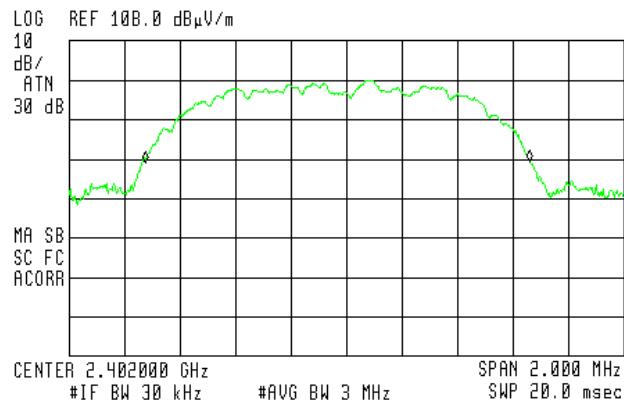


Figure 25. Low Channel , EDR Modulation

hp

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRA 1.365 MHz
.35 dB

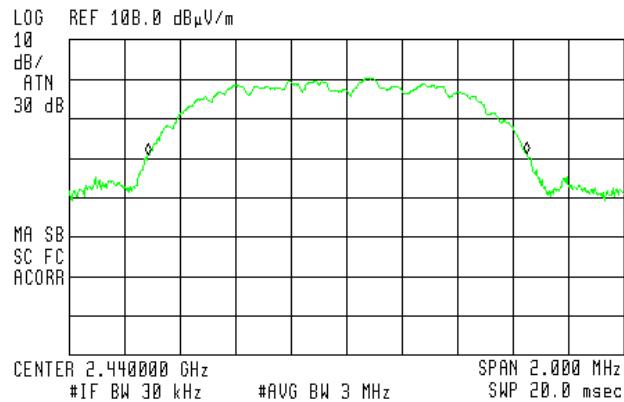


Figure 26. Mid Channel, EDR Modulation



6p

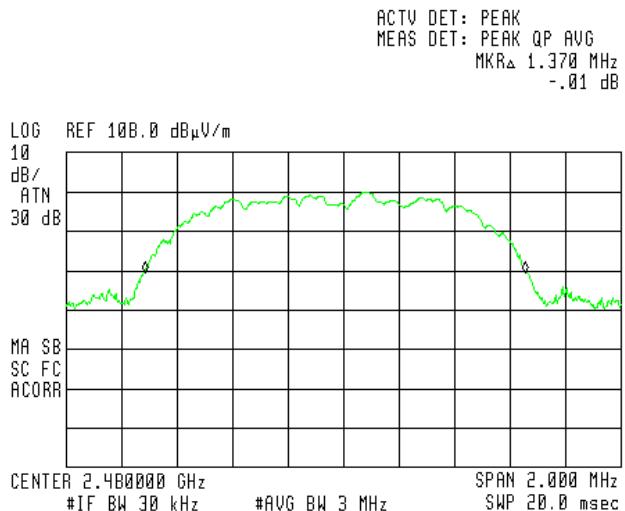


Figure 27. High Channel, EDR Modulation

6.3 Test Results

E.U.T Description: Mobile Data Terminal (MDT)

Model: M317

Serial Number: Not Designated

Operation Frequency (MHz)	Modulation	Bandwidth Reading (MHz)
Low	Standard	0.960
Mid	Standard	0.970
High	Standard	0.975
Low	EDR	1.385
Mid	EDR	1.365
High	EDR	1.370

JUDGEMENT: Passed

TEST PERSONNEL:

Tester Signature:

Date: 22.07.14

Typed/Printed Name: A. Sharabi



6.4 Test Equipment Used; 20dB Bandwidth

Instrument	Manufacturer	Model	Serial Number	Calibration	Period
EMI Receiver	HP	85422E	3906A00276	January 15, 2014	1 year
RF Section	HP	85420E	3705A00248	January 15, 2014	1 year
Horn Antenna	ETS	3115	29845	March 14, 2012	3 Years
Antenna Mast	ARA	AAM-4A	1001	N/A	N/A
Turntable	ARA	ART-1001/4	1001	N/A	N/A
Mast & Table Controller	ARA	ACU-2/5	1001	N/A	N/A
Printer	HP	LaserJet 2200	JPKGC19982	N/A	N/A

Figure 28 Test Equipment Used



7. Number of Hopping Frequencies Section 15.247(a)(1)(iii)

7.1 Test Specification

F.C.C., Part 15, Subpart C

7.2 Test Procedure

The E.U.T. was set to hopping mode.

The spectrum analyzer was set to the following parameters:

Span: Every 40 MHz Frequency

Band of Operation: 2402-2481 MHz

RBW: 30kHz

VBW: 300kHz

Detector Function: Peak

Trace: Maximum Hold

The number of hopping frequencies is 79 (See plots).

Number of Hopping Frequencies

E.U.T Description	Mobile Data Terminal (MDT)
Type	M317
Serial Number:	Not Designated

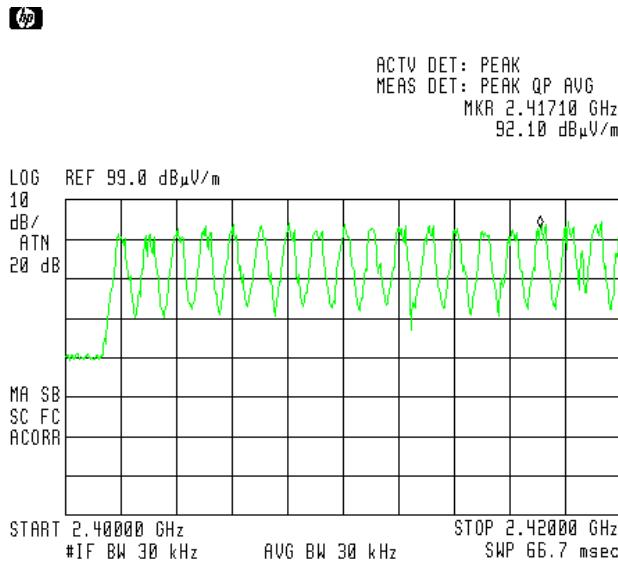


Figure 29. Frequency Hopping, Standard modulation



Number of Hopping Frequencies

E.U.T Description	Mobile Data Terminal (MDT)
Type	M317
Serial Number:	Not Designated

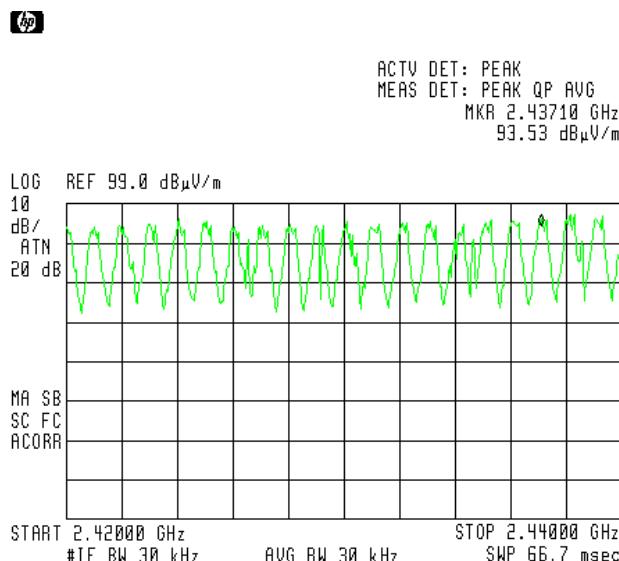


Figure 30. Frequency Hopping, Standard modulation



Number of Hopping Frequencies

E.U.T Description Mobile Data
Terminal (MDT)
Type M317
Serial Number: Not Designated

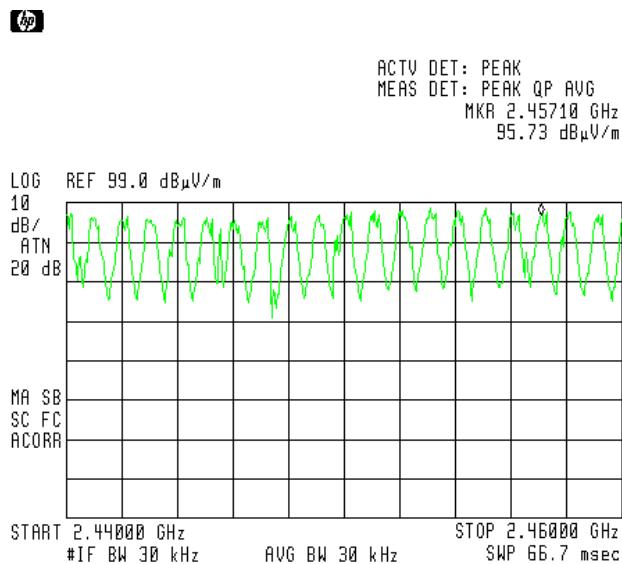


Figure 31. Frequency Hopping, Standard modulation



Number of Hopping Frequencies

E.U.T Description Mobile Data Terminal (MDT)
Type M317
Serial Number: Not Designated

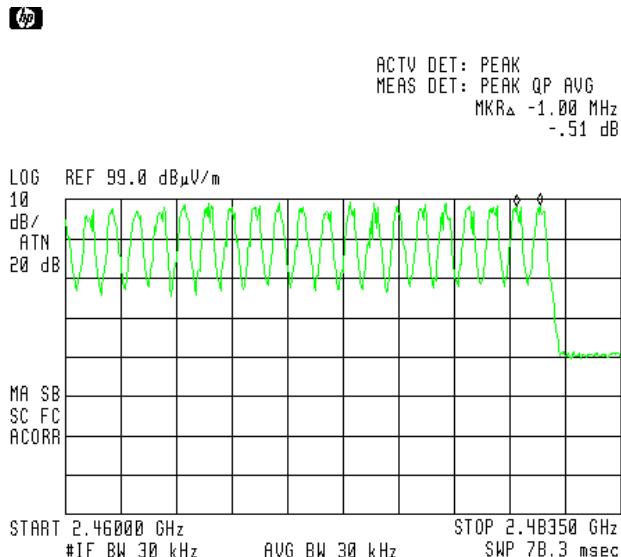


Figure 32. Frequency Hopping, Standard modulation

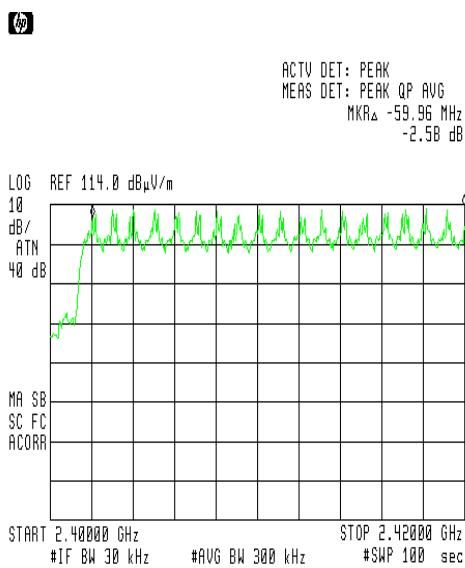


Figure 33. Frequency Hopping, EDR modulation

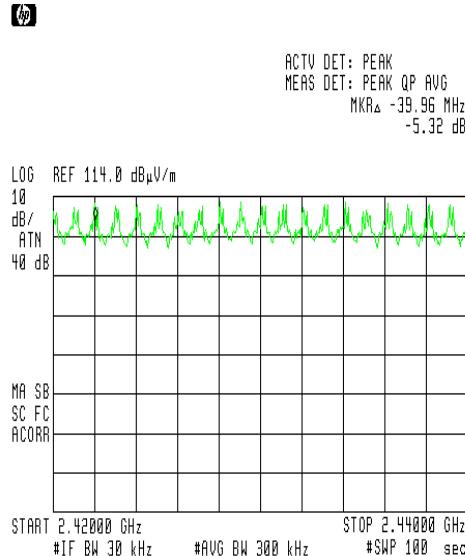


Figure 34. Frequency Hopping, EDR modulation

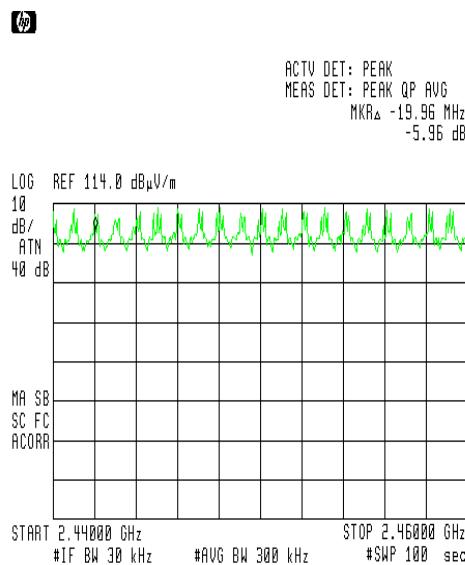


Figure 35. Frequency Hopping, EDR modulation



6

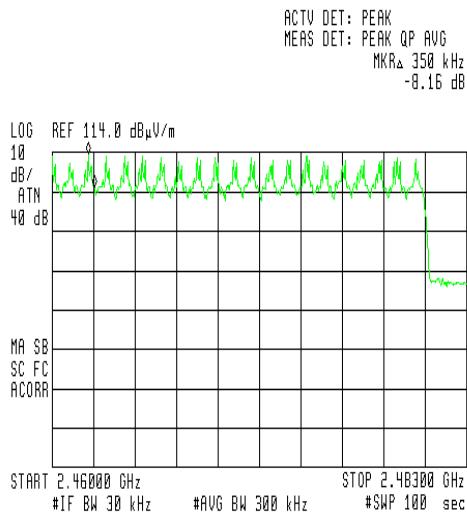


Figure 36. Frequency Hopping, EDR modulation

7.3 Results table

E.U.T. Description: Mobile Data Terminal (MDT)

Model No.: M317

Serial Number: Not Designated

Specification: FCC Part 15, Subpart C, 15.247(a)(1)(iii)

Modulation	Number of Hopping Frequencies	Specification
Standard	79	>75
EDR	79	>75

Figure 37 Number of Hopping Frequencies

TEST PERSONNEL:

Tester Signature: Date: 22.07.14

Typed/Printed Name: A. Sharabi



7.4 **Test Instrumentation Used**

Instrument	Manufacturer	Model	Serial Number	Calibration	
				Last Calibration Date	Period
Spectrum Analyzer	HP	8564E	3442A00275	March 2, 2014	1 year
Cable	Rhophase	KPS-5000-KPS	A1674	June 1, 2014	1 year



8. Channel Frequency Separation

8.1 ***Test Specification***

Specification: FCC Part 15, Subpart C, 15.247(a) (1)

8.2 ***Test procedure***

The E.U.T. was set to hopping mode.

The spectrum analyzer was set to the following parameters:

Span: 2 MHz

RBW: 10kHz

VBW: 10kHz

Detector Function: Peak

Trace: Maximum Hold

The marker delta function to determine the separation between the peaks of the adjacent channels was used.

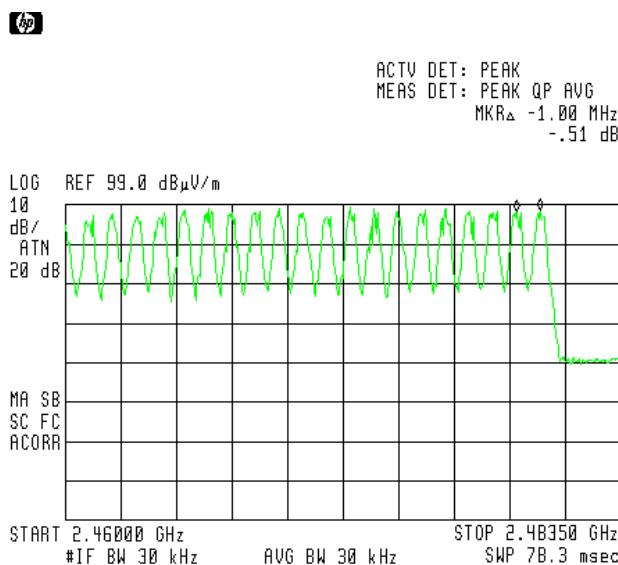


Figure 38. Standard Modulation



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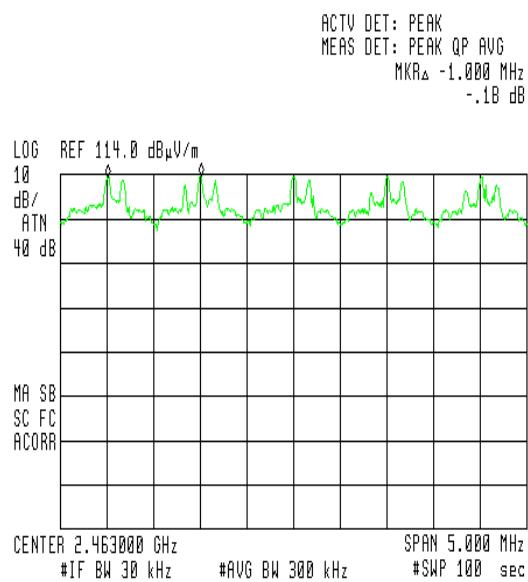


Figure 39. EDR Modulation



8.3 Results table

E.U.T. Description: Mobile Data Terminal (MDT) Model No.: M317

Serial Number: Not Designated

Specification: FCC Part 15, Subpart C, 15.247(a) (1)

Modulation	Channel Frequency Separation (kHz)	Specification (kHz)	Margin (kHz)
Standard	1000.0	975.0	25.0
EDR	1000.0	913.0	67.0

Figure 40 Channel Frequency Separation

JUDGEMENT: Passed by 25.0 kHz

TEST PERSONNEL:

Tester Signature: 
Typed/Printed Name: A. Sharabi

Date: 22.07.14



8.4 Test Instrumentation Used; Channel Frequency Separation

Instrument	Manufacturer	Model	Serial Number	Calibration	
				Last Calibration Date	Period
Spectrum Analyzer	HP	8564E	3442A00275	March 2, 2014	1 year
Cable	Rhophase	KPS-5000-KPS	A1674	June 1, 2014	1 year



9. Radiated Power Output

9.1 ***Test Specification***

F.C.C. Part 15, Subpart C: 15.247(b)

9.2 ***Test procedure***

The E.U.T was placed on a non-metallic table, 0.8 meters above the ground plane, on a remote-controlled turntable in the OATS. The test distance was 3 meters.

The transmitter unit operated with normal modulation. The EMI receiver was set to 1 MHz resolution BW. The EUT was set up as shown in Figure 3, and its proper operation was checked.

The readings were maximized by adjusting the antenna height between 1-4 meters, the turntable azimuth between 0-360°, and the antenna polarization.

The E.U.T. was tested in three operating channels and frequencies (1 (2.402 GHz); 8 (2.441 GHz); 14 (2.480 GHz)).

Radiated output power levels were measured at selected operation frequencies and the results were converted to power level according to the formula as shown below:

$$P = \frac{(E_{V/m} \times d)^2}{(30 \times G)} \text{ [W]}$$

E- Field Strength (v/m)

d- Distance from transmitter (m)

G- Antenna gain

P- Peak power (W)

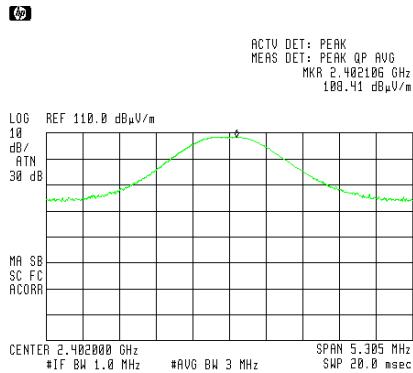


Figure 41 2402.00 MHz – Horizontal, Standard Modulation

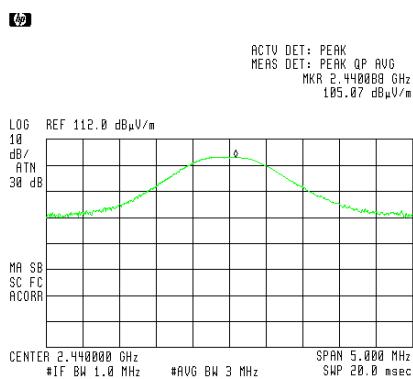


Figure 42 2440.00 MHz – Horizontal, Standard Modulation

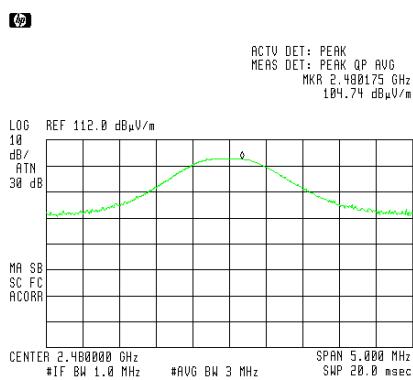


Figure 43 2480.00 MHz – Horizontal, Standard Modulation

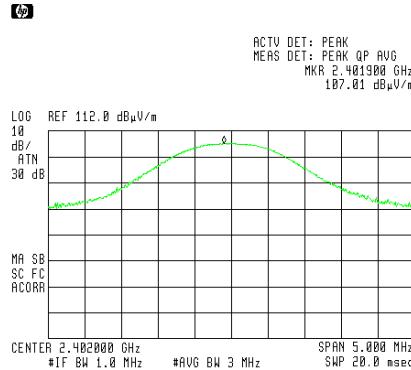


Figure 44 2402.00 MHz – Horizontal, EDR Modulation

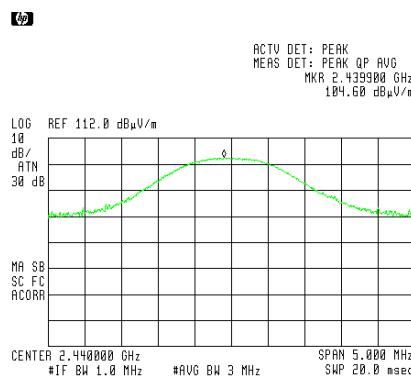


Figure 45 2441.00 MHz – Horizontal, EDR Modulation

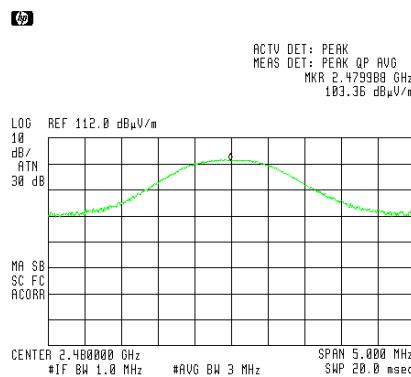


Figure 46 2480.00 MHz – Horizontal, EDR Modulation



9.3 Results Calculation

E.U.T. Description: Mobile Data Terminal (MDT)

Model No.: M317

Serial Number: Not Designated

Specification: F.C.C. Part 15, Subpart C

The following calculations were used to determine maximum radiated power output.

$$P = \frac{(E_{V/m} \times d)^2}{(30 \times G)} \text{ [W]}$$

Operation Frequency (MHz)	Modulation	Polarization	Power (dBuV/m)	Power (W)	Power (mW)	Specification (mW)	Margin (mW)
Low	Standard	H	108.41	0.0092	9.2	1000	-990.8
Mid	Standard	H	105.07	0.0044	4.4	1000	-995.6
High	Standard	H	104.74	0.0039	3.9	1000	-996.1
Low	EDR	H	107.01	0.0066	6.6	1000	-993.4
Mid	EDR	H	104.60	0.0039	3.9	1000	-996.1
High	EDR	H	103.36	0.0031	3.1	1000	-996.9

Figure 47 Radiated Power Output

JUDGEMENT: Passed by 990.8mW

TEST PERSONNEL:

Tester Signature: 

Date: 22.07.14

Typed/Printed Name: A. Sharabi



9.4 **Test Equipment Used, Radiated Maximum Power Output**

Instrument	Manufacturer	Model	Serial Number	Calibration	Period
Receiver	HP	85422E	3906A00276	January 15, 2014	1 year
RF Section	HP	85420E	3705A00248	January 15, 2014	1 year
Horn Antenna	ETS	3115	29845	March 14, 2012	3 Years
Antenna Mast	ARA	AAM-4A	1001	N/A	N/A
Turntable	ARA	ART-1001/4	1001	N/A	N/A
Mast & Table Controller	ARA	ACU-2/5	1001	N/A	N/A
Printer	HP	LaserJet 2200	JPKGC19982	N/A	N/A

Figure 48 Test Equipment Used

10. Dwell Time on Each Channel

10.1 Test Specification

FCC Part 15, Section 15.247(a)(1)(iii)

10.2 Test Procedure

The E.U.T. was tested in radiated mode using the substitutional antenna. The spectrum analyzer was set to 30 kHz RBW and 300 kHz VBW.

The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.

10.3 Test Results

The E.U.T. met the requirements of the FCC Part 15, Section 15.247(a)(1)(iii).

JUDGEMENT: Passed

TEST PERSONNEL:

Tester Signature:  Date: 22.07.14

Typed/Printed Name: A. Sharabi

Additional information of the results is given in *Figure 49* to *Figure 52*.

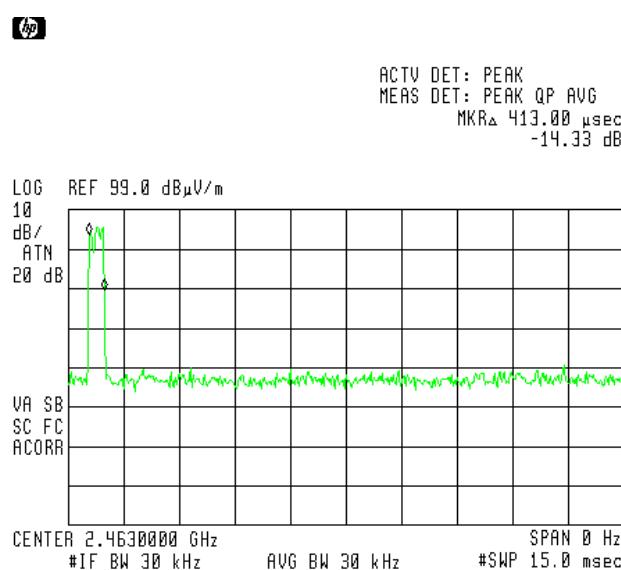


Figure 49 — Ton=413usec , standard Modulation

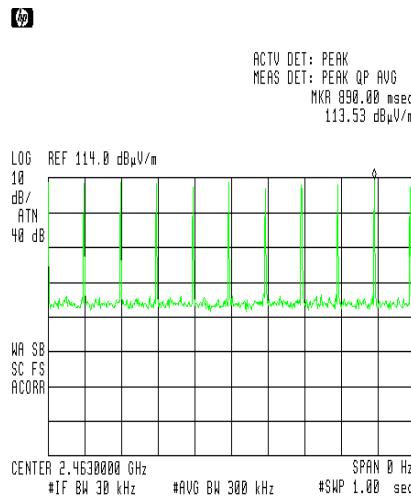


Figure 50 — Dwell time at 2.463GHz, standard Modulation
[11 X 413usecX31.6 =143, limit 400msec]

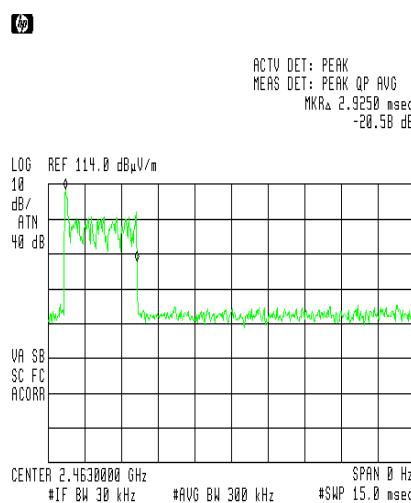


Figure 51 — Ton=2.9msec , EDR Modulation

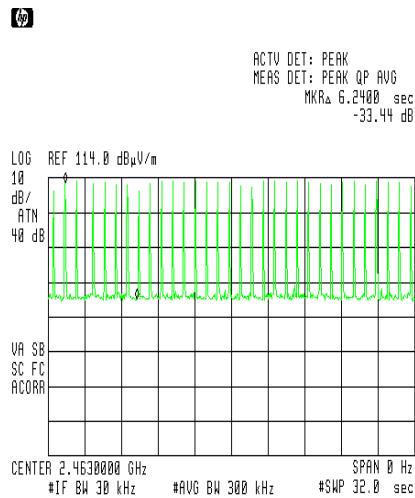


Figure 52 — Dwell time at 2.480GHz , EDR Modulation
[32 X 2.9msec =92.8, limit 400msec]

10.4 Test Equipment Used, Dwell Time

Instrument	Manufacturer	Model	Serial Number	Calibration	
				Last Calibration Date	Period
Spectrum Analyzer	HP	8564E	3442A00275	March 2, 2014	1 year

Figure 53 Test Equipment Used



11. Band Edge

[In Accordance with section 15.247(d)]

11.1 Test procedure

The E.U.T was placed on a non-metallic table, 0.8 meters above the ground plane, on a remote-controlled turntable in the OATS. The test distance was 3 meters.

The transmitter unit operated with normal modulation. The EMI receiver was set to 1 MHz resolution BW. The EUT was set up as shown in Figure 3, and its proper operation was checked.

The EMI receiver was adjusted to the transmission channel at the maximum radiated level. The display line was set to 20 dBc and the EMI receiver was set to the band edge frequencies.

Maximum power level below 2400 MHz and above 2483.5 MHz was measured relative to power level at the Low and the High channels correspondingly.

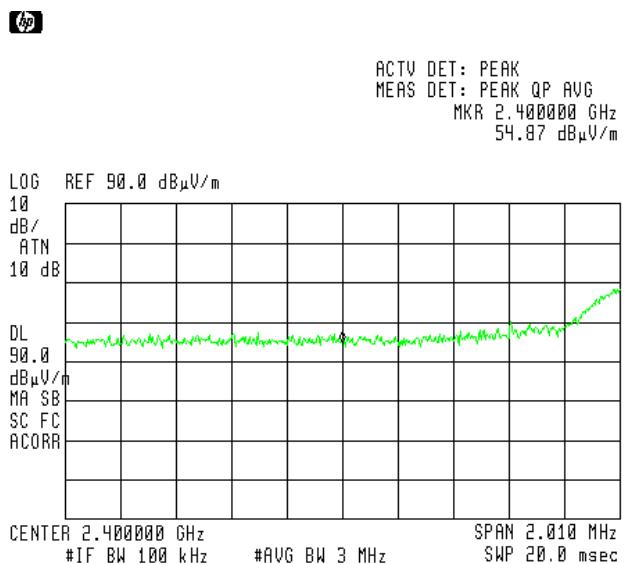


Figure 54 — Lower Band Edge ,Standard Modulation



ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 2.483495 GHz
64.11 dB μ V/m

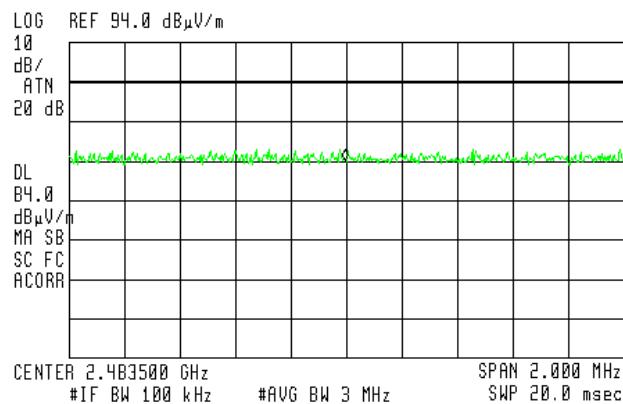


Figure 55 — Upper Band Edge, Standard Modulation



ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 2.400000 GHz
57.96 dB μ V/m

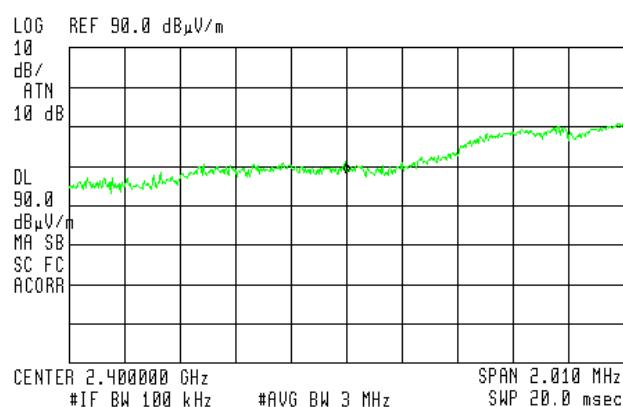


Figure 56 — Lower Band Edge, EDR Modulation

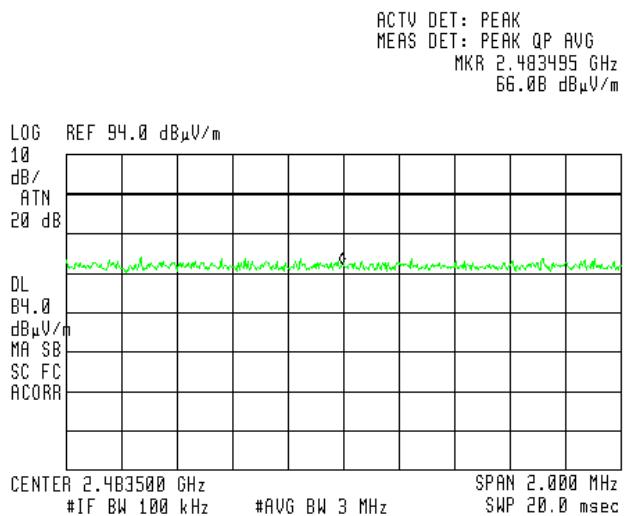


Figure 57 — Upper Band Edge, EDR Modulation



11.2 Results table

E.U.T. Description: Mobile Data Terminal (MDT)

Model No.: M317

Serial Number: Not Designated

Specification: F.C.C. Part 15, Subpart C (15.247 (d))

Operation Frequency (MHz)	Modulation	Band Edge Frequency (MHz)	Spectrum Level (dBuV/m)	Specification (dBuV/m)	Margin (dB)
2402	Standard	2400.0	54.87	90.0	-35.13
2480	Standard	2483.5	64.11	84.0	-19.89
2402	EDR	2400.0	57.96	90.0	-32.04
2480	EDR	2483.5	66.08	84.0	-17.92

Figure 58 Band Edge

JUDGEMENT: Passed by 17.92 dB

TEST PERSONNEL:

Tester Signature: 

Date: 22.07.14

Typed/Printed Name: A. Sharabi



11.3 Test Equipment Used, Band Edge Spectrum

Instrument	Manufacturer	Model	Serial Number	Calibration	Period
Receiver	HP	85422E	3906A00276	January 15, 2014	1 year
RF Section	HP	85420E	3705A00248	January 15, 2014	1 year
Horn Antenna	ETS	3115	29845	March 14, 2012	3 Years
Antenna-Log Periodic	ARA	LPD-2010/A	1038	April 2, 2013	2 years
Antenna Mast	ARA	AAM-4A	1001	N/A	N/A
Turntable	ARA	ART-1001/4	1001	N/A	N/A
Mast & Table Controller	ARA	ACU-2/5	1001	N/A	N/A
Printer	HP	LaserJet 2200	JPKGC19982	N/A	N/A

Figure 59 Test Equipment Used



12. Radiated Emission, 9 kHz – 30 MHz

12.1 *Test Specification*

9 kHz-30 MHz, FCC, Part 15, Subpart C, Section 209

12.2 *Test Procedure*

The E.U.T. operation mode and test set-up are as described in Section 3.

A preliminary measurement to characterize the E.U.T was performed inside the shielded room at a distance of 3 meters, using peak detection mode and broadband antennas. The preliminary measurements produced a list of the highest emissions. The E.U.T was then transferred to the open site, and placed on a remote-controlled turntable. The E.U.T was placed on a non-metallic table, 0.8 meters above the ground. The configuration tested is shown in Figure 3.1.

The frequency range 9 kHz-30 MHz was scanned.

The emissions were measured using a computerized EMI receiver complying with CISPR 16 requirements. The specification limits and applicable correction factors are loaded to the receiver via a 3.5" floppy disk.

In the frequency range 9 kHz-30MHz, the loop antenna was rotated on its vertical axis. The antenna height (center of loop) was 1 meter at a distance of 3 meters.

12.3 *Measured Data*

JUDGEMENT: Passed

The EUT met the requirements of the F.C.C. Part 15, Subpart C, Section 209 specification.

The results for all three channels were the same.

No signals were detected in the frequency range of 9 kHz – 30 MHz.

TEST PERSONNEL:

Tester Signature: 

Date: 22.07.14

Typed/Printed Name: A. Sharabi



12.4 Test Instrumentation Used, Radiated Measurements

Instrument	Manufacturer	Model	Serial Number	Calibration	Period
EMI Receiver	HP	85422E	3906A00276	January 15, 2014	1 year
RF Section	HP	85420E	3705A00248	January 15, 2014	1 year
Active Loop Antenna	EMCO	6502	9506-2950	November 4, 2013	1 year
Antenna Mast	ARA	AAM-4A	1001	N/A	N/A
Turntable	ARA	ART-1001/4	1001	N/A	N/A
Mast & Table Controller	ARA	ACU-2/5	1001	N/A	N/A
Printer	HP	LaserJet 2200	JPKGC19982	N/A	N/A

Figure 60 Test Equipment Used



12.5 **Field Strength Calculation**

The field strength is calculated directly by the EMI Receiver software, and a "Correction Factors" data disk, using the following equation:

$$FS = RA + AF + CF$$

FS: Field Strength [dB μ V/m]

RA: Receiver Amplitude [dB μ V]

AF: Receiving Antenna Correction Factor [dB/m]

CF: Cable Attenuation Factor [dB]

Example: FS = 30.7 dB μ V (RA) + 14.0 dB (AF) + 0.9 dB (CF) = 45.6 dB μ V

No external pre-amplifiers are used.



13. Spurious Radiated Emission 30 – 25,000 MHz

13.1 ***Test Specification***

30 MHz- 25,000 MHz, F.C.C., Part 15, Subpart C

13.2 ***Test Procedure***

The E.U.T. operation mode and test set-up are as described in Section 3.

See Section 3.1 Justification of the System Test Configuration concerning the E.U.T. orientation for this test.

A preliminary measurement to characterize the E.U.T was performed inside the shielded room at a distance of 3 meters, using peak detection mode and broadband antennas. The preliminary measurements produced a list of the highest emissions. The E.U.T was then transferred to the open site, and placed on a remote-controlled turntable. The E.U.T was placed on a non-metallic table, 0.8 meters above the ground.

The frequency range 30 MHz-1000 MHz was scanned and the list of the highest emissions was verified and updated accordingly.

The levels of the emissions within the frequency ranges of the restricted bands (Section 15.205 of FCC Part 15) were compared to the limits of the table in Section 15.209 (a), General Requirements.

The emissions were measured using a computerized EMI receiver complying with CISPR 16 requirements. The specification limits and applicable correction factors are loaded to the receiver via a 3.5" floppy disk.

In the frequency range 30-1000 MHz, the readings were maximized by adjusting the antenna height between 1-4 meters, the turntable azimuth between 0-360°, and the antenna polarization.

In the frequency range 1-2.9 GHz, a computerized EMI receiver complying with CISPR 16 requirements was used.

In the frequency range 2.9-25.0 GHz, a spectrum analyzer including a low noise amplifier was used. During average measurements the IF bandwidth was 1 MHz and the video bandwidth was 100Hz. During peak measurements the IF bandwidth was 1 MHz and the video bandwidth was 3 MHz.

The test distance was 3 meters.

The readings were maximized by adjusting the antenna height between 1-4 meters, the turntable azimuth between 0-360°, and the antenna polarization.

Verification of the E.U.T emissions was based on the following methods: turning the E.U.T on and off; using a frequency span less than 10 MHz; observation of the signal level during turntable rotation. (Background noise is not affected by the rotation of the E.U.T.)



13.3 **Test Data**

JUDGEMENT: Passed

The EUT met the requirements of the F.C.C. Part 15, Subpart C, specification.

For the operation channel 1 (2.402 GHz), the margin between the emission level and the specification limit is 1.6 db in the worst case at the frequency of 2390.00 MHz, horizontal polarization.

For the operation channel 8 (2.441 GHz), the margin between the emission level and the specification limit is 9.2 db in the worst case at the frequency of 4882.00 MHz, vertical polarization.

For the operation channel 14 (2.480 GHz), the margin between the emission level and the specification limit is 9.4 db in the worst case at the frequency of 4960.00 MHz, horizontal polarization.

Interval modulation testing was conducting while EUT was transmitting simultaneously at 2.4 GHz and cellular modem. No results were detected.

TEST PERSONNEL:

Tester Signature:  Date: 22.07.14

Typed/Printed Name: A. Sharabi



Radiated Emission

E.U.T Description Mobile Data Terminal (MDT)
Type M317
Serial Number: Not Designated

Specification: FCC, Part 15, Subpart C

Antenna Polarization: Horizontal/Vertical Frequency range: 1.0 GHz to 25.0 GHz
Test Distance: 3 meters Detector: Peak

Operation Frequency (MHz)	Modulation	Freq. (MHz)	Polarity (H/V)	Peak Reading (dB μ V/m)	Peak Specification (dB μ V/m)	Peak Margin (dB)
2402.0	Standard	2390.0	H	63.8	74.0	-10.2
2402.0	Standard	2390.0	V	58.6	74.0	-15.4
2402.0	Standard	4804.0	H	55.0	74.0	-19.0
2402.0	Standard	4804.0	V	51.5	74.0	-22.5
2441.0	Standard	4882.0	H	51.9	74.0	-22.1
2441.0	Standard	4882.0	V	48.4	74.0	-25.6
2480.0	Standard	4960.0	H	49.1	74.0	-24.9
2480.0	Standard	4960.0	V	47.3	74.0	-26.7
2480.0	Standard	2483.5	H	48.4	74.0	-25.6
2480.0	Standard	2483.5	V	46.9	74.0	-27.1

**Figure 61. Radiated Emission. Antenna Polarization: HORIZONTAL / VERTICAL.
Detector: Peak**

Margin refers to the test results obtained minus specified requirement; thus a positive number indicates failure, and a negative result indicates that the product passes the test.

“Peak Amp” includes correction factor.

* “Correction Factor” = Antenna Factor + Cable Loss- Low Noise Amplifier Gain



Radiated Emission

E.U.T Description Mobile Data Terminal (MDT)
Type M317
Serial Number: Not Designated

Specification: FCC, Part 15, Subpart C

Antenna Polarization: Horizontal/Vertical Frequency range: 1.0 GHz to 25.0 GHz
Test Distance: 3 meters Detector: Average

Operation Frequency (MHz)	Modulation	Freq.	Polarity	Average Reading	Average Specification	Average Margin
		(MHz)	(H/V)	(dB μ V/m)	(dB μ V/m)	(dB)
2402.0	Standard	2390.0	H	52.4	54.0	-1.6
2402.0	Standard	2390.0	V	48.9	54.0	-5.1
2402.0	Standard	4804.0	H	48.0	54.0	-6.0
2402.0	Standard	4804.0	V	45.7	54.0	-8.3
2441.0	Standard	4882.0	H	43.4	54.0	-10.6
2441.0	Standard	4882.0	V	44.8	54.0	-9.2
2480.0	Standard	4960.0	H	44.6	54.0	-9.4
2480.0	Standard	4960.0	V	43.7	54.0	-10.3
2480.0	Standard	2483.5	H	40.0	54.0	-14.0
2480.0	Standard	2483.5	V	39.8	54.0	-14.2

**Figure 62. Radiated Emission. Antenna Polarization: HORIZONTAL / VERTICAL.
Detector: Average**

Notes:

Margin refers to the test results obtained minus specified requirement; thus a positive number indicates failure, and a negative result indicates that the product passes the test.

“Average Amp” includes correction factor.

* Correction Factor = Antenna Factor + Cable Loss- Low Noise Amplifier Gain



Radiated Emission

E.U.T Description Mobile Data Terminal (MDT)

Type M317

Serial Number: Not Designated

Specification: FCC, Part 15, Subpart C

Antenna Polarization: Horizontal/Vertical Frequency range: 1.0 GHz to 25.0 GHz
Test Distance: 3 meters Detector: Peak

Operation Frequency (MHz)	Modulation	Freq. (MHz)	Polarity (H/V)	Peak Reading (dB μ V/m)	Peak Specification (dB μ V/m)	Peak Margin (dB)
2402.0	EDR	2390.0	H	58.7	74.0	-15.3
2402.0	EDR	2390.0	V	55.8	74.0	-18.2
2402.0	EDR	4804.0	H	53.5	74.0	-20.5
2402.0	EDR	4804.0	V	48.9	74.0	-25.1
2441.0	EDR	4882.0	H	49.0	74.0	-25.0
2441.0	EDR	4882.0	V	47.4	74.0	-26.6
2480.0	EDR	4960.0	H	46.8	74.0	-27.2
2480.0	EDR	4960.0	V	44.8	74.0	-29.2
2480.0	EDR	2483.5	H	51.6	74.0	-22.4
2480.0	EDR	2483.5	V	48.9	74.0	-25.1

**Figure 63. Radiated Emission. Antenna Polarization: HORIZONTAL / VERTICAL.
Detector: Peak**

Margin refers to the test results obtained minus specified requirement; thus a positive number indicates failure, and a negative result indicates that the product passes the test.

“Peak Amp” includes correction factor.

* “Correction Factor” = Antenna Factor + Cable Loss- Low Noise Amplifier Gain



Radiated Emission

E.U.T Description Mobile Data Terminal (MDT)
Type M317
Serial Number: Not Designated

Specification: FCC, Part 15, Subpart C

Antenna Polarization: Horizontal/Vertical Frequency range: 1.0 GHz to 25.0 GHz
Test Distance: 3 meters Detector: Average

Operation Frequency (MHz)	Modulation	Freq. (MHz)	Polarity (H/V)	Average Reading (dB μ V/m)	Average Specification (dB μ V/m)	Average Margin (dB)
2402.0	EDR	2390.0	H	48.9	54.0	-5.1
2402.0	EDR	2390.0	V	44.8	54.0	-9.2
2402.0	EDR	4804.0	H	49.4	54.0	-4.6
2402.0	EDR	4804.0	V	47.8	54.0	-6.2
2441.0	EDR	4882.0	H	42.4	54.0	-11.6
2441.0	EDR	4882.0	V	41.9	54.0	-12.1
2480.0	EDR	4960.0	H	40.6	54.0	-13.4
2480.0	EDR	4960.0	V	40.6	54.0	-13.4
2480.0	EDR	2483.5	H	41.5	54.0	-12.5
2480.0	EDR	2483.5	V	38.7	54.0	-15.3

**Figure 64. Radiated Emission. Antenna Polarization: HORIZONTAL / VERTICAL.
Detector: Average**

Notes:

Margin refers to the test results obtained minus specified requirement; thus a positive number indicates failure, and a negative result indicates that the product passes the test.

“Average Amp” includes correction factor.

* Correction Factor = Antenna Factor + Cable Loss- Low Noise Amplifier Gain



13.4 Test Instrumentation Used, Radiated Measurements

Instrument	Manufacturer	Model	Serial No.	Last Calibration Date	Period
EMI Receiver	HP	85422E	3906A00276	January 15, 2014	1 Year
RF Filter Section	HP	85420E	3705A00248	January 15, 2014	1 Year
Antenna Biconical	EMCO	3104	2606	August 30, 2012	2 Years
Antenna Log Periodic	ARA	LPD-2010/A	1038	April 2, 2013	2 Years
Double Ridged Waveguide Horn Antenna	EMCO	3115	29845	March 14, 2012	3 Years
Horn Antenna	ARA	SWH-28	1007	March 30, 2014	3 Years
Low Noise Amplifier	DBS MICROWAVE	LNA-DBS-0411N313	013	August 21, 2013	1 Year
Low Noise Amplifier	Sophia Wireless	LNA 28-B	232	August 28, 2013	1 Year
Spectrum Analyzer	HP	8592L	3826A01204	February 28, 2014	1 Year
Spectrum Analyzer	HP	8564E	3442A00275	March 2, 2014	1 Year
Antenna Mast	ARA	AAM-4A	1001	N/A	N/A
Turntable	ARA	ART-1001/4	1001	N/A	N/A
Mast & Table Controller	ARA	ACU-2/5	1001	N/A	N/A
Printer	HP	LaserJet 2200	JKPGC19982	N/A	N/A



13.4 **Field Strength Calculation 30 – 1000 MHz**

The field strength is calculated directly by the EMI Receiver software, and a "Correction Factors" data disk, using the following equation:

$$[\text{dB}\mu\text{v}/\text{m}] \text{ FS} = \text{RA} + \text{AF} + \text{CF}$$

FS: Field Strength [dB μ v/m]

RA: Receiver Amplitude [dB μ v]

AF: Receiving Antenna Correction Factor [dB/m]

CF: Cable Attenuation Factor [dB]

Example: FS = 30.7 dB μ V (RA) + 14.0 dB (AF) + 0.9 dB (CF) = 45.6 dB μ V

No external pre-amplifiers are used.



14. Antenna Gain/Information

The antenna gain is 3.40 dBi, integral.



15. R.F Exposure/Safety

Typical use of the E.U.T. is as a versatile vehicle-centric mobile –computing platform. The typical placement of the E.U.T. is on a vehicle dashboard or cabin. The distance between the E.U.T. and the user in the worst case application, is 20 cm.

Calculation of Maximum Permissible Exposure (MPE)

Based on Section 1.1310 Requirements

(a) FCC limits at 2480 MHz is: $1 \frac{mW}{cm^2}$

Using table 1 of Section 1.1310 limit for general population/uncontrolled exposures, the above level is an average over 30 minutes.

(b) The power density produced by the E.U.T. is

$$S = \frac{P_t G_t}{4\pi R^2}$$

P_t - Transmitted Power 108.41 dBuV/m = 9.2 mW *

*Note- Since testing was radiated transmitted power includes antenna gain.

G_t - Antenna Gain, 3.40 dBi = 2.2 numeric

R- Distance from Transmitter using 20 cm worst case

(c) The peak power density is :

$$S = \frac{9.2}{4\pi(20)^2} = 0.0018 \frac{mW}{cm^2}$$

(d) This is below the FCC limit.



16. APPENDIX B - CORRECTION FACTORS

16.1 Correction factors for CABLE

**from EMI receiver
to test antenna
at 3 meter range.**

FREQUENCY (MHz)	CORRECTION FACTOR (dB)	FREQUENCY (MHz)	CORRECTION FACTOR (dB)
10.0	0.3	1200.0	7.3
20.0	0.6	1400.0	7.8
30.0	0.8	1600.0	8.4
40.0	0.9	1800.0	9.1
50.0	1.1	2000.0	9.9
60.0	1.2	2300.0	11.2
70.0	1.3	2600.0	12.2
80.0	1.4	2900.0	13.0
90.0	1.6		
100.0	1.7		
150.0	2.0		
200.0	2.3		
250.0	2.7		
300.0	3.1		
350.0	3.4		
400.0	3.7		
450.0	4.0		
500.0	4.3		
600.0	4.7		
700.0	5.3		
800.0	5.9		
900.0	6.3		
1000.0	6.7		

NOTES:

1. The cable type is RG-214.
2. The overall length of the cable is 27 meters.
3. The above data is located in file 27MO3MO.CBL on the disk marked "Radiated Emission Tests EMI Receiver".



16.2 Correction factors for CABLE

from EMI receiver
to test antenna
at 3 meter range.

FREQUENCY (GHz)	CORRECTION FACTOR (dB)
1.0	1.2
2.0	1.6
3.0	2.0
4.0	2.4
5.0	3.0
6.0	3.4
7.0	3.8
8.0	4.2
9.0	4.6
10.0	5.0
12.0	5.8

NOTES:

1. The cable type is RG-8.
2. The overall length of the cable is 10 meters.



16.3 Correction factors for CABLE

from spectrum analyzer
to test antenna above 2.9 GHz

FREQUENCY (GHz)	CORRECTION FACTOR (dB)	FREQUENCY (GHz)	CORRECTION FACTOR (dB)
1.0	1.9	14.0	9.1
2.0	2.7	15.0	9.5
3.0	3.5	16.0	9.9
4.0	4.2	17.0	10.2
5.0	4.9	18.0	10.4
6.0	5.5	19.0	10.7
7.0	6.0	20.0	10.9
8.0	6.5	21.0	11.2
9.0	7.0	22.0	11.6
10.0	7.5	23.0	11.9
11.0	7.9	24.0	12.3
12.0	8.3	25.0	12.6
13.0	8.7	26.0	13.0

NOTES:

1. The cable type is SUCOFLEX 104 E manufactured by SUHNER.
2. The cable is used for measurements above 2.9 GHz.
3. The overall length of the cable is 10 meters.



16.4 Correction factors for LOG PERIODIC ANTENNA

Type LPD 2010/A at 3 and 10 meter ranges.

Distance of 3 meters

FREQUENCY (MHz)	AFE (dB/m)
200.0	9.1
250.0	10.2
300.0	12.5
400.0	15.4
500.0	16.1
600.0	19.2
700.0	19.4
800.0	19.9
900.0	21.2
1000.0	23.5

Distance of 10 meters

FREQUENCY (MHz)	AFE (dB/m)
200.0	9.0
250.0	10.1
300.0	11.8
400.0	15.3
500.0	15.6
600.0	18.7
700.0	19.1
800.0	20.2
900.0	21.1
1000.0	23.2

NOTES:

1. Antenna serial number is 1038.
2. The above lists are located in file number 38M30.ANT for a 3 meter range, and file number 38M100.ANT for a 10 meter range.
3. The files mentioned above are located on the disk marked "Radiated Emission Test EMI Receiver".



16.5 Correction factors for LOG PERIODIC ANTENNA
Type SAS-200/511
at 3 meter range.

FREQUENCY (GHz)	ANTENNA FACTOR (dB)
1.0	24.9
1.5	27.8
2.0	29.9
2.5	31.2
3.0	32.8
3.5	33.6
4.0	34.3
4.5	35.2
5.0	36.2
5.5	36.7
6.0	37.2
6.5	38.1

FREQUENCY (GHz)	ANTENNA FACTOR (dB)
7.0	38.6
7.5	39.2
8.0	39.9
8.5	40.4
9.0	40.8
9.5	41.1
10.0	41.7
10.5	42.4
11.0	42.5
11.5	43.1
12.0	43.4
12.5	44.4
13.0	44.6

NOTES:

1. Antenna serial number is 253.
2. The above lists are located in file number SAS3M0.ANT for a 3 meter range.
3. The files mentioned above are located on the disk marked "Antenna Factors".



16.6 Correction factors for BICONICAL ANTENNA

Type BCD-235/B, at 3 meter range

FREQUENCY (MHz)	AFE (dB/m)
20.0	19.4
30.0	14.8
40.0	11.9
50.0	10.2
60.0	9.1
70.0	8.5
80.0	8.9
90.0	9.6
100.0	10.3
110.0	11.0
120.0	11.5
130.0	11.7
140.0	12.1
150.0	12.6
160.0	12.8
170.0	13.0
180.0	13.5
190.0	14.0
200.0	14.8
210.0	15.3
220.0	15.8
230.0	16.2
240.0	16.6
250.0	17.6
260.0	18.2
270.0	18.4
280.0	18.7
290.0	19.2
300.0	19.9
310	20.7
320	21.9
330	23.4
340	25.1
350	27.0

NOTES:

1. Antenna serial number is 1041.
2. The above list is located in file 19BC10M1.ANT on the disk marked "Radiated Emissions Tests EMI Receiver".



16.7 Correction factors for Double-Ridged Waveguide Horn

**Model: 3115, S/N 29845
at 3 meter range.**

FREQUENCY (GHz)	ANTENNA FACTOR (dB 1/m)	ANTENNA Gain (dBi)	FREQUENCY (GHz)	ANTENNA FACTOR (dB 1/m)	ANTENNA Gain (dBi)
1.0	24.8	5.4	10.0	38.8	11.4
1.5	26.1	7.6	10.5	38.9	11.8
2.0	28.6	7.7	11.0	39.0	12.1
2.5	29.8	8.4	11.5	39.6	11.8
3.0	31.4	8.4	12.0	39.8	12.0
3.5	32.4	8.7	12.5	39.6	12.5
4.0	33.7	8.6	13.0	40.0	12.5
4.5	33.4	9.9	13.5	39.8	13.0
5.0	34.5	9.7	14.0	40.2	13.0
5.5	35.1	9.9	14.5	40.6	12.9
6.0	35.4	10.4	15.0	41.3	12.4
6.5	35.6	10.8	15.5	39.5	14.6
7.0	36.2	10.9	16.0	38.8	15.5
7.5	37.3	10.4	16.5	40.0	14.6
8.0	37.7	10.6	17.0	41.4	13.4
8.5	38.3	10.5	17.5	44.8	10.3
9.0	38.5	10.8	18.0	47.2	8.1
9.5	38.7	11.1			



16.8 Correction factors for

Horn Antenna

**Model: SWH-28
at 1 meter range.**

FREQUENCY (GHz)	AFE (dB /m)	Gain (dB1)
18.0	40.3	16.1
19.0	40.3	16.3
20.0	40.3	16.1
21.0	40.3	16.3
22.0	40.4	16.8
23.0	40.5	16.4
24.0	40.5	16.6
25.0	40.5	16.7
26.0	40.6	16.4



16.9 Correction factors for

Horn Antenna

Model: V637

FREQUENCY (GHz)	AFE (dB /m)	Gain (dB1)
26.0	43.6	14.9
27.0	43.7	15.1
28.0	43.8	15.3
29.0	43.9	15.5
30.0	43.9	15.8
31.0	44.0	16.0
32.0	44.1	16.2
33.0	44.1	16.4
34.0	44.1	16.7
35.0	44.2	16.9
36.0	44.2	17.1
37.0	44.2	17.4
38.0	44.2	17.6
39.0	44.2	17.8
40.0	44.2	18.0



16.10 Correction factors for ACTIVE LOOP ANTENNA

Model 6502
S/N 9506-2950

FREQUENCY (MHz)	Magnetic Antenna Factor (dB)	Electric Antenna Factor (dB)
.009	-35.1	16.4
.010	-35.7	15.8
.020	-38.5	13.0
.050	-39.6	11.9
.075	-39.8	11.8
.100	-40.0	11.6
.150	-40.0	11.5
.250	-40.0	11.6
.500	-40.0	11.5
.750	-40.1	11.5
1.000	-39.9	11.7
2.000	-39.5	12.0
3.000	-39.4	12.1
4.000	-39.7	11.9
5.000	-39.7	11.8
10.000	40.2	11.3
15.000	-40.7	10.8
20.000	-40.5	11.0
25.000	-41.3	10.2
30.000	42.3	9.2



17. Comparison Industry Canada Requirements With FCC

Micronet Ltd. M/N: M317
IC: 1286A-NB860 FCC ID: U8ONB860

Test	FCC	IC
<input type="checkbox"/> Radiated Emission	15.209	RSS 210 Issue 8 Clause 2.5
<input type="checkbox"/> Max power / Peak power	15.247(b)(3)	RSS 210 Issue 8 A8.4(4)
<input type="checkbox"/> 6dB BW	15.247(a)2	RSS 210 Issue 8 A8.2a
<input type="checkbox"/> Power density	15.247(e)	RSS 210 Issue 8 A8.2b
<input type="checkbox"/> Spurious radiated emission in the restricted band	15.205(c)	RSS 210 Issue 8 2.5 RSS Gen 7.2.2 (Table 1)
<input type="checkbox"/> Band edge spectrum	15.247(d)	RSS 210 Issue 8 A8.5
<input type="checkbox"/> RF Exposure Limits	1.1310	RSS 102 4.4