FCC Part 24
Transmitter Certification

Test Report

FCC ID: SDBAMDS1000TR

FCC Rule Part: CFR 47 Part 24 Subpart D

ACS Report Number: 04-0166-24D

Manufacturer: AMDS.
Equipment Type: Electricity Meter Transmitter
Model: AMDS-1000TR

Test Begin Date: June 1, 2004
Test End Date: August 11, 2004

Report Issue Date: August 13, 2004

FOR THE SCOPE OF ACCREDITATION UNDER LAB Code 200612

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This report contains 30 pages

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1.0 GENERAL

1.1 Purpose

The purpose of this report is to demonstrate compliance with Part 2 Subpart J and Part 24 Subpart D of the FCC's Code of Federal Regulations.

1.2 Product Description

The AMDS-1000TR iCon Transceiver is a printed circuit board that provides wireless communication capability to the Invensys™ iCon family of electric utility meters.

The device mounts into existing iCon meters and acts as the "Integrated Communications Device". The device monitors meter reading and diagnostic information via an UI 1203 serial interface to the iCon display board. Power failures are detected via a Power Failure active low signal also from the iCon display board. The device communicates via the AMDS fixed wireless telemetry network to provide electric meter readings and diagnostic data from the meter to the utility provider via a two-way radio link.

The AMDS-1000TR transceiver utilizes a printed antenna. The transceiver antenna has a VSWR bandwidth of 50 MHz, enough to cover the 901 to 942 MHz transmitter and receiver operating frequency range. The antenna is a printed monopole with a gain of 0 dBi.

The AMDS-100TR operates on channel 1 in accordance with 24.129. The channel frequencies are 901.1125 MHZ and 940.1125MHz.

Detailed photographs of the EUT are filed separately with this filing.

1.3 Emission Designators

The AMDS iCon Transceiver produces three distinct modulation formats. They are described as Normal mode, Boost mode and MPass mode.

The emissions designators for the three modulation types used by the AMDS iCon Transceiver are as follows:

Normal Mode: 9K60F2D
Boost Mode: 1K10F2D
MPass Mode: 5K90F1D

1.4 Necessary Bandwidth Calculations

REF: "Bandpass FSK Modulation" AMDS LLC Internal Working Paper

Online NTIA Document: http://www.ntia.doc.gov/osmhome/redbook/J.pdf "Guidance for Determination of Necessary Bandwidth"

Assuming Multi Level Frequency Shift Keying FM Modulation:
$Bn = (R/\log 2\ (S)) + 2DK$

Where:
Bn = Necessary Bandwidth
R = Digital Information Rate
D = Deviation (Peak) of the FM Signal
S = Number of Equivalent Non-Redundant Signaling States
K = Numerical Factor That Varies According to the Emission and Allowable Signal Distortion.

FOR NORMAL MODE:
Referring to the AMDS LLC Working Paper and Utilizing an 8.0455 Kb / Sec Baud Rate On-Air (Normal Mode):

R = 8.0455 kHz (Bit Rate).
D = 3.75 kHz (Peak Deviation from carrier – Beta of 1.86)
K = 1
S = 16
Bn = (8.0455 kHz / 4) + 2(3.75 kHz)(1) = 9.511375 kHz
Emissions Designator: 9K60F2D

FOR BOOST MODE:
Referring to the AMDS LLC Working Paper and Utilizing a 0.80455 Kb / Sec Baud Rate On Air (Boost Mode):

R = 0.80455 kHz (Bit Rate).
D = 0.440 kHz (Peak Deviation from carrier – Beta of 2.2)
K = 1
S = 16
Bn = (0.80455 kHz / 4) + 2(0.440 kHz)(1) = 1.0811375 kHz
Emissions Designator: 1K10F2D

FOR mPASS MODE:

MPASS Modulation differs from both Boost Mode and Normal Mode. MPASS is a two level GFSK/GMSK signal with a BT = 0.5. The modulation is filtered in the transmitter providing bandwidth reduction. The Beta of the modulation is 0.5 (producing GMSK/GFSK). The document referenced provides only a necessary bandwidth equation for 2-ary MSK. We will use this to determine our necessary bandwidth for the emissions designator although a lower bandwidth may actually be computed.

Bn = R * 1.18
MPASS utilizes a 5.0Kb on air data rate, thus:
Bn = 5.0 kHz * 1.18
Bn = 5.9 KHz
Emissions Designator: 5K90F1D

2.0 LOCATION OF TEST FACILTY

All testing was performed by qualified ACS personnel located at the following address:

Advanced Compliance Solutions
5015 B.U. Bowman Drive
Buford, GA 30518
Phone: (770) 831-8048
Fax: (770) 831-8598

Both sites have been fully described and submitted to, and accepted by the FCC and Industry Canada. FCC registration number 89450 and Industry Canada Lab Code IC 4175 have been assigned in recognition of the sites

2.1 DESCRIPTION OF TEST FACILITY

Both the Open Area Test Site(OATS) and Conducted Emissions site have been fully described, submitted to, and accepted by the FCC, Industry Canada and the Japanese Voluntary Control Council for Interference by information technology equipment.

The following certification numbers have been issued in recognition of these accreditations and certifications:

FCC Registration Number: 89450
Industry Canada Lab Code: IC 4175
VCCI Member Number: 1831
- VCCI OATS Registration Number R-1526
- VCCI Conducted Emissions Site Registration Number: C-1608

NVLAP Lab Code: 200612

2.1.1 Open Area Test Site

The open area test site consists of a 40’ x 66’ concrete pad covered with a perforated electro-plated galvanized sheet metal. The perforations in the sheet metal are 1/8” holes that are staggered every 3/16”. The individual sheets are placed to overlap each other by 1/4” and are riveted together to provide a continuous seam. Rivets are spaced every 3” in a 3 x 20 meter perimeter around the antenna mast and EUT area. Rivets in the remaining area are spaced as necessary to properly secure the ground plane and maintain the electrical continuity.

The entire ground plane extends 12’ beyond the turntable edge and 16’ beyond the antenna mast when set to a 10 meter measurement distance. The ground plane is grounded via 4 - 8’ copper ground rods, each installed at a corner of the ground plane and bound to the ground plane using 3/4" stainless steel braided cable.

The turntable is an all aluminum 10’ flush mounted table installed in an all aluminum frame. The table is remotely operated from inside the control room located 40’ from the range. The turntable is electrically bonded to the surrounding ground plane via steel fingers installed on the edge of the turn table. The steel fingers make constant contact with the ground plane during operation.

Adjacent to the turntable is a 7’ x 7’ square and 4’ deep concrete pit used for support equipment if necessary. The pit is equipped with 5 - 4” PVC chases from the pit to the control room that allow for cabling to the EUT if necessary. The underside of the turntable can be accessed from the pit so cables can be supplied to the EUT from the pit. The pit is covered with 2 sheets of 1/4" diamond style re-enforced steel sheets. The sheets are painted to match the perforated steel ground plane, however the underside edges have been masked off to maintain the electrical continuity of the ground plane. All reflecting objects are located outside of the ellipse defined in ANSI C63.4.

A diagram of the Open Area Test Site is shown in Figure 2.1.1-1 below:

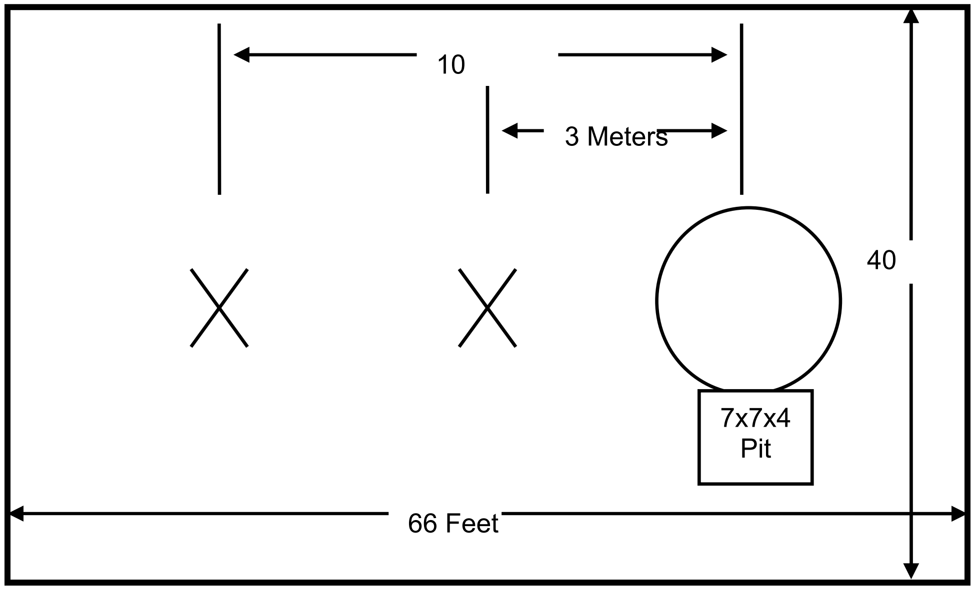


Figure 2.1.1-1: Open Area Test Site

2.1.2 Conducted Emissions Test Site Description

The AC mains conducted EMI site is a shielded room with the following dimensions:

- Height: 3.0 Meters
- Width: 3.6 Meters
- Length: 4.9 Meters

The room is manufactured by Rayproof Corporation and installed by Panashield, Inc. Earth ground is provided to the room via an 8' copper ground rod. Each panel of the room is connected electrically at intervals of 4".

Power to the room is filtered to prevent ambient noise from coupling to the EUT and measurement equipment. Filters are models 1B42-60P manufactured by Rayproof Corporation.

The room is of sufficient size to test table top and floor standing equipment in accordance with section 6.1.4 of ANSI C63.4.

A diagram of the room is shown below in figure 2.1.2-1:

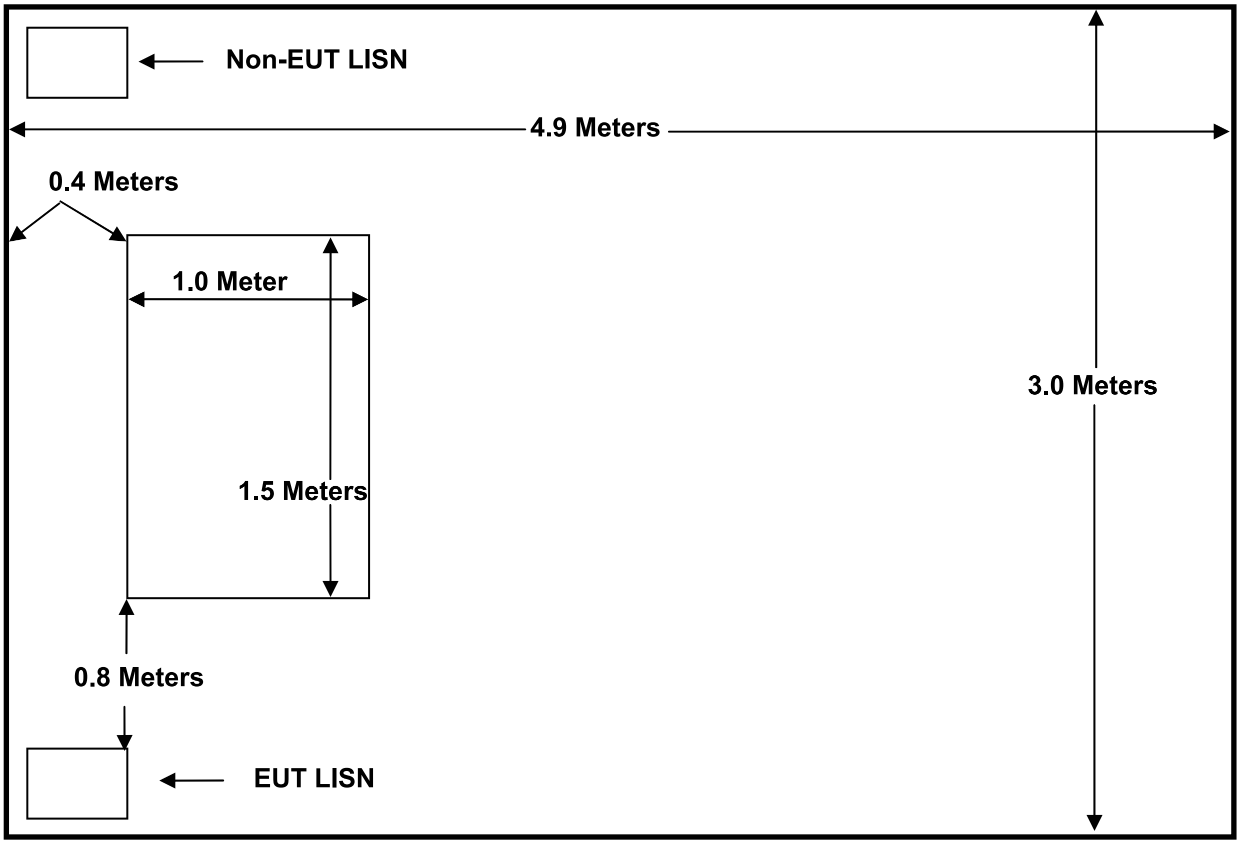


Figure 2.1.2-1: AC Mains Conducted EMI Site

3.0 APPLICABLE STANDARD REFERENCES

The following standards were used:

1 - ANSI C63.4-1992: Method of Measurements of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the 9KHz to 40GHz

2 - US Code of Federal Regulations (CFR): Title 47, Part 2, Subpart J: Equipment Authorization Procedures (October 2003)

3 - US Code of Federal Regulations (CFR): Title 47, Part 24, Subpart D: Personal Communication Service, Narrowband PCS (October 2003)

4.0 LIST OF TEST EQUIPMENT

All test equipment used for regulatory testing is calibrated yearly or according to manufacturer's specifications.

Table 4-1: Test Equipment

Equipment Calibration Information					
ACS #	Mfg.	Eq. type	Model	S/N	Cal. Due
---	Agilent	Spectrum Analyzer	E7402A	US40240259	02/26/05
26	Chase	Bi-Log Antenna	CBL6111	1044	10/14/04
152	EMCO	LISN	3825/2	9111-1905	01/08/05
153	EMCO	LISN	3825/2	9411-2268	12/11/04
193	ACS	OATS Cable Set	RG8	193	01/09/05
167	ACS	Conducted EMI Cable Set	RG8	167	01/09/05
5	Harbour Industries	Cable	LL-335	None	08/20/04
6	Harbour Industries	Cable	LL-335	None	08/06/04
22	Agilent	Pre-Amplifier	8449B	3008A00526	09/18/04
73	Agilent	Pre-Amplifier	8447D	272A05624	04/30/05
30	Spectrum Technologies	Horn Antenna	DRH-0118	970102	05/08/05
105	Microwave Circuits	High Pass Filter	H1G810G1	2123-01 DC0225	06/09/05
209	Microwave Circuits	High Pass Filters	H3G020G2	4382-01 DC0421	06/09/05
40	EMCO	Biconical Antenna	3104	3211	09/19/04
1	Rohde & Schwarz	Receiver	804.8932.52	833771/007	02/26/05
2	Rohde & Schwarz	Receiver	1032.5640.53	839587/003	02/26/05
3	Rohde & Schwarz	ESMI Receiver	804.8932.52	839379/011	*
4	Rohde & Schwarz	ESMI Receiver	1032.5640.53	833827/003	*
213	Test Equipment Corp.	Pre-Amplifier	PA-102	44927	06/28/05
211	Eagle	Band Reject Filter	C7RFM3NFNM	n/a	06/28/05
168	Hewlett Packard	Pulse Limiter	11947A	3107A02268	04/30/05
93	Chase	EM Clamp	CIC 8101	65	01/12/05
184	ACS	Cable	RG8	184	01/09/05
169	Solar Electronics	LISN	9117-5-TS-50-N	031032	04/12/05
6	n/a	HF RF Cable	n/a	00006	03/15/05
7	n/a	HF RF Cable	n/a	00007	03/15/05
208	n/a	HF RF Cable	n/a	00208	06/14/05

5.0 SUPPORT EQUIPMENT

Table 5-1: Support Equipment

Diagram #	Manufacturer	Equipment Type	Model Number	Serial Number	FCC ID
1	AMDS	EUT	AMDS-1000TR iCon Transceiver	None	SDBAMDS1000TR
2	Sorenson	DC Power Supply	DSC 60-50	0024B1130	None
3	OK Industries	DC Power Supply	PS73C	36095	None
4	Dell	Laptop PC	Think Pad	78-TFN16 96/12	ANOGCF2704AT

6.0 EQUIPMENT UNDER TEST SETUP AND BLOCK DIAGRAM

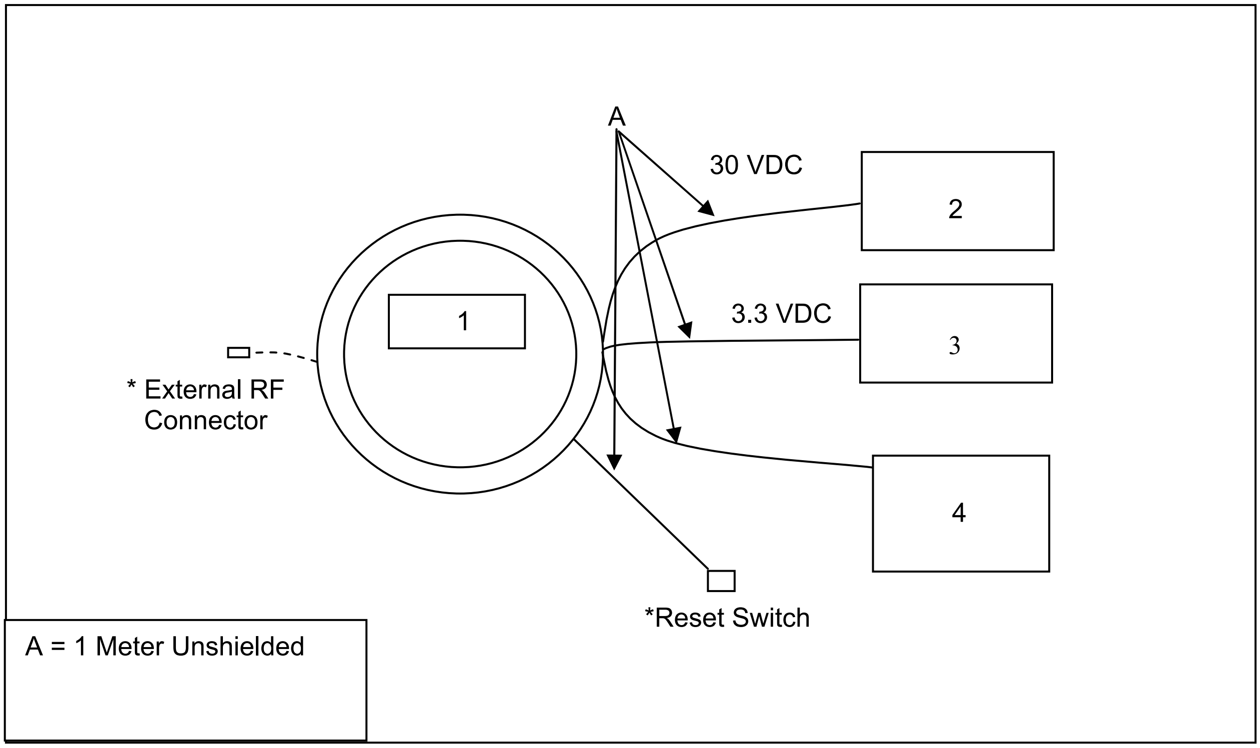


Figure 6-1: EUT Test Setup

The EUT was power by two external DC power supplies as shown above. The DB9 connector was used to connect to a PC for programming the EUT test modes. The PC was removed prior to testing.

* For RF conducted measurements the AMDS iCon Transceiver was modified with an external RF connector to the PCB. The AMDS iCon Transceiver utilizes a printed antenna integral to the transceiver PCB for normal operation but for testing purposes a 50-Ohm test point (TP2) is available on the bottom of the PCB. The test point provides proper power level measurements only when the antenna is disconnected and a 50-Ohm test cable is soldered (with the appropriate ground connection) to TP2.

7.0 SUMMARY OF TESTS

Along with the tabular data shown below, plots were taken of all signals deemed important enough to document.

7.1 RF Power Output - FCC Section 2.1046

7.1.1 Measurement Procedure

The RF output of the equipment under test was directly connected to the input of the E7402A Spectrum Analyzer through a 10 dB passive attenuator. The resolution and video bandwidths of the spectrum analyzer were set at sufficient levels, >> signal bandwidth, to produce accurate results. The internal correction factors of the spectrum analyzer were employed to correct for any cable or attenuator losses. Results are shown below in Table 7.1.1-2 and Figure 7.1.1-1 through 7.1.1-2.

7.1.2 Measurement Results

Table 7.1.1-1: Peak Output Power

Frequency (MHz)	Output Power (dBm)
901.1125	30.43
940.1125	30.39

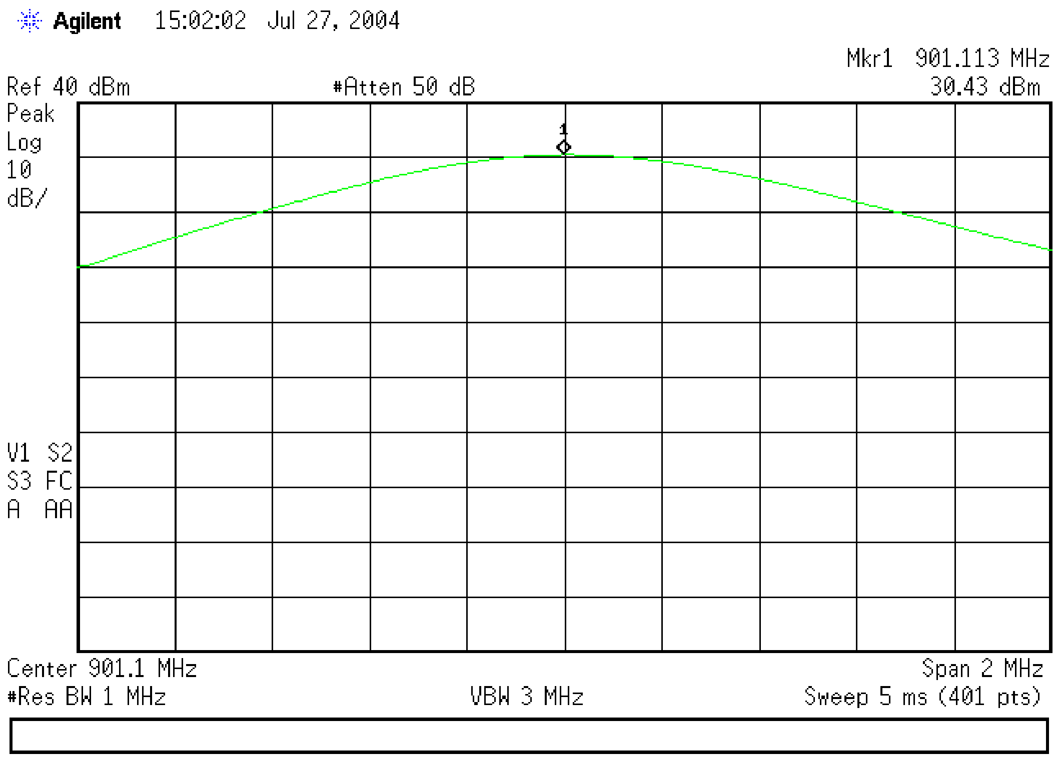


Figure 7.1.2-1: Peak Output Power 901.1125 MHz

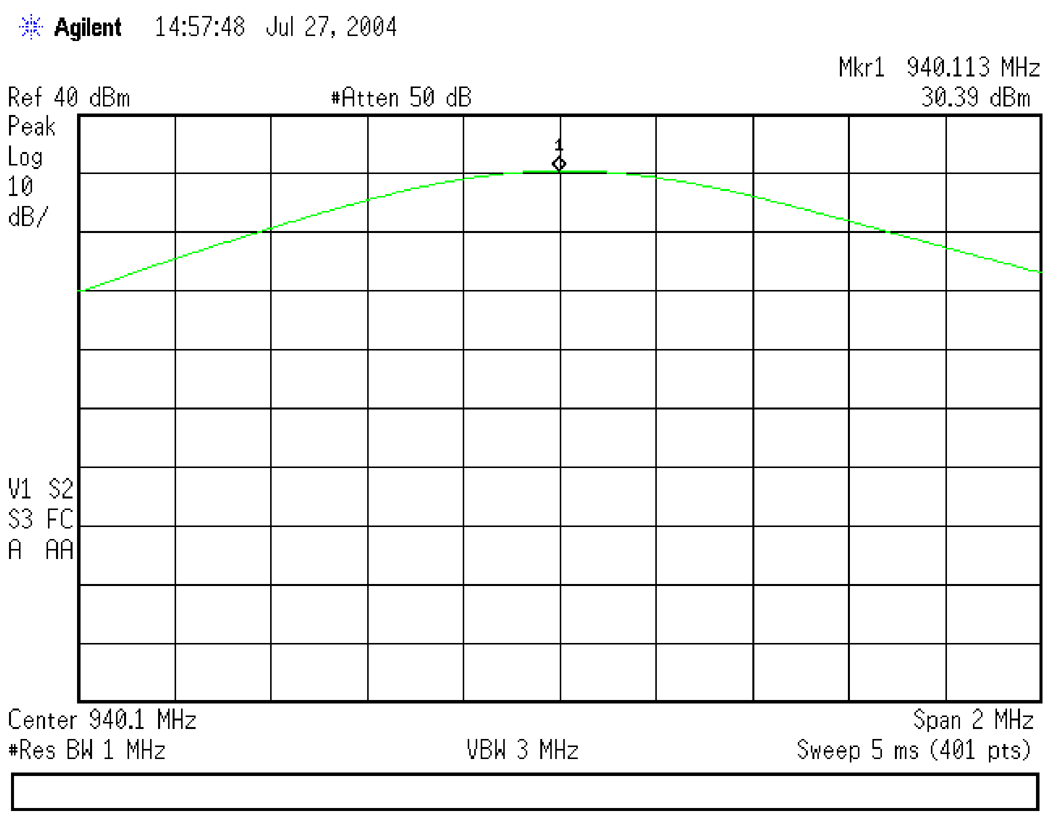


Figure 7.1.2-2: Peak Output Power 940.1125 MHz

7.2 Occupied Bandwidth (Emission Limits) - FCC Section 2.1049, 24.133

7.2.1 Measurement Procedure

The RF output of the equipment under test was directly connected to the input of the E7402A Spectrum Analyzer through a 10 dB passive attenuator. The spectrum analyzer resolution and video bandwidths were set to 300 Hz according to Section 24.133 (d). The internal correction factors of the spectrum analyzer were employed to correct for any cable or attenuator losses. Results of the test are shown below in Figure 7.2.2-1 through 7.2.2-11 for all modes of operation.

7.2.2 Measurement Results

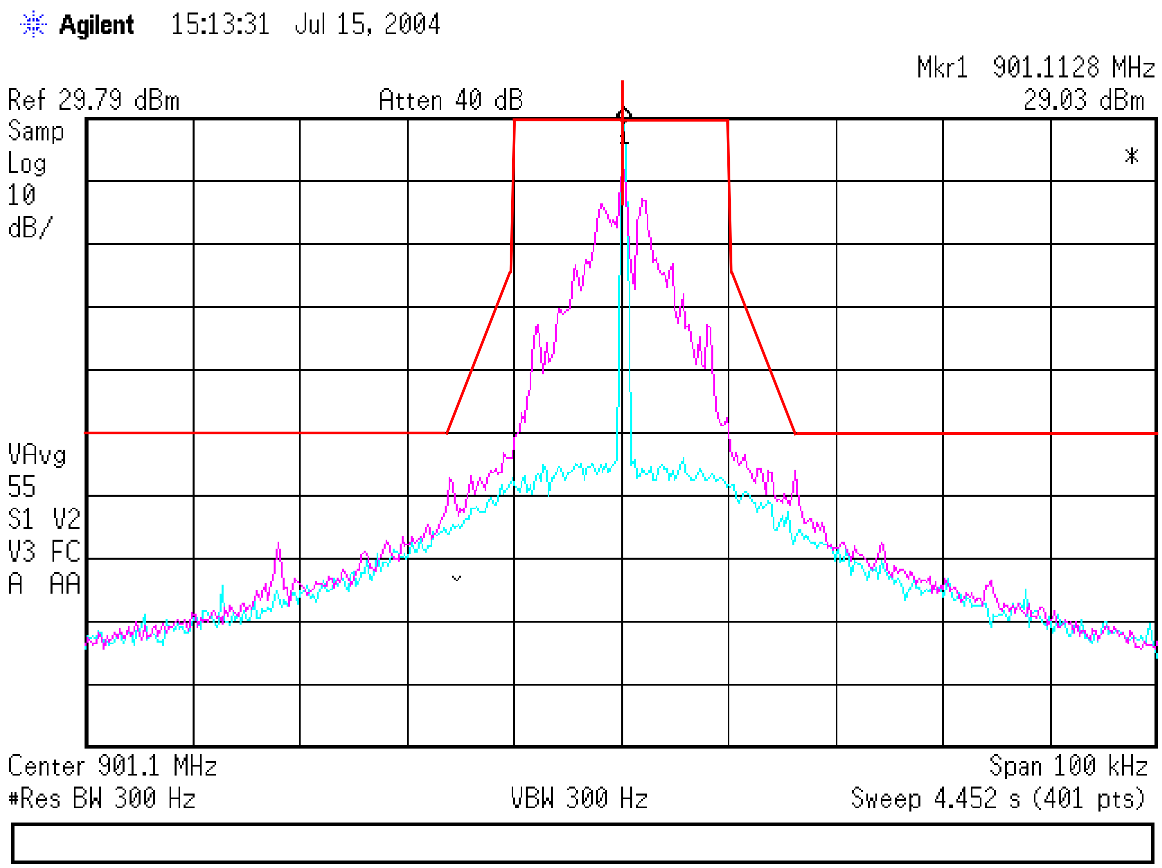


Figure 7.2.2-1: Normal Mode – 901.1125 MHz – 25 kHz Channel

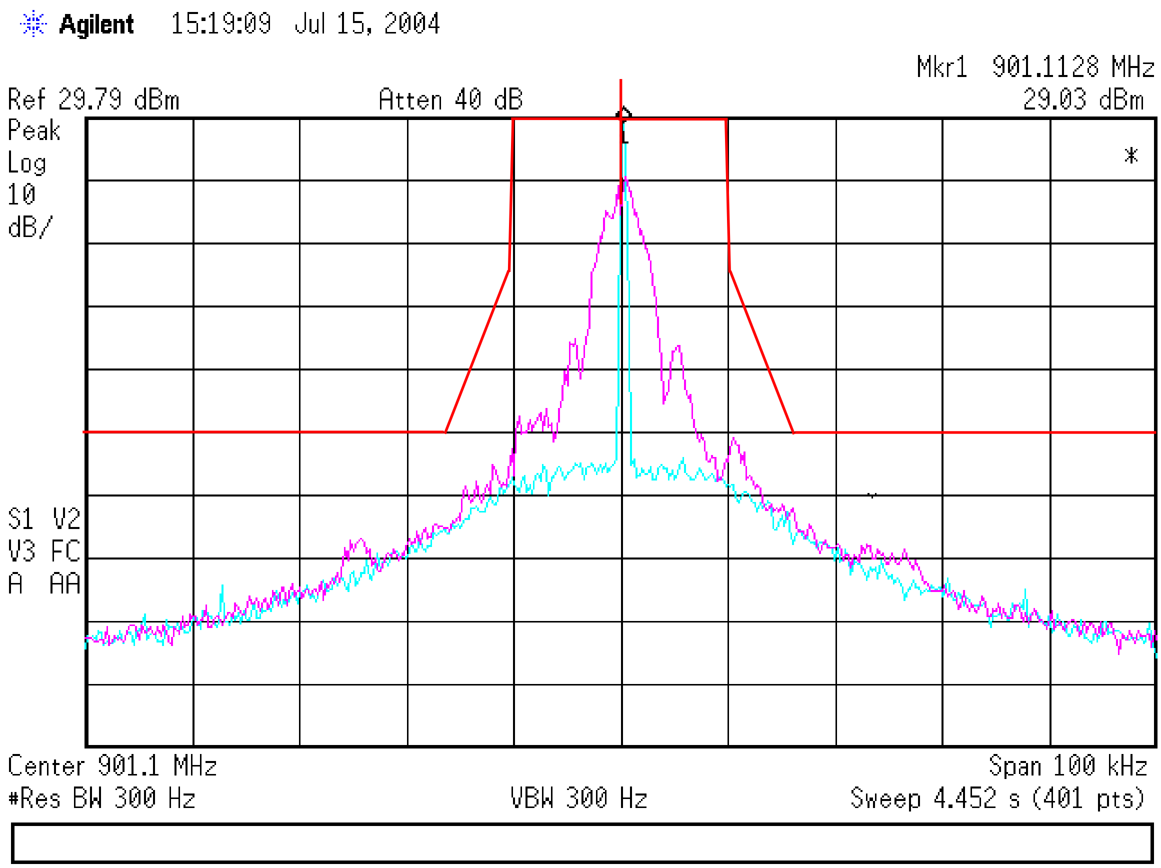


Figure 7.2.2-2: mPass Mode – 901.1125 MHz – 25 kHz Channel

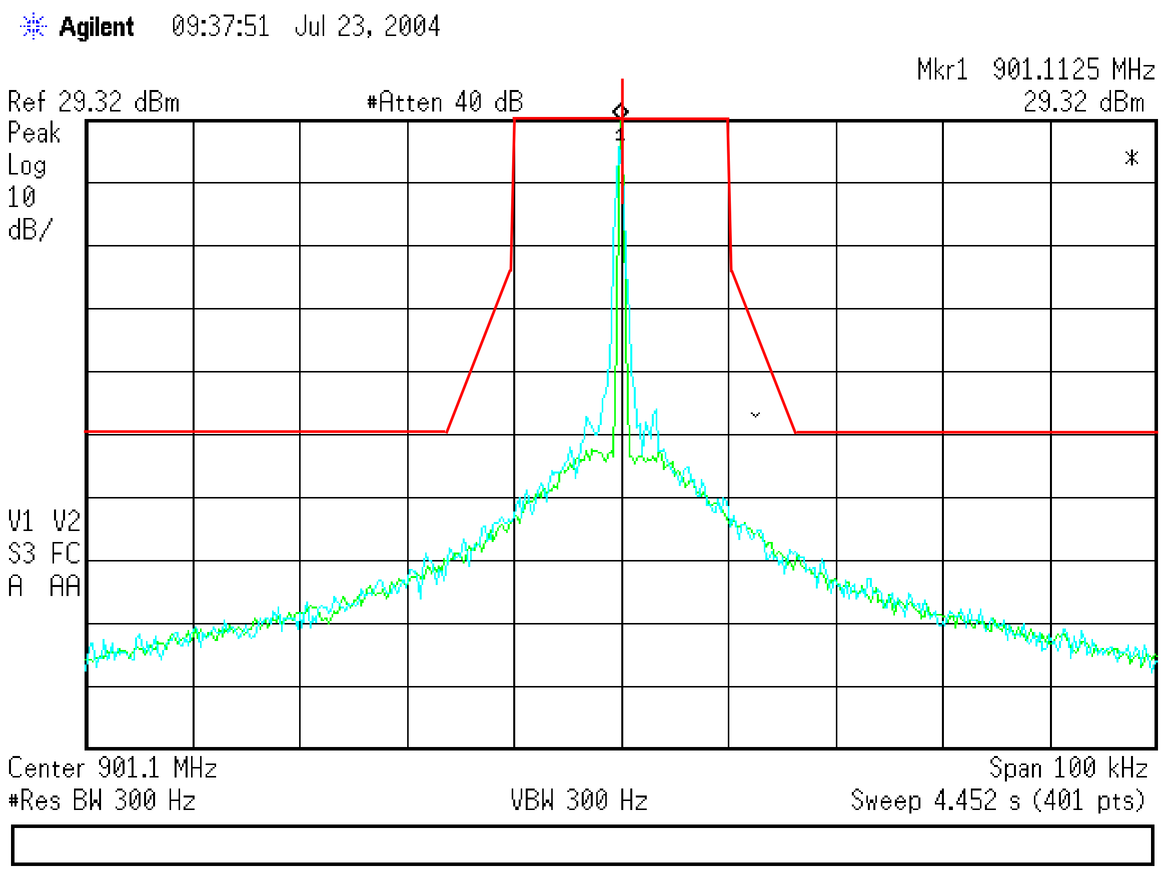


Figure 7.2.2-3: Boost Mode – 901.1125 MHz – 25 kHz Channel

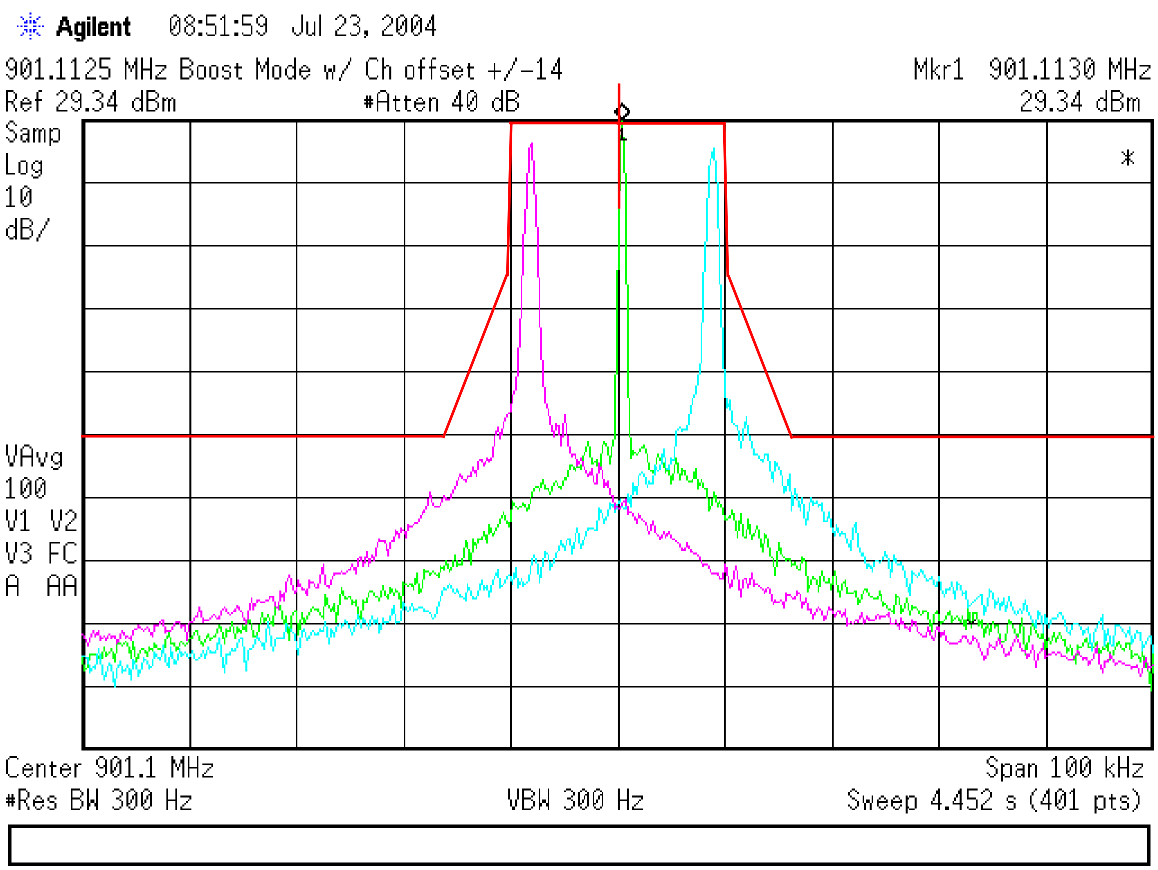


Figure 7.2.2-4: Boost Mode – 901.1125 MHz – 25 kHz Channel Offset Channel of +/- 14 (+/- 8400 Hz)

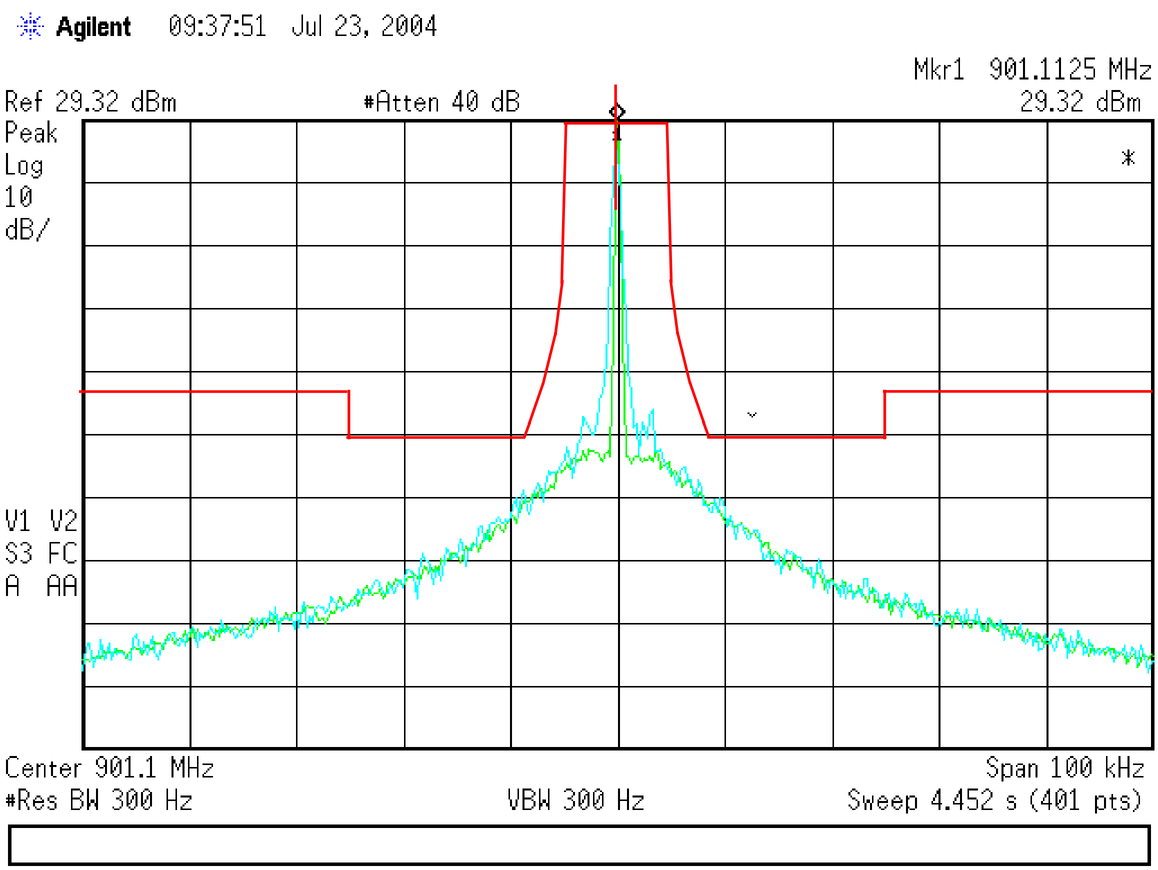


Figure 7.2.2-5: Boost Mode – 901.1125 MHz – 12.5 kHz Channel

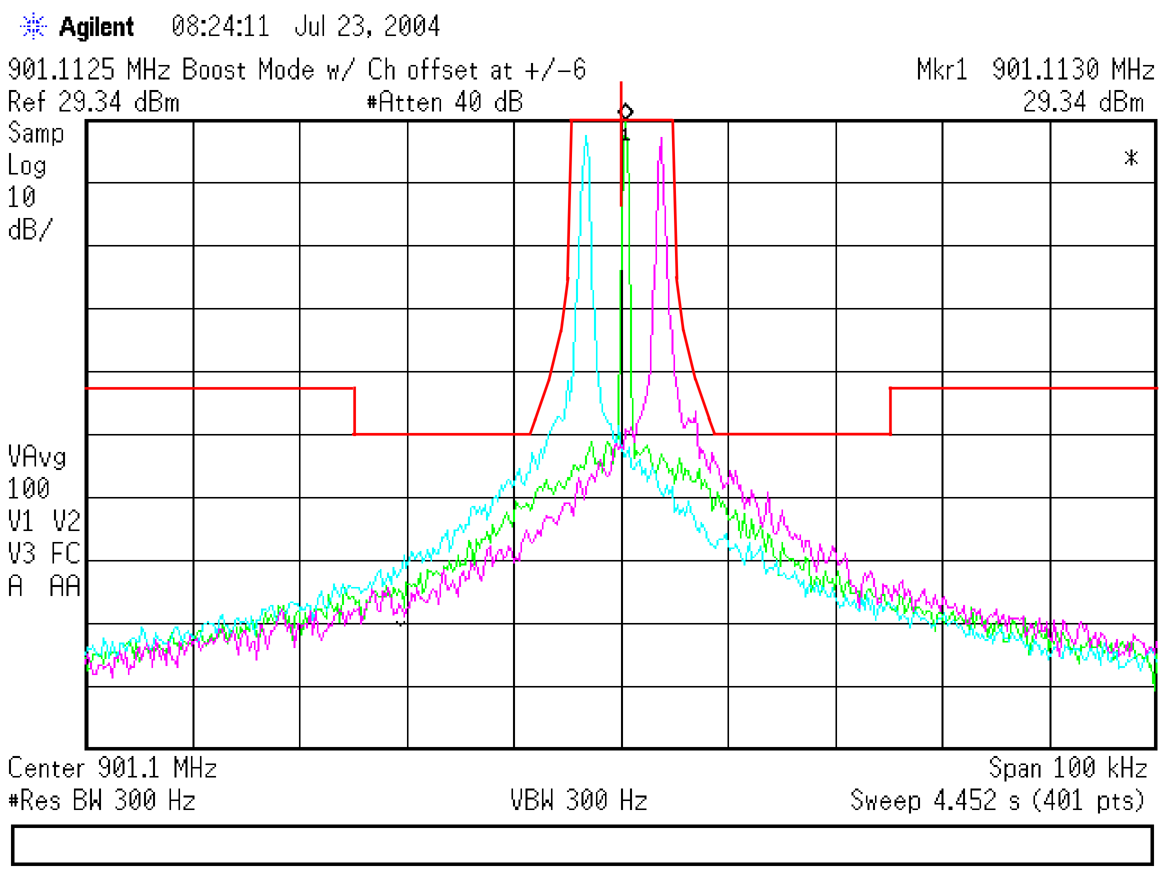


Figure 7.2.2-6: Boost Mode – 901.1125 MHz – 12.5 kHz Channel
Offset Channel of +/- 6 (+/- 3600 Hz)

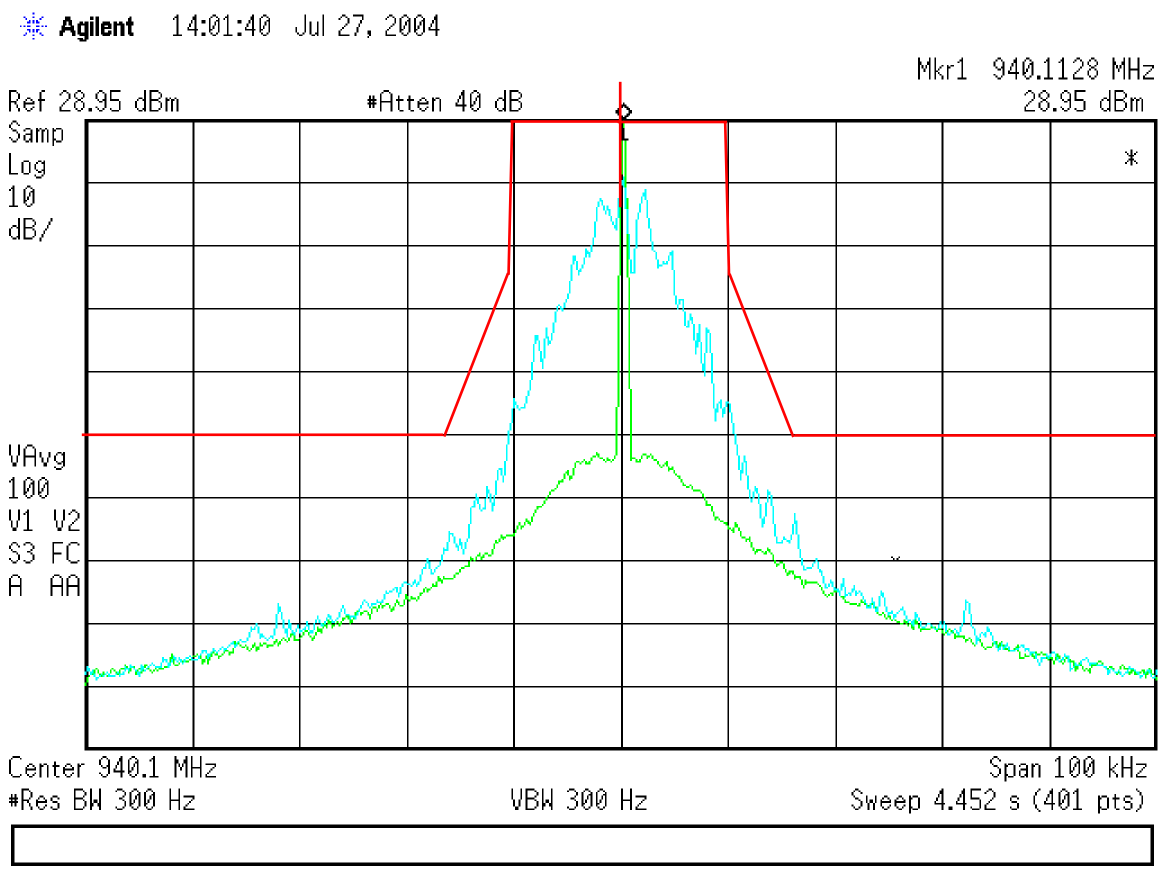


Figure 7.2.2-7: Normal Mode – 940.1125 MHz – 25 kHz Channel

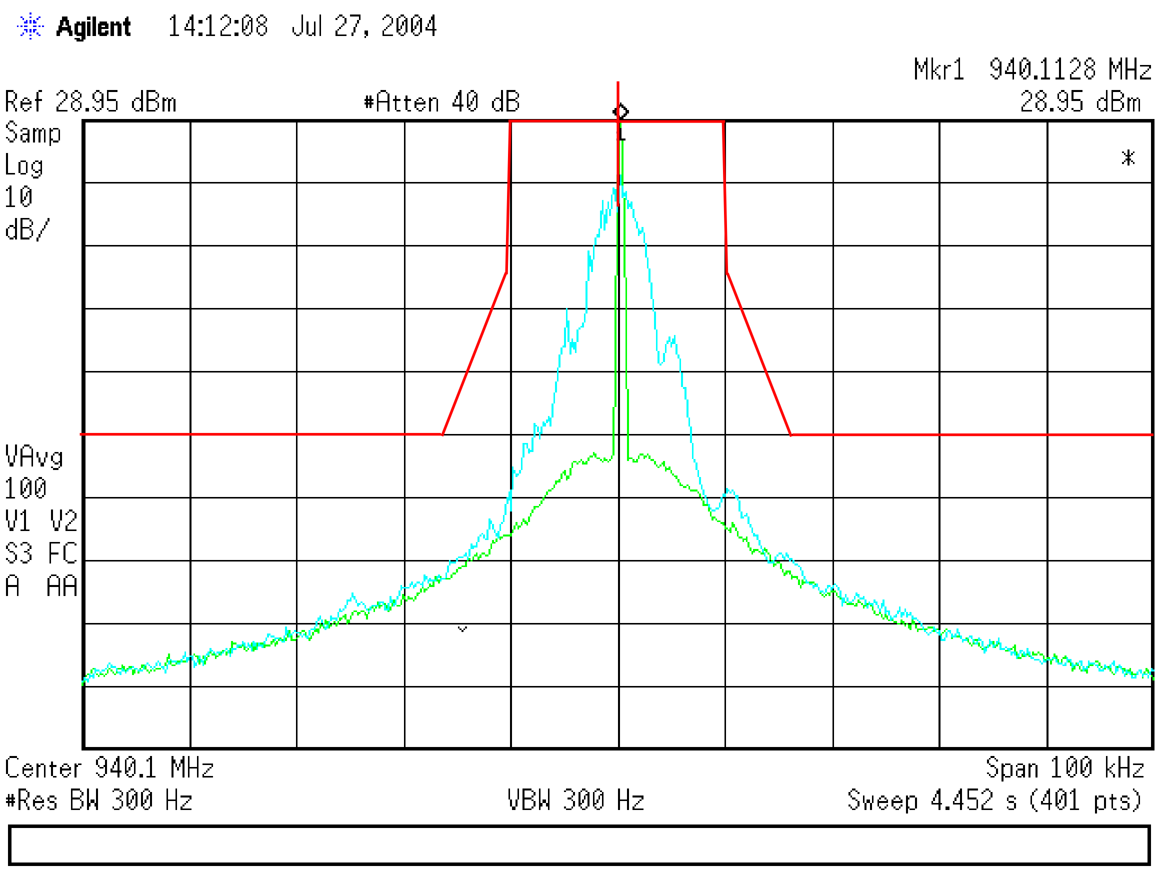


Figure 7.2.2-8: MPass Mode – 940.1125 MHz – 25 kHz Channel

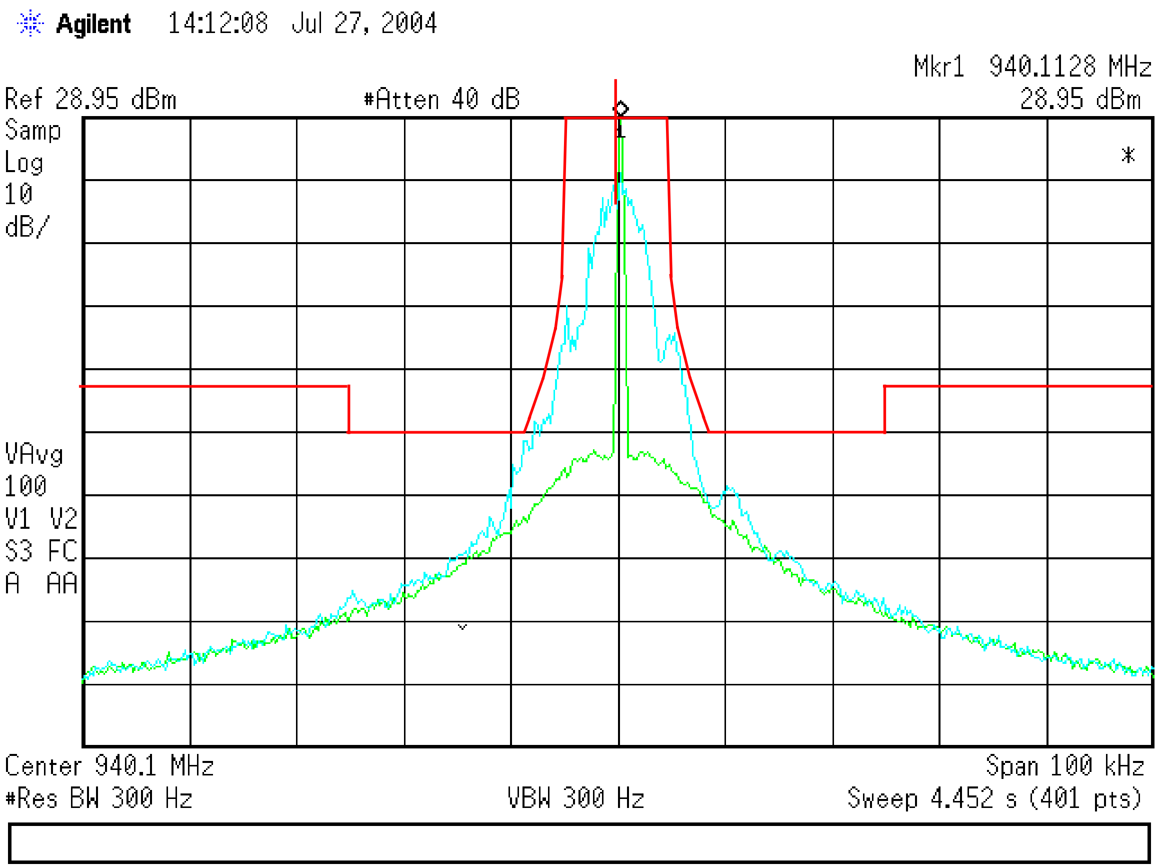


Figure 7.2.2-9: MPass Mode – 940.1125 MHz – 12.5 kHz Channel

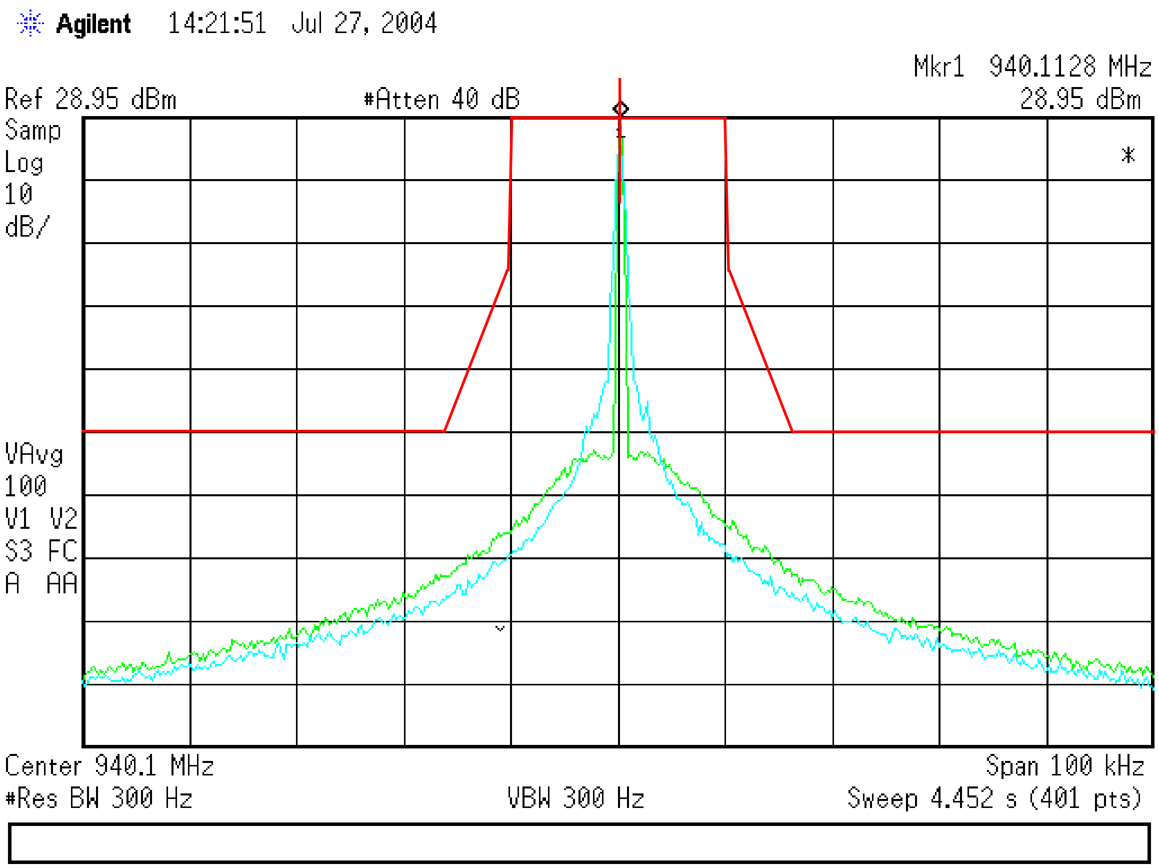


Figure 7.2.2-10: Boost Mode – 940.1125 MHz – 25 kHz Channel

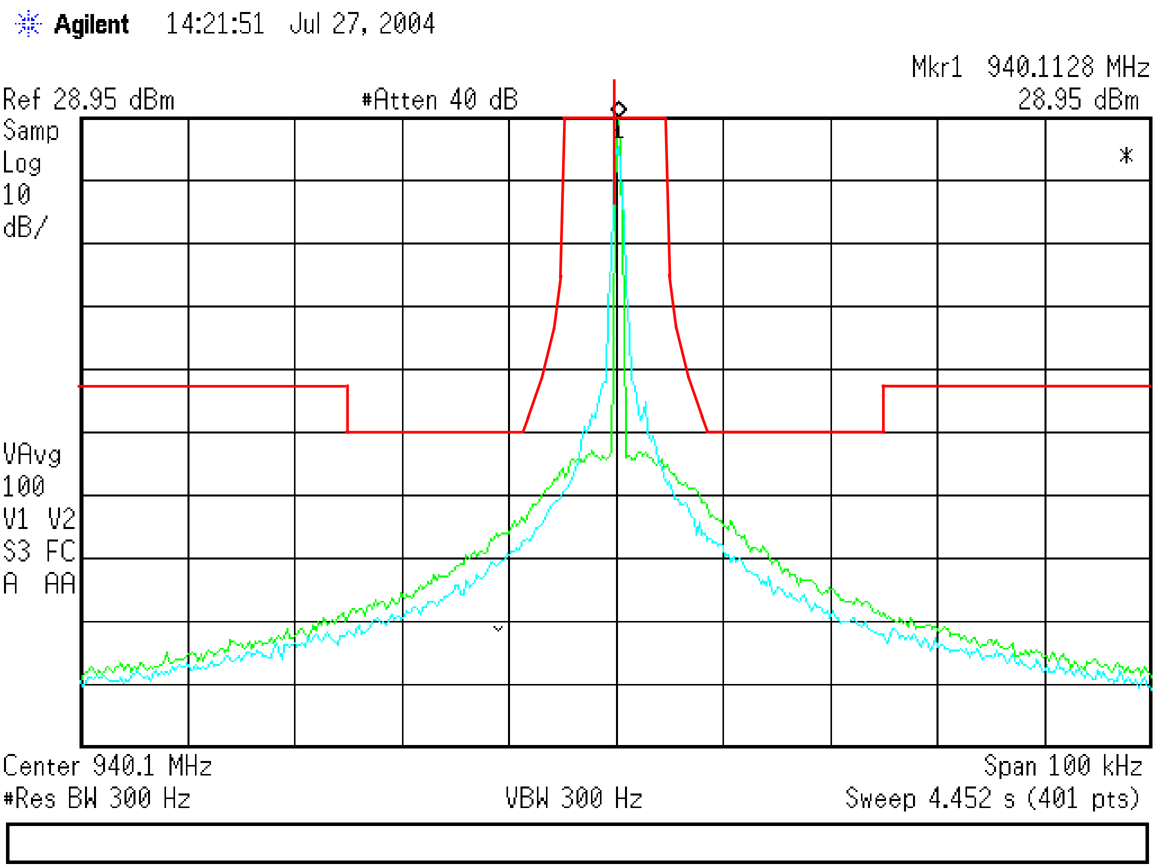


Figure 7.2.2-11: Boost Mode – 940.1125 MHz – 12.5 kHz Channel

7.3 Spurious Emissions at Antenna Terminals - FCC Section 2.1051, 24.133

7.3.1 Measurement Procedure

The RF output of the equipment under test was directly connected to the input of the Spectrum Analyzer through a 20 dB passive attenuator. The spectrum analyzer resolution and video bandwidths were set to 30 kHz according to Section 24.133 (d). The internal correction factors of the spectrum analyzer were employed to correct for any cable or attenuator losses. The spectrum was investigated in accordance to CFR 47 Part 2.1057.

7.3.2 Measurement Results

The magnitude of all spurious emissions were attenuated more than 20 dB below the permissible value and therefore not specified in this report (2.1051). Worst case emission plots supplied in Figure 7.3.2-1 through 7.3.2.4.

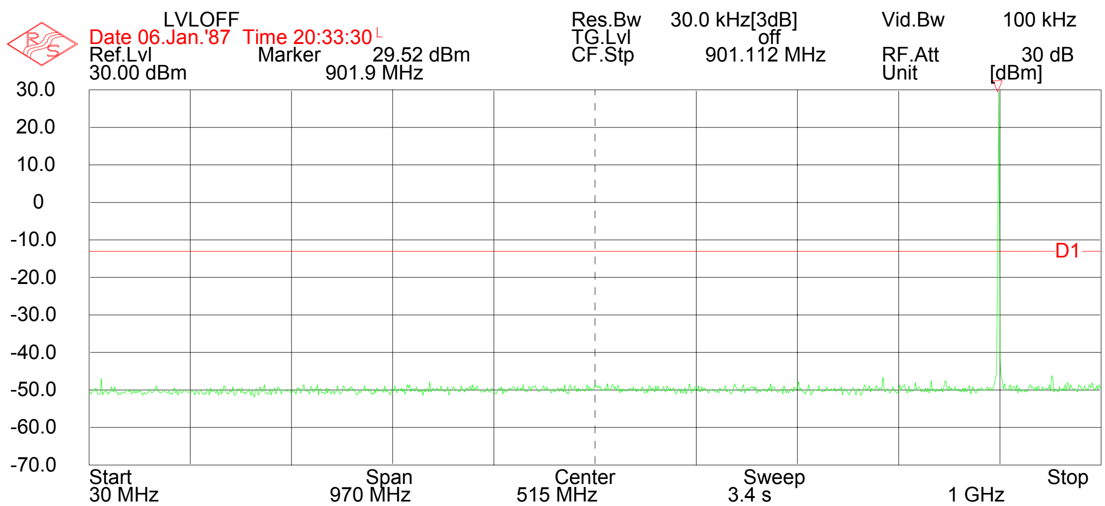


Figure 7.3.2-1: Normal Mode –901.1125 MHz

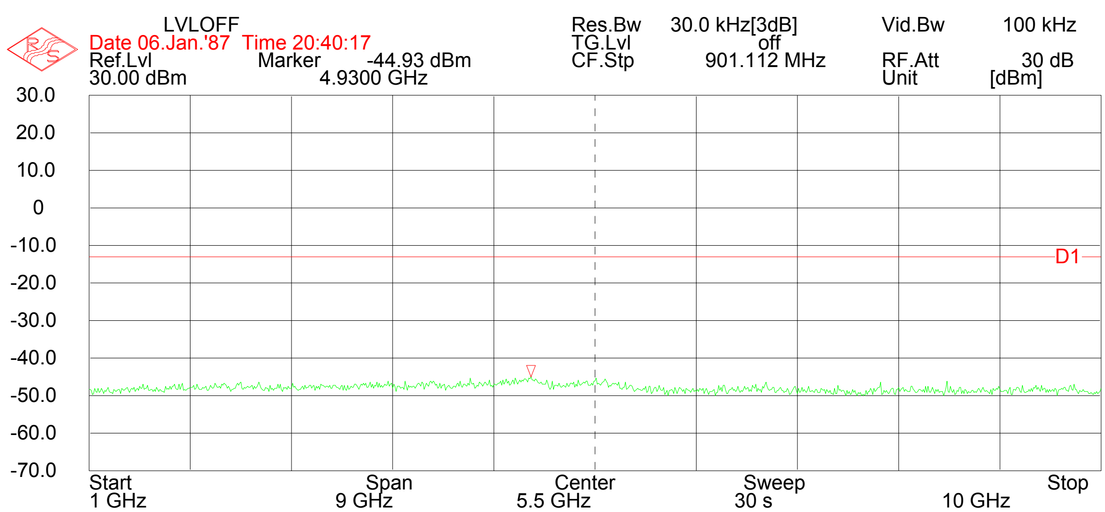


Figure 7.3.2-2: Normal Mode – 901.1125 MHz

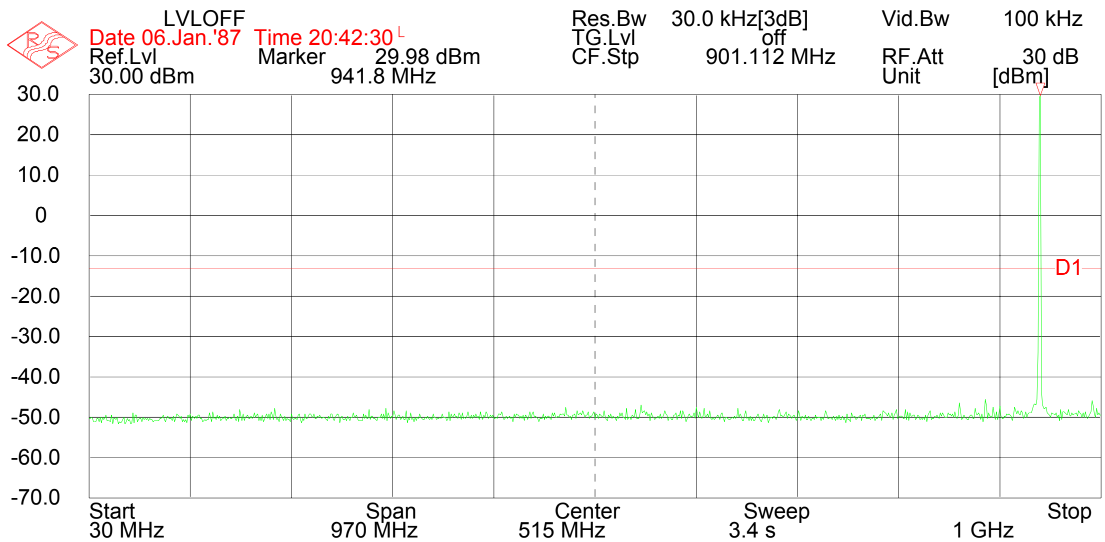


Figure 7.3.2-3: Normal Mode –940.1125 MHz

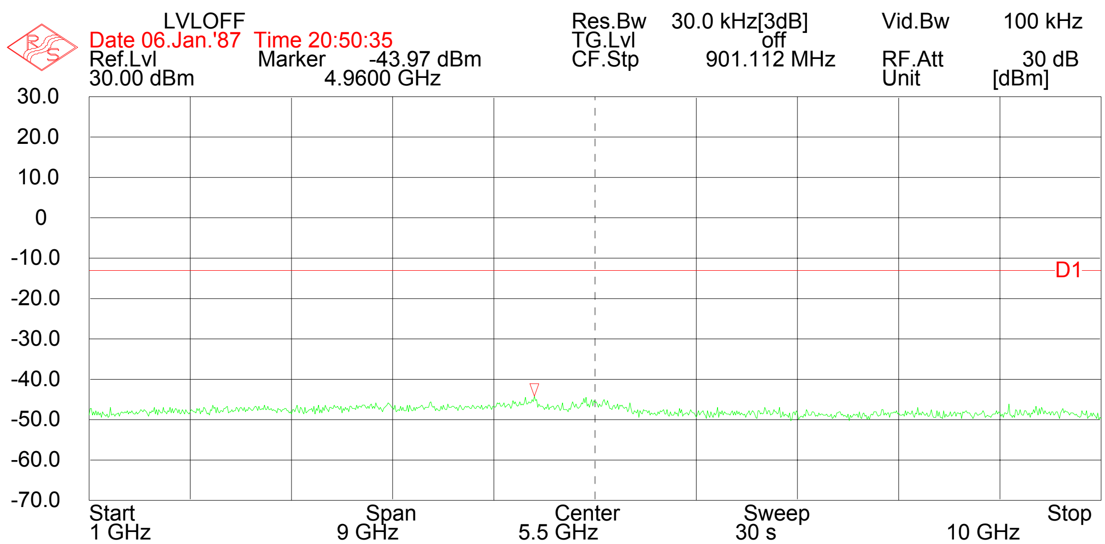


Figure 7.3.2-4: Normal Mode –940.1125 MHz

7.4 Field Strength of Spurious Emissions - FCC Section 2.1053, 24.133

7.4.1 Measurement Procedure

The equipment under test is placed on the Open Area Test Site (described in section 2.1) on a wooden table at the turntable center. For each spurious emission, the antenna mast is raised and lowered from one (1) to four (4) meters and the turntable is rotated 360º and the maximum reading on the spectrum analyzer is recorded. This repeated for both horizontal and vertical polarizations of the receive antenna.

The equipment under test is then replaced with a substitution antenna fed by a signal generator. The signal generator's frequency is set to that of the spurious emission recorded from the equipment under test. The antenna mast is raised and lowered from one (1) to four (4) meters to obtain a maximum reading on the spectrum analyzer. The output of the signal generator is then adjusted until the reading on the spectrum analyzer matches that obtained from the equipment under test. The signal generator level is recorded.

The power in dBm of each spurious emission is calculated by correcting the signal generator level for the cable loss and gain of the substitution antenna referenced to a dipole. The spectrum was investigated in accordance to CFR 47 Part 2.1057.

Results of the test are shown below in Table 7.4.2-1.

7.4.2 Measurement Results

Table 7.4.2-1: Field Strength of Spurious Emissions

Frequency (GHz)	Uncorrected Radiated Level (dBuV)	Generator Level (dBm)	Cable Attenuation (dB)	Antenna Gain (dBd)	Corrected Reading (dBm)	Substitution Field Strength (dBc)	Limit (dBc)	Margin (dB)
Horizontal								
1802.225	76.08	-33.00	0.72	5.25	-28.47	-58.90	-43.43	15.47
2703.3375	63.28	-45.00	0.88	6.55	-39.33	-69.76	-43.43	26.33
3604.45	59.63	-44.00	1.04	7.25	-37.79	-68.22	-43.43	24.79
4505.5625	60.62	-42.00	1.19	7.95	-35.24	-65.67	-43.43	22.24
Vertical								
1802.225	75.45	-33.00	1.48	8.55	-25.93	-56.36	-43.43	12.93
2703.3375	63.54	-43.00	1.53	8.45	-36.08	-66.51	-43.43	23.08
3604.45	57.17	-47.00	1.56	8.85	-39.71	-70.14	-43.43	26.71
4505.5625	60.06	-42.00	1.68	9.15	-34.53	-64.96	-43.43	21.53

7.5 Frequency Stability - FCC Section 2.1055, 24.135

7.5.1 Measurement Procedure

The equipment under test is placed inside an environmental chamber. The RF output is directly coupled to the input of the measurement equipment and a power supply is attached to the primary supply voltage.

Frequency measurements were made at the extremes of the of temperature range -30º C to +50º C and at intervals of 10º C at normal supply voltage. A period of time sufficient to stabilize all components of the equipment was allowed at each frequency measurement. At a temperature 20º C the supply voltage was varied from 85% to 115% from the normal. The maximum variation of frequency was recorded.

Results of the test are shown below in Table 7.5.2-1 through 7.5.2-3 for all modes of operation.

7.5.2 Measurement Results

Table 7.5.2-1: Frequency Stability – Normal Mode

Assigned Carrier Frequency (MHz)	Measured Frequency (MHz)	Temperature (C)	Frequency Stability (ppm)
901.1125	901.11200	-30	-0.554869675
	901.11190	-20	-0.66584361
	901.11227	-10	-0.25524005
	901.11236	0	-0.15314403
	901.11247	10	-0.03329218
	901.11249	20	-0.013316872
	901.11208	30	-0.471639224
	901.11194	40	-0.621454036
	901.11182	50	-0.756842237
	901.11188	60	-0.688038397
	901.11184	70	-0.732427971

Table 7.5.2-2: Frequency Stability – mPass Mode

Assigned Carrier Frequency (MHz)	Measured Frequency (MHz)	Temperature (C)	Frequency Stability (ppm)
901.1125	901.11173	-30	-0.8544993
	901.11221	-20	-0.3262634
	901.11211	-10	-0.4283594
	901.11228	0	-0.2496914
	901.11236	10	-0.1553635
	901.11219	20	-0.34069
	901.11201	30	-0.544882
	901.11166	40	-0.9299616
	901.11165	50	-0.9388395
	901.11187	60	-0.6980261
	901.11321	70	0.78791494

Table 7.5.2-3: Frequency Stability – Boost Mode

Assigned Carrier Frequency (MHz)	Measured Frequency (MHz)	Temperature (C)	Frequency Stability (ppm)
901.1125	901.11185	-30	-0.721330577
	901.11234	-20	-0.175338817
	901.11217	-10	-0.370652943
	901.11245	0	-0.056596707
	901.11245	10	-0.05104801
	901.11226	20	-0.263008226
	901.11227	30	-0.260788747
	901.11182	40	-0.760171455
	901.11182	50	-0.760171455
	901.11187	60	-0.6980261
	901.11321	70	0.78791494

7.6 Radiated Emissions (Unintentional Radiators) - FCC Section 15.109

7.6.1 Measurement Procedure

The equipment under test is placed on the Open Area Test Site (described in section 2.1) on a wooden table at the turntable center. For each radiated emission, the antenna mast is raised and lowered from one (1) to four (4) meters and the turntable is rotated 360º to obtain a maximum peak reading on the spectrum analyzer. The radiated emissions are then measured using an EMI receiver employing a CISPR quasi-peak detector for frequencies below 1000 MHz and an Average detector function for frequencies above 1000 MHz. This repeated for both horizontal and vertical polarizations of the receive antenna.

The field strength of each radiated emission is calculated by correcting the EMI receiver level for cable loss, amplifier gain, and antenna correction factors.

Field Strength (dBuV/m) = EMI Receiver Level (dBuV) + Cable Loss (dB) – Amplifier Gain (dB) + Antenna Correction Factor (1/m)

Results of the test are shown below in Table 7.6.2-1.

7.6.2 Measurement Results

Table 7.6.2-1: Radiated Emissions Tabulated Data

Frequency (MHz)	Uncorrected Reading (dBµV)	Antenna Polarity (H/V)	Antenna Height (cm)	Turntable Position (°)	Total Correction Factor (dB)	Corrected Reading (dBµV)	Limit (dBµV)	Margin (dB)	Results
77.42	20.18	v	100	0	8.17	28.35	40	11.7	**Pass**
80.65	19.75	v	100	0	8.51	28.26	40	11.7	**Pass**
82.81	19.93	v	100	0	8.86	28.79	40	11.2	**Pass**
125.92	22.13	v	100	0	13.22	35.35	43.5	8.2	**Pass**
278.96	28.25	h	100	240	-8.59	19.66	46	26.3	**Pass**
291.9	28.23	h	100	247	-8.35	19.88	46	26.1	**Pass**
304.83	27.34	v	100	270	-8.27	19.07	46	26.9	**Pass**
922.4	22.51	h	100	0	6.00	28.51	46	17.5	**Pass**
69.78	18.25	v	100	0	7.38	25.63	40	14.4	**Pass**
34.31	14.97	h	100	0	17.83	32.80	40	7.2	**Pass**

7.7 Power Line Conducted Emissions - FCC Section 15.107

7.7.1 Measurement Procedure

Conducted emissions were performed from 150kHz to 30MHz with the spectrum analyzer's resolution bandwidth set to 9kHz and the video bandwidth set to 30kHz. The calculation for the conducted emissions is as follows:

Corrected Reading = Analyzer Reading + LISN Loss + Cable Loss
Margin = Corrected Reading – Applicable Limit

Results of the test are shown below in and Tables 7.7.2-1 through 7.7.2-4 and Figure 7.7.2-1 through 7.7.2-2

7.7.2 Measurement Results

Table 7.7.2-1: Line 1 Conducted EMI Results (Quasi-Peak)

Frequency MHz	Level dBµV	Transducer dB	Limit dBµV	Margin dB	Line	PE
0.456	37.6	9.5	56.7	19.1	L1	GND
0.606	39.3	9.5	56	16.6	L1	GND
0.756	38	9.5	56	17.9	L1	GND
1.056	35.7	9.6	56	20.2	L1	GND
1.362	36.1	9.5	56	19.8	L1	GND
1.662	35.1	9.5	56	20.8	L1	GND
3.486	19.8	9.5	56	36.1	L1	GND
4.182	18.8	9.6	56	37.1	L1	GND
4.716	15.1	9.7	56	40.9	L1	GND
18.57	31.6	10	60	28.3	L1	GND

Table 7.7.2-2: Line 1 Conducted EMI Results (Average)

Frequency MHz	Level dBµV	Transducer dB	Limit dBµV	Margin dB	Line	PE
0.456	26.1	9.5	46.7	20.6	L1	GND
0.606	27.8	9.5	46	18.1	L1	GND
0.756	26.6	9.5	46	19.3	L1	GND
1.056	24.7	9.6	46	21.2	L1	GND
1.362	25.6	9.5	46	20.3	L1	GND
1.662	24.6	9.5	46	21.3	L1	GND
3.552	8.1	9.5	46	37.8	L1	GND
4.176	8.3	9.6	46	37.6	L1	GND
4.746	7.1	9.7	46	38.8	L1	GND
18.57	14.6	10	50	35.3	L1	GND

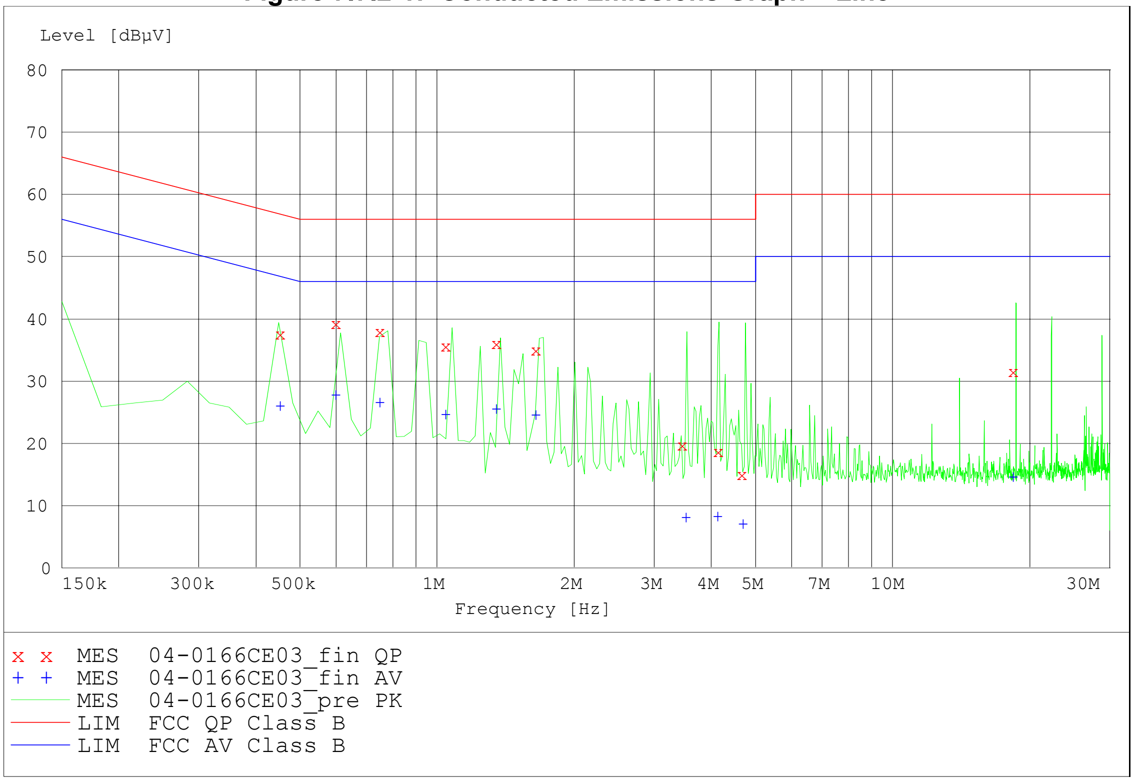
Table 7.7.2-3: Line 2 Conducted EMI Results (Quasi-Peak)

Frequency MHz	Level dBµV	Transducer dB	Limit dBµV	Margin dB	Line	PE
0.606	41.9	9.5	56	14	L2	GND
0.756	52.8	9.5	56	3.1	L2	GND
1.968	35.1	9.6	56	20.8	L2	GND
2.13	16.9	9.5	56	39	L2	GND
2.646	15.9	9.5	56	40	L2	GND
3.432	19.3	9.5	56	36.6	L2	GND
3.888	21.4	9.6	56	34.6	L2	GND
4.038	21.6	9.5	56	34.3	L2	GND
4.494	21.1	9.7	56	34.8	L2	GND
4.662	20.7	9.7	56	35.2	L2	GND

Table 7.7.2-4: Line 2 Conducted EMI Results(Average)

Frequency MHz	Level dBµV	Transducer dB	Limit dBµV	Margin dB	Line	PE
0.606	40.8	9.5	46	5.1	L2	GND
0.756	39.7	9.5	46	6.2	L2	GND
1.968	34	9.6	46	11.9	L2	GND
2.13	12.4	9.5	46	33.5	L2	GND
2.64	10.3	9.5	46	35.6	L2	GND
3.426	12.6	9.5	46	33.3	L2	GND
3.888	13	9.6	46	32.9	L2	GND
4.032	12.9	9.5	46	33	L2	GND
4.482	11.8	9.7	46	34.1	L2	GND
4.656	11.4	9.7	46	34.5	L2	GND

Figure 7.7.2-1: Conducted Emissions Graph – Line



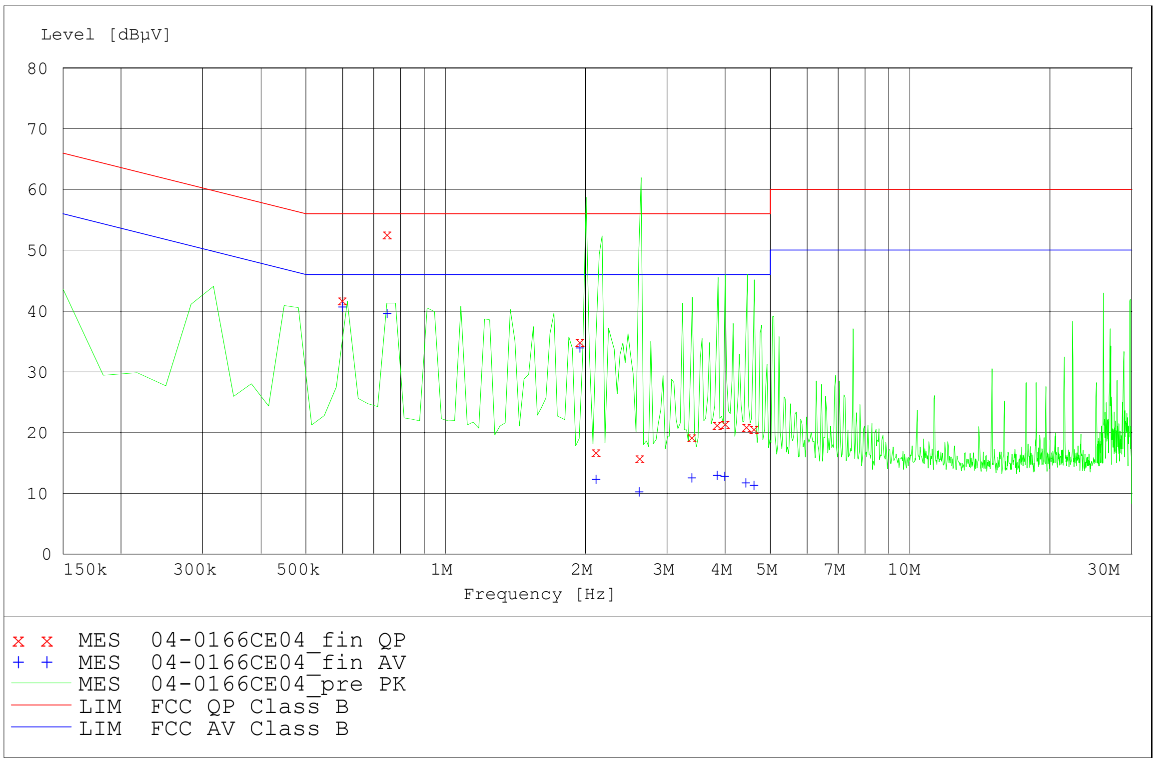


Figure 7.7.2-2: Conducted Emissions Graph – Line 2