GE Healthcare
FCC Part 95H
Certification Application

Model EA-WMTS-SHU-4

UST Project: 07-0150
September 7, 2007

3505 Francis Circle Alpharetta, GA 30004
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MEASUREMENT/TECHNICAL REPORT

COMPANY NAME: **GE Healthcare**

MODEL: **EA-WMTS-SHU-4**

FCC ID: **OU5SHU-WMTS**

DATE: **July 17, 2007**

This report concerns (check one): Original grant___
Class II change__X__

Equipment type: **_Amplifier**

Deferred grant requested per 47 CFR 0.457(d)(1)(ii)? yes_____ No_X

If yes, defer until:_____
date

__N.A.__ agrees to notify the Commission by__N.A.
date
of the intended date of announcement of the product so that the grant can be issued on that date.

Report prepared by:

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Alpharetta, GA 30004

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SECTION 1

GENERAL INFORMATION

GENERAL INFORMATION

1.1 Product Description

The Equipment Under Test (EUT) is a GE Healthcare, Model EA-WMTS-SHU-4.

The EA-WMTS-SHU-4 is an amplifier designed for use in medical monitoring applications. The EA-WMTS-SHU-4 is intended for use with 608-614 MHz WMTS Access Points that receive patient monitoring data from similar radios attached to the patients in that hospital.

The EA-WMTS-SHU-4 consists of 4 type N connector ports that input radio signals via cables that are distributed throughout the Hospital. The EA-WMTS-SHU-4 has 4 output Antenna ports that connect to remotely located antennas within the Hospital. The EA-WMTS-SHU-4 has a finite series of fixed input output combination that connect the input AP ports to the output antenna ports.

Minimum input to effectively amplify the input AP port signal is 5 dBm. Maximum software set amplified signal output to the Antennas is 17dBm.

The EA-WMTS-SHU-4 is intended to be used with one type and model of antenna. The EA-WMTS-SHU-4 requires professional installation. The installation requires a minimum fixed length of output cable to the Antennas (resulting in a fixed insertion loss) that will result in a 12 dBm output signal to the Antenna.

The EA-WMTS-SHU-4 requires external DC power but has its own internal voltage regulation. The EA-WMTS-SHU-4 is self contained in a steel package and is designed to be installed in a remote network closet.

Related Submittal(s)/Grant(s)

None

SECTION 2

TESTS AND MEASUREMENTS

TEST AND MEASUREMENTS

2.1 Configuration of Tested System

The sample was tested per ANSI C63.4, Methods of Measurement from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz (2003). Conducted and radiated emissions data were taken with the test receiver or spectrum analyzer's resolution bandwidth adjusted to 9 kHz and 120 kHz, respectively. All measurements are peak unless stated otherwise. The video filter associated with the spectrum analyzer was off throughout the evaluation process. Interconnecting cables were manipulated as necessary to maximize emissions. A block diagram of the tested system is shown in Figure 1. Test configuration photographs for spurious and fundamental emissions are shown in Figure 2a through Figure 2c.

The sample used for testing was received by U.S. Technologies on June 5, 2007 in good condition.

2.2 Test Facility

Testing was performed at US Tech's measurement facility at 3505 Francis Circle, Alpharetta, GA. This site has been fully described and registered with the FCC, under designation number US5117. Additionally this site has also been fully described and submitted to Industry Canada (IC), and has been approved under file number 2982A-1.

2.3 Test Equipment

Table 2 describes test equipment used to evaluate this product.

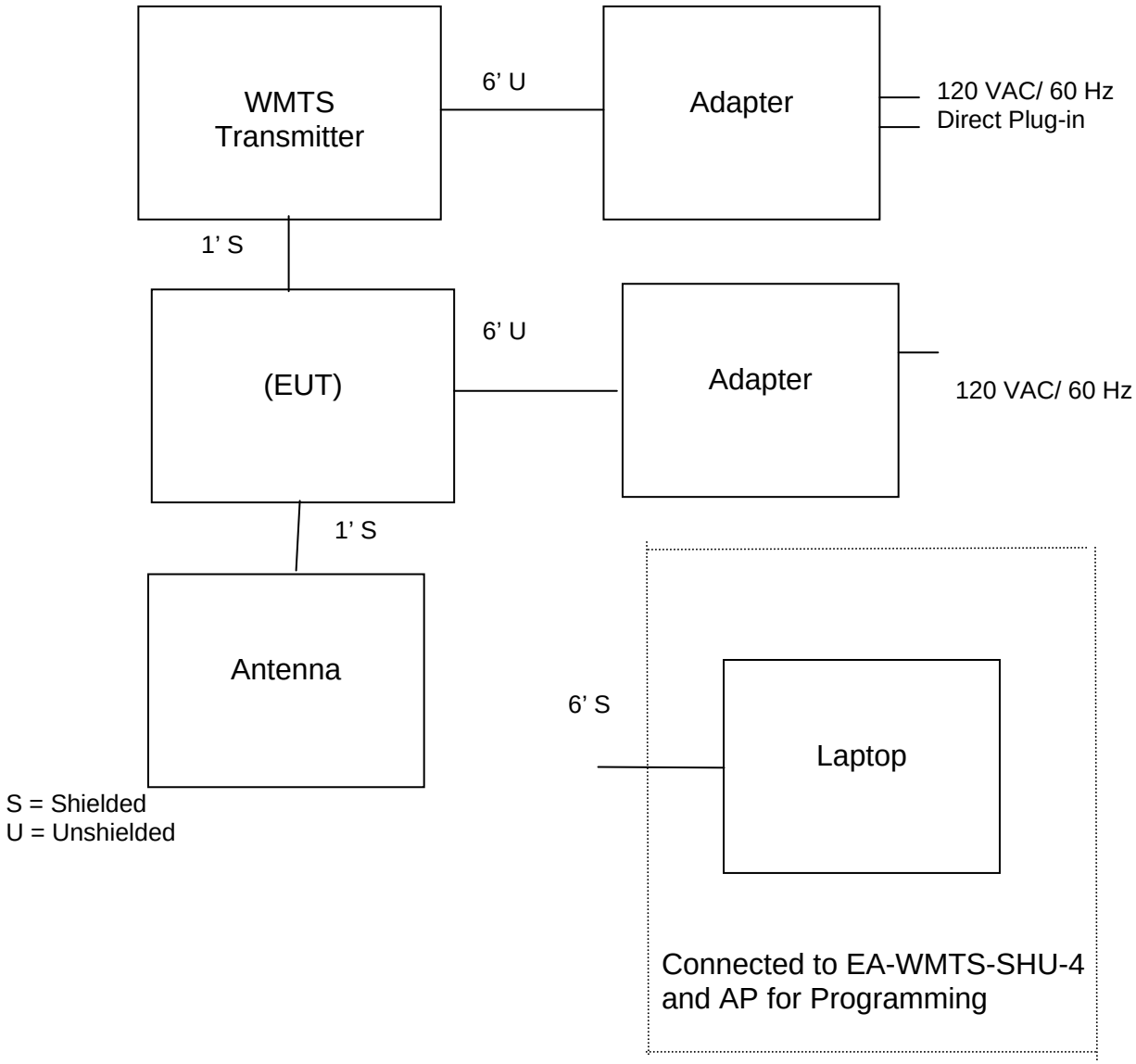
2.4 Modifications

No modifications were made by US Tech, to bring the EUT into compliance with FCC Part 95H limits for the transmitter portion of the EUT, the Amplifier guidance document, or the Class B Digital Device Requirements.

FIGURE 1

TEST CONFIGURATION

(RF, RECEIVER, & DIGITAL DEVICE TESTS)



Test Date: July 1, 2, & 3, 2007
UST Project: 07-0150
Customer: GE Healthcare
Model: EA-WMTS-SHU-4

FIGURE 2a

Photograph(s) for Spurious and Fundamental Emissions (Front)

Test Date: July 1, 2, &3, 2007
UST Project: 07-0150
Customer: GE Healthcare
Model: EA-WMTS-SHU-4

FIGURE 2b

Photograph(s) for Spurious and Fundamental Emissions (Back)

Test Date: July 1, 2, & 3, 2007
UST Project: 07-0150
Customer: GE Healthcare
Model: EA-WMTS-SHU-4

FIGURE 2c

Photograph(s) for Digital Device Conducted Emissions

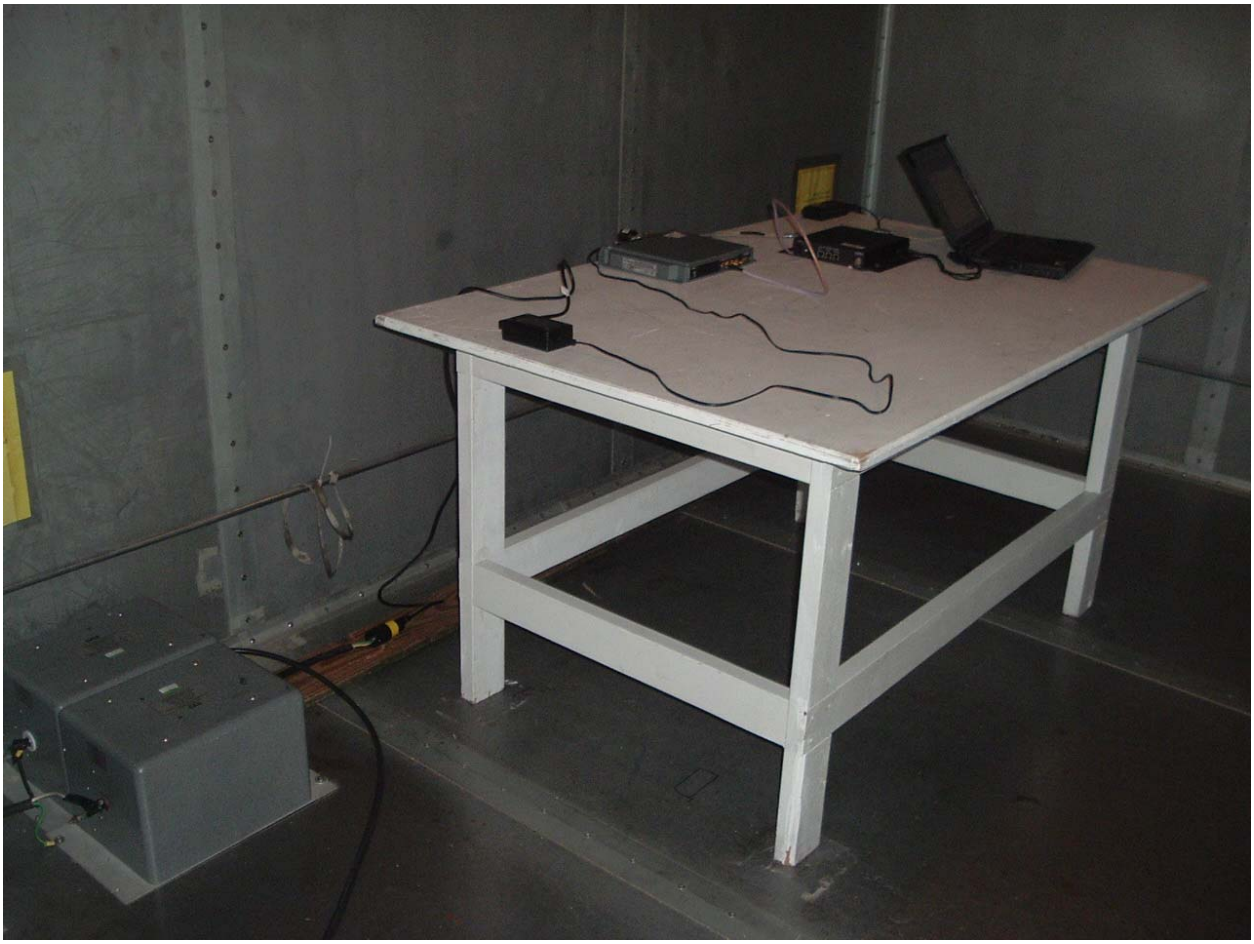


TABLE 1

EUT and Peripherals

PERIPHERAL MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	FCC ID:	CABLES P/D
Transmitter (EUT) GE Healthcare	EA-WMTS-SHU-4	None	OU5SHU-WMTS	6' U 1'S
Power Supply	PSU40A-8	EJ045859	N/A	5'S
Antenna	EA-ANT-600-6G-OMN	0645061	N/A	5' S
AP Unit Cirronet	Enterprise Telemetry Access Point	F-2060-0636 Rev.B	N/A	6'U 1'S
AC Adapter Volgen	SPU10R-2	None	N/A	120 VAC/ 60 Hz Direct Plug In
Laptop IBM	22366-41U	78-RC537	N/A	6'S
AC Adapter IBM	324816-001	3600418201	N/A	5'S

TABLE 2
TEST INSTRUMENTS

EQUIPMENT	MODEL NUMBER	MANUFACTURER	SERIAL NUMBER	DATE OF LAST CALIBRATION
SPECTRUM ANALYZER	8558B	HEWLETT-PACKARD	2332A10055	3/28/07
SPECTRUM ANALYZER	8593E	HEWLETT-PACKARD	3205A00124	7/3/06
SIGNAL GENERATOR	8648B	HEWLETT-PACKARD	3642U01679	10/13/06
RF PREAMP	8449B	HEWLETT-PACKARD	3008A00480	8/10/06
HORN ANTENNA	3115	EMCO	9107-3723	10/16/06
LOG PERIODIC ANTENNA	3146	EMCO	3236	9/15/06 2 Year
CALCULATION PROGRAM	N/A	N/A	Ver. 6.0	N/A

Note: The calibration interval of the above test instruments is 12 months and all calibrations are traceable to NIST/USA.

2.6 Antenna Description

The Model EA-WMTS-SHU-4 is used with the following antenna.

MANUFACTURER	MODEL	TYPE	CONNECTOR	GAIN
GE Healthcare	EA-ANT-600-6G-OMN	OMNI	N	-3 dBi

The EUT and antenna incorporate standard N connectors. Due to the type of installation, this unit will only be professionally installed.

The EA-WMTS-SHU-4 has been designed exclusively for GE Healthcare. GE Healthcare designs and markets medical monitoring equipment to be used in hospital environments and is the only marketer of this product and is the sole installer. The units will not be marketed to the general public.

The EA-WMTS-SHU-4 will be securely located in a “remote closet”, to which all of the antennas will be connected with cables. These units will receive monitoring data from similar radios that are attached to patients in the hospital. The system is very complicated and expensive (generally greater than $100k for a complete installation) and relies on professional installation and upkeep. Trained GE Healthcare personnel will be installing these units and will be solely responsible for their operation.

2.7 Field Strength of Fundamental Emission (47 CFR 95.639(g) & 95.1115(a))

Peak power within the band 608-614 MHz has been measured with a spectrum analyzer. Peak measurements were made using a peak or quasi-peak detector. Average emissions are not considered applicable since the measurement was below 1000 MHz.

Field Strength Fundamentals were taken at a starting Output power setting of 17dBm (maximum output power setting). Output power was reduced in increments of 1 dB until passing results were measured. Final power setting of the EA-WMTS-SHU-4 was 12 dBm.

Peak fundamentals were taken for the following input AP Port / output Antenna Port combinations, while all other antenna ports were terminated with a 50 Ohm load to simulate that the antennas will be separated a minimum distance of 43 feet from each other.

AP1/ANT1
AP1/ANT2
AP1/ANT3
AP1/ANT4
AP2/ANT2
AP3/ANT3
AP4/ANT4

The results of the measurements for peak fundamental emissions are given in Tables 3a – 3d.

The unit was placed in hop stopped mode at Low, Mid and High Channel. The fundamental frequency was maximized, and a QP measurement was taken.

Field Strength was originally measured at 17 dBm, then slowly reduced to 13 dBm to yield the data for AP 1 - ANT 1, 2, 3, and 4. However, subsequent readings from AP 2- ANT 2, AP 3- ANT 3, and AP 4- ANT 4 yielded failing data, so output was dropped to 12 dBm (software setting).

Output Power conducted measurements were taken at this setting, at the cable connection to the antenna. Cable loss was insignificant for this frequency.

Table 3a
FIELD STRENGTH OF FUNDAMENTAL EMISSION

Test Date: June 15, 2007
UST Project: 07-0150
Customer: GE Healthcare
Model: EA-WMTS-SHU-4

QP Measurement (Output Power at 13 dBm)
Highest Emission measured from Amplifier (AP1 to ANT1, ANT2, ANT3, and ANT4)

Frequency (MHz)	Test Data (dBm)	AF Table	Test Data (dBuV)	AF+CA-AMP (dB)	Results (uV/m)	Limits (uV/m)	Distance / Polarity	Margin (dB)	PK = n / QP
613.81	-25.6	2lp3mh	81.4	23.8	182129.6	200000.0	3m./HORZ	0.8	QP
611.075	-26.0	2lp3mh	81.0	23.8	173898.2	200000.0	3m./HORZ	1.2	QP
608.615	-28.7	2lp3mh	78.3	23.7	126433.3	200000.0	3m./HORZ	4.0	QP
608.735	-26.3	2lp3mh	80.7	23.7	166868.2	200000.0	3m./HORZ	1.6	QP
611.07	-25.9	2lp3mh	81.1	23.8	175502.0	200000.0	3m./HORZ	1.1	QP
613.8	-25.1	2lp3mh	81.9	23.8	194482.3	200000.0	3m./HORZ	0.2	QP
608.605	-24.9	2lp3mh	82.1	23.7	196047.1	200000.0	3m./HORZ	0.2	QP
611.065	-24.8	2lp3mh	82.2	23.8	198503.9	200000.0	3m./HORZ	0.1	QP
613.915	-26.1	2lp3mh	80.9	23.8	173337.1	200000.0	3m./HORZ	1.2	QP
608.605	-26.6	2lp3mh	80.4	23.7	161012.8	200000.0	3m./HORZ	1.9	QP
611.06	-26.6	2lp3mh	80.4	23.8	162089.9	200000.0	3m./HORZ	1.8	QP
613.92	-27.9	2lp3mh	79.1	23.8	139762.9	200000.0	3m./HORZ	3.1	QP

SAMPLE CALCULATIONS:

RESULTS uV/m @ 3m = Antilog ((-25.6 + 23.8 + 107)/20) = 182129.6
CONVERSION FROM dBm TO dBuV = 107 dB

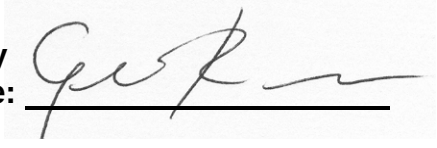
Tested by
Signature:  **Name: Gersop Riera**

Table 3b
FIELD STRENGTH OF FUNDAMENTAL EMISSION

Test Date: June 18, 2007
UST Project: 07-0150
Customer: GE Healthcare
Model: EA-WMTS-SHU-4

QP Measurement (Output Power at 12 dBm)
Highest Emission measured from Amplifier (AP2 to ANT2)

Frequency (MHz)	Test Data (dBm)	AF Table	Test Data (dBuV)	AF+CA-AMP (dB)	Results (uV/m)	Limits (uV/m)	Distance / Polarity	Margin (dB)	PK = n / QP
608.74	-25.8	2LP3mh	81.2	23.7	177367.3	200000.0	3m./HORZ	1.0	QP
611.065	-26.0	2LP3mh	81.0	23.8	173088.8	200000.0	3m./HORZ	1.3	QP
613.8	-25.6	2LP3mh	81.4	23.8	182759.5	200000.0	3m./HORZ	0.8	QP

SAMPLE CALCULATIONS:

RESULTS uV/m @ 3m = Antilog ((-25.8 + 23.7 + 107)/20) = 177367.3
CONVERSION FROM dBm TO dBuV = 107 dB

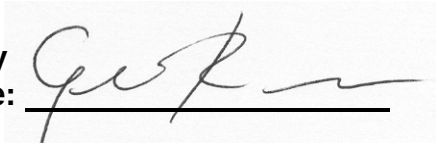
Tested by
Signature:  **Name: Gersop Riera**

Table 3c

FIELD STRENGTH OF FUNDAMENTAL EMISSION

Test Date: June 18, 2007
UST Project: 07-0150
Customer: GE Healthcare
Model: EA-WMTS-SHU-4

QP Measurement (Output Power at 12 dBm)
Highest Emission measured from Amplifier (AP3 to ANT3)

Frequency (MHz)	Test Data (dBm)	AF Table	Test Data (dBuV)	AF+CA-AMP (dB)	Results (uV/m)	Limits (uV/m)	Distance / Polarity	Margin (dB)	PK = n / QP
608.61	-26.4	2LP3mh	80.6	23.7	164573.7	200000.0	3m./HORZ	1.7	QP
611.19	-26.4	2LP3mv	80.6	23.8	166004.2	200000.0	3m./VERT	1.6	QP
613.92	-27.3	2LP3mh	79.7	23.8	150970.5	200000.0	3m./HORZ	2.4	QP

SAMPLE CALCULATIONS:

RESULTS uV/m @ 3m = Antilog ((-26.4 + 23.7 + 107)/20) = 164573.7
CONVERSION FROM dBm TO dBuV = 107 dB

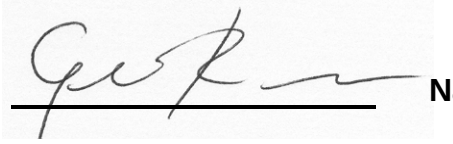
Tested by
Signature:  **Name: Gersop Riera**

Table 3d
FIELD STRENGTH OF FUNDAMENTAL EMISSION

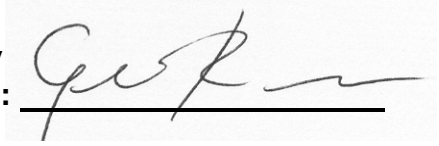
Test Date: June 18, 2007
UST Project: 07-0150
Customer: GE Healthcare
Model: EA-WMTS-SHU-4

QP Measurement (Output Power at 12 dBm)
Highest Emission measured from Amplifier (AP4 to ANT4)

Frequency (MHz)	Test Data (dBm)	AF Table	Test Data (dBuV)	AF+CA-AMP (dB)	Results (uV/m)	Limits (uV/m)	Distance / Polarity	Margin (dB)	PK = n / QP
608.61	-25.5	2LP3mh	81.5	23.7	183172.6	200000.0	3m./HORZ	**0.8**	QP
611.06	-25.6	2LP3mh	81.4	23.8	182497.1	200000.0	3m./HORZ	**0.8**	QP
613.8	-26.6	2LP3mh	80.4	23.8	163636.4	200000.0	3m./HORZ	**1.7**	QP

SAMPLE CALCULATIONS: `

RESULTS uV/m @ 3m = Antilog ((-25.5 + 23.7 + 107)/20) = 183172.6
CONVERSION FROM dBm TO dBuV = 107 dB

Tested by
Signature:  **Name: Gersop Riera**

2.8 Field Strength Of Spurious Emissions in the Frequency Range 30 - 10000 MHz (47 CFR 95.1115(b))

A preliminary scan was performed on the EUT to determine frequencies that were caused by the transmitter portion of the product. Radiated measurements below 1 GHz were tested with a RBW = 120 kHz. Radiated measurements above 1 GHz were measured using a RBW = VBW = 1 MHz. The results of peak radiated spurious emissions are given in Tables 5a – 5g.

Calculation of Maximum Transmit Duty Cycle

Each remote AP unit can transmit only once during a dwell time. The maximum length of the transmitted packet from each remote is set by the system design and cannot be adjusted by the user. That packet length 5ms every 35 ms.

The maximum amount of time that an AP transmitter can operate in any 35 millisecond period is 5ms. Therefore, our source-averaged transmit duty cycle becomes 0.143 (5ms/ 35 ms). Note that this duty cycle is not dependent on use of Frequency Hopping. There is no averaging of power over the number of hops. The above calculation is strictly based on the maximum amount of time an AP transmitter can transmit in any 35 ms time period – regardless of the channel the radio happens to be on at the time.

Duty Cycle correction = 20 log (5/35) = -16.9 dBm

TABLE 5a

FIELD STRENGTH OF SPURIOUS EMISSIONS
Spurious Harmonic AP1 to Ant 1 @ 12 dBm (measured at antenna)

Test Date: July 1, 2007
UST Project: 07-0150
Customer: GE Healthcare
Model: EA-WMTS-SHU-4

Radiated Emissions									
Test By:	**Test:**	Spurious Harmonics 1 to 1 @ 12 dBm			**Client:**	GE Healthcare			
GR	**Project:**	07-0150			**Model:**	EA-WMTS-SHU-4			
Frequency	**Test Data**	**AF**	**Test Data**	**AF+CA-AMP**	**Results**	**Limits**	**Distance /**	**Margin**	**AVG**
(MHz)	**(dBm)**	**Table**	**(dBuV)**	**(dB)**	**(uV/m)**	**(uV/m)**	**Polarity**	**(dB)**	
1216.89	-78.1	1hn3mv	28.9	-7.2	12.1	500.0	3m./VERT	**32.3**	**AVG**
1825.975	-67.8	1hn3mh	39.2	-4.5	54.5	500.0	3m./HORZ	**19.2**	**AVG**
2434.888	-78.6	1hn3mv	28.5	-2.7	19.4	500.0	3m./VERT	**28.2**	**AVG**
1222.388	-78.7	1hn3mv	28.3	-7.2	11.4	500.0	3m./VERT	**32.9**	**AVG**
1833.275	-68.5	1hn3mh	38.5	-4.4	50.7	500.0	3m./HORZ	**19.9**	**AVG**
2444.525	-79.8	1hn3mv	27.2	-2.7	16.9	500.0	3m./VERT	**29.4**	**AVG**
1227.038	-80.1	1hn3mh	26.9	-7.0	9.9	500.0	3m./HORZ	**34.1**	**AVG**
1840.688	-71.6	1hn3mh	35.4	-4.4	35.8	500.0	3m./HORZ	**22.9**	**AVG**

Note: 1 dB added for High Pass Filter loss on all Test Data
Data has been corrected by Duty Cycle correction = 20 log (5/35) = -16.9 dBm

SAMPLE CALCULATIONS:

RESULTS uV/m @ 3m = Antilog (-78.1 + -7.2 + 107)/20) = 12.1
CONVERSION FROM dBm TO dBuV = 107 dB

Tested by
Signature:  **Name: Gersop Riera**

TABLE 5b

FIELD STRENGTH OF SPURIOUS EMISSIONS
Spurious Harmonic AP1 to Ant 2 @ 12 dBm (measured at antenna)

Test Date: July 2, 2007
UST Project: 07-0150
Customer: GE Healthcare
Model: EA-WMTS-SHU-4

Radiated Emissions									
Test By:	**Test:**	Spurious Harmonics 1 to 2 @ 12 dBm			**Client:**	GE Healthcare			
GR	**Project:**	07-0150			**Model:**	EA-WMTS-SHU-4			
Frequency	**Test Data**	**AF**	**Test Data**	**AF+CA-AMP**	**Results**	**Limits**	**Distance /**	**Margin**	**AVG**
(MHz)	**(dBm)**	**Table**	**(dBuV)**	**(dB)**	**(uV/m)**	**(uV/m)**	**Polarity**	**(dB)**	
1826.00	-65.8	1hn3mh	41.3	-4.5	69.1	500.0	3m./HORZ	**17.2**	**AVG**
2430	-79.5	1hn3mv	27.5	-2.7	17.4	500.0	3m./VERT	**29.2**	**AVG**
1217	-78.7	1hn3mh	28.3	-7.0	11.6	500.0	3m./HORZ	**32.7**	**AVG**
1222	-77.6	1hn3mh	29.4	-7.0	13.2	500.0	3m./HORZ	**31.6**	**AVG**
1834	-66.0	1hn3mh	41.0	-4.4	67.7	500.0	3m./HORZ	**17.4**	**AVG**
2440	-76.3	1hn3mh	30.8	-2.5	26.0	500.0	3m./HORZ	**25.7**	**AVG**
1227	-79.0	1hn3mh	28.1	-7.0	11.3	500.0	3m./HORZ	**33.0**	**AVG**
1840	-73.5	1hn3mv	33.5	-4.6	27.9	500.0	3m./VERT	**25.1**	**AVG**

Note: 1 dB added for High Pass Filter loss on all Test Data
Data has been corrected by Duty Cycle correction = 20 log (5/35) = -16.9 dBm

SAMPLE CALCULATIONS:

RESULTS uV/m @ 3m = Antilog (-65.8 + -4.5 + 107)/20) = 69.1
CONVERSION FROM dBm TO dBuV = 107 dB

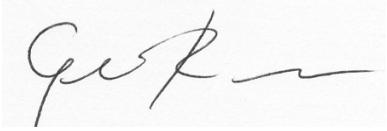
Tested by Signature:  **Name: Gersop Riera**

TABLE 5c

FIELD STRENGTH OF SPURIOUS EMISSIONS
Spurious Harmonic AP 1 to Ant 3 @ 12 dBm (measured at antenna)

Test Date: July 2, 2007
UST Project: 07-0150
Customer: GE Healthcare
Model: EA-WMTS-SHU-4

Radiated Emissions									
Test By:	**Test:**	Spurious Harmonics 1 to 3 @ 12 dBm			**Client:**	GE Healthcare			
GR	**Project:**	07-0150			**Model:**	EA-WMTS-SHU-4			
Frequency	**Test Data**	**AF**	**Test Data**	**AF+CA-AMP**	**Results**	**Limits**	**Distance /**	**Margin**	**AVG**
(MHz)	**(dBm)**	**Table**	**(dBuV)**	**(dB)**	**(uV/m)**	**(uV/m)**	**Polarity**	**(dB)**	
1217.46	-78.9	1hn3mh	28.1	-7.0	11.3	500.0	3m./HORZ	**32.9**	**AVG**
1826.166	-64.7	1hn3mv	42.3	-4.7	76.1	500.0	3m./VERT	**16.4**	**AVG**
2434.27	-79.3	1hn3mv	27.7	-2.7	17.8	500.0	3m./VERT	**29.0**	**AVG**
1222	-78.0	1hn3mh	29.0	-7.0	12.5	500.0	3m./HORZ	**32.0**	**AVG**
1833.113	-64.8	1hn3mv	42.2	-4.6	75.5	500.0	3m./VERT	**16.4**	**AVG**
2444.075	-79.7	1hn3mh	27.3	-2.5	17.5	500.0	3m./HORZ	**29.1**	**AVG**
1227.576	-79.0	1hn3mh	28.0	-7.0	11.2	500.0	3m./HORZ	**33.0**	**AVG**
1841.476	-68.5	1hn3mv	38.5	-4.6	49.5	500.0	3m./VERT	**20.1**	**AVG**
2455.739	-79.1	1hn3mv	27.9	-2.6	18.3	500.0	3m./VERT	**28.8**	**AVG**

Note: 1 dB added for High Pass Filter loss on all Test Data
Data has been corrected by Duty Cycle correction = 20 log (5/35) = -16.9 dBm

SAMPLE CALCULATIONS:

RESULTS uV/m @ 3m = Antilog (-78.9 + -7.0 + 107)/20) = 11.3
CONVERSION FROM dBm TO dBuV = 107 dB

Tested by
Signature:  **Name: Gersop Riera**

TABLE 5d

FIELD STRENGTH OF SPURIOUS EMISSIONS
Spurious Harmonic AP 1 to Ant 4 @ 12 dBm (measured at antenna)

Test Date: July 2, 2007
UST Project: 07-0150
Customer: GE Healthcare
Model: EA-WMTS-SHU-4

Radiated Emissions									
Test By:	**Test:**	Spurious Harmonics 1 to 4 @ 12 dBm			**Client:**	GE Healthcare			
GR	**Project:**	07-0150			**Model:**	EA-WMTS-SHU-4			
Frequency	**Test Data**	**AF**	**Test Data**	**AF+CA-AMP**	**Results**	**Limits**	**Distance /**	**Margin**	**AVG**
(MHz)	**(dBm)**	**Table**	**(dBuV)**	**(dB)**	**(uV/m)**	**(uV/m)**	**Polarity**	**(dB)**	
1217.20	-80.2	1hn3mv	26.8	-7.2	9.6	500.0	3m./VERT	**34.3**	**AVG**
1826	-68.1	1hn3mh	38.9	-4.5	52.7	500.0	3m./HORZ	**19.5**	**AVG**
2434	-79.0	1hn3mv	28.0	-2.7	18.5	500.0	3m./VERT	**28.7**	**AVG**
1222	-78.4	1hn3mh	28.6	-7.0	11.9	500.0	3m./HORZ	**32.4**	**AVG**
1834	-67.1	1hn3mh	40.0	-4.4	59.8	500.0	3m./HORZ	**18.4**	**AVG**
2444	-76.3	1hn3mh	30.7	-2.5	25.8	500.0	3m./HORZ	**25.8**	**AVG**
1228	-78.6	1hn3mv	28.4	-7.2	11.5	500.0	3m./VERT	**32.8**	**AVG**
1842	-69.5	1hn3mh	37.5	-4.4	45.5	500.0	3m./HORZ	**20.8**	**AVG**

Note: 1 dB added for High Pass Filter loss on all Test Data
Data has been corrected by Duty Cycle correction = 20 log (5/35) = -16.9 dBm

SAMPLE CALCULATIONS:

RESULTS uV/m @ 3m = Antilog (-80.2 + -7.2 + 107)/20) = 9.6

CONVERSION FROM dBm TO dBuV = 107 dB

Tested by
Signature:  **Name: Gersop Riera**

TABLE 5e
FIELD STRENGTH OF SPURIOUS EMISSIONS
Spurious Harmonic AP 2 to Ant 2 @ 12 dBm (measured at antenna)

Test Date: July 1, 2007
UST Project: 07-0150
Customer: GE Healthcare
Model: EA-WMTS-SHU-4

Radiated Emissions									
Test By:	**Test:**	Spurious Harmonics 2 to 2 @ 12 dBm			**Client:**	GE Healthcare			
GR	**Project:**	07-0150			**Model:**	EA-WMTS-SHU-4			
Frequency	**Test Data**	**AF**	**Test Data**	**AF+CA-AMP**	**Results**	**Limits**	**Distance /**	**Margin**	**AVG**
(MHz)	**(dBm)**	**Table**	**(dBuV)**	**(dB)**	**(uV/m)**	**(uV/m)**	**Polarity**	**(dB)**	
1215.48	-79.3	1hn3mh	27.7	-7.0	10.8	500.0	3m./HORZ	**33.3**	**AVG**
1825.938	-69.2	1hn3mv	37.8	-4.7	45.1	500.0	3m./VERT	**20.9**	**AVG**
2434.818	-78.8	1hn3mv	28.2	-2.7	18.9	500.0	3m./VERT	**28.4**	**AVG**
1220.188	-79.1	1hn3mh	28.0	-7.0	11.1	500.0	3m./HORZ	**33.1**	**AVG**
1833.35	-70.5	1hn3mh	36.6	-4.4	40.4	500.0	3m./HORZ	**21.8**	**AVG**
2444.513	-77.4	1hn3mv	29.6	-2.7	22.2	500.0	3m./VERT	**27.1**	**AVG**
1227.018	-79.6	1hn3mh	27.4	-7.0	10.5	500.0	3m./HORZ	**33.6**	**AVG**
1840.638	-72.5	1hn3mv	34.5	-4.6	31.3	500.0	3m./VERT	**24.1**	**AVG**

Note: 1 dB added for High Pass Filter loss on all Test Data
Data has been corrected by Duty Cycle correction = 20 log (5/35) = -16.9 dBm

SAMPLE CALCULATIONS:

RESULTS uV/m @ 3m = Antilog ((-79.3 + -7.0 + 107)/20) = 10.8
CONVERSION FROM dBm TO dBuV = 107 dB

Tested by
Signature:  **Name: Gersop Riera**

TABLE 5f
FIELD STRENGTH OF SPURIOUS EMISSIONS
Spurious Harmonic AP 3 to Ant 3 @ 12 dBm (measured at antenna)

Test Date: July 3, 2007
UST Project: 07-0150
Customer: GE Healthcare
Model: EA-WMTS-SHU-4

Radiated Emissions									
Test By:	**Test:**	Spurious Harmonics 3 to 3 @ 12 dBm			**Client:**	GE Healthcare			
GR	**Project:**	07-0150			**Model:**	EA-WMTS-SHU-4			
Frequency	**Test Data**	**AF**	**Test Data**	**AF+CA-AMP**	**Results**	**Limits**	**Distance /**	**Margin**	**AVG**
(MHz)	**(dBm)**	**Table**	**(dBuV)**	**(dB)**	**(uV/m)**	**(uV/m)**	**Polarity**	**(dB)**	
1217.00	-78.7	1hn3mh	28.3	-7.0	11.5	500.0	3m./HORZ	**32.8**	**AVG**
1826	-65.6	1hn3mh	41.4	-4.5	70.6	500.0	3m./HORZ	**17.0**	**AVG**
1222	-78.1	1hn3mv	28.9	-7.2	12.2	500.0	3m./VERT	**32.3**	**AVG**
1834	-70.1	1hn3mh	36.9	-4.4	42.0	500.0	3m./HORZ	**21.5**	**AVG**
2445	-76.9	1hn3mh	30.1	-2.5	24.1	500.0	3m./HORZ	**26.3**	**AVG**
1228	-78.2	1hn3mv	28.8	-7.2	12.1	500.0	3m./VERT	**32.4**	**AVG**
1842	-70.8	1hn3mh	36.2	-4.4	39.2	500.0	3m./HORZ	**22.1**	**AVG**

Note: 1 dB added for High Pass Filter loss on all Test Data
Data has been corrected by Duty Cycle correction = 20 log (5/35) = -16.9 dBm

SAMPLE CALCULATIONS:

RESULTS uV/m @ 3m = Antilog ((-78.7 + -7.0 + 107)/20) = 11.5
CONVERSION FROM dBm TO dBuV = 107 dB

Tested by
Signature:  **Name: Gersop Riera**

TABLE 5g
FIELD STRENGTH OF SPURIOUS EMISSIONS
Spurious Harmonic AP 4 to Ant 4 @ 12 dBm (measured at antenna)

Test Date: July 3, 2007
UST Project: 07-0150
Customer: GE Healthcare
Model: EA-WMTS-SHU-4

Radiated Emissions									
Test By:	**Test:**	Spurious Harmonics 4 to 4 @ 12 dBm			**Client:**	GE Healthcare			
GR	**Project:**	07-0150			**Model:**	EA-WMTS-SHU-4			
Frequency	**Test Data**	**AF**	**Test Data**	**AF+CA-AMP**	**Results**	**Limits**	**Distance /**	**Margin**	**AVG**
(MHz)	**(dBm)**	**Table**	**(dBuV)**	**(dB)**	**(uV/m)**	**(uV/m)**	**Polarity**	**(dB)**	
1217.00	-79.0	1hn3mh	28.0	-7.0	11.1	500.0	3m./HORZ	**33.1**	**AVG**
1826	-68.3	1hn3mh	38.7	-4.5	51.5	500.0	3m./HORZ	**19.7**	**AVG**
1222	-79.3	1hn3mv	27.7	-7.2	10.6	500.0	3m./VERT	**33.5**	**AVG**
1834	-73.5	1hn3mv	33.5	-4.6	27.6	500.0	3m./VERT	**25.1**	**AVG**
2444	-77.7	1hn3mh	29.3	-2.5	22.1	500.0	3m./HORZ	**27.1**	**AVG**
1227	-79.3	1hn3mv	27.8	-7.2	10.7	500.0	3m./VERT	**33.4**	**AVG**
1842	-70.2	1hn3mh	36.8	-4.4	42.0	500.0	3m./HORZ	**21.5**	**AVG**

Note: 1 dB added for High Pass Filter loss on all Test Data
Data has been corrected by Duty Cycle correction = 20 log (5/35) = -16.9 dBm

SAMPLE CALCULATIONS:

RESULTS uV/m @ 3m = Antilog ((-79.0 + -7.0 + 107)/20) = 11.1
CONVERSION FROM dBm TO dBuV = 107 dB

Tested by
Signature:  **Name: Gersop Riera**

TABLE 5h
FIELD STRENGTH OF SPURIOUS EMISSIONS
Spurious Harmonic AP 2 to Ant 2 @ 17 dBm (measured at antenna)
Case Radiation

Test Date: August 30, 2007
UST Project: 07-0150
Customer: GE Healthcare
Model: EA-WMTS-SHU-4

Radiated Emissions									
Test By:	**Test:**	Spurious Harmonics 2 to 2 @ 17 dBm			**Client:**	GE Healthcare			
GR	**Project:**	07-0150			**Model:**	EA-WMTS-SHU-4			
Frequency	**Test Data**	**AF**	**Test Data**	**AF+CA-AMP**	**Results**	**Limits**	**Distance /**	**Margin**	**AVG**
(MHz)	**(dBm)**	**Table**	**(dBuV)**	**(dB)**	**(uV/m)**	**(uV/m)**	**Polarity**	**(dB)**	
1217.21	-81.7	1hn3mv	25.3	-7.0	8.1	500.0	3m./VERT	**35.8**	**AVG**
1826	-68.6	1hn3mv	38.4	-4.5	49.7	500.0	3m./VERT	**20.0**	**AVG**
2434.448	-81.1	1hn3mv	25.9	-2.6	14.6	500.0	3m./VERT	**30.7**	**AVG**
3043.185	-80.3	1hn3mv	26.7	-0.3	20.8	500.0	3m./VERT	**27.6**	**AVG**
1222.243	-82.2	1hn3mv	24.8	-7.0	7.8	500.0	3m./VERT	**36.2**	**AVG**
1833.566	-69.6	1hn3mv	37.4	-4.4	44.5	500.0	3m./VERT	**21.0**	**AVG**
2444.757	-81.3	1hn3mv	25.7	-2.6	14.4	500.0	3m./VERT	**30.8**	**AVG**
3055.4	-89.8	1hn3mv	17.2	-0.3	7.1	500.0	3m./VERT	**37.0**	**AVG**
1227.028	-83.8	1hn3mv	23.2	-7.0	6.4	500.0	3m./VERT	**37.8**	**AVG**
1840.554	-72.9	1hn3mv	34.1	-4.4	30.4	500.0	3m./VERT	**24.3**	**AVG**
2454.364	-84.0	1hn3mv	23.0	-2.5	10.5	500.0	3m./VERT	**33.6**	**AVG**
3068.08	-88.3	1hn3mh	18.7	-0.1	8.6	500.0	3m./HORZ	**35.3**	**AVG**

Note: 1 dB added for High Pass Filter loss on all Test Data
Data has been corrected by Duty Cycle correction = 20 log (5/35) = -16.9 dBm

SAMPLE CALCULATIONS:

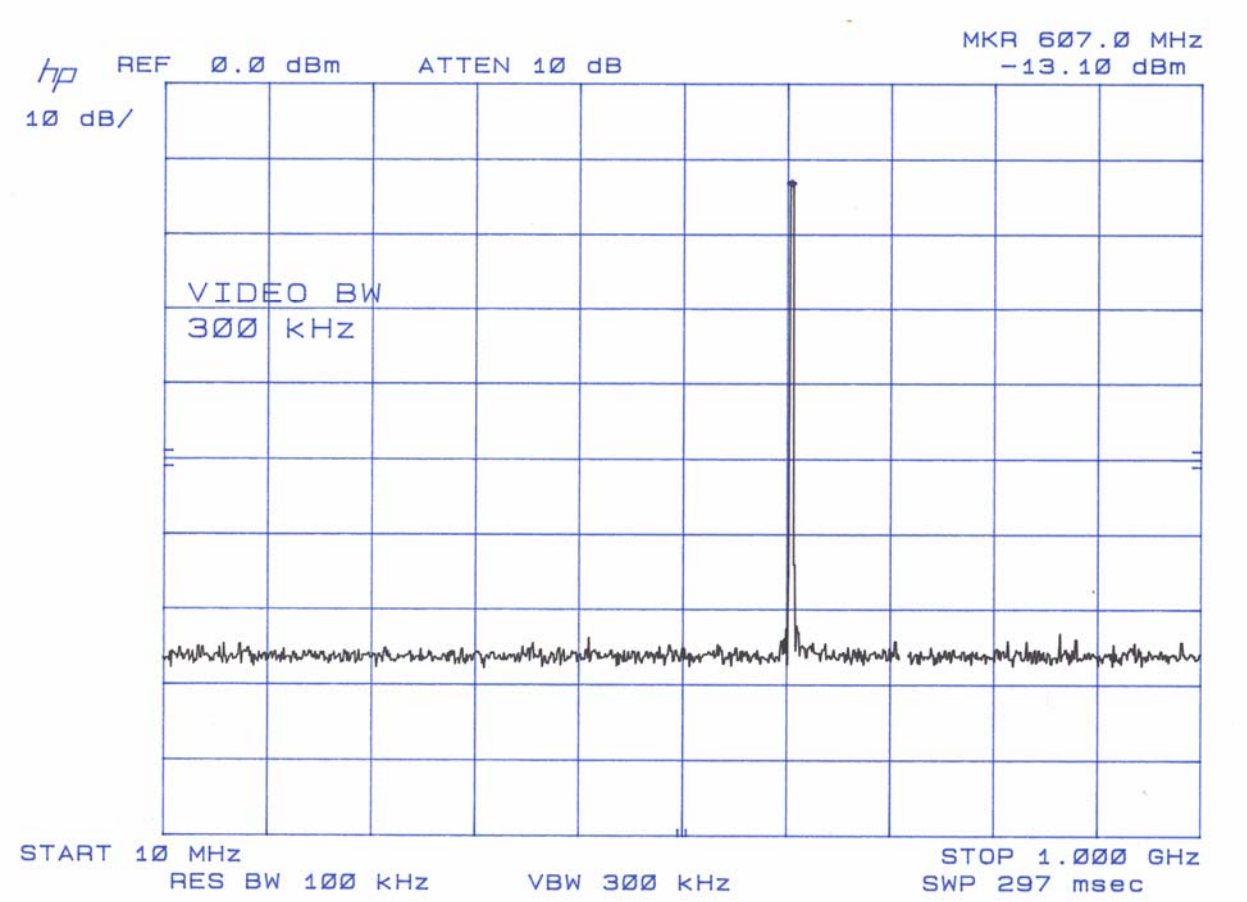
RESULTS uV/m @ 3m = Antilog ((-81.7 + -7.0 + 107)/20) = 8.1
CONVERSION FROM dBm TO dBuV = 107 dB

Tested by
Signature:  **Name: Gersop Riera**

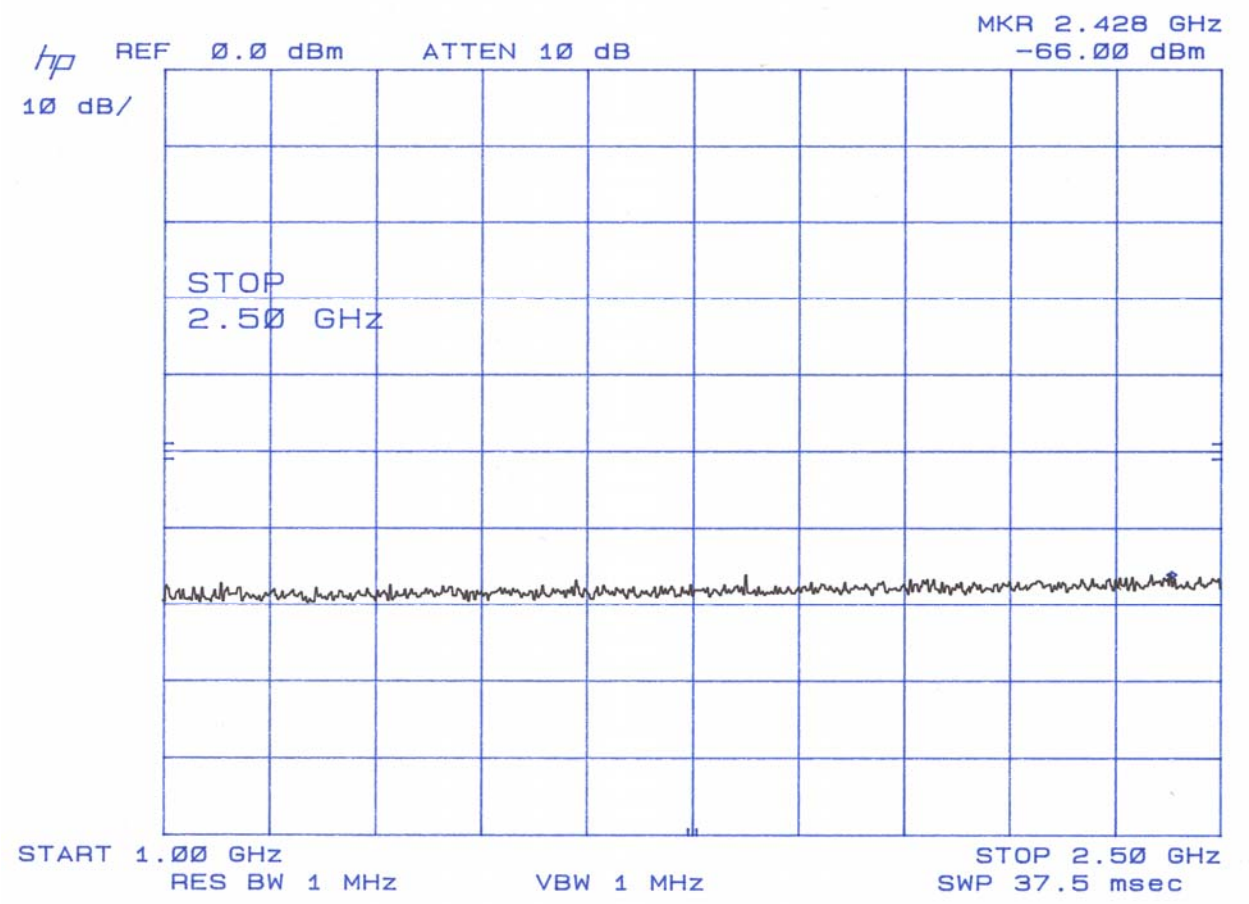
2.9 Antenna Conducted Spurious Emission in the Frequency Range 30 - 25000 MHz (FCC Section 15.247(c))

Spurious emissions in the frequency range 10 – 25000 have been measured with a spectrum analyzer by connecting the spectrum analyzer directly via a short cable to the antenna output terminals or across the antenna leads on the PCB as specified by the manufacturer. The spectrum analyzer was set for a 50 Ω impedance with the RBW = 100 kHz. All spurious emissions were measured to be greater than 20 dB down from the fundamental.

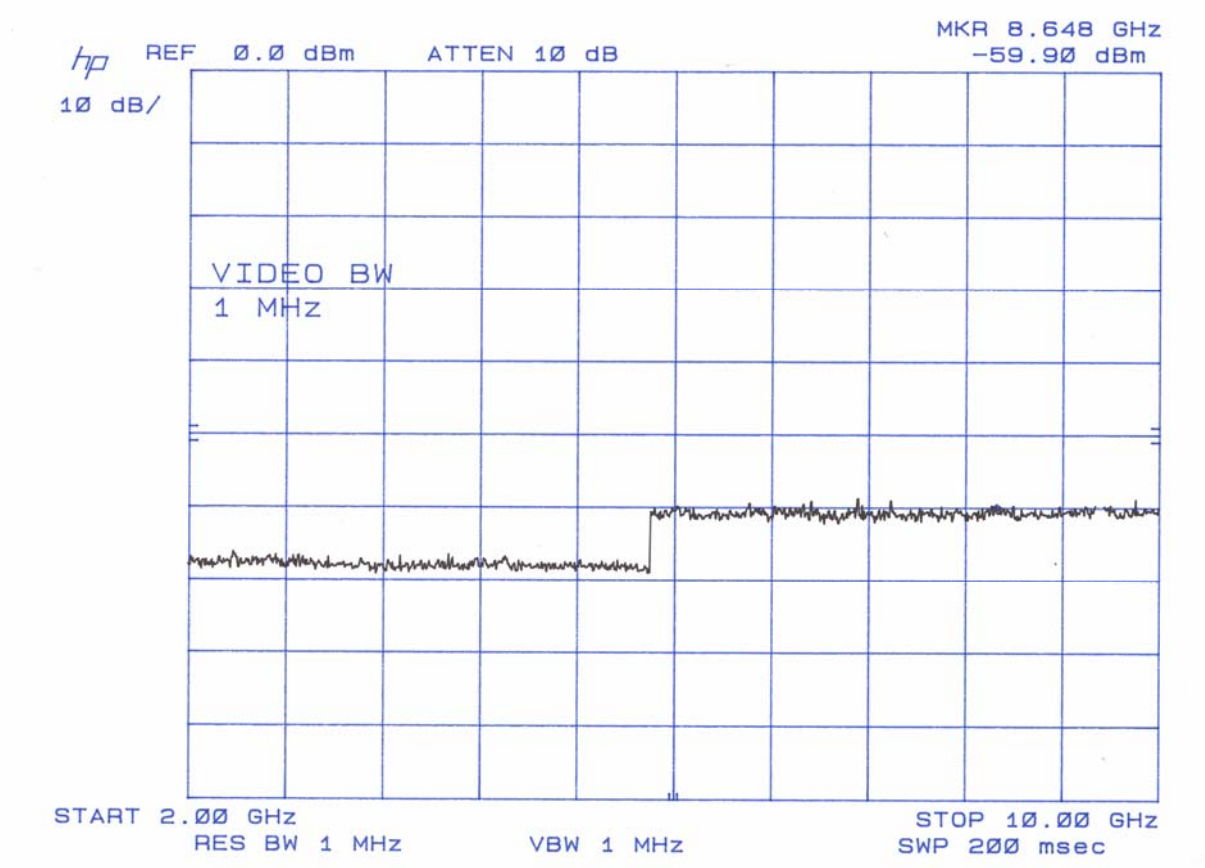
Plot 1a. Antenna Conducted Spurious Emissions (Low)



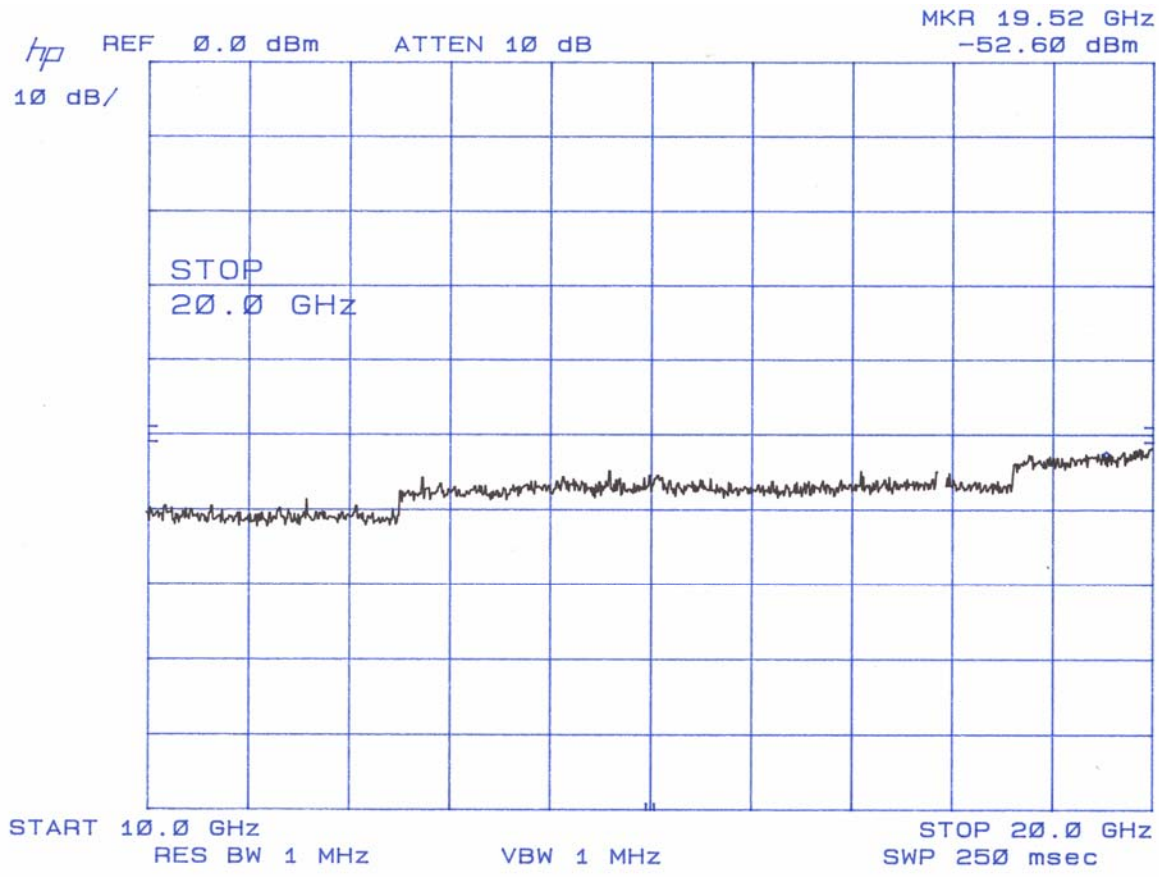
Plot 1b. Antenna Conducted Spurious Emissions (Low)



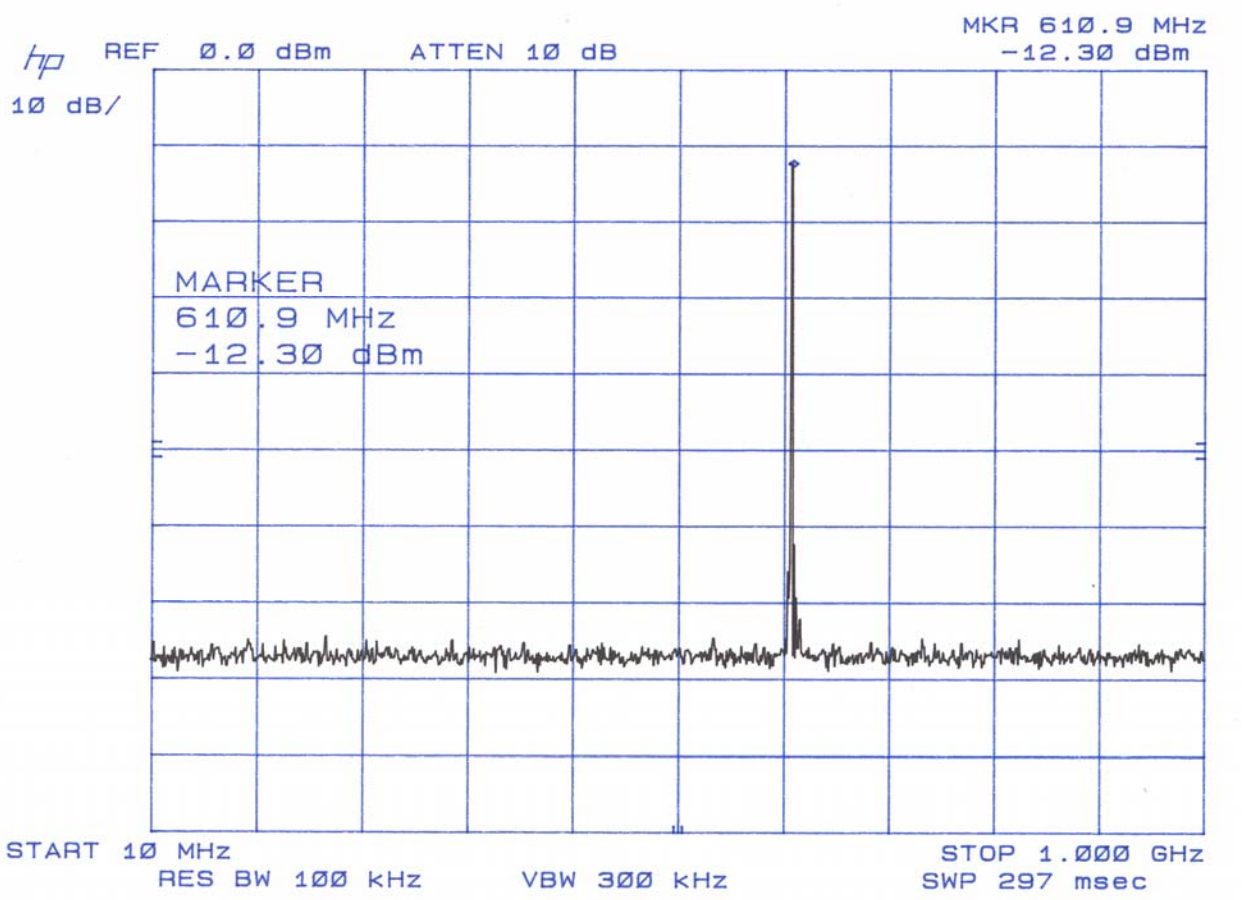
Plot 1c. Antenna Conducted Spurious Emissions (Low)



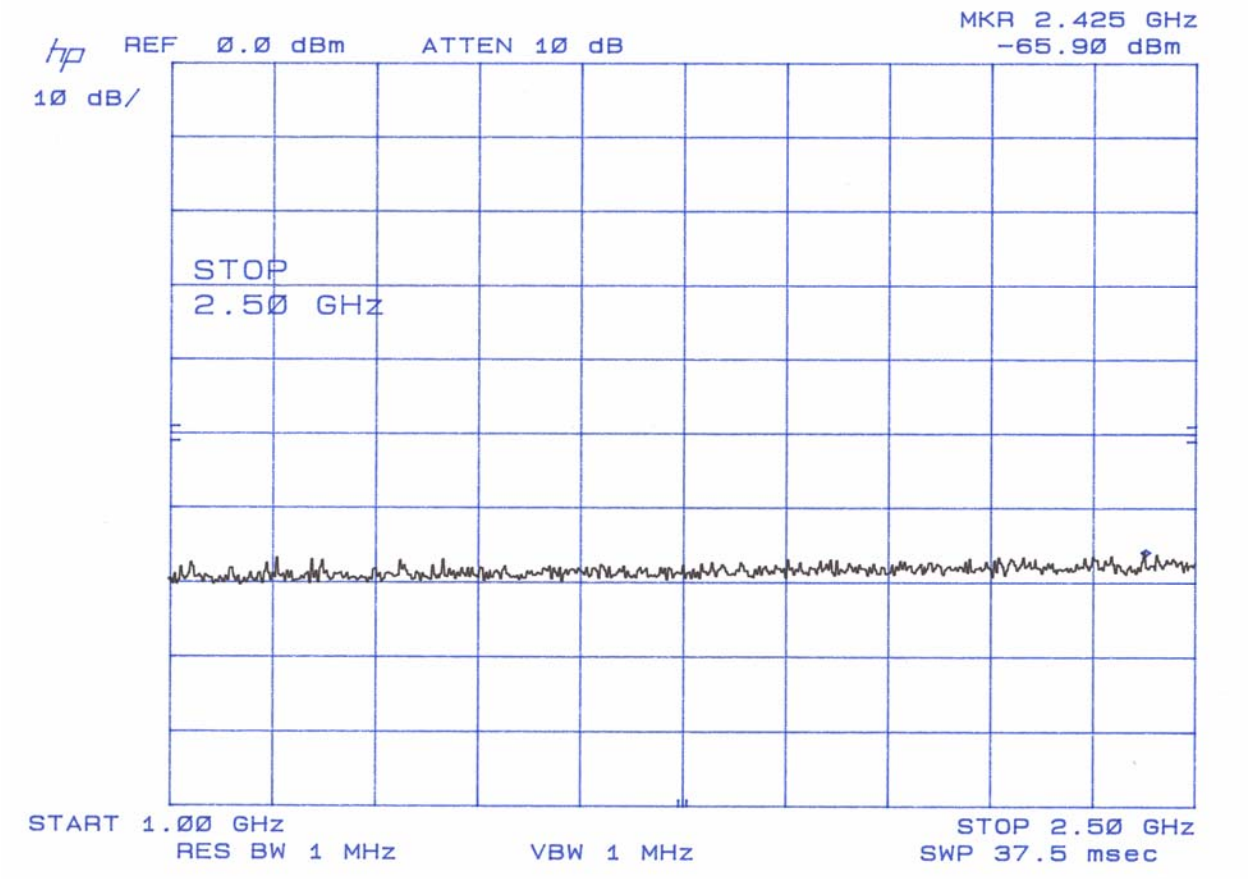
Plot 1d. Antenna Conducted Spurious Emissions (Low)



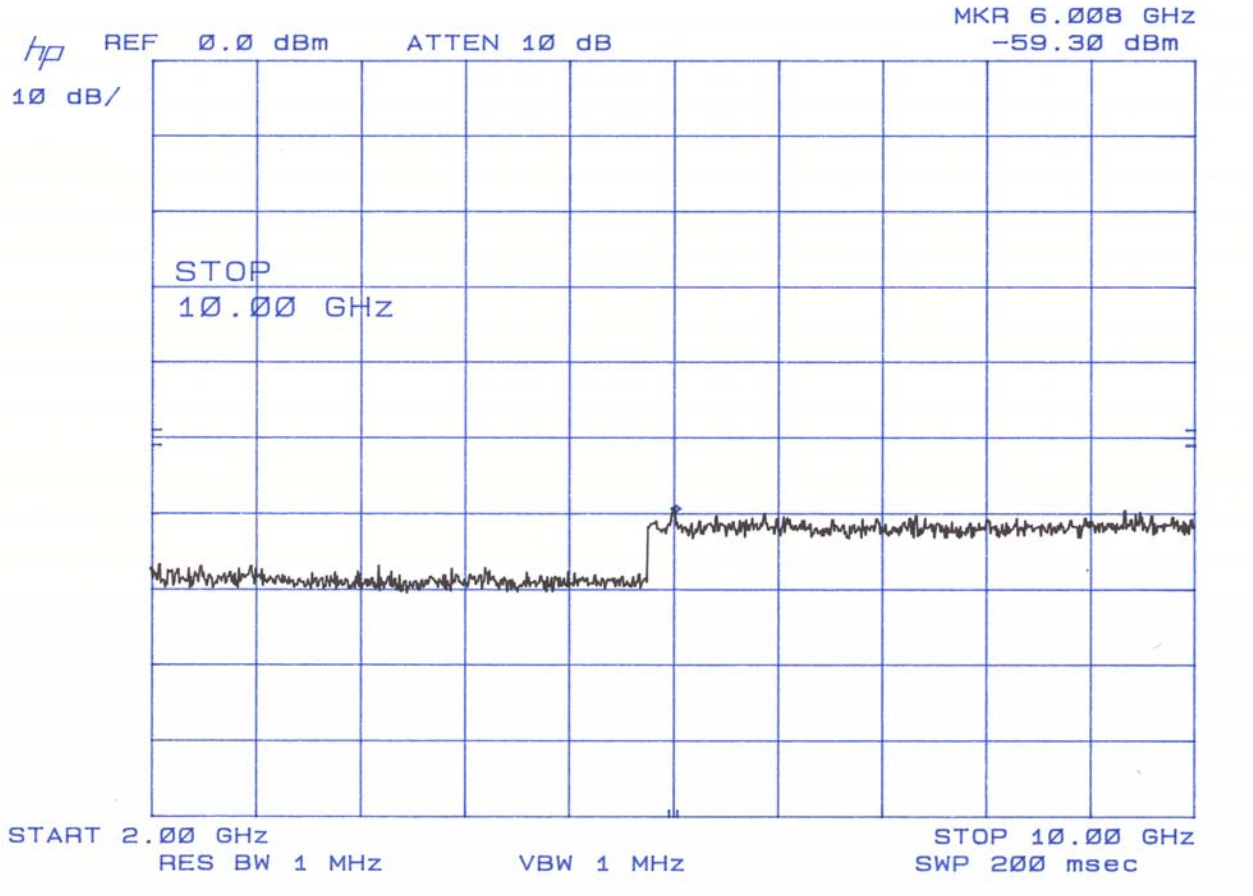
Plot 2a. Antenna Conducted Spurious Emissions (Mid)



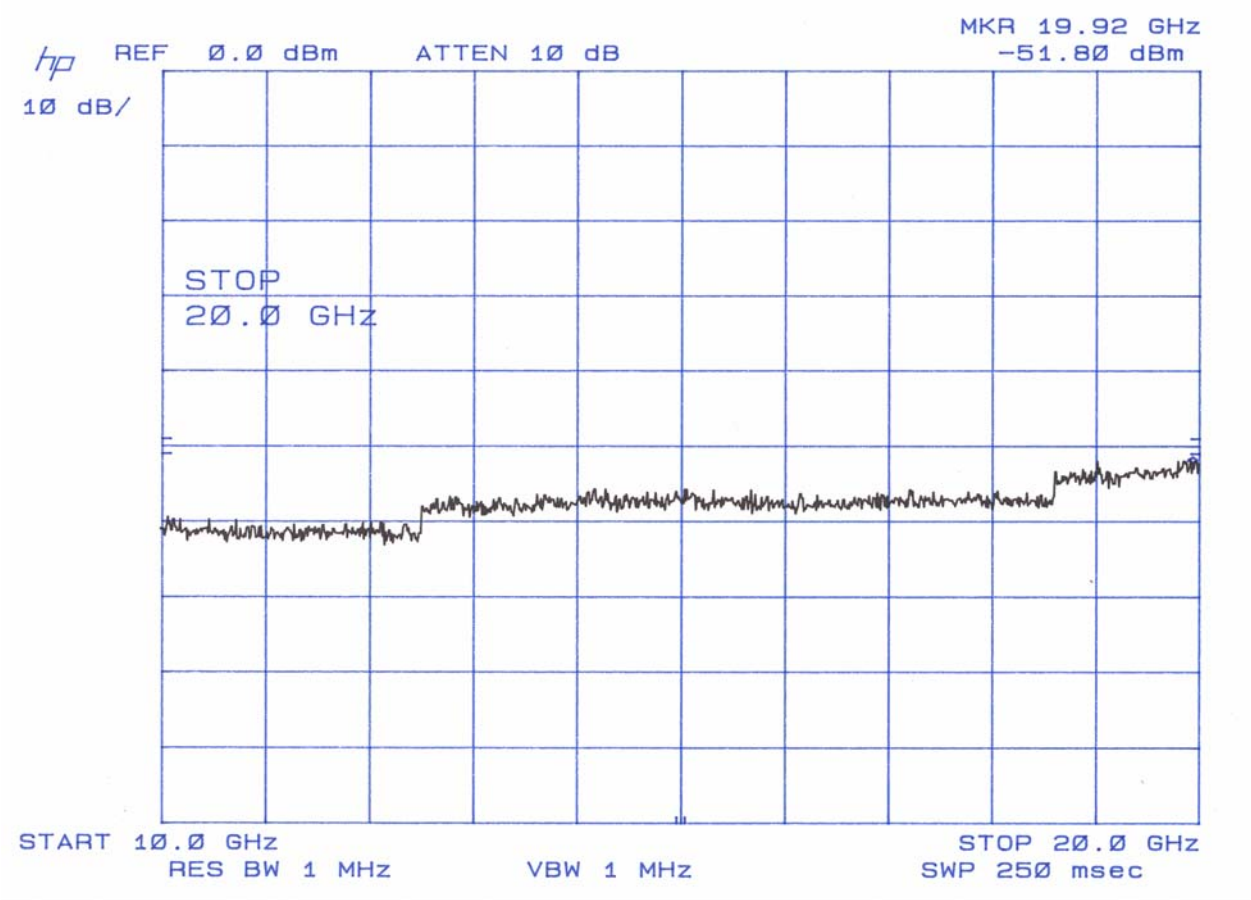
Plot 2b. Antenna Conducted Spurious Emissions (Mid)



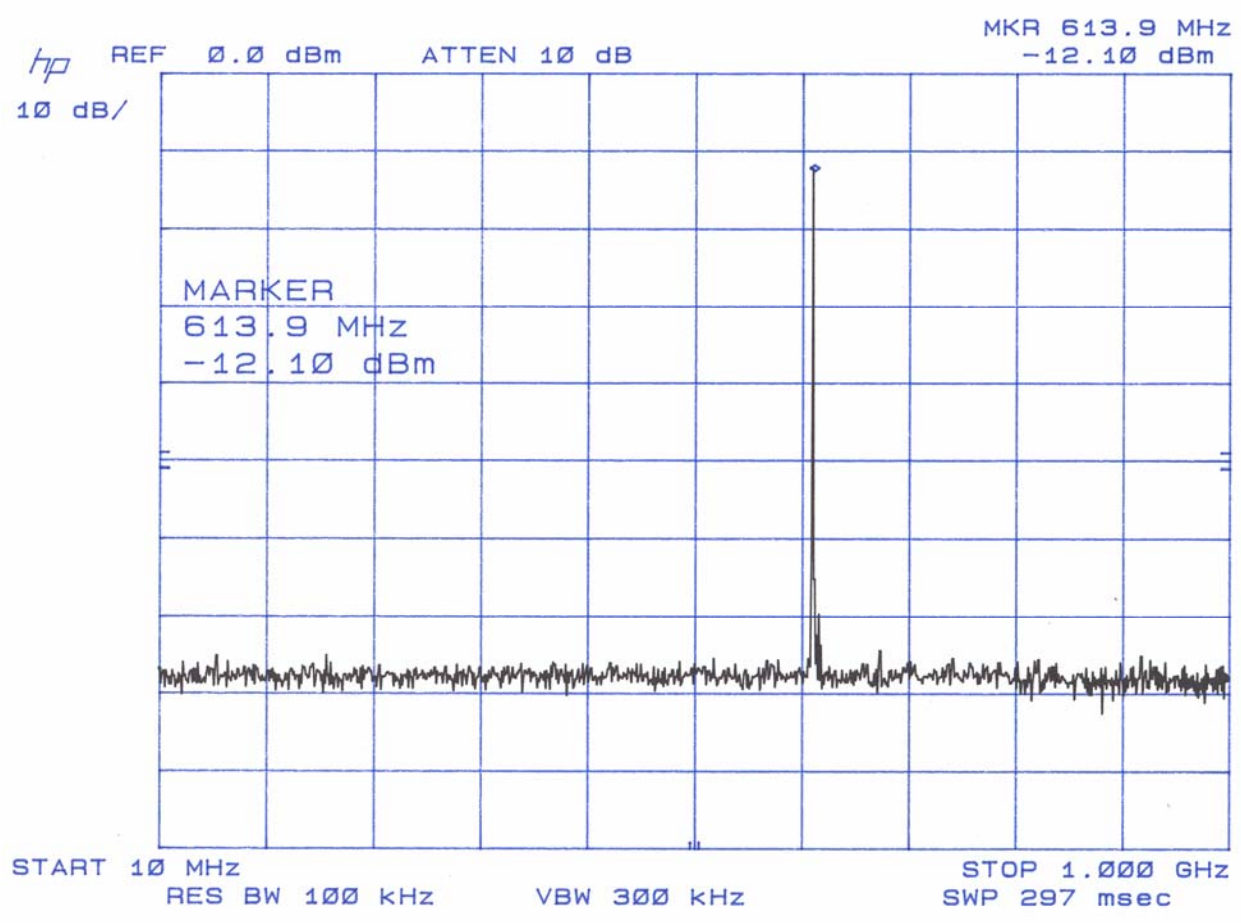
Plot 2c. Antenna Conducted Spurious Emissions (Mid)



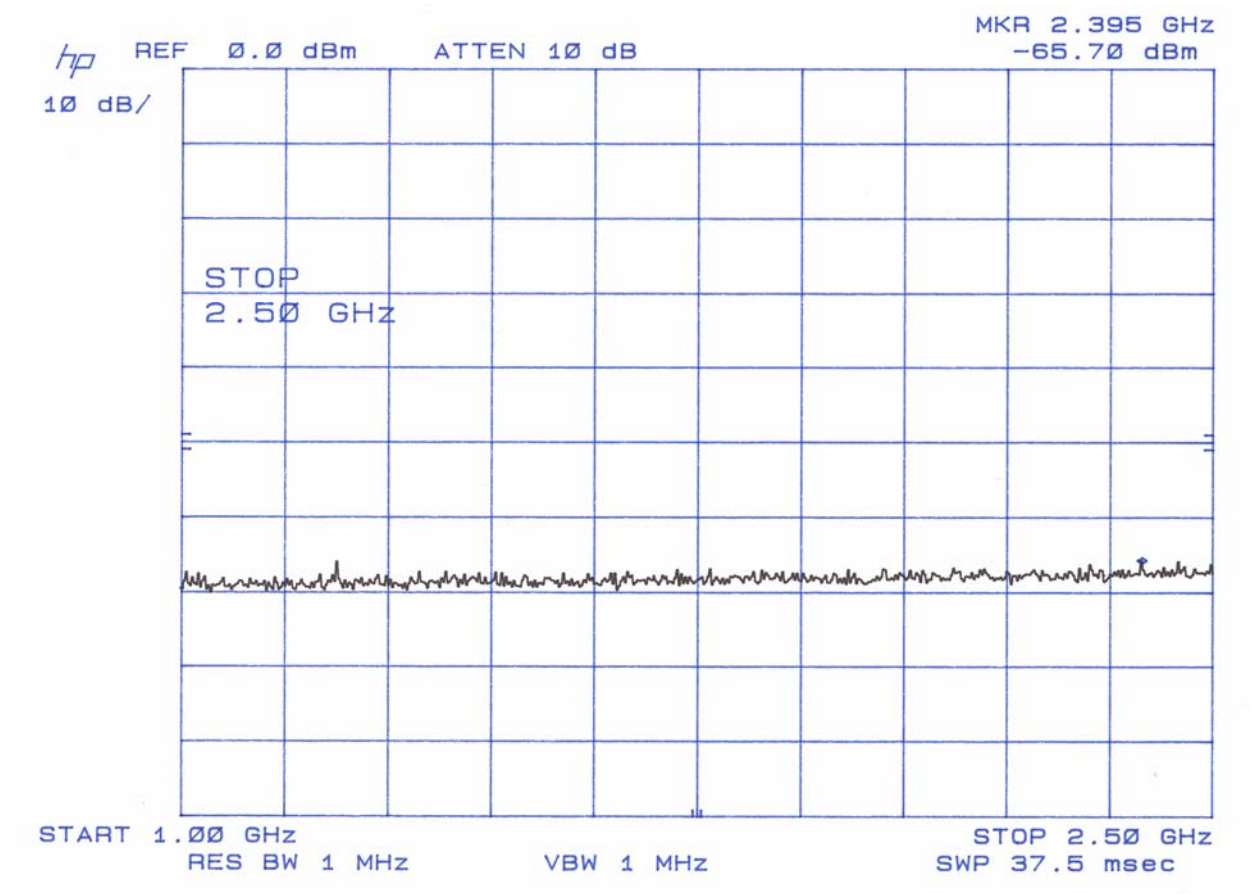
Plot 2d. Antenna Conducted Spurious Emissions (Mid)



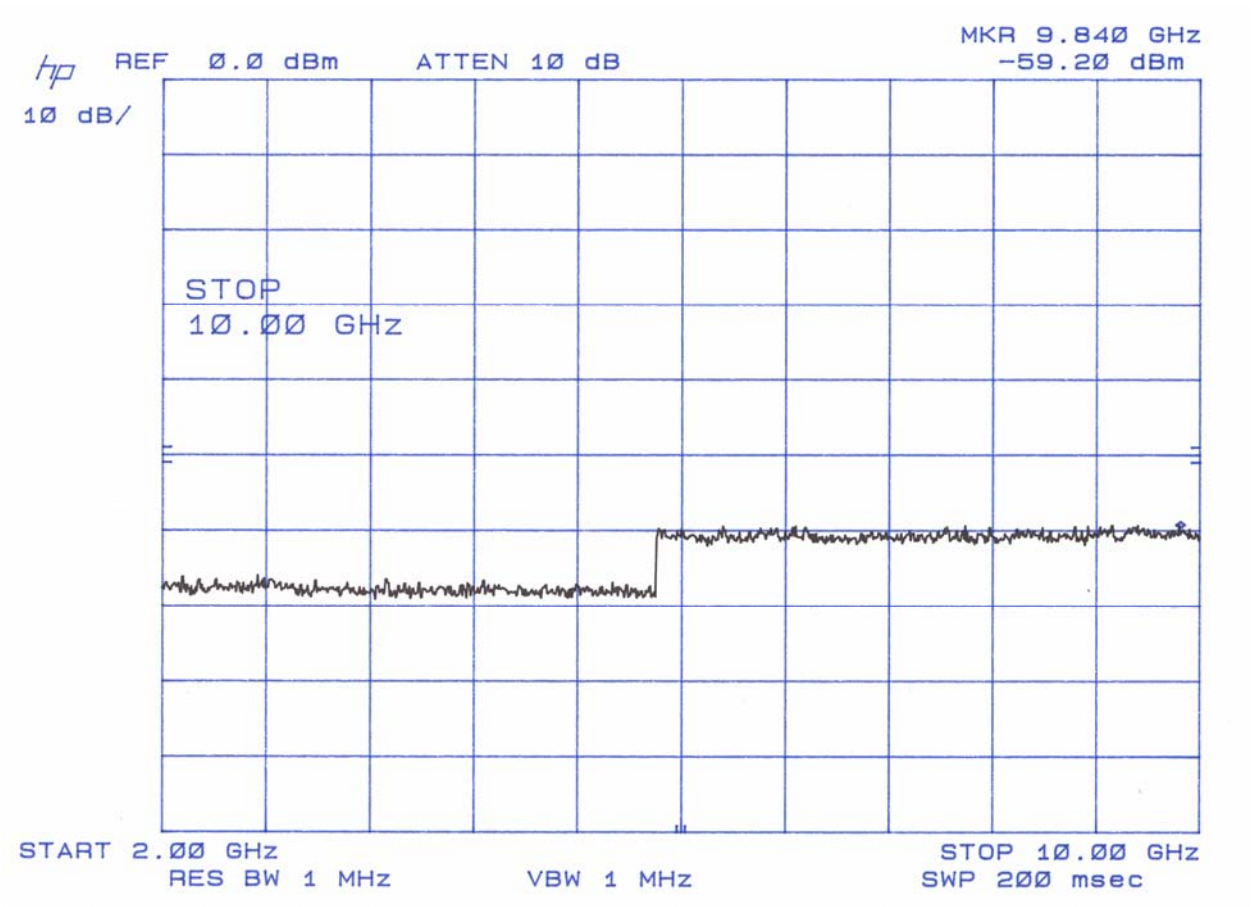
Plot 3a. Antenna Conducted Spurious Emissions (High)



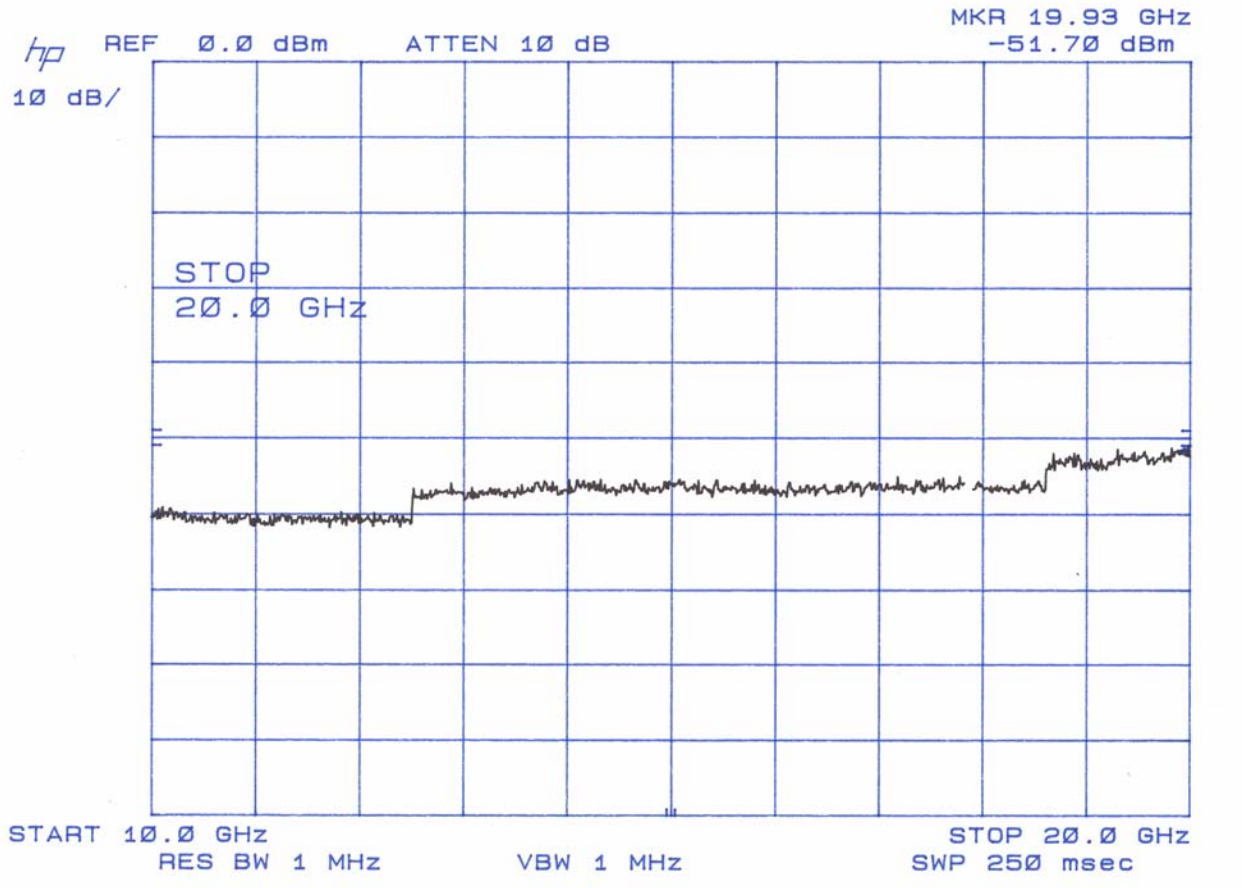
Plot 3b. Antenna Conducted Spurious Emissions (High)



Plot 3c. Antenna Conducted Spurious Emissions (High)



Plot 3d. Antenna Conducted Spurious Emissions (High)



2.10 Radiated Emissions (47 CFR 15.109a)

Radiated emissions were evaluated from 30 to 10000 MHz. Measurements were made with the analyzer's bandwidth set to 120 kHz measurements made less than 1 GHz and 1 MHz are shown in Table 6. No measurable emissions were detected above 1 GHz.

Table 6 Radiated Emissions Data
Class B

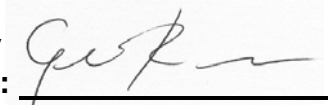
Test Date: July 3, 2007
UST Project: 07-0150
Customer: GE Healthcare
Product: EA-WMTS-SHU-4

Measurements < 1 GHz

Radiated Emissions									
Test By: G.R.	Test: FCC Radiated Digital Emissions				Client: GE Healthcare				
	Project: 07-0150			Class: A		Model:	EA-WMTS-SHU-4		
Frequency (MHz)	**Test Data (dBm)**	**AF Table**	**Test Data (dBuV)**	**AF+CA-AMP (dB)**	**Results (uV/m)**	**Limits (uV/m)**	**Distance / Polarity**	**Margin (dB)**	**PK / QP**
86.30	-82.0	1bi3mv	25.0	11.4	66.2	90.0	3m./VERT	**2.7**	**PK**
84.8	-83.0	1bi3mv	24.0	11.3	58.2	150.0	3m./VERT	**8.2**	**PK**
74.7	-89.0	1bi3mv	18.0	10.3	26.0	90.0	3m./VERT	**10.8**	**PK**
29.6	-86.0	1bi3mv	21.0	14.0	56.5	90.0	3m./VERT	**4.0**	**PK**
289	-92.0	2lp3mv	15.0	17.1	40.1	200.0	3m./VERT	**14.0**	**PK**
338	-87.0	2lp3mh	20.0	18.1	80.7	200.0	3m./HORZ	**7.9**	**PK**
366	-84.0	2lp3mh	23.0	18.6	120.8	200.0	3m./HORZ	**4.4**	**PK**
377	-86.0	2lp3mv	21.0	18.5	94.0	200.0	3m./VERT	**6.6**	**PK**

SAMPLE CALCULATIONS:

RESULTS uV/m @ 3m = Antilog ((-82.0 + 11.4 + 107)/20) = 66.2
CONVERSION FROM dBm TO dBuV = 107 dB

Tested by
Signature:  **Name: Gersop Riera**

2.11 Power Line Conducted Emissions for Digital Device FCC Section 15.107

The conducted voltage measurements have been carried out in accordance with FCC Section 15.107, with a spectrum analyzer connected to a LISN and the EUT placed into a continuous mode of transmit. The results are given in Table 11 and Plot Number 4.

Table 11. Conducted Emissions Data – Digital Device Class B

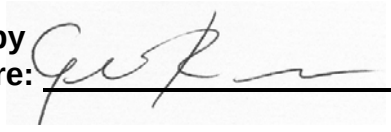
Test Date: July 3, 2007
UST Project: 07-0150
Customer: GE Healthcare
Product: EA-WMTS-SHU-4

Frequency (MHz)	Test Data (dBm)	Test Data (dBuV)	AF+CA-AMP (dB)	Results (dBuV)	Limits (dBuV)	Margin (dB)	PK = n / QP
0.20	-68.8	38.2	-0.1	38.1	52.6	**14.5**	**QP**
0.505	-83.6	23.4	-0.1	23.3	46.0	**22.7**	**QP**
4.52	-87.9	19.1	0.3	19.4	46.0	**26.6**	**QP**
6.74	-82.6	24.4	0.4	24.8	50.0	**25.2**	**QP**
16.38	-78.2	28.8	0.6	29.4	50.0	**20.6**	**QP**
28.84	-84.7	22.3	0.8	23.1	50.0	**26.9**	**QP**
0.202	-68.9	38.1	-0.1	38.0	52.6	**14.6**	**QP**
0.505	-69.4	37.6	-0.1	37.5	46.0	**8.4**	**QP**
2.91	-83.0	24.0	0.2	24.2	46.0	**21.8**	**QP**
6.63	-81.0	26.0	0.4	26.4	50.0	**23.6**	**QP**
16.38	-73.5	33.5	0.6	34.1	50.0	**15.9**	**QP**
26.33	-81.3	25.7	0.6	26.3	50.0	**23.7**	**QP**

SAMPLE CALCULATIONS:

RESULTS dBuV = -68.8 + -0.1 + 107 = 38.1

CONVERSION FROM dBm TO dBuV = 107 dB

Tested by
Signature:  **Name: Gersop Riera**

2.12 **Conducted Peak Output Power within the band 608 – 614 MHz**

Peak power within the band 608 – 614 MHz has been measured with a spectrum analyzer by connecting the spectrum analyzer directly via a short cable to the antenna output terminals. The spectrum analyzer was set for a 50 Ω impedance with the VBW ≥ RBW.

Output Power measurements were performed with the input power varied from 5 dBm to 15 dBm. Consistent output Power readings (approximately 17dBm) were recorded across the input variance.

The EUT is capable of going to 17 dBm output power using software control. However, the maximum output that meets Fundamental Field Strength and Spurious Harmonics Limits is 12 dBm (software setting).

Following measurement of Fundamental Field Strength, the Output Power was measured from AP 2 port to ANT 2 port, with the unit set at 12 dBm, and taken from the end of the cable that connects directly to the Antenna.

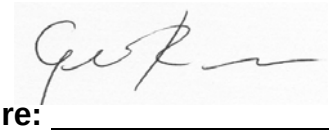
Representative results of the measurements are given in Plot 4a through 4c.

TABLE 12
CONDUCTED PEAK POWER OUTPUT
Setting at 12 dBm (software setting)

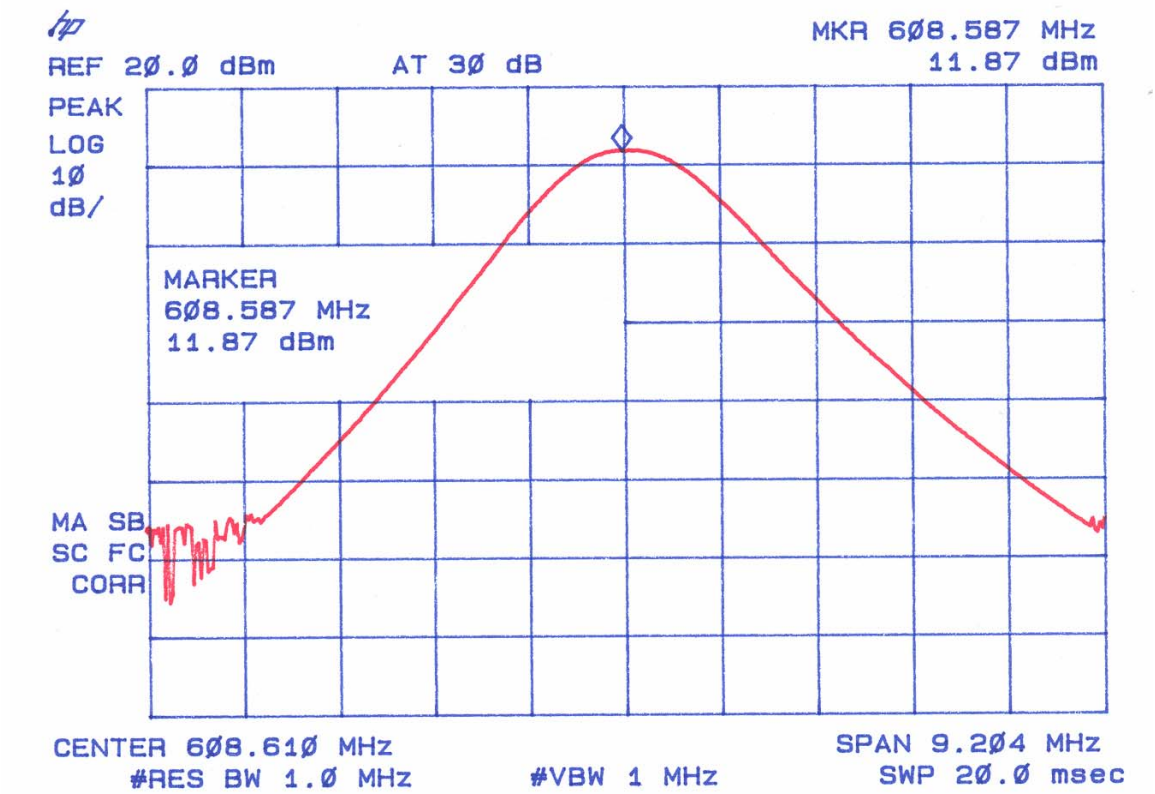
Test Date: July 3, 2007
UST Project: 07-0150
Customer: GE Healthcare
Product: EA-WMTS-SHU-4

Frequency of Fundamental (MHz)	Measurement (dBm)*	Measurement (mW)*	FCC Limit (Watt)
608.587	11.97	15.73	1.0
611.164	12.23	16.71	1.0
613.465	12.11	16.25	1.0

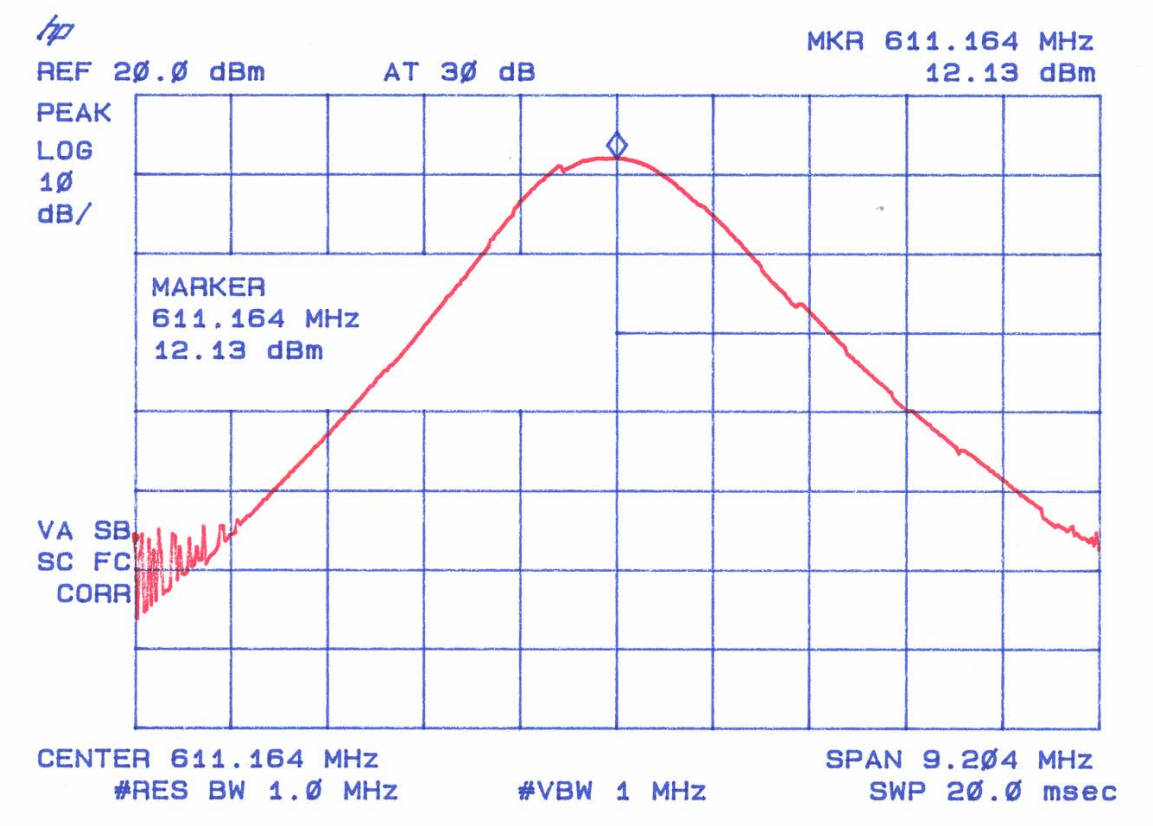
*** Measurement includes 0.1 dB for cable loss**

Tester Signature:  **Name: Gersop Riera**

Plot 4a. Conducted Power (Low) setting at 12 dBm



Plot 4b. Conducted Power (Mid) setting at 12 dBm



Plot 4c. Conducted Power (High) setting at 12 dBm

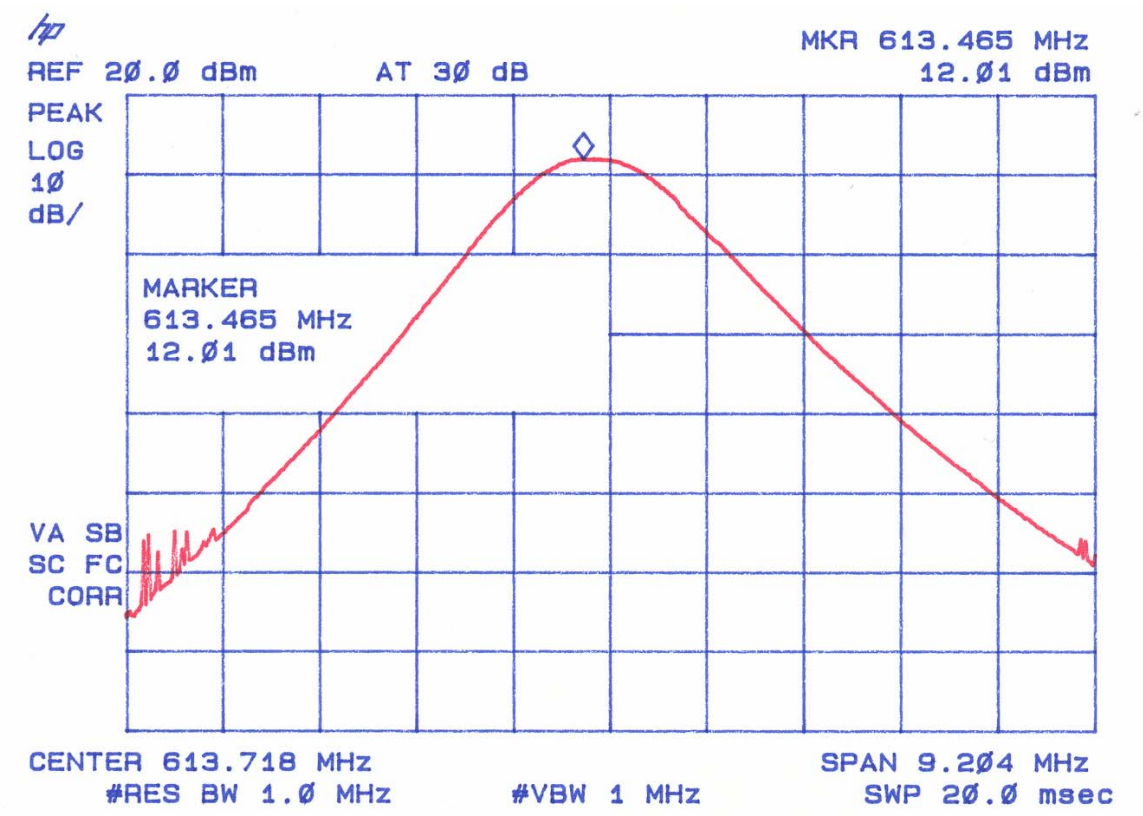


TABLE 13
CONDUCTED PEAK POWER OUTPUT
Setting at 17 dBm (software setting)

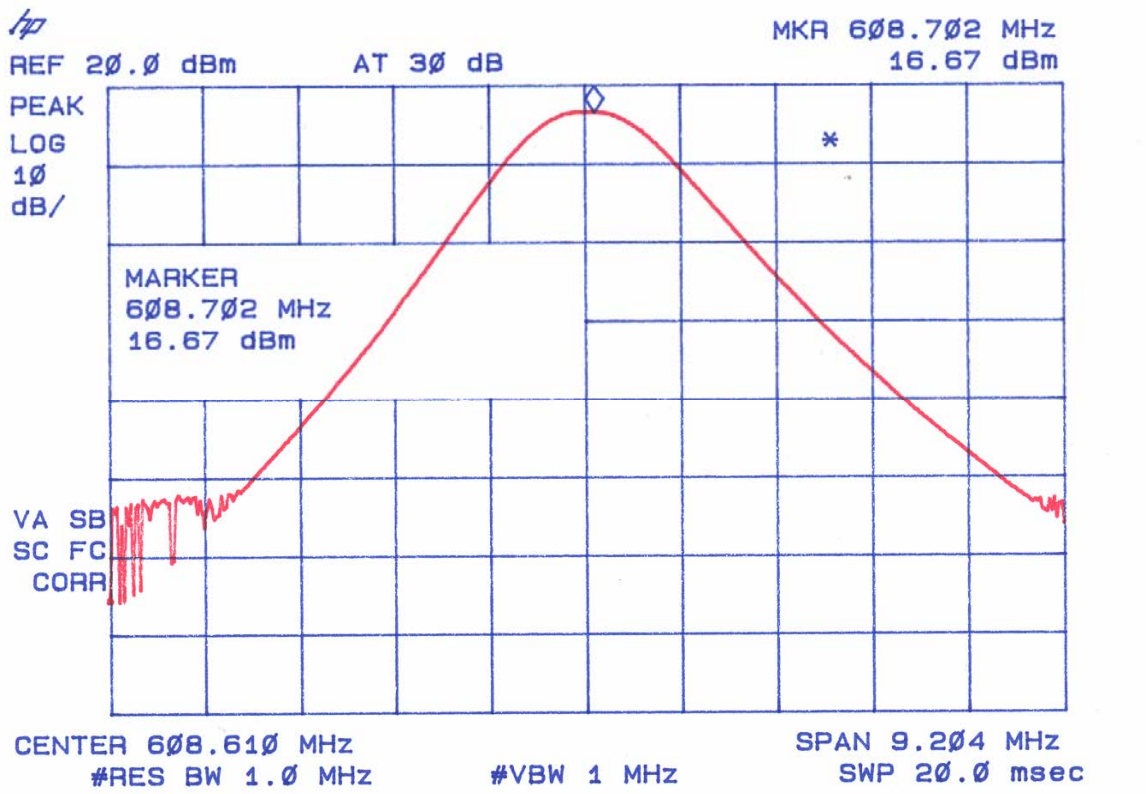
Test Date: July 3, 2007
UST Project: 07-0150
Customer: GE Healthcare
Product: EA-WMTS-SHU-4

Frequency of Fundamental (MHz)	Measurement (dBm)*	Measurement (mW)*	FCC Limit (Watt)
608.702	16.77	47.53	1.0
611.026	16.90	48.97	1.0
613.465	17.13	51.64	1.0

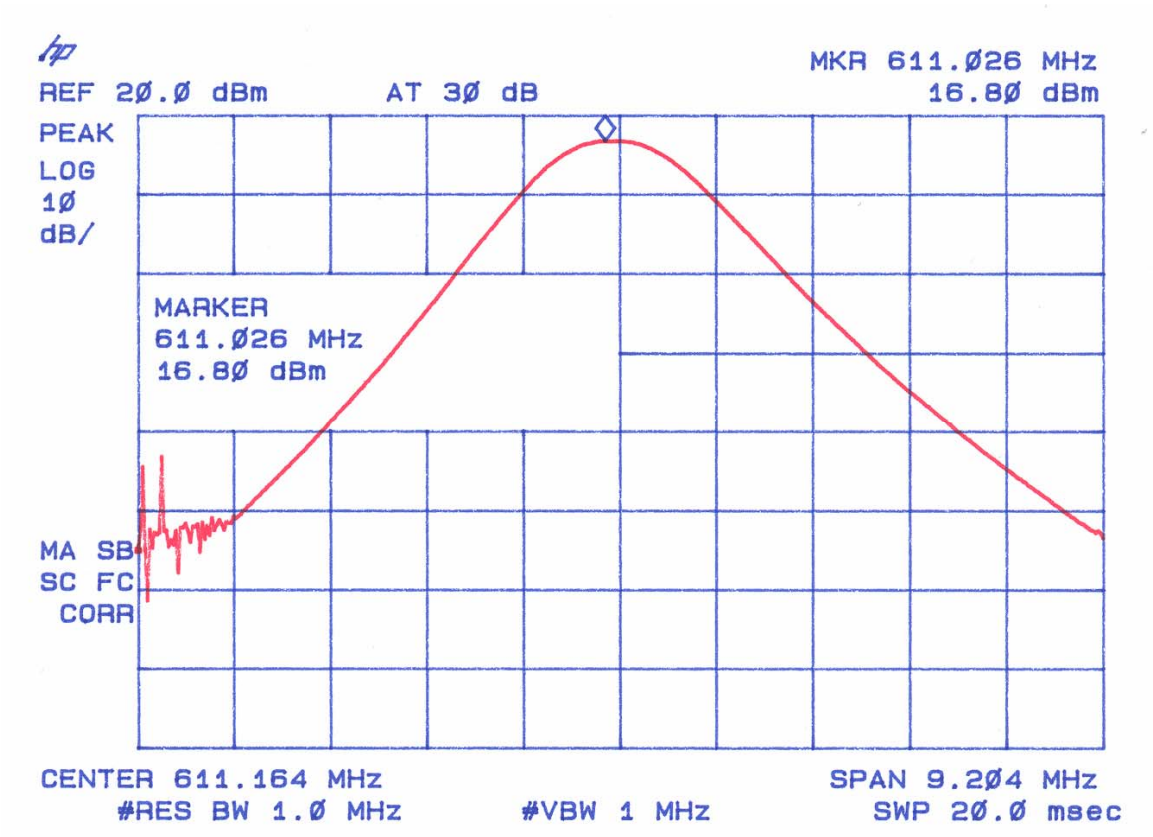
*** Measurement includes 0.1 dB for cable loss**

Tester Signature: _____ **Name:** Gersop Riera

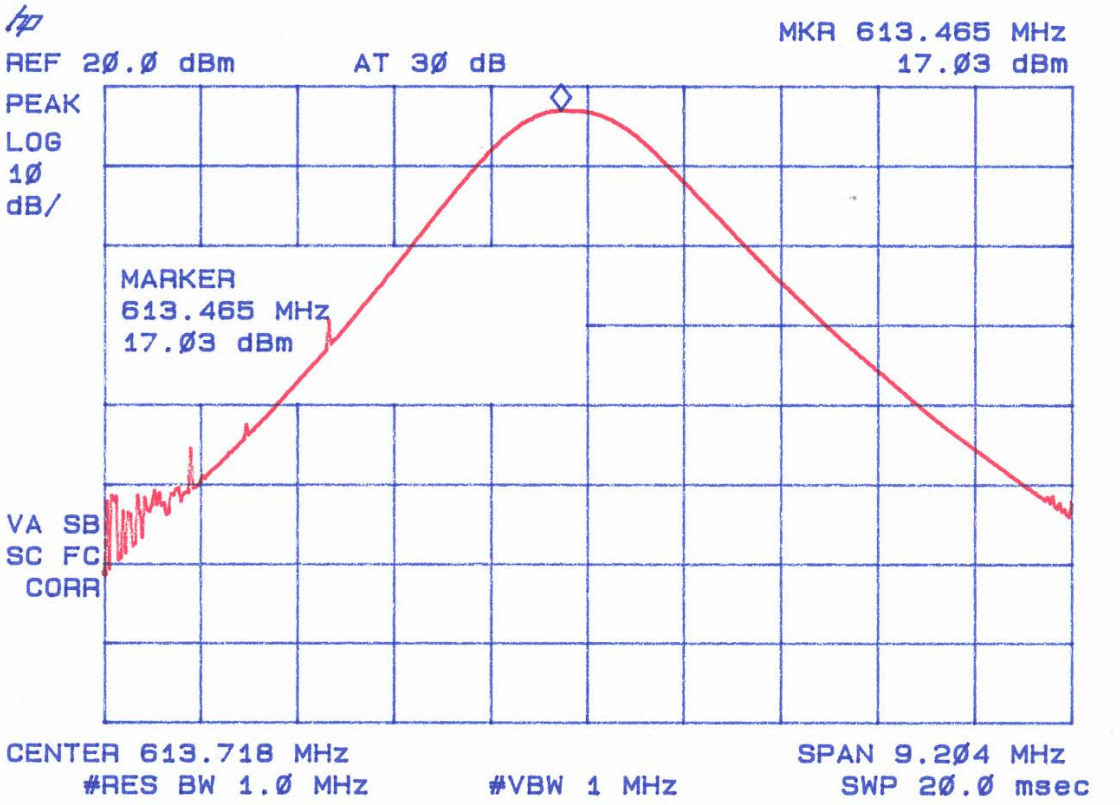
Plot 4a. Conducted Power (Low) setting at 17 dBm



Plot 4b. Conducted Power (Mid) setting at 17 dBm



Plot 4c. Conducted Power (High) setting at 17 dBm

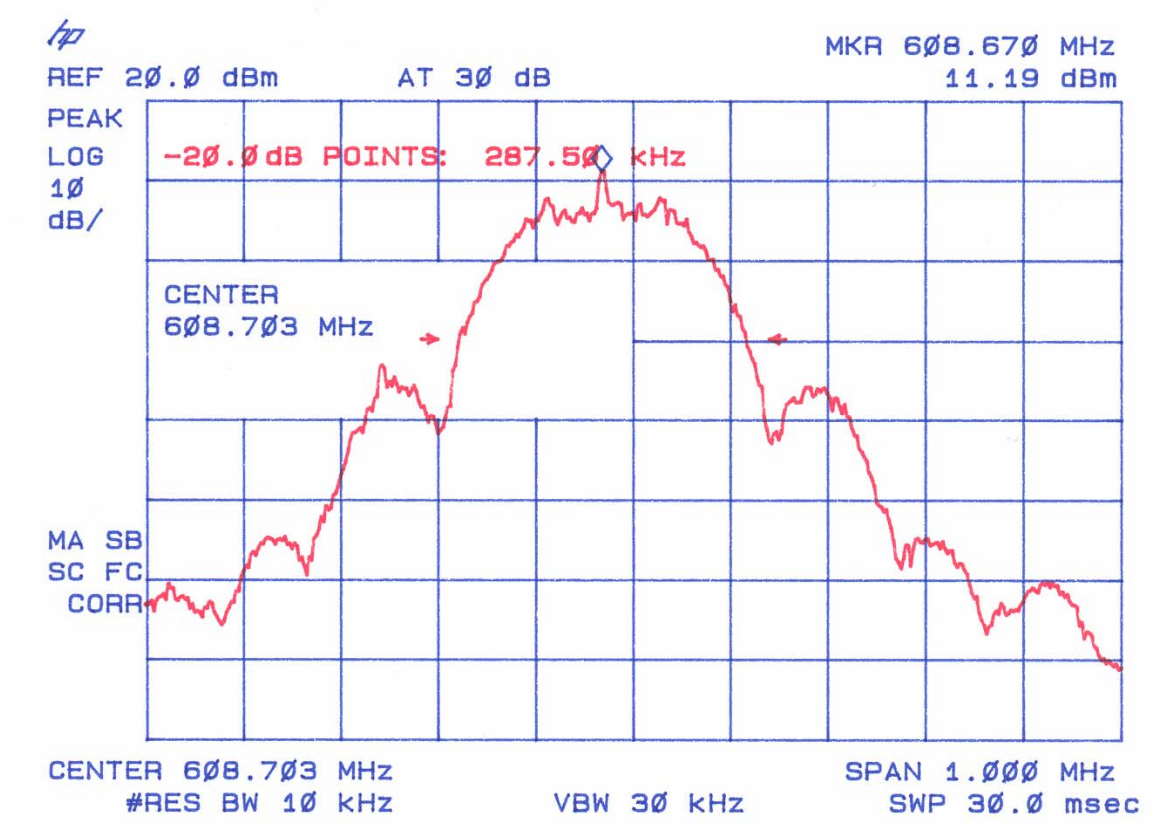


2.12 Input Output 20 dB Bandwidth Comparison

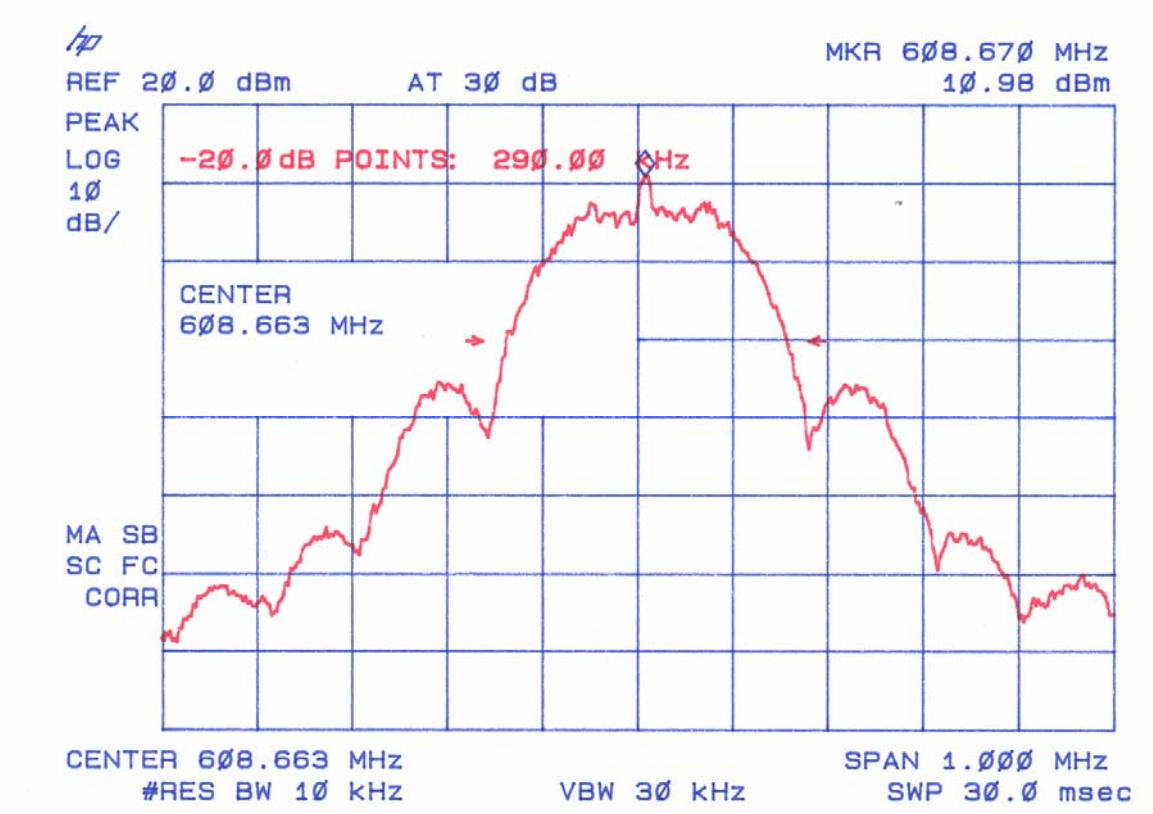
20dB Bandwidth was measured from the source providing signal to the input Port 1.The amplified signal was measured at Output Ports 1 and 2 as representative of all combinations.

The following plots provide results.

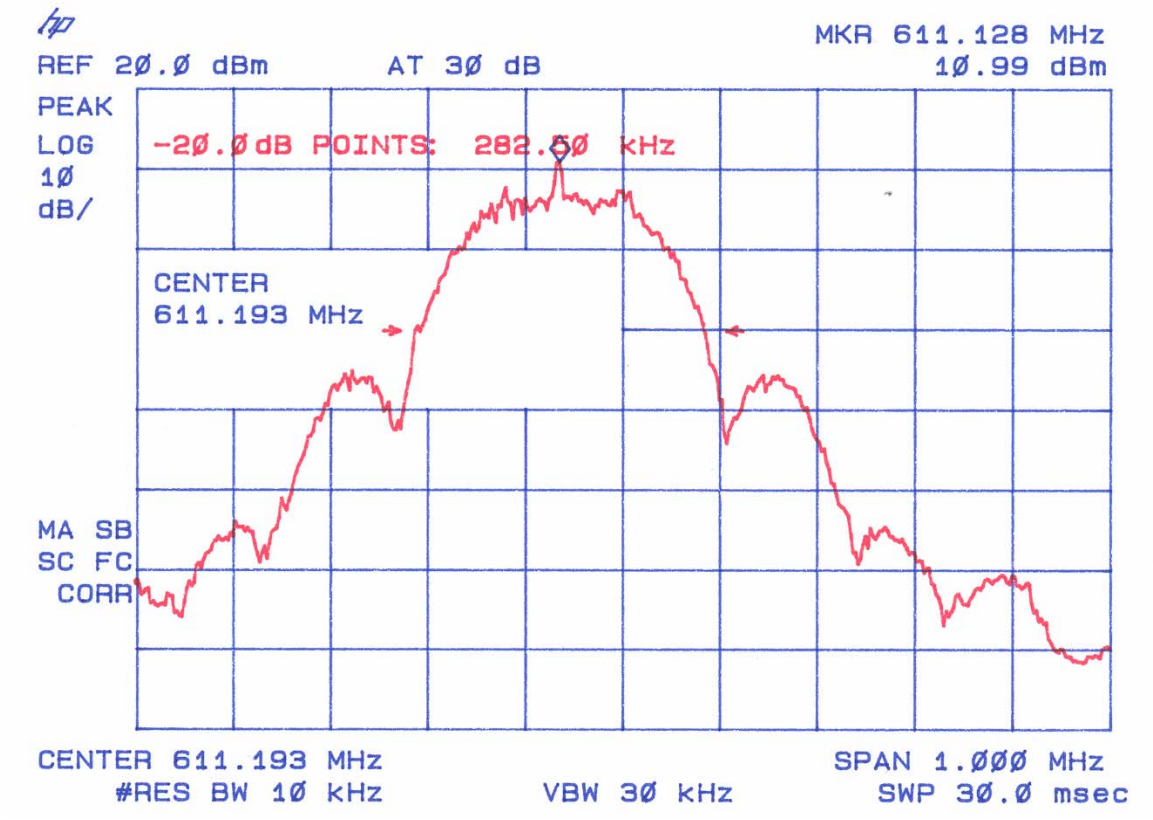
Plot 5a. Low Channel Direct



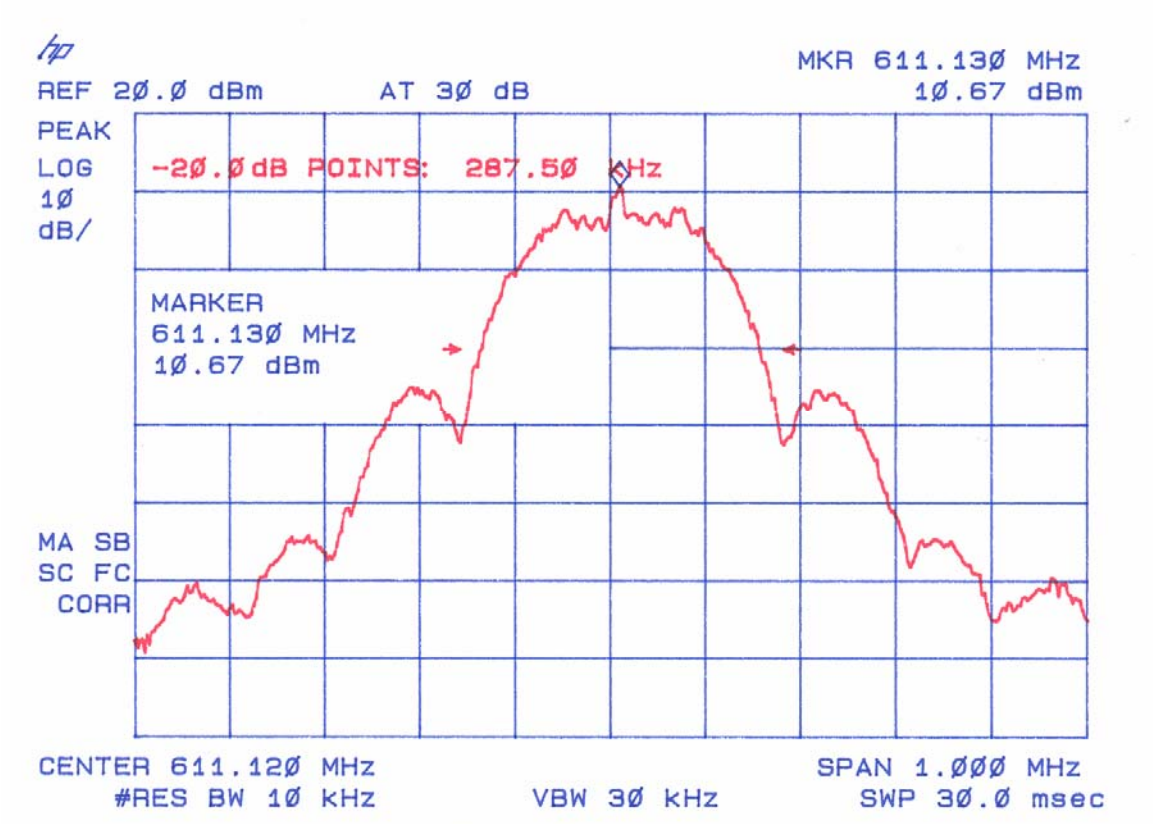
Plot 5b. Low Channel Amplified ANT 1



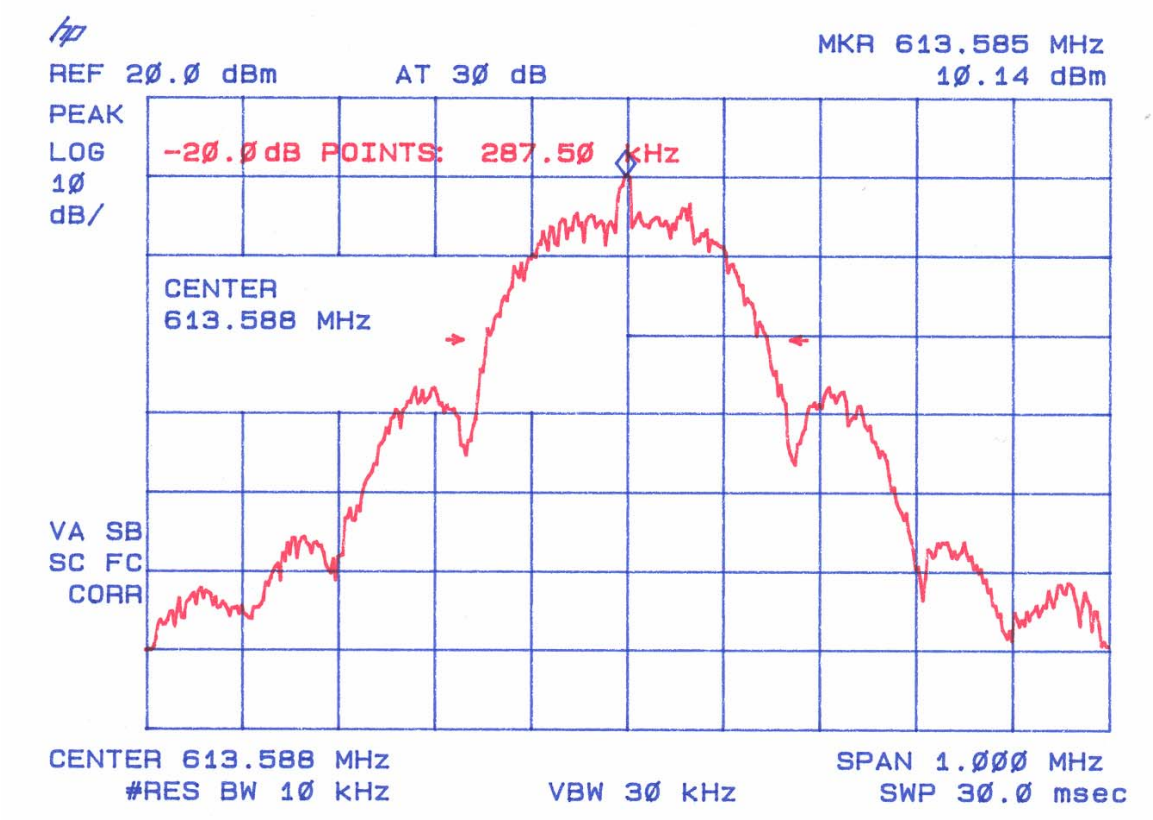
Plot 5c. Mid Channel Direct ANT 1



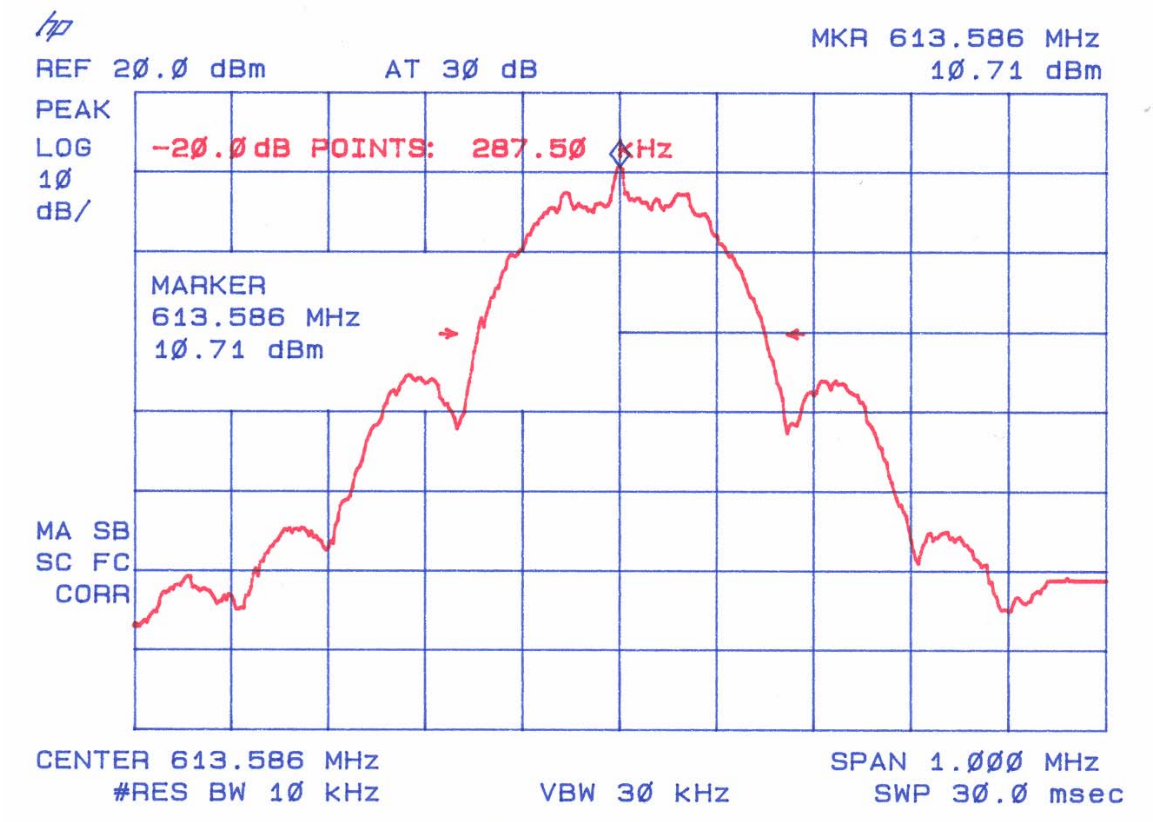
Plot 5d. Mid Channel Amplified ANT 1



Plot 5e. High Channel Direct ANT 1



Plot 5f. High Channel Amplified ANT 1

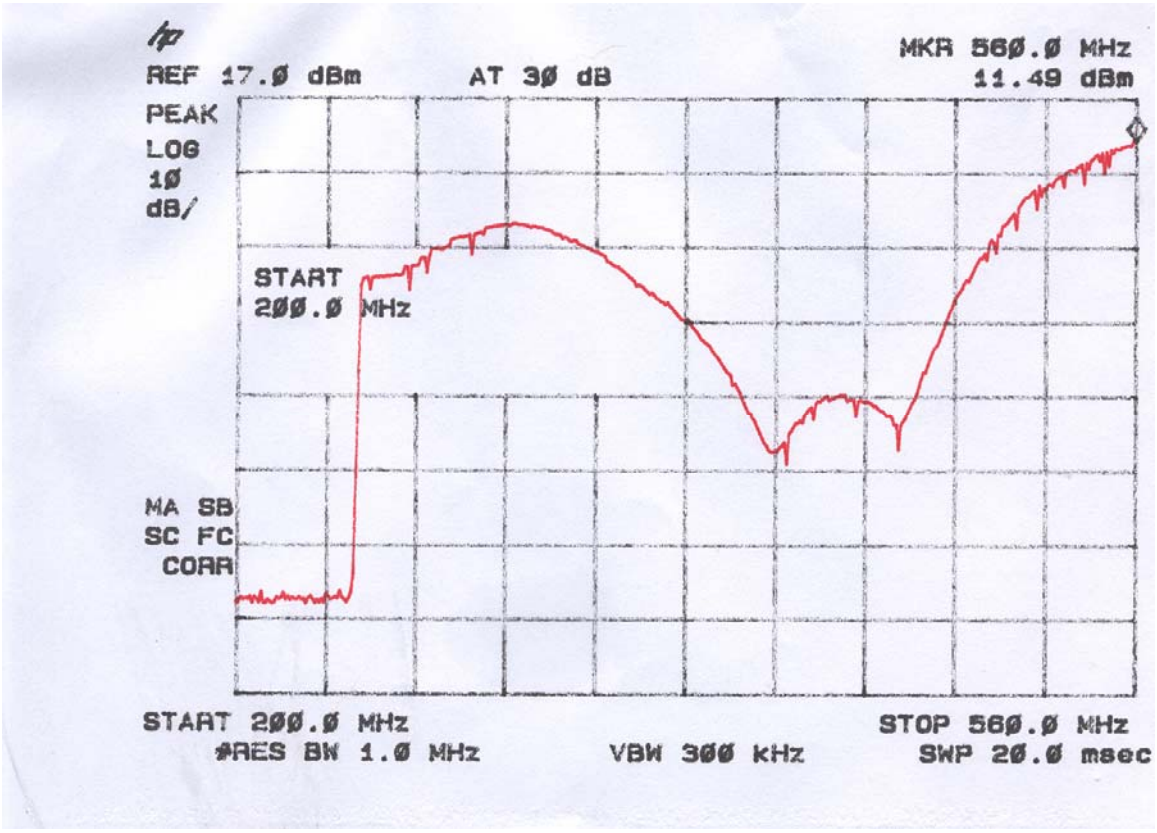


Out of Band Rejection

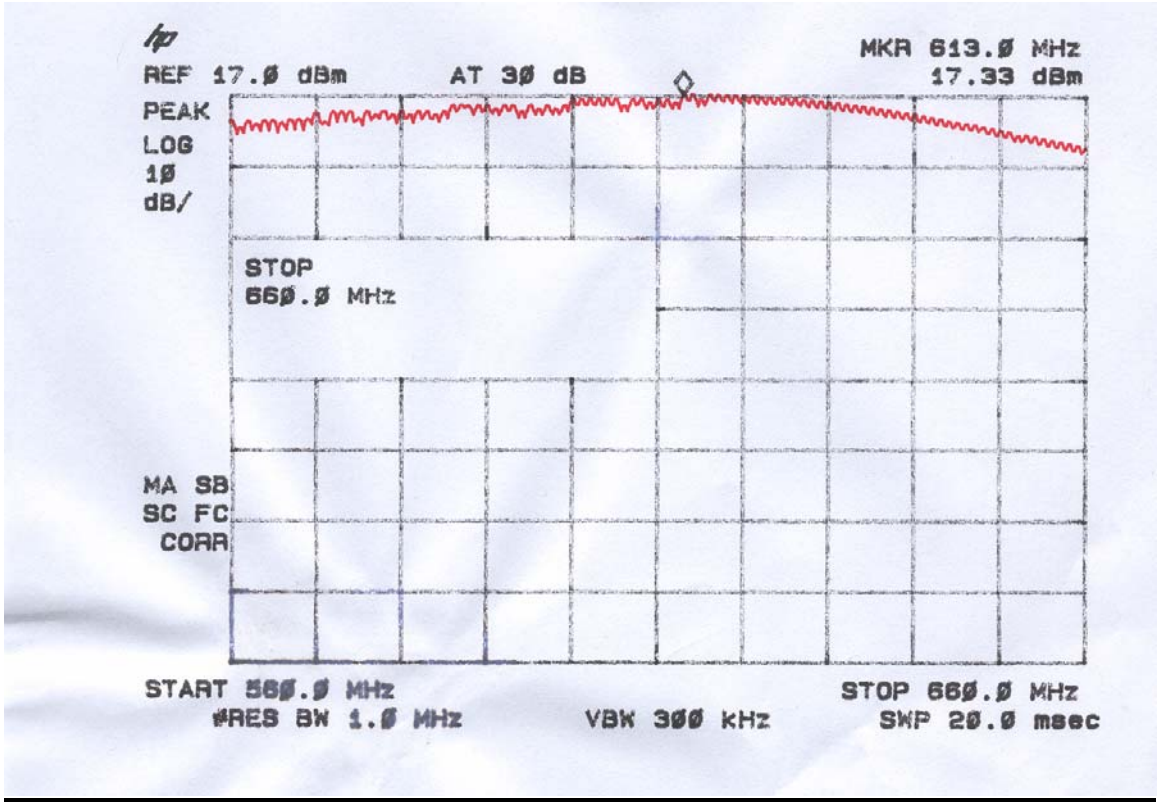
Out of Band Rejection was measured from the source providing signal to the input Port 1.The amplified signal was measured at Output Port 1 as representative of all combinations.

The following plots provide results.

Plot 6a: Out of Band Rejection



Plot 6b: Out of Band Rejection



Plot 6c: Out of Band Rejection