FCC 47 CFR PART 15 SUBPART C

CERTIFICATION TEST REPORT

FOR

ZeroWire G2 Transmitter

MODEL NUMBER: WT-P42-13

FCC ID: UEZ-WT-P42-13

REPORT NUMBER: 14U19063-E1, Revision B

ISSUE DATE: MARCH 25, 2015

Prepared for

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NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
--	02/26/2015	Initial Issue	M. Heckrotte
A	03/05/2015	Editorial update Section 5	S. Aguilar
B	03/25/2015	Restated power density results as radiated power	M. Heckrotte

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: NDS SURGICAL IMAGING, LLC
5750 HELLYER AVENUE
SAN JOSE, CA 95138, U.S.A.

EUT DESCRIPTION: ZeroWire G2 Transmitter

MODEL: WT-P42-13

SERIAL NUMBER: ENG10004, ENG10006, TX107

DATE TESTED: NOV. 19th ,2014 to JAN.28th, 2015

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
CFR 47 Part 15 Subpart C	Pass

UL Verification Services Inc. tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by UL Verification Services Inc. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL Verification Services Inc. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Verification Services Inc. will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, any agency of the Federal Government, or any agency of any government.

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Tested By:

STEVE AGUILAR
LAB ENGINEER
UL Verification Services Inc.

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.10-2009, FCC CFR 47 Part 2, FCC CFR 47 Part 15, FCC KDB 200443 D02 RF Detection Method V01, FCC KDB 200443 Millimeter Wave Test Procedure.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 Benicia Street, Fremont, California, USA.

The test sites and measurement facilities used to collect data are located at 47173 and 47266 Benicia Street, Fremont, California, USA. Line conducted emissions are measured only at the 47173 address. The following table identifies which facilities were utilized for radiated emission measurements documented in this report. Specific facilities are also identified in the test results sections.

47173 Benicia Street	47266 Benicia Street
☐ Chamber A	☐ Chamber D
☐ Chamber B	☐ Chamber E
☐ Chamber C	☒ Chamber F
	☒ Chamber G

UL Verification Services Inc. is accredited by NVLAP, Laboratory Code 200065-0. The full scope of accreditation can be viewed at http://ts.nist.gov/standards/scopes/2000650.htm.

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

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

4.2. MEASUREMENT UNCERTAINTY

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

PARAMETER	UNCERTAINTY
Conducted Disturbance, 0.15 to 30 MHz	±3.52 dB
Radiated Disturbance, 30 to 1000 MHz	±4.94 dB
Radiated Disturbance, 1 to 6 GHz	±3.86 dB
Radiated Disturbance, 6 to 18 GHz	±4.23 dB
Radiated Disturbance, 18 to 26 GHz	±5.30 dB
Radiated Disturbance, 26 to 40 GHz	±3.23 dB
Radiated Disturbance, 4 GHz above	±3.50dB

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

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The WT-P42-13 is a Generation 2 Wireless HD source operating in the 57-64 GHz band for Wireless Video Audio Network (WVAN). The EUT transmits High Definition Audio/Video to a WirelessHD sink (UEZ-WT-P42-11).

The EUT transmits High Definition Audio/Video data on a single High Rate (HRP) channel at either 60.48 GHz or 62.64 GHz. The integral HRP transmit antenna is an adaptive beam-steering array with a maximum gain of 22 dBi.

The EUT transmits and receives control and management signals on one of three Low Rate (LRP) channels per HRP channel. LRP channels range from 60.321375 to 60.638625 GHz (for HRP at 60.48 GHz) or from 62.481375 to 62.798625 GHz (for HRP at 62.64 GHz). The integral LRP transmit/receive antenna is a scanning beam-steering array with a maximum gain of 16 dBi for each polarization.

The LRP modulation is BPSK. The HRP modulation can be either QPSK or 16-QAM. Three system data rates are implemented: QPSK at 0.952 Gb/s (Quarter Rate), QPSK at 1.904 Gb/s (Half Rate) and 16-QAM at 3.807 Gb/s (Full Rate).

5.2. CONDUCTED OUTPUT POWER

The antenna is integral thus radiated measurements are made. The EIRP was measured at the worst-case condition, thus the EIRP measurement conditions correspond to the maximum EUT antenna gain. Therefore the maximum antenna gain is used to calculate the Peak Output Power.

The highest peak conducted output power for LRP is 4.57 mW (6.60dBm).

The highest peak conducted output power for HRP is 14.13 mW (11.5 dBm).

5.3. WORST-CASE CONFIGURATION AND MODE

The 1080p video mode was determined to be the worst case mode for emissions.

5.4. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an integral phased-array antenna, with an LRP maximum gain of 16 dBi.

The radio utilizes an integral phased-array antenna, with an HRP maximum gain of 22 dBi.

5.5. SOFTWARE AND FIRMWARE

The firmware installed in the EUT during testing was Gemtek Version 1.3.01

The test utility software used during testing was SBAM2 NB 2011.11.28.0 and RS232.exe version 11-13-2014

5.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

PERIPHERAL SUPPORT EQUIPMENT LIST			
Description	**Manufacturer**	**Model**	**Serial Number**
HD Digital Media Player	GFEN	EXT-HD-DSMP	AB1403770171
DC Power Adepter	GFEN	3A-401WP12	--
HD Monitor	NDSSI	Radiance G2 HB	ENG0722
HD Monitor Power supply	SL Power Elec.	MW155RA2400F 02	B36-07029
Interface Board	SiBeam	Cyclops	-
Interface Board	SiBeam	Cyclops	-
Laptop	Dell	E6330	3819856385
Laptop Power supply	Dell	1XRN1	CN-01XRN1-48661-398-CS HT-A01

I/O CABLES

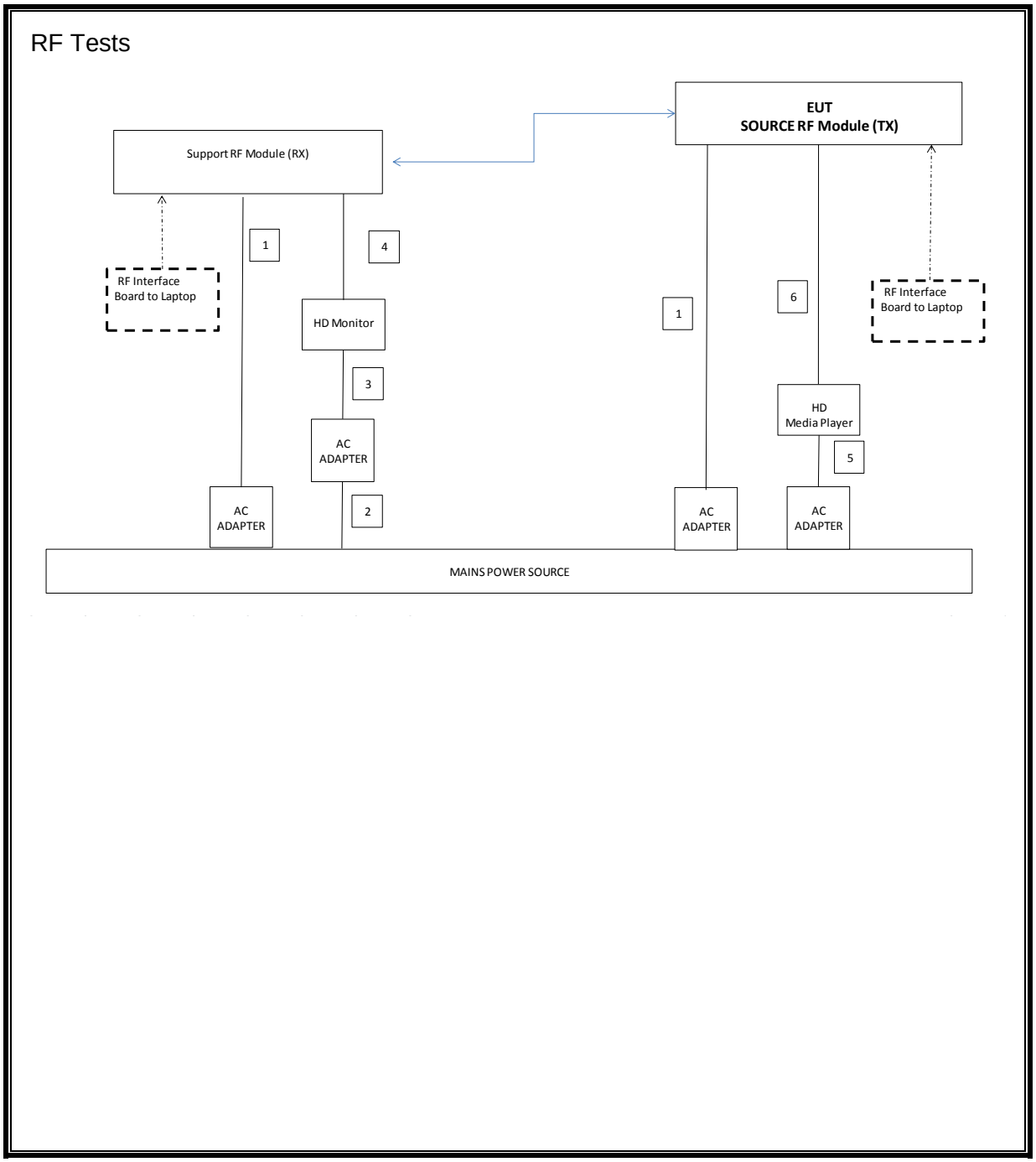
I/O CABLE LIST						
Cable No.	**Port**	**No. of identical ports**	**Connector Type**	**Cable Type**	**Cable Length (m)**	**Remarks**
1	DC	2	Barrel	Unshielded	1.5-3	Ferrite on DC for Adapter 1
2	AC	1	AC,3P	Unshielded	1.8	N/A
3	DC	1	Barrel	Unshielded	2.4	N/A
4	DVI	1	DVI	Shielded	2	N/A
5	DC	1	Barrel	Unshielded	1.5	N/A
6	DVI	1	HDMI-to-DVI	Shielded	1.8	N/A

TEST SETUP

Laptop using USB to Mini-USB was used to set EUT into an operational mode and was not used as part of the test.

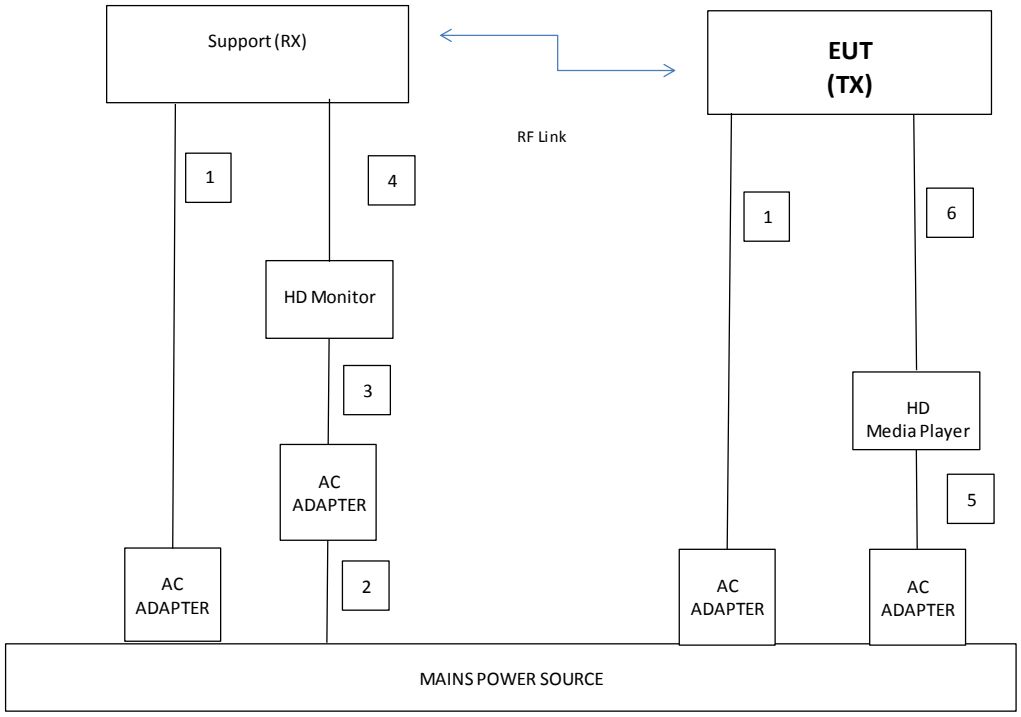
The SiBeam Cyclops interface board was used to directly interface the RF module in order to set the EUT in the proper modes for RF Tests.

SETUP DIAGRAM FOR TESTS



SETUP DIAGRAM FOR TESTS

Radiated Emissions tests



6. TEST AND MEASUREMENT EQUIPMENT

Test Equipment List				
Description	**Manufacturer**	**Model**	**S/N**	**Cal Due**
N9030A PXA Signal Analyzer	Agilent	N9030A	MY52350427	9/13/2015
Analog Signal Generator, 40 GHz	Agilent	E8257D	MY48050681	9/26/2015
Down Converter, 67 GHz	Agilent	MT-463	12020	CNR
mmWave Source 50 - 75 GHz	OML	S15MS-AG	80708-4	CNR
Mixer Diplexer for HP	OML	DPL.313B	N02429	CNR
Harmonic Mixer, 50 GHz	Agilent	M1970U-002	MY5139	11/1/2015
Harmonic Mixer, 75 GHz	Agilent	11970V	2521A01183	2/5/2015
Harmonic Mixer, 110 GHz	Agilent	11970W	2521A01314	2/13/2015
Harmonic Mixer, 90 to 140 GHz	OML	M08HWA	F90519-2	6/17/2015
Harmonic Mixer, 140 to 220 GHz	OML	M05HWA	G90519-1	6/17/2015
Single Average Power Meter	Agilent	N1913A	MY53100006	5/1/2015
Waveguide Power Sensor	Agilent	V8486A	MY52300008	5/6/2015
Harmonic Mixer, 50-80 GHz	Keysight	M1970V-002	MY51390830	6/18/2015
Low Pass Filter	Spacek	LPF 5-60-8-15	14L21	CNR
Low Noise Amplifier, 40-50 GHz	Spacek	SL4510-33-4W	14J05	9/4/2015
Low Pass Filter	Spacek	LPF-5-50-8-22	14L20	CNR
Spectrum Analyzer	Agilent	8564E	3943A01643	8/6/2015
Horn Antenna, 18 to 26.5GHz	ARA	MWH-1826/B	1049	12/17/2015
PreAmplifier, 1-26.5GHz	Agilent	8449B	3008A04710	3/23/2015
Preamplifier, 40 GHz	Miteq	NSP4000-SP2	924343	9/3/2015
Antenna, Horn, 40 GHz	ARA	MWH-2640/B	1029	7/15/2015
Oscilloscope 1GHz 4 Ch DSO	Agilent	DSO9104A	MY51420139	6/11/2015
Low Pass Filter, 10MHz	Solar Electronics	6623-10	136101	3/26/2015
Low Noise Amplifier	VIVAtech	VTLN-018-FB	51	CNR
Waveguide switch	mi-Wave	530V/387	1332	CNR
MM-Wave Isolator	Millitech	FBI-15-RSES0	1734	CNR
50-75GHZ RF Detector	Millitech	DET-15-RPFWI	41	CNR
Spectrum Analyzer, 44 GHz	Agilent	N9030A	MY51380911	2/12/2015
Antenna, Horn, 18 GHz	ETS Lindgren	3117	29310	3/20/2015
Antenna, Biconolog, 30MHz-1 GHz*	Sunol Sciences	JB1	A051314-2	1/28/215
RF PreAmplifier, 1-18GHz *	Miteq	AFS42-00101800-25-S-42	T742	1/20/2015
Preamp, 1000MHz*	Sonoma	310N	185623	6/7/2015
Spectrum Analyzer, 44 GHz	Agilent	N9030A	MY53311010	5/17/2015
Antenna, Horn, 18 GHz	ETS Lindgren	3117	164318	4/14/2015
Antenna, Biconolog, 30MHz-1 GHz	Sunol Sciences	JB3	A051314-2	4/27/2015
RF PreAmplifier, 1-18GHz	Miteq	AFS42-00101800-25-S-42	1818464	6/5/2015
Preamp, 1000MHz	Sonoma	310N	325188	6/5/2015
EMI Test Receiver, 9 kHz-7 GHz	R & S	ESCI 7	100935	9/16/2015
LISN, 30 MHz	FCC	50/250-25-2	114	1/17/2015
Chamber, Environmental	Cincinnati Sub Zero	ZPHS-8-3.5-SCT/WC	ZP131613	4/10/2015
Power supply AC	Elgar-Ametek	CW2501M	1307A03505	CNR
DMM	Fluke	87V	23310087	3/21/2015
Radiated Software	UL	UL EMC	Ver 9.5, July 22, 2014	
Conducted Software	UL	UL EMC	Ver 9.5, May 17, 2012	

*Used before due date.

7. APPLICABLE LIMITS AND TEST RESULTS

7.1. 6 dB BANDWIDTH

APPLICABLE RULE

§15.255 (e) (1) For the purposes of this paragraph (e)(1), emission bandwidth is defined as the instantaneous frequency range occupied by a steady state radiated signal with modulation, outside which the radiated power spectral density never exceeds 6 dB below the maximum radiated power spectral density in the band, as measured with a 100 kHz resolution bandwidth spectrum analyzer. The center frequency must be stationary during the measurement interval, even if not stationary during normal operation (e.g. for frequency hopping devices).

LIMIT

None; for reporting purposes only.

TEST PROCEDURE

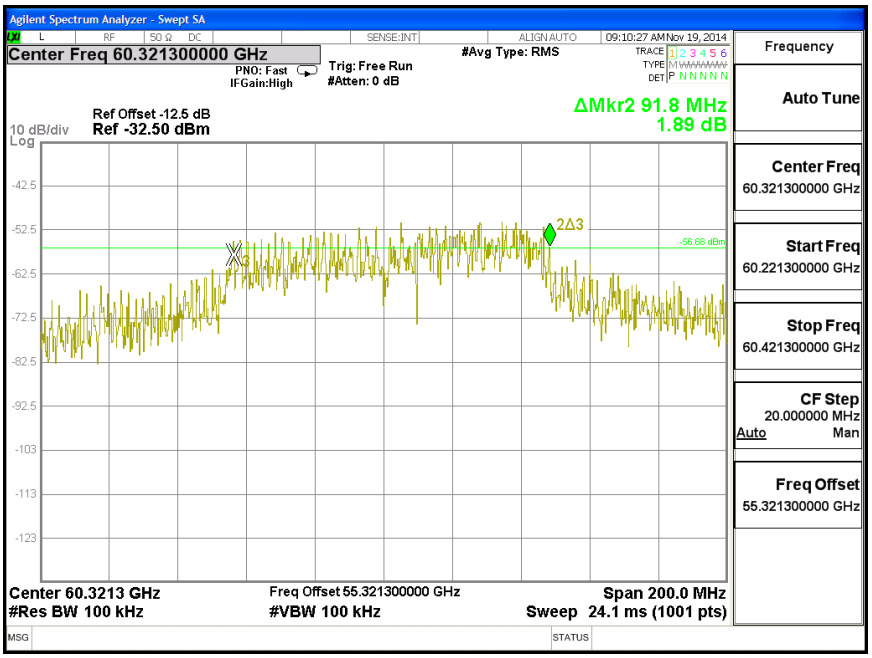
The spectrum analyzer and external mixer are set up to measure the radiated output of the transmitter.

Results for LRP Channels

Channel	Frequency (GHz)	6 dB Bandwidth (MHz)
Low	60.32	91.80
Mid	60.64	90.80
High	62.79	89.80

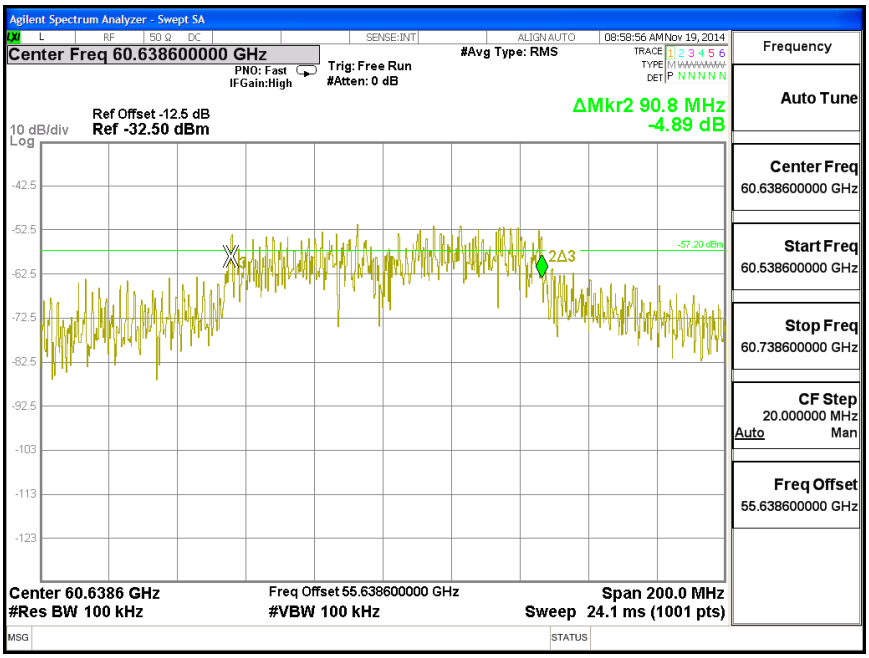
6dB BANDWIDTH

6 dB BANDWIDTH LRP LOW CHANNEL

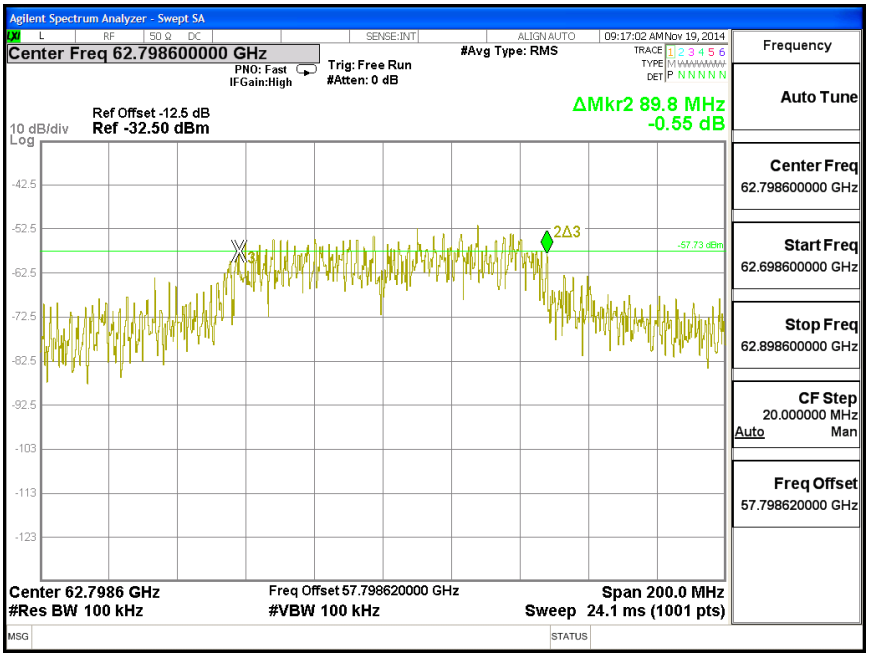


6dB BANDWIDTH

6 dB BANDWIDTH LRP MID CHANNEL



6 dB BANDWIDTH LRP HIGH CHANNEL

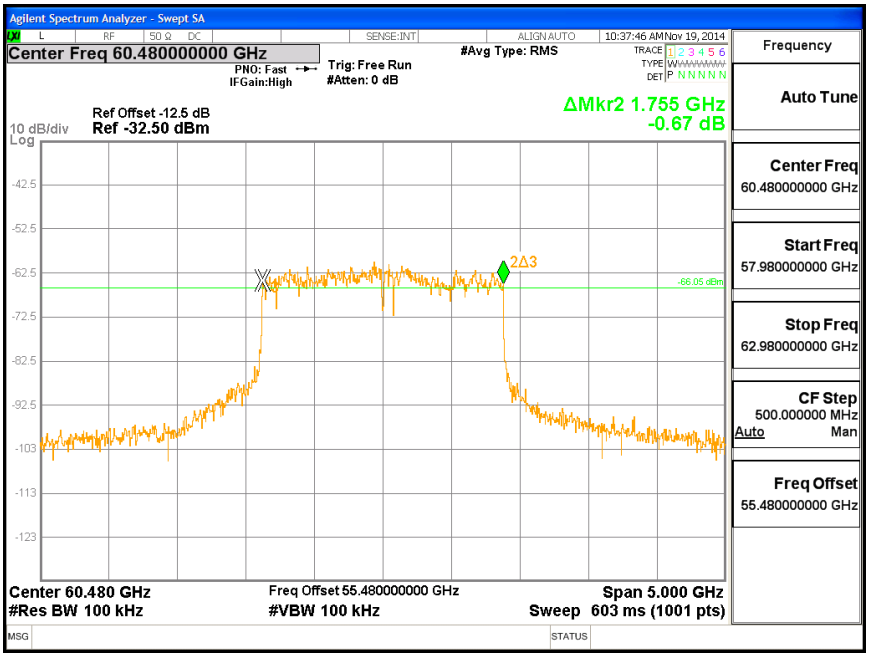


Results for HRP Channels

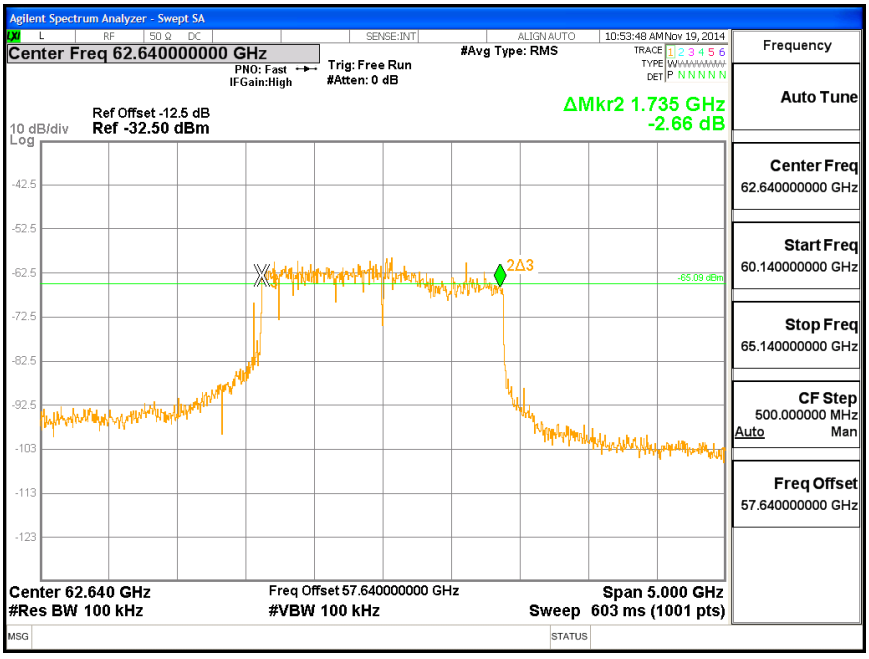
Channel	Frequency (GHz)	6 dB Bandwidth (GHz)
LOW	60.48	1.755
HIGH	62.64	1.735

6 dB BANDWIDTH

6 dB BANDWIDTH HRP CHANNEL-LOW



6 dB BANDWIDTH HRP CHANNEL-HIGH



7.2. RADIATED POWER

LIMIT

§15.255 (b) (1) (i) Within the 57-64 GHz band, the average power of any emission shall not exceed 40 dBm and the peak power of any emission shall not exceed 43 dBm.

TEST PROCEDURE

§15.255 (b) (6) KDB 200443 D02 RF Detection Method V01

Measurements are made at a distance greater than or equal to the far field boundary distance.

The measured power level is converted to EIRP using the Friis equation:

$EIRP = P_T * G_T = (P_R / G_R) * (4 * Pi * D / \lambda)^2$
where:
G_R is the gain of the receive measurement antenna
D is the measurement distance
λ is the wavelength

FAR FIELD BOUNDARY CALCULATIONS

The far-field boundary is given in FCC KDB Publication 200443 as:

$R_{far\ field} = (2 * L^2) / \lambda$

where:

L = Largest Antenna Dimension, including the reflector, in meters
λ = wavelength in meters

Frequency (GHz)	L (m)	Lambda (m)	R (Far Field) (m)
60.48	0.020	0.0050	0.16
62.64	0.020	0.0048	0.17

LRP Low Channel

PEAK RADIATED POWER

Frequency (GHz)	Measurement Distance (m)	Measured Peak Voltage (mV)	Raw Measured Power (dBm)	Corrd Power (dBm)	Rx Antenna Gain (dBi)
60.32	1.50	16.10	-26.50	-26.20	23.00
EIRP (dBm)	**EIRP Limit (dBm)**	**Margin (dB)**			
22.4	43.0	-20.6			

AVERAGE RADIATED POWER

Frequency (GHz)	Measurement Distance (m)	Measured Average Voltage (mV)	Measured Power (dBm)	Corrd Measured Power (dBm)	Rx Antenna Gain (dBi)
60.32	1.50	0.85	-37.16	-36.86	23.00
EIRP (dBm)	**EIRP Limit (dBm)**	**Margin (dB)**			
11.7	40.0	-28.3			

LRP Mid Channel

PEAK RADIATED POWER

Frequency (GHz)	Measurement Distance (m)	Measured Peak Voltage (mV)	Raw Measured Power (dBm)	Corrd Power (dBm)	Rx Antenna Gain (dBi)
60.64	1.50	16.50	-26.88	-26.58	23.00
EIRP (dBm)	**EIRP Limit (dBm)**	**Margin (dB)**			
22.0	43.0	-21.0			

AVERAGE RADIATED POWER

Frequency (GHz)	Measurement Distance (m)	Measured Average Voltage (mV)	Measured Power (dBm)	Corrd Measured Power (dBm)	Rx Antenna Gain (dBi)
60.64	1.50	0.81	-38.51	-38.21	23.00
EIRP (dBm)	**EIRP Limit (dBm)**	**Margin (dB)**			
10.4	40.0	-29.6			

LRP High Channel

PEAK RADIATED POWER

Frequency (GHz)	Measurement Distance (m)	Measured Peak Voltage (mV)	Raw Measured Power (dBm)	Corrd Power (dBm)	Rx Antenna Gain (dBi)
62.79	1.50	16.10	-26.58	-26.28	23.00
EIRP (dBm)	**EIRP Limit (dBm)**	**Margin (dB)**			
22.6	43.0	-20.4			

AVERAGE RADIATED POWER

Frequency (GHz)	Measurement Distance (m)	Measured Average Voltage (mV)	Measured Power (dBm)	Corrd Measured Power (dBm)	Rx Antenna Gain (dBi)
62.79	1.50	0.85	-37.16	-36.86	23.00
EIRP (dBm)	**EIRP Limit (dBm)**	**Margin (dB)**			
12.1	40.0	-27.9			

HRP Low Channel (2)

PEAK RADIATED POWER

Frequency (GHz)	Measurement Distance (m)	Measured Peak Voltage (mV)	Raw Measured Power (dBm)	Corrd Power (dBm)	Rx Antenna Gain (dBi)
60.48	3.00	30.20	-22.56	-22.26	23.00
EIRP (dBm)	**EIRP Limit (dBm)**	**Margin (dB)**			
32.4	43.0	-10.6			

AVERAGE RADIATED POWER

Frequency (GHz)	Measurement Distance (m)	Measured Average Voltage (mV)	Measured Power (dBm)	Corrd Measured Power (dBm)	Rx Antenna Gain (dBi)
60.48	3.00	12.10	-25.65	-25.35	23.00
EIRP (dBm)	**EIRP Limit (dBm)**	**Margin (dB)**			
29.3	40.0	-10.7			

HRP High Channel (3)

PEAK RADIATED POWER

Frequency (GHz)	Measurement Distance (m)	Measured Peak Voltage (mV)	Raw Measured Power (dBm)	Corrd Power (dBm)	Rx Antenna Gain (dBi)
62.64	3.00	31.60	-21.71	-21.41	23.00
EIRP (dBm)	**EIRP Limit (dBm)**	**Margin (dB)**			
33.5	43.0	-9.5			

AVERAGE RADIATED POWER

Frequency (GHz)	Measurement Distance (m)	Measured Average Voltage (mV)	Measured Power (dBm)	Corrd Measured Power (dBm)	Rx Antenna Gain (dBi)
62.64	3.00	11.79	-25.65	-25.35	23.00
EIRP (dBm)	**EIRP Limit (dBm)**	**Margin (dB)**			
29.6	40.0	-10.4			

7.3. PEAK CONDUCTED OUTPUT POWER

LIMIT

§15.255 (e) Except as specified paragraph (e)(1) of this section, the peak transmitter conducted output power shall not exceed 500 mW. Depending on the gain of the antenna, it may be necessary to operate the intentional radiator using a lower peak transmitter output power in order to comply with the EIRP limits specified in paragraph (b) of this section.

§15.255 (e) (1) Transmitters with an emission bandwidth of less than 100 MHz must limit their peak transmitter conducted output power to the product of 500 mW times their emission bandwidth divided by 100 MHz. For the purposes of this paragraph, emission bandwidth is defined as the instantaneous frequency range occupied by a steady state radiated signal with modulation, outside which the radiated power spectral density never exceeds 6 dB below the maximum radiated power spectral density in the band, as measured with a 100 kHz resolution bandwidth spectrum analyzer. The center frequency must be stationary during the measurement interval, even if not stationary during normal operation (e.g., for frequency hopping devices).

PROCEDURE

The maximum EUT antenna gain is subtracted from the Peak EIRP.

Results for LRP Channels

PEAK OUTPUT POWER

CHANNEL-LOW

Frequency (GHz)	EIRP (dBm)	EUT Antenna Gain (dBi)	Output Power (dBm)	Output Power (mW)	6 dB Bandwidth (MHz)	Output Power Limit (mW)
60.32	22.4	16.00	6.40	4.37	91.8	459

CHANNEL-MID

Frequency (GHz)	EIRP (dBm)	EUT Antenna Gain (dBi)	Output Power (dBm)	Output Power (mW)	6 dB Bandwidth (MHz)	Output Power Limit (mW)
60.64	22.0	16.00	6.00	3.98	90.8	454

CHANNEL-HIGH

Frequency (GHz)	EIRP (dBm)	EUT Antenna Gain (dBi)	Output Power (dBm)	Output Power (mW)	6 dB Bandwidth (MHz)	Output Power Limit (mW)
62.79	22.6	16.00	6.60	4.57	89.8	449

Results for HRP Channels

HRP PEAK OUTPUT POWER-LOW

Frequency (GHz)	EIRP (dBm)	EUT Antenna Gain (dBi)	Output Power (dBm)	Output Power (mW)	6 dB Bandwidth (MHz)	Output Power Limit (mW)
60.48	32.4	22.00	10.40	10.96	1.755	500

HRP PEAK OUTPUT POWER-HIGH

Frequency (GHz)	EIRP (dBm)	EUT Antenna Gain (dBi)	Output Power (dBm)	Output Power (mW)	6 dB Bandwidth (MHz)	Output Power Limit (mW)
62.64	33.5	22.00	11.50	14.13	1.735	500

7.4. FREQUENCY STABILITY

LIMIT

§15.255 (f) Fundamental emissions must be contained within the frequency bands specified in this section during all conditions of operation. Equipment is presumed to operate over the temperature range - 20 to +50 degrees Celsius with an input voltage variation of 85% to 115% of rated input voltage, unless justification is presented to demonstrate otherwise.

Manufacturers Specification is 120VAC input.

TEST PROCEDURE

The radio module is placed in an environmental chamber, with power furnished by an adjustable source.

RESULTS

Reference Conditions: 120VAC @ 20ºC			CHANNEL 2
Power Supply (VAC)	**Environment Temperature (ºC)**	**Frequency (MHz)**	**Delta (kHz)**
120.00	50	60473.5306100	-6565.920
120.00	40	60473.5636600	-6532.870
120.00	30	60479.4900000	-606.530
120.00	***20***	***60480.0965300***	***Reference***
120.00	10	60515.8960800	35799.550
120.00	0	60508.0681200	27971.590
120.00	-10	60500.6818000	20585.270
120.00	-20	60494.1050900	14008.560
102.00	20	60478.3424100	-1754.120
138.00	20	60478.3457100	-1750.820

7.5. TX SPURIOUS EMISSIONS

LIMITS

§15.255 (c) (1) The power density of any emissions outside the 57–64 GHz band shall consist solely of spurious emissions.

§15.255 (c) (2) Radiated emissions below 40 GHz shall not exceed the general limits in §15.209.

§15.255 (c) (3) Between 40 GHz and 200 GHz, the level of these emissions shall not exceed 90 pW/cm^2 at a distance of 3 meters.

§15.255 (c) (4) The levels of the spurious emissions shall not exceed the level of the fundamental emission.

§15.255 (d) Only spurious emissions and transmissions related to a publicly accessible coordination channel, whose purpose is to coordinate operation between diverse transmitters with a view towards reducing the probability of interference throughout the 57–64 GHz band, are permitted in the 57–57.05 GHz band.

Note to paragraph (d): The 57–57.05 GHz is reserved exclusively for a publicly-accessible coordination channel. The development of standards for this channel shall be performed pursuant to authorizations issued under part 5 of this chapter.

PROCEDURE FOR 30 MHz TO 40 GHz

ANSI C 63.10-2009

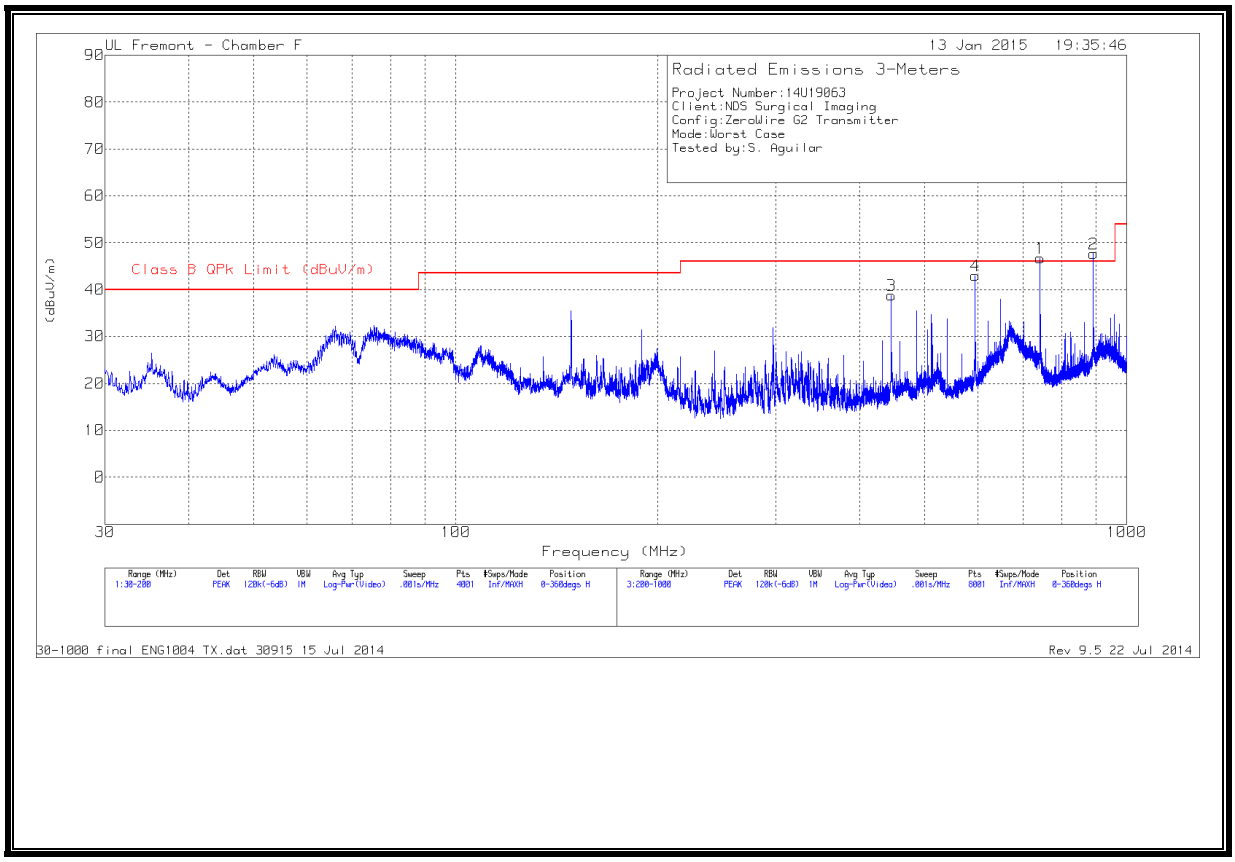
PROCEDURE FOR 40 TO 200 GHz

KDB200443 millimeter wave test procedure.

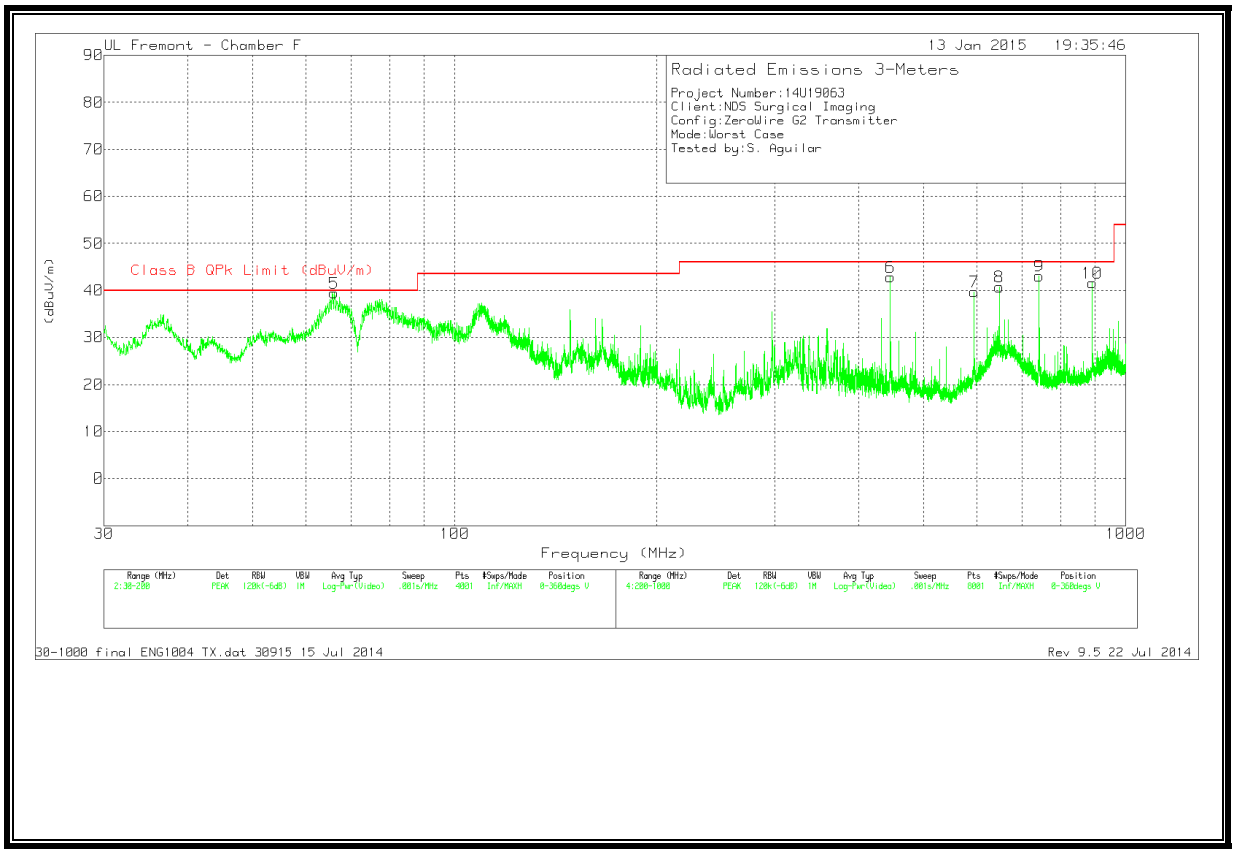
External harmonic mixers are utilized. The EIRP is measured, then the power density at a 3 meter distance is calculated.

7.5.1. Spurious Emissions 30MHz TO 1 GHz

TX SPURIOUS EMISSION 30 TO 1000 MHz (HORIZONTAL PLOT)



TX SPURIOUS EMISSION 30 TO 1000 MHz (VERTICAL PLOT)



TX SPURIOUS EMISSION 30MHz-1GHz

Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T122 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	Class B QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
5	66.0825	63.33	PK	7.9	-31.8	39.43	40	-.57	0-360	100	V
1	742.5	55.62	PK	20.7	-29.6	46.72	**46.02**	**.7**	0-360	201	H
2	891	53.77	PK	22.5	-28.6	47.67	**46.02**	**1.65**	0-360	100	H
3	445.5	52.18	PK	16.8	-30.2	38.78	46.02	-7.24	0-360	100	H
4	594	54.45	PK	18.5	-30	42.95	46.02	-3.07	0-360	100	H
6	445.5	56.28	PK	16.8	-30.2	42.88	46.02	-3.14	0-360	100	V
7	594	51.18	PK	18.5	-30	39.68	46.02	-6.34	0-360	201	V
8	648	50.65	PK	19.9	-29.8	40.75	46.02	-5.27	0-360	100	V
9	742.5	51.97	PK	20.7	-29.6	43.07	46.02	-2.95	0-360	100	V
10	891	47.72	PK	22.5	-28.6	41.62	46.02	-4.4	0-360	201	V

PK - Peak detector

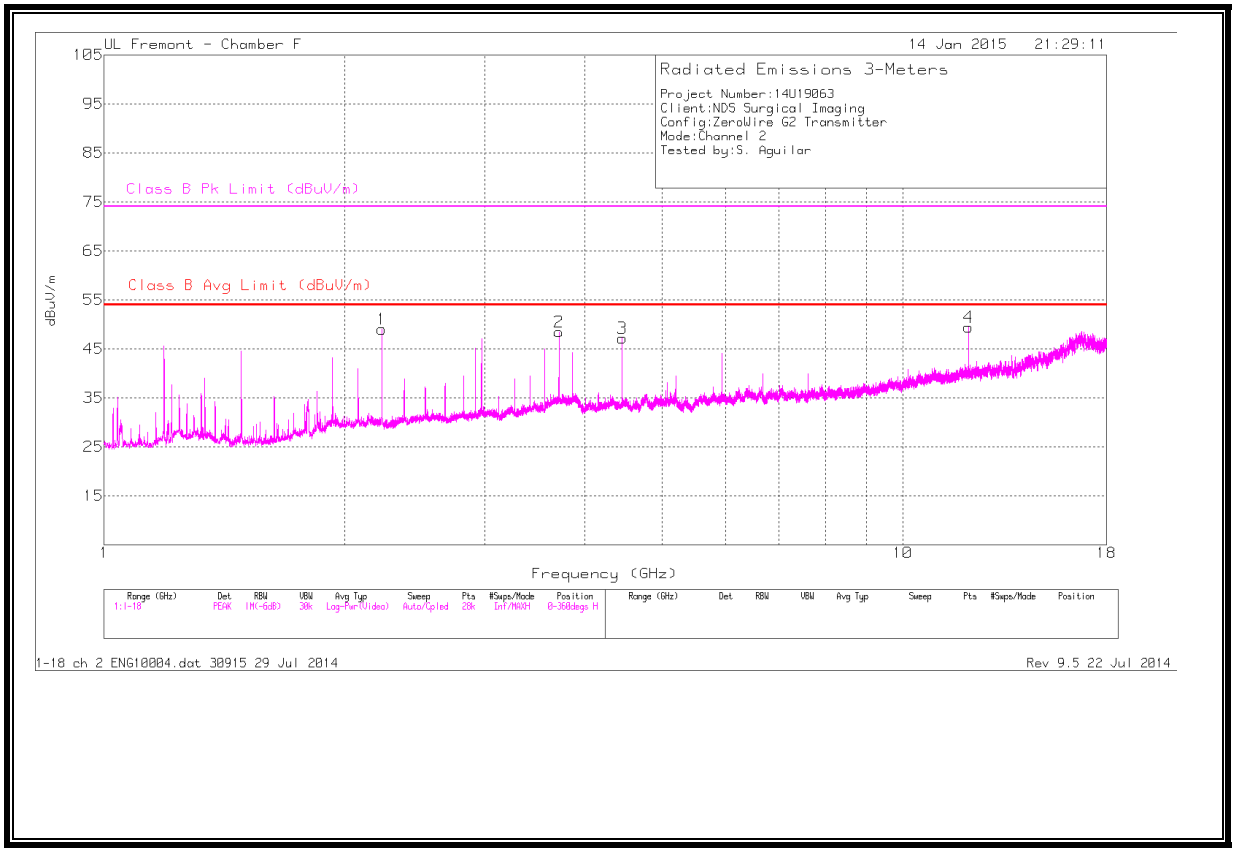
Radiated Emissions

Frequency (MHz)	Meter Reading (dBuV)	Det	AF T122 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	Class B QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
66.143	60.56	QP	7.9	-31.8	36.66	40	-3.34	347	114	V
742.4998	53.49	QP	20.6	-29.6	44.49	46.02	-1.53	56	138	H
891.0015	51.21	QP	22.5	-28.6	45.11	46.02	-.91	245	100	H
593.9991	54.63	QP	18.5	-30	43.13	46.02	-2.89	279	101	H
890.9913	47.22	QP	22.5	-28.6	41.12	46.02	-4.9	95	212	V
445.490	58.69	QP	16.8	-30.3	45.19	46.02	-.83	56	105	V
742.5048	50.35	QP	20.7	-29.6	41.45	46.02	-4.57	176	233	V
648.0013	49.61	QP	19.9	-29.8	39.71	46.02	-6.31	244	103	V

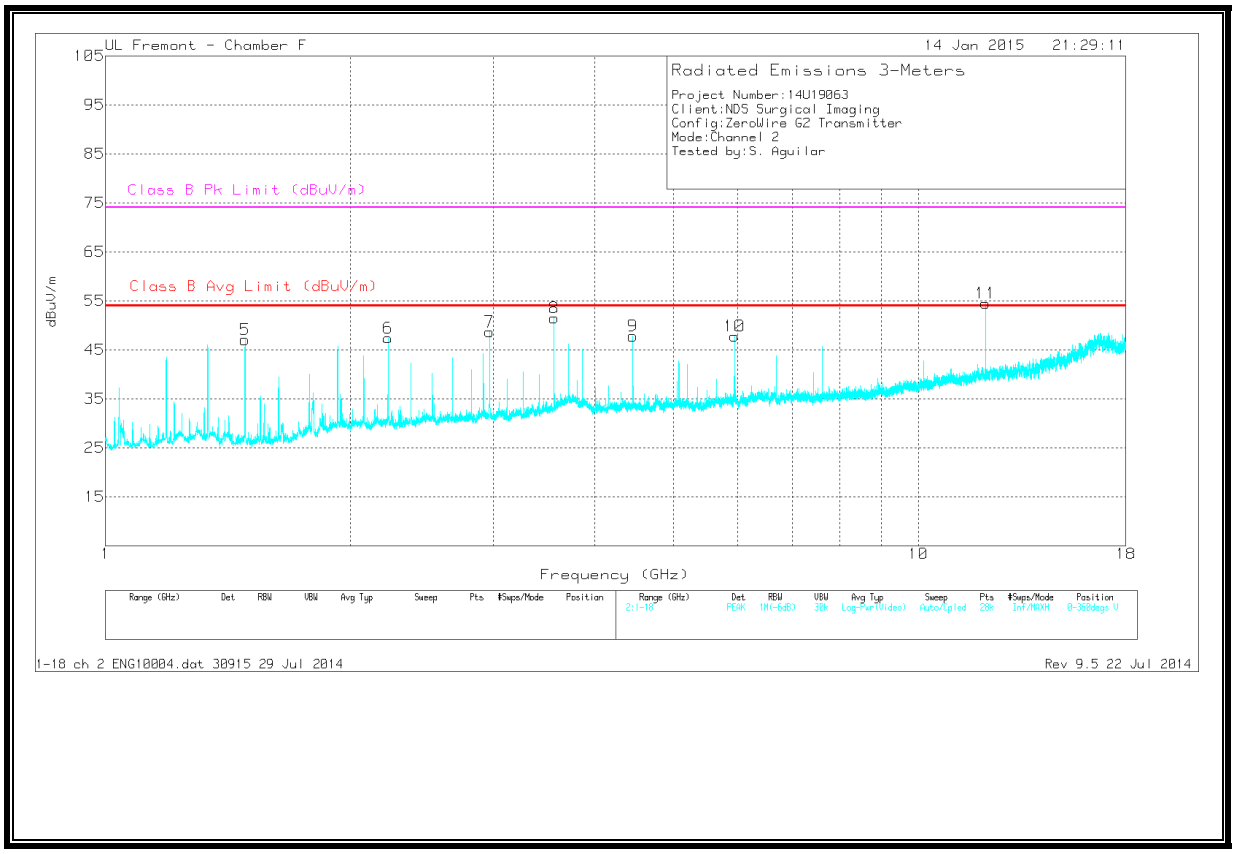
QP - Quasi-Peak detector

7.5.2. Spurious Emissions 1 TO 18 GHz

CHANNEL 2 - TX SPURIOUS EMISSION 1-18 GHz (HORIZONTAL PLOT)



CHANNEL 2 – TX SPURIOUS EMISSION 1-18 GHz (VERTICAL PLOT)



CHANNEL 2 TX SPURIOUS EMISSION 1-18 GHz

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl (dB)	Corrected Reading dBuV/m	Class B Avg Limit (dBuV/m)	Av(CISPR)Margin (dB)	Class B Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.228	48.2	PK	31.8	-31	49	-	-	74	-25	0-360	101	H
2	3.712	43.56	PK	34.8	-29.9	48.46	-	-	74	-25.54	0-360	101	H
3	4.455	42.65	PK	33.9	-29.4	47.15	-	-	74	-26.85	0-360	201	H
4	12.096	34.21	PK	39	-23.8	49.41	-	-	74	-24.59	0-360	201	H
5	1.485	50.67	PK	28.5	-32.1	47.07	-	-	74	-26.93	0-360	201	V
6	2.228	46.61	PK	31.8	-31	47.41	-	-	74	-26.59	0-360	101	V
7	2.97	45.46	PK	33.3	-30.1	48.66	-	-	74	-25.34	0-360	201	V
8	3.564	46.81	PK	34.7	-30	51.51	-	-	74	-22.49	0-360	101	V
9	4.455	43.33	PK	33.9	-29.4	47.83	-	-	74	-26.17	0-360	201	V
10	5.94	40.88	PK	35.2	-28.3	47.78	-	-	74	-26.22	0-360	201	V
11	12.096	39.29	PK	39	-23.8	54.49	-	-	74	-19.51	0-360	101	V

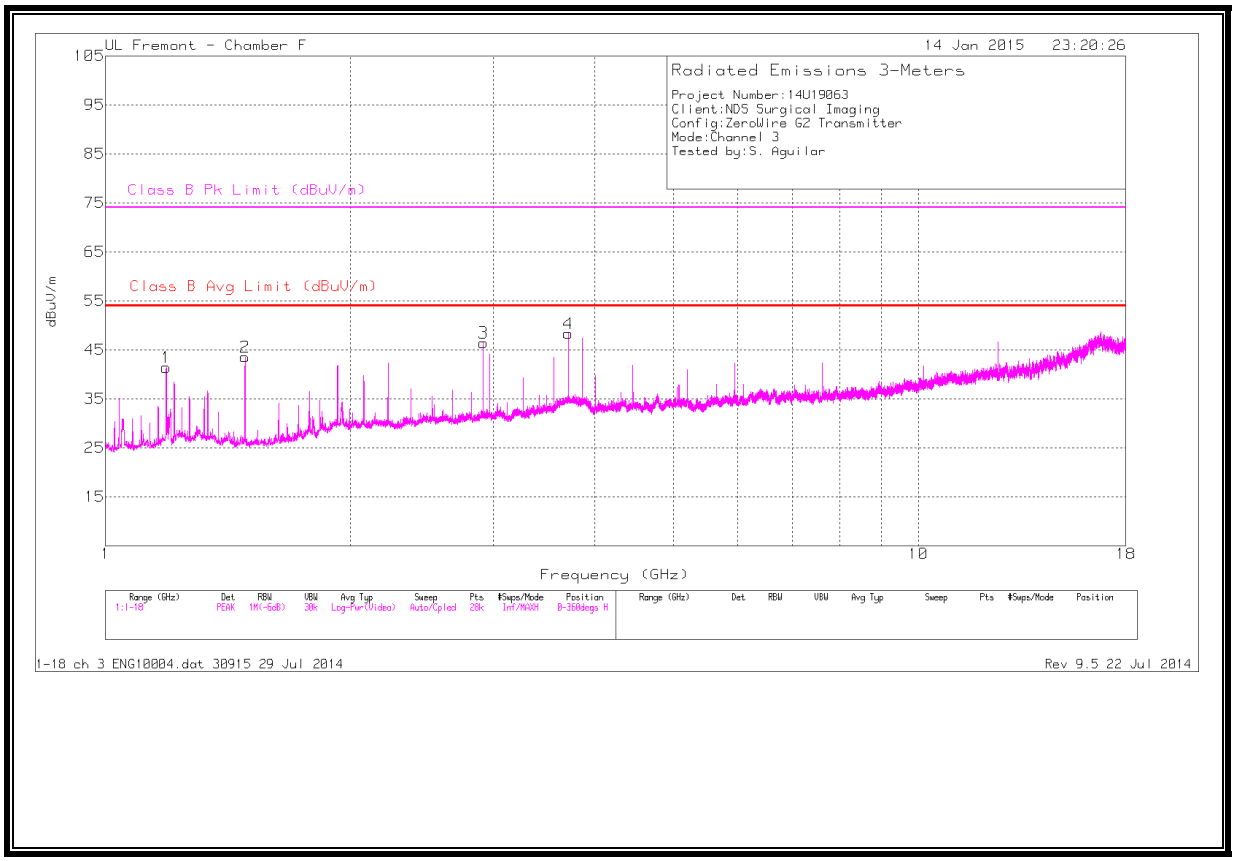
PK - Peak detector

Radiated Emissions

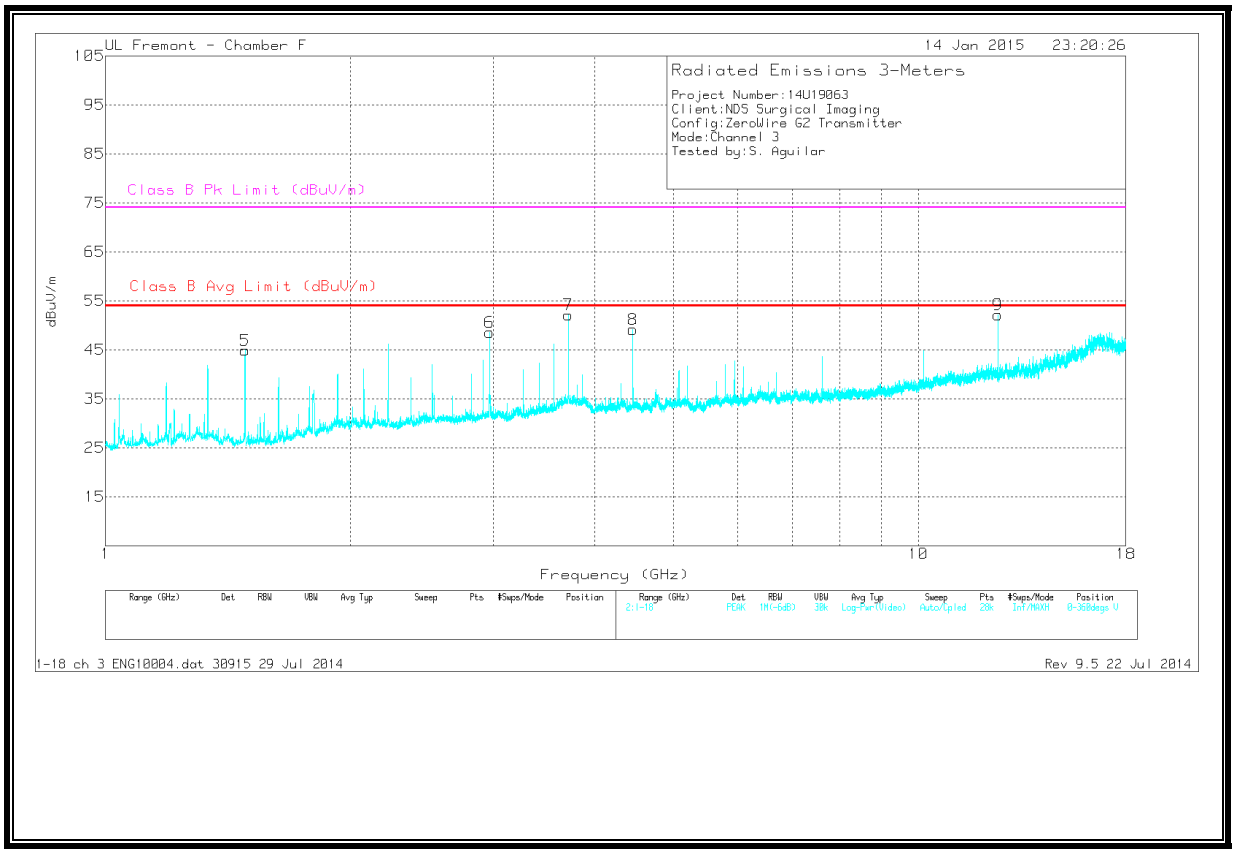
Freq. (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl (dB)	Corr. Reading dBuV/m	Class B Avg Limit (dBuV/m)	Av (CISPR) Margin (dB)	Class B Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
12.096	35.53	PK	39	-23.8	50.73	-	-	74	-23.27	16	219	H
12.095	28.46	Avg	39	-23.8	43.66	54	-10.34	-	-	16	219	H
4.455	44.24	PK	33.9	-29.4	48.74	-	-	74	-25.26	142	257	H
4.451	32.06	Avg	33.9	-29.4	36.56	54	-17.44	-	-	142	257	H
2.228	47	PK	31.8	-31	47.8	-	-	74	-26.2	215	311	H
2.228	38.98	Avg	31.8	-31	39.78	54	-14.22	-	-	215	311	H
3.712	45.54	PK	34.8	-29.9	50.44	-	-	74	-23.56	198	102	H
3.712	33.29	Avg	34.8	-29.9	38.19	54	-15.81	-	-	198	102	H
4.455	40.08	PK	33.9	-29.4	44.58	-	-	74	-29.42	167	130	H
4.455	33.41	Av	33.9	-29.4	37.91	54	-16.09	-	-	167	130	H
12.096	38.01	PK	39	-23.8	53.21	-	-	74	-20.79	261	133	V
12.095	31.4	Avg	39	-23.8	46.6	54	-7.40	-	-	261	133	V
5.94	41.11	PK	35.2	-28.3	48.01	-	-	74	-25.99	132	179	V
5.939	33.49	Avg	35.2	-28.3	40.39	54	-13.61	-	-	132	179	V
2.228	50.31	PK	31.8	-31	51.11	-	-	74	-22.89	139	267	V
2.228	38.53	Avg	31.8	-31	39.33	54	-14.67	-	-	139	267	V
2.97	48.1	PK	33.3	-30.1	51.3	-	-	74	-22.7	86	182	V
2.97	44.53	Avg	33.3	-30.1	47.73	54	-6.27	-	-	86	182	V
1.485	48.29	PK	28.5	-32.1	44.69	-	-	74	-29.31	131	182	V
1.485	44.28	Avg	28.5	-32.1	40.68	54	-13.32	-	-	131	182	V
3.564	45.81	PK	34.7	-30	50.51	-	-	74	-23.49	106	326	V
3.564	35.35	Av	34.7	-30	40.05	54	-13.95	-	-	106	326	V
4.45	31.72	PK	33.9	-29.4	36.22	-	-	74	-37.78	265	150	V
4.45	24.32	Av	33.9	-29.4	28.82	54	-25.18	-	-	265	150	V

PK - Peak detector
Avg - Video bandwidth < Resolution bandwidth
Av - average detection

CHANNEL 3 - TX SPURIOUS EMISSION 1-18 GHz (HORIZONTAL PLOT)



CHANNEL 3 – TX SPURIOUS EMISSION 1-18 GHz (VERTICAL PLOT)



CHANNEL 3 - TX SPURIOUS EMISSION 1-18 GHz

Trace Markers

Marker	Freq. (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl (dB)	Corrected Reading dBuV/m	Class B Avg Limit (dBuV/m)	Av(CISPR)Margin (dB)	Class B Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.188	45.08	PK	28.8	-32.5	41.38	-	-	74	-32.62	0-360	201	H
2	1.485	47.15	PK	28.5	-32.1	43.55	-	-	74	-30.45	0-360	201	H
3	2.917	43.51	PK	33.2	-30.3	46.41	-	-	74	-27.59	0-360	201	H
4	3.712	43.44	PK	34.8	-29.9	48.34	-	-	74	-25.66	0-360	201	H
5	1.485	48.51	PK	28.5	-32.1	44.91	-	-	74	-29.09	0-360	201	V
6	2.97	45.38	PK	33.3	-30.1	48.58	-	-	74	-25.42	0-360	201	V
7	3.712	47.2	PK	34.8	-29.9	52.1	-	-	74	-21.9	0-360	201	V
8	4.455	44.63	PK	33.9	-29.4	49.13	-	-	74	-24.87	0-360	101	V
9	12.528	36.92	PK	39	-23.8	52.12	-	-	74	-21.88	0-360	101	V

PK - Peak detector

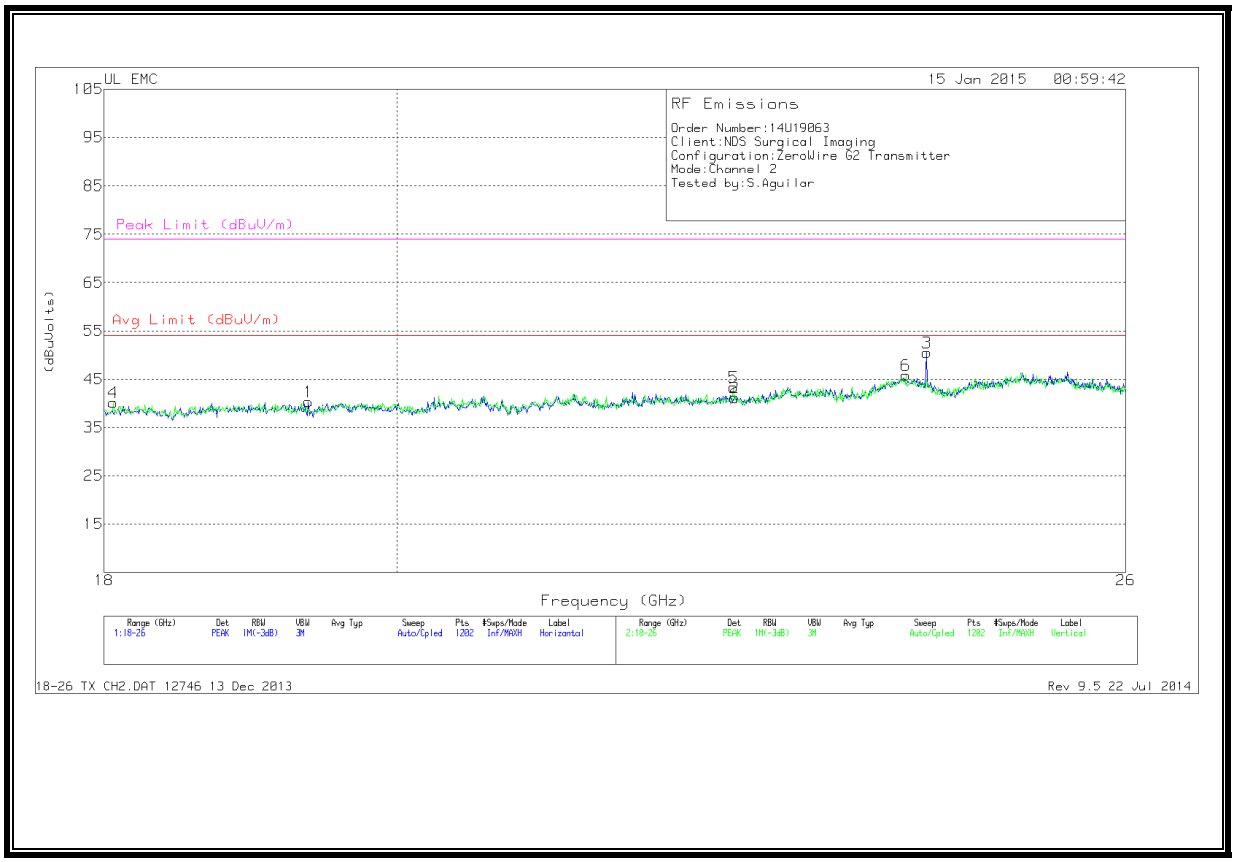
Radiated Emissions

Freq. (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl (dB)	Corrected Reading dBuV/m	Class B Avg Limit (dBuV/m)	Av(CISPR)Margin (dB)	Class B Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1.188	44.3	PK	28.8	-32.5	40.6	-	-	74	-33.4	84	202	H
1.188	39.38	Avg	28.8	-32.5	35.68	54	-18.32	-	-	84	202	H
1.485	53.96	PK	28.5	-32.1	50.36	-	-	74	-23.64	41	330	H
1.485	43.78	Avg	28.5	-32.1	40.18	54	-13.82	-	-	41	330	H
2.917	47.37	PK	33.2	-30.3	50.27	-	-	74	-23.73	241	231	H
2.917	44.37	Avg	33.2	-30.3	47.27	54	-6.73	-	-	241	231	H
3.712	50.29	PK	34.8	-29.9	55.19	-	-	74	-18.81	102	262	H
3.712	34.63	Avg	34.8	-29.9	39.53	54	-14.47	-	-	102	262	H
12.528	38.68	PK	39	-23.8	53.88	-	-	74	-20.12	260	105	V
12.528	35.68	Avg	39	-23.8	50.88	54	-3.12	-	-	260	105	V
4.455	49.06	PK	33.9	-29.4	53.56	-	-	74	-20.44	118	109	V
4.455	38.25	Avg	33.9	-29.4	42.75	54	-11.25	-	-	118	109	V
1.485	54.08	PK	28.5	-32.1	50.48	-	-	74	-23.52	133	257	V
1.485	45.83	Avg	28.5	-32.1	42.23	54	-11.77	-	-	133	257	V
2.97	52.97	PK	33.3	-30.1	56.17	-	-	74	-17.83	103	265	V
2.97	42.96	Avg	33.3	-30.1	46.16	54	-7.84	-	-	103	265	V
3.712	52.21	PK	34.8	-29.9	57.11	-	-	74	-16.89	109	353	V
3.712	35.95	Avg	34.8	-29.9	40.85	54	-13.15	-	-	109	353	V

PK - Peak detector
Avg - Video bandwidth < Resolution bandwidth

7.5.3. Spurious Emissions 18 to 26 GHz

CHANNEL 2 - TX SPURIOUS EMISSION 18 TO 26 GHz (HORIZONTAL AND VERTICAL PLOT)



CHANNEL 2 -TX SPURIOUS EMISSION 18 TO 26 GHz

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	T89 AF (dB/m)	Amp/Cbl (dB)	Dist Corr (dB)	Corrected Reading (dBuVolts)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)
1	19.372	41.33	PK	32.8	-24.3	-9.5	40.33	54	-13.66	74	-33.66
2	22.586	40.07	PK	33.7	-23.1	-9.5	41.16	54	-12.83	74	-32.83
3	24.201	48.7	PK	34.2	-22.9	-9.5	50.5	54	-3.5	74	-23.5
4	18.06	42.27	PK	32.6	-25.2	-9.5	40.16	54	-13.83	74	-33.83
5	22.576	42.33	PK	33.7	-23.2	-9.5	43.33	54	-10.66	74	-30.66
6	24.022	44.03	PK	34.2	-22.9	-9.5	45.83	54	-8.16	74	-28.16

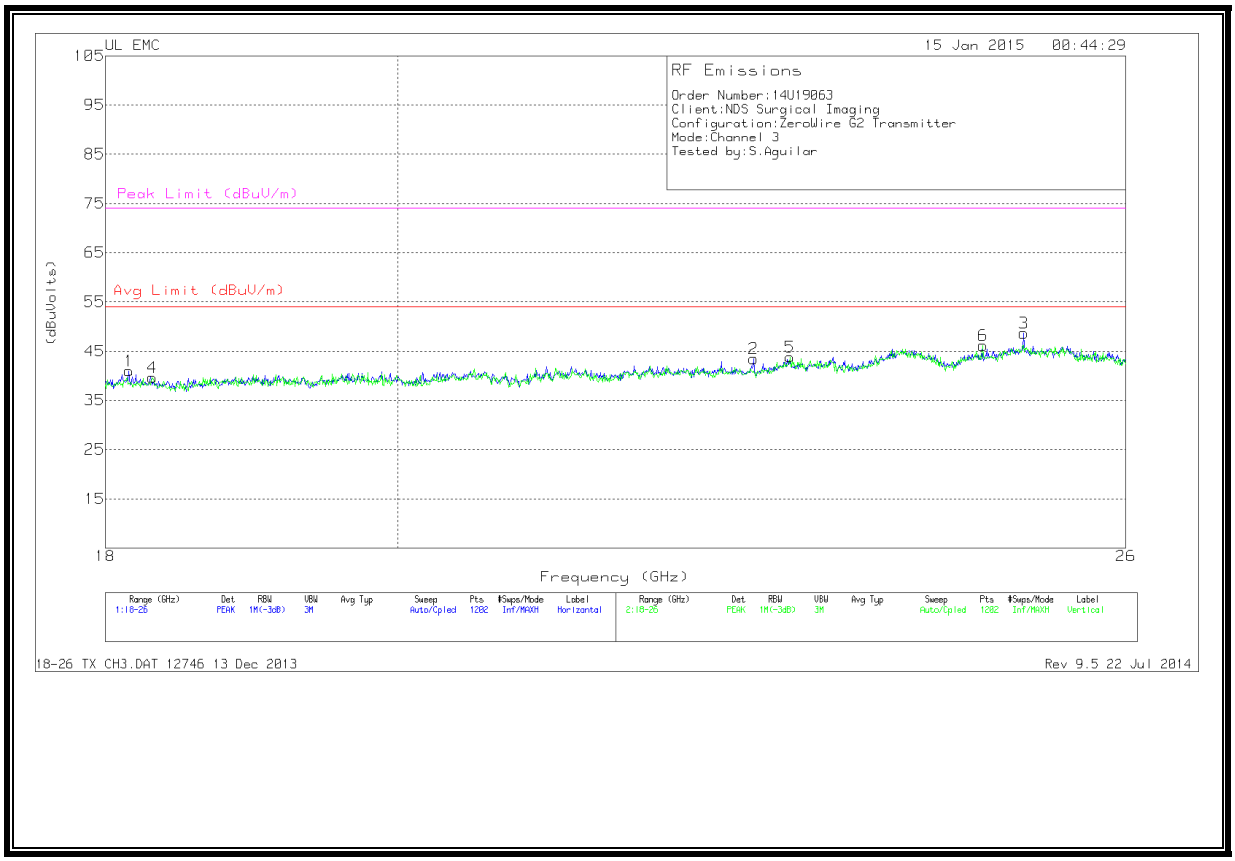
PK - Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	T89 AF (dB/m)	Amp/Cbl (dB)	Dist Corr (dB)	Corrected Reading (dBuVolts)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)
24.192	45.83	PK	34.2	-23	-9.5	47.53	--	--	74	-26.47
24.192	40	Avg	34.2	-23	-9.5	41.7	54	-12.3	-	-

PK - Peak detector
Avg - Video bandwidth < Resolution bandwidth

CHANNEL 3 - TX SPURIOUS EMISSION 18 TO 26 GHz (HORIZONTAL AND VERTICAL PLOT)



CHANNEL 3 -TX SPURIOUS EMISSION 18 TO 26 GHz

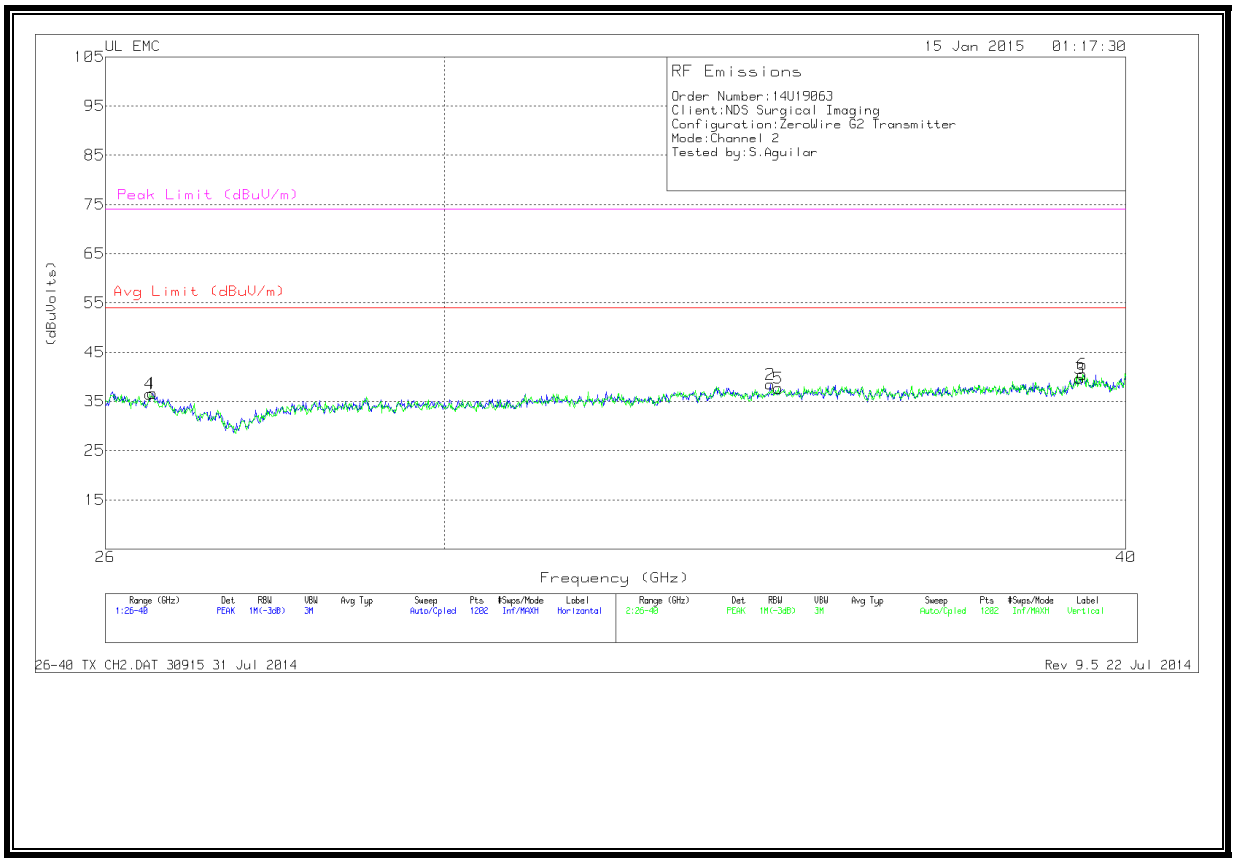
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	T89 AF (dB/m)	Amp/Cbl (dB)	Dist Corr (dB)	Corrected Reading (dBuVolts)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)
1	18.153	42.8	PK	32.6	-24.9	-9.5	41	54	-13	74	-33
2	22.736	42.7	PK	33.8	-23.5	-9.5	43.5	54	-10.5	74	-30.5
3	25.061	46.27	PK	34.5	-22.6	-9.5	48.66	54	-5.33	74	-25.33
4	18.306	41.27	PK	32.5	-24.6	-9.5	39.66	54	-14.33	74	-34.33
5	23.036	42.63	PK	34	-23.3	-9.5	43.83	54	-10.16	74	-30.16
6	24.694	44.07	PK	34.4	-22.8	-9.5	46.16	54	-7.83	74	-27.83

PK - Peak detector

7.5.4. Spurious Emissions 26 TO 40 GHz

CHANNEL 2 - TX SPURIOUS EMISSION 26 TO 40 GHz (HORIZONTAL AND VERTICAL PLOT)



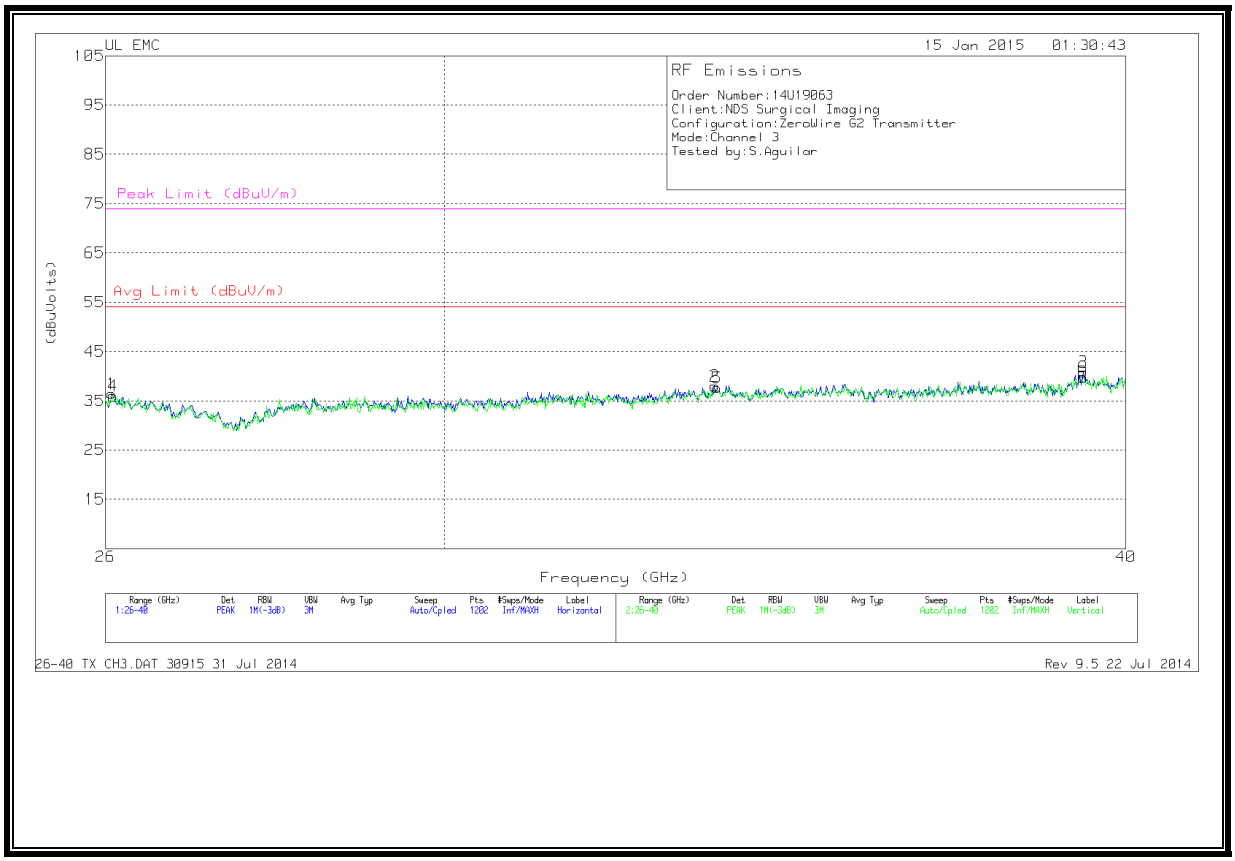
CHANNEL 2 -TX SPURIOUS EMISSION 26 TO 40 GHz

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	T90 AF (dB/m)	Amp/Cbl (dB)	Dist Corr (dB)	Corrected Reading (dBuVolts)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)
1	26.525	44.16	PK	35.5	-33.5	-9.5	36.65	54	-17.34	74	-37.34
2	34.428	48.79	PK	37.3	-38.1	-9.5	38.49	54	-15.51	74	-35.51
3	39.231	48.06	PK	38.5	-37.4	-9.5	39.65	54	-14.34	74	-34.34
4	26.49	44.19	PK	35.5	-33.7	-9.5	36.49	54	-17.51	74	-37.51
5	34.545	47.86	PK	37.4	-38.1	-9.5	37.65	54	-16.34	74	-36.34
6	39.277	48.29	PK	38.5	-36.8	-9.5	40.49	54	-13.51	74	-33.51

PK - Peak detector

CHANNEL 3 - TX SPURIOUS EMISSION 26 TO 40 GHz (HORIZONTAL AND VERTICAL PLOT)



CHANNEL 3 -TX SPURIOUS EMISSION 26 TO 40 GHz

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	T90 AF (dB/m)	Amp/Cbl (dB)	Dist Corr (dB)	Corrected Reading (dBuVolts)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)
1	26.07	43.39	PK	35.6	-33	-9.5	36.49	54	-17.51	74	-37.51
2	33.647	46.56	PK	36.9	-36.8	-9.5	37.15	54	-16.84	74	-36.84
3	39.289	47.82	PK	38.4	-35.9	-9.5	40.82	54	-13.176	74	-33.17
4	26.082	43.09	PK	35.6	-33.2	-9.5	35.99	54	-18.01	74	-38.01
5	33.659	47.26	PK	36.9	-37	-9.5	37.65	54	-16.34	74	-36.34
6	39.283	47.22	PK	38.4	-36.3	-9.5	39.82	54	-14.17	74	-34.17

PK - Peak detector

7.5.5. Spurious Emissions 40 TO 200 GHz

Channel 2
PEAK MEASUREMENT
Note: The peak density is less than the average limit

Frequency (GHz)	Measurement Distance (m)	Peak Power (dBm)	Rx Antenna Gain (dBi)	EIRP (dBm)
48.384	1.500	-49.32	48.00	-27.7
EIRP (W)	**Specification Distance (m)**	**Power Density (W/m^2)**	**Power Density (pW/cm^2)**	**Limit (pW/cm^2)**
1.71E-06	3.0	1.51E-08	1.51	90

Channel 3
PEAK MEASUREMENT
Note: The peak density is less than the average limit

Frequency (GHz)	Measurement Distance (m)	Peak Power (dBm)	Rx Antenna Gain (dBi)	EIRP (dBm)
50.11	1.500	-62.58	23.00	-15.6
EIRP (W)	**Specification Distance (m)**	**Power Density (W/m^2)**	**Power Density (pW/cm^2)**	**Limit (pW/cm^2)**
2.74E-05	3.0	2.43E-07	24.25	90

No other spurious or harmonic emissions to 200 GHz detected above the noise floor.

7.6. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

§15.207

Frequency range (MHz)	Limits (dBµV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5	56	46
5 to 30	60	50
Notes: 1. The lower limit shall apply at the transition frequencies 2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.		

TEST PROCEDURE

ANSI C63.10-2009

ADAPTERS TESTED

DESIGNATION	MANUFACTURER	MODEL NUMBER
Adapter 1	Bridge Power	MW172KB2400B02
Adapter 2	GlobTek, Inc.	GTM91120-3024-T3A

6 WORST EMISSIONS- Adapter 1

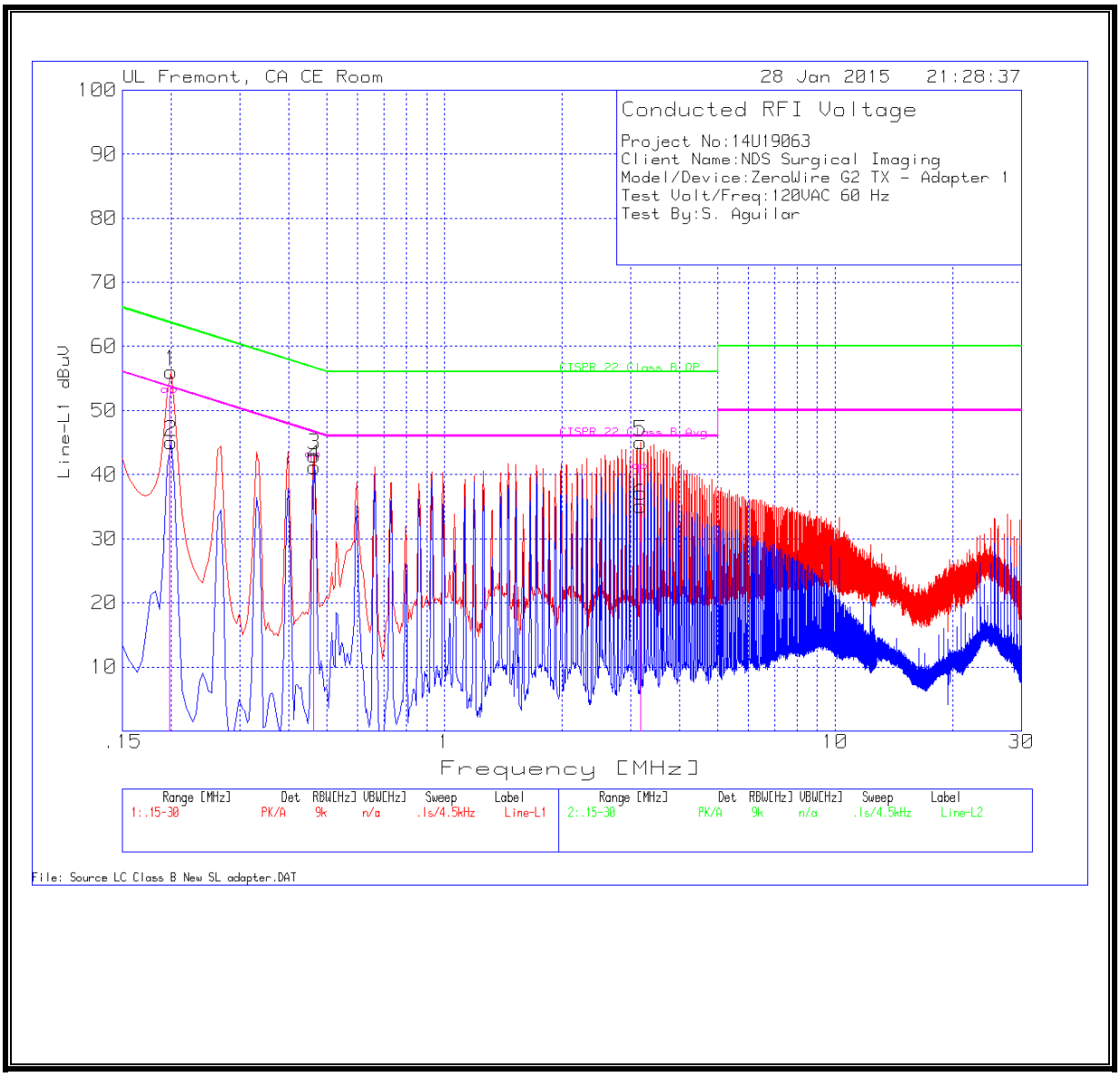
Line-L1 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	T24 IL L1 (dB)	LC Cables 1&3 (dB)	Corrected Reading dBuV	CISPR 22 Class B QP	Margin to Limit (dB)	CISPR 22 Class B Avg	Margin to Limit (dB)
1	.1995	55.2	PK	.9	0	56.1	63.6	-7.5	-	-
2	.1995	44.13	Av	.9	0	45.03	-	-	53.6	-8.57
3	.465	42.66	PK	.4	0	43.06	56.6	-13.54	-	-
4	.465	40.76	Av	.4	0	41.16	-	-	46.6	-5.44
5	3.174	44.75	PK	.2	.1	45.05	56	-10.95	-	-
6	3.174	34.87	Av	.2	.1	35.17	-	-	46	-10.83

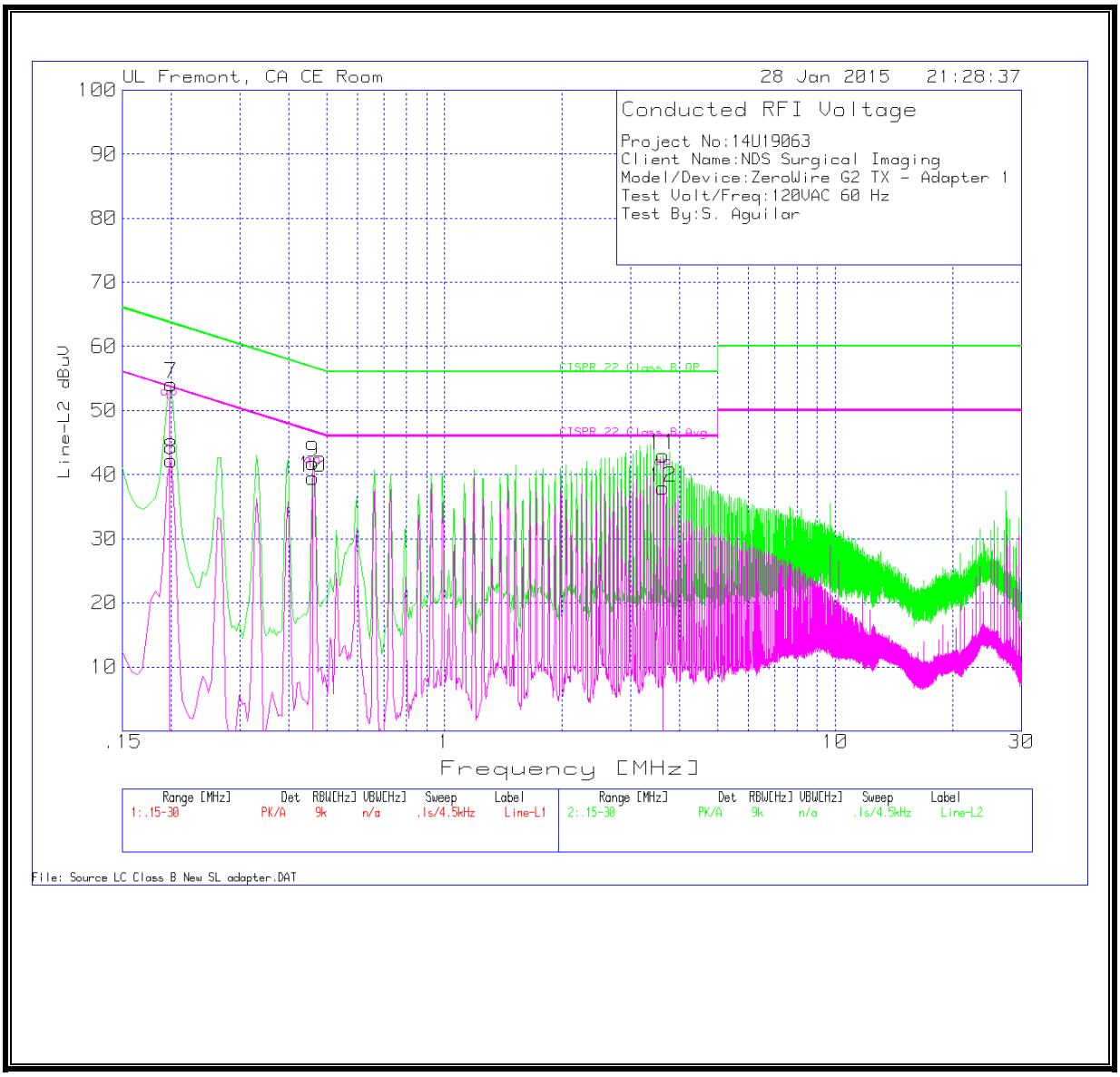
Line-L2 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	T24 IL L2 (dB)	LC Cables 2&3 (dB)	Corrected Reading dBuV	CISPR 22 Class B QP	Margin to Limit (dB)	CISPR 22 Class B Avg	Margin to Limit (dB)
7	.1995	53.1	PK	1	0	54.1	63.6	-9.5	-	-
8	.1995	41.27	Av	1	0	42.27	-	-	53.6	-11.33
9	.4605	41.5	PK	.4	0	41.9	56.7	-14.8	-	-
10	.4605	39.09	Av	.4	0	39.49	-	-	46.7	-7.21
11	3.633	42.71	PK	.2	.1	43.01	56	-12.99	-	-
12	3.633	37.62	Av	.2	.1	37.92	-	-	46	-8.08

LINE 1 RESULTS – Adapter 1



LINE 2 RESULTS – Adapter 1



6 WORST EMISSIONS – Adapter 2

Line-L1 .15 - 30MHz

Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	T24 IL L1 (dB)	LC Cables 1&3 (dB)	Corrected Reading dBuV	CISPR 22 Class B QP	Margin to Limit (dB)	CISPR 22 Class B Avg	Margin to Limit (dB)
1	.15	57.36	PK	1.4	0	58.76	66	-7.24	-	-
2	.15	40.33	Av	1.4	0	41.73	-	-	56	-14.27
3	.1995	50.17	PK	.9	0	51.07	63.6	-12.53	-	-
4	.1995	30.24	Av	.9	0	31.14	-	-	53.6	-22.46
5	.2445	42.57	PK	.7	0	43.27	61.9	-18.63	-	-
6	.2445	21.32	Av	.7	0	22.02	-	-	51.9	-29.88

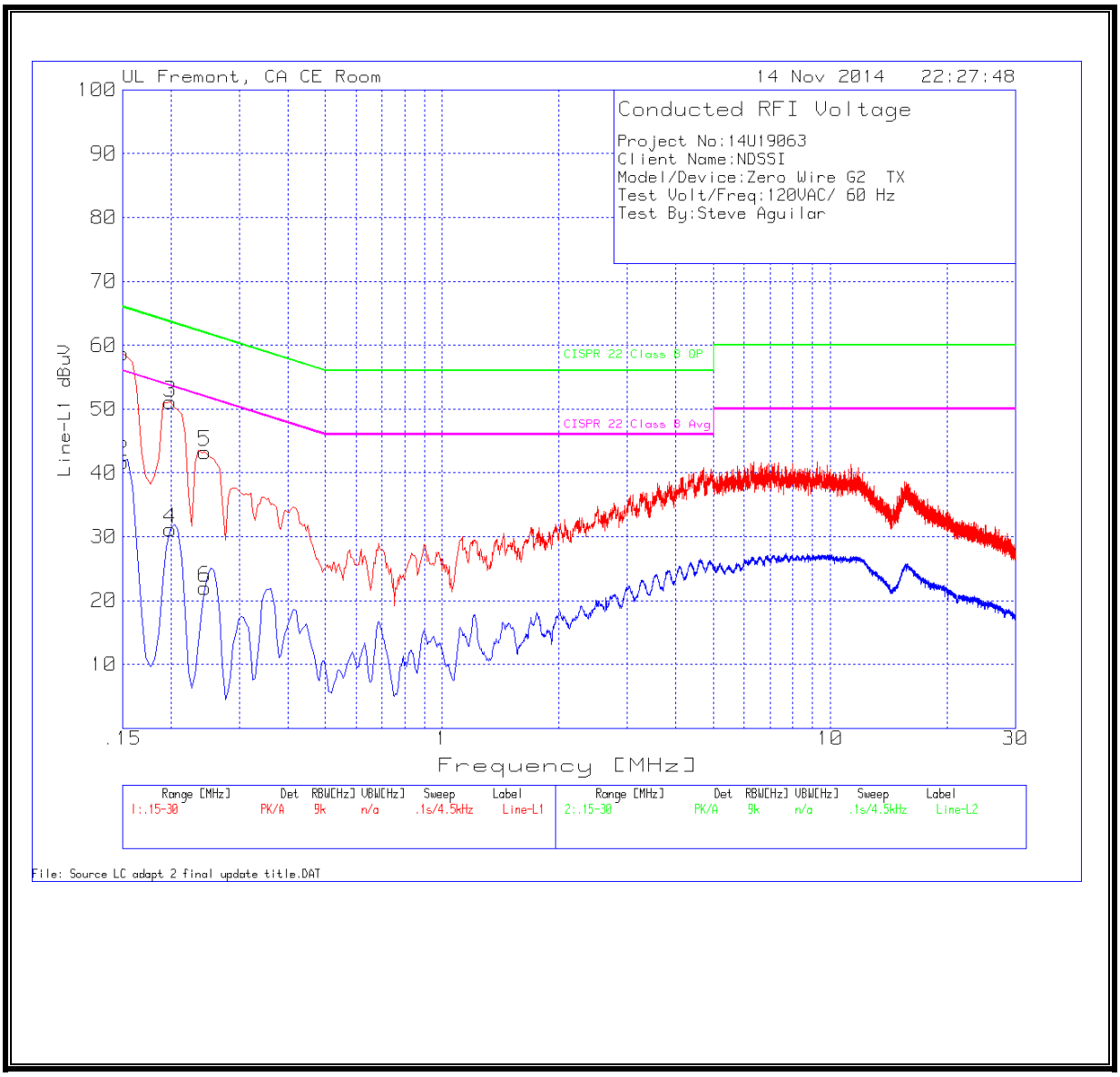
Line-L2 .15 - 30MHz

Trace Markers

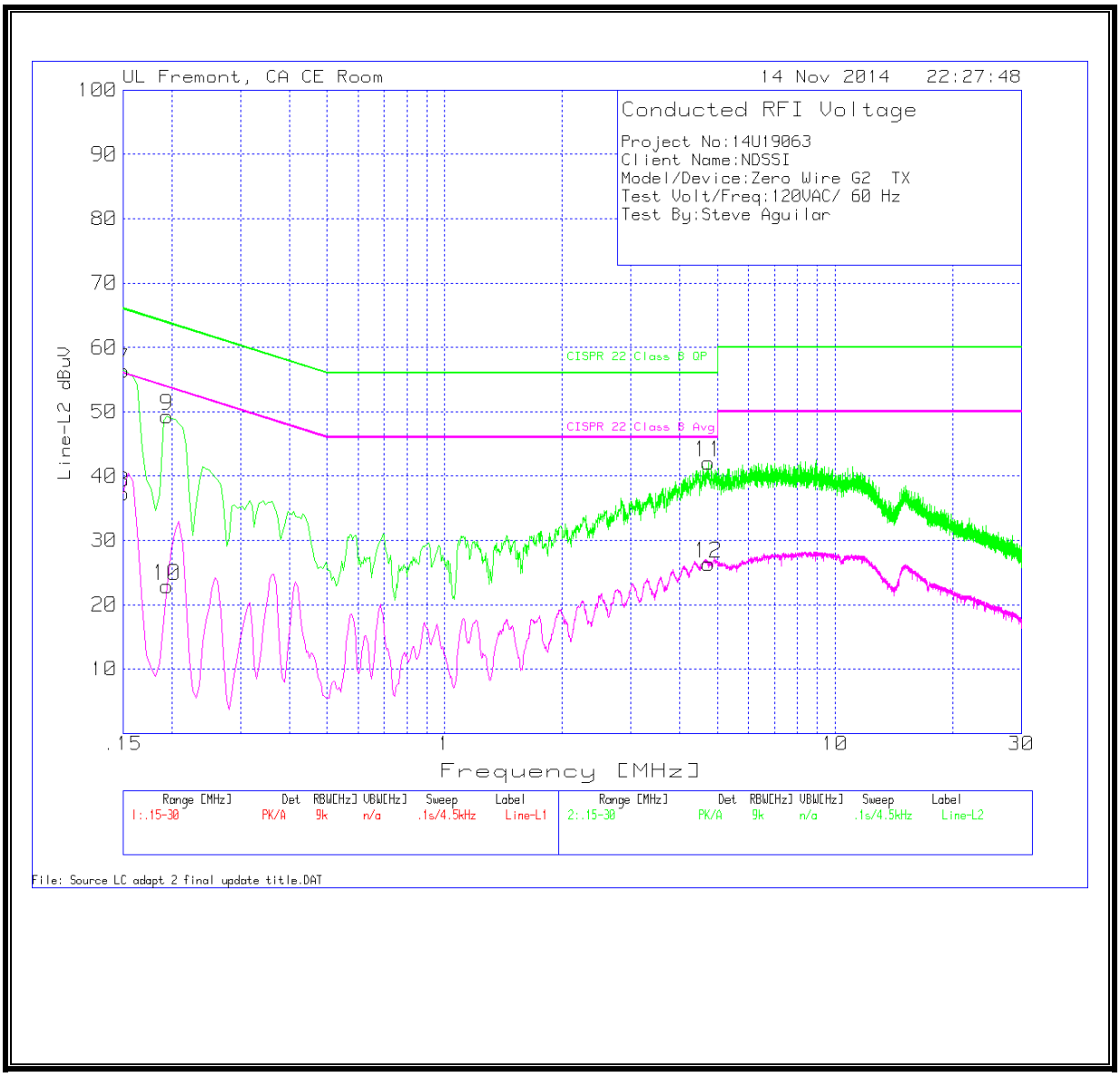
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	T24 IL L2 (dB)	LC Cables 2&3 (dB)	Corrected Reading dBuV	CISPR 22 Class B QP	Margin to Limit (dB)	CISPR 22 Class B Avg	Margin to Limit (dB)
7	.15	54.9	PK	1.5	0	56.4	66	-9.6	-	-
8	.15	35.82	Av	1.5	0	37.32	-	-	56	-18.68
9	.195	48.33	PK	1	0	49.33	63.8	-14.47	-	-
10	.195	21.96	Av	1	0	22.96	-	-	53.8	-30.84
11	4.731	41.85	PK	.2	.1	42.15	56	-13.85	-	-
12	4.731	26.08	Av	.2	.1	26.38	-	-	46	-19.62

PK - Peak detector
Av - average detection

LINE 1 RESULTS– Adapter 2



LINE 2 RESULTS– Adapter 2



8. GROUP INSTALLATION

LIMIT

§15.255 (h) Any transmitter that has received the necessary FCC equipment authorization under the rules of this chapter may be mounted in a group installation for simultaneous operation with one or more other transmitter(s) that have received the necessary FCC equipment authorization, without any additional equipment authorization. However, no transmitter operating under the provisions of this section may be equipped with external phase-locking inputs that permit beam-forming arrays to be realized.

RESULTS

The frequency, amplitude and phase of the transmit signal are set within the EUT. There are no external phase-locking inputs or any other means of combining two or more units together to realize a beam-forming array.

9. RF EXPOSURE

FCC RULES

§1.1310 The criteria listed in Table 1 shall be used to evaluate the environmental impact of human exposure to radio-frequency (RF) radiation as specified in §1.1307(b), except in the case of portable devices which shall be evaluated according to the provisions of §2.1093 of this chapter.

TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm^2)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3–3.0	614	1.63	*(100)	6
3.0–30	1842/f	4.89/f	*($900/f^2$)	6
30–300	61.4	0.163	1.0	6
300–1500			f/300	6
1500–100,000			5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3–1.34	614	1.63	*(100)	30
1.34–30	824/f	2.19/f	*($180/f^2$)	30

TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)—Continued

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm^2)	Averaging time (minutes)
30–300	27.5	0.073	0.2	30
300–1500			f/1500	30
1500–100,000			1.0	30

f = frequency in MHz
* = Plane-wave equivalent power density
NOTE 1 TO TABLE 1: Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure.
NOTE 2 TO TABLE 1: General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or can not exercise control over their exposure.

CALCULATIONS

EIRP is converted to Power Density using the equation:

P_D = EIRP / (4 * Pi * D_S^2)

where:

P_D = power density in W/m^2
EIRP = Equivalent Isotropic Radiated Power in W
D_S = separation distance in m

Power density in units of W/m^2 is converted to units of mW/cm^2 by dividing by 10.

RESULTS

The setup phase and normal operation do not occur simultaneously, therefore it is appropriate to consider the RF exposure during these two operating modes independently.

Setup Phase

Average EIRP (dBm)	Average EIRP (W)	Separation Distance (cm)	Power Density (mW/cm^2)	FCC Limit (mW/cm^2)
12.1	0.016	20	0.003	1

Normal Operation

Average EIRP (dBm)	Average EIRP (W)	Separation Distance (cm)	Power Density (mW/cm^2)	FCC Limit (mW/cm^2)
29.6	0.912	20	0.18	1