



**FCC Part 15 subpart D
Test Report
for
DECT cordless phone (Handset)
on
MODEL
CL-30, CL-35, CL-60 & CL-65**

[FCC ID: LZX-CL6065]

**Report number
20091210-03-F15**

**Manufacturer
Unical Enterprises, Inc.
16960 Gale Ave
City of Industry, CA 91745
Tel: 626 965 5588
Fax: 626 965 6998**

**Judgement
Complies as tested**

**TESTED BY
BACL
6/F, the 3rd Phase of Wan Li Industrial Bldg;
NO.13, Shihua Rd;
Fu Tian Free Trade Zone, Shenzhen 518038, P.R.China**

**Report by
ITC Engineering Services, Inc.
9959 Calaveras Road, P.O. Box 543
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Fax: (925) 862-9013
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Lab Code: 200172-0

ISO17025 Accredited Compliance Laboratory



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PART 1 GENERAL INFORMATION

1.1 TEST INFORMATION

Product Type	DECT cordless phones	
Model	CL-30, CL-35, CL-60, CL-65	
Manufacturer's Name Manufacturer's Address	Unical Enterprises, Inc. 16960 Gale Ave City of Industry, CA 91745 Tel: +1 (626) 965 5588	Fax: +1 (626) 965 6998 Email : peterlee92649@yahoo.com
Contact	Mr. Andy Chung	
Test Laboratory	BACL 6/F, the 3rd Phase of Wan Li Industrial Bldg; NO.13, Shihua Rd; Fu Tian Free Trade Zone, Shenzhen 518038, P.R.China	Tel: (86-755)33320018 Fax: (86-755)33320898
Test Number and Report Numbers	20091210-03	20091213-00-F15
Report Issue Date	March 30 th , 2010	
Chief Engineer	Michael Gbadebo, P.E	
Documentation	Sharmistha Modak	
Test Results	☒ Complies as Tested	☐ Fail



1.2 DECLARATION/DISCLAIMER

This test report is generated from the data obtained from BACL Lab, China; ITC has been authorized to use their test data. Following is the authorized letter from the client.

March 28, 2010

ITC Engineering Services
9959 Calaveras Road
Box 543
Sunol, CA 94586-0543

Subject: Test data for CL-xx

To whom it may concern,

The test data sent to you was obtained by our factory (Cheung Lung Electronics – Apex) from BACL in ShenZhen, China. The test data were paid for and ITC can use them as it fits in completing both FCC and DOC applications.

The address for BACL in ShenZhen is:

Bay Area Compliance laboratories (ShenZhen)
6/F, The 3rd Phase of WanLi Industrial Building
ShiHua Road, FuTian Free Trade Zone
ShenZhen, Guandong, China
Tel: 86 755 33330018

A copy of BACL professional certificate is attached for your reference.

Sincerely,

Peter Lee

1.3 TEST FACILITY

BACL

6/F, the 3rd Phase of Wan Li Industrial Bldg; NO.13, Shihua Rd;
Fu Tian Free Trade Zone, Shenzhen 518038, P.R.China

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PART 2 TEST INFORMATION

2.1 DESCRIPTION OF TESTED DEVICE(S)

The EUT is a responding device as described in ANSI C63.17 and is designed to operate together with a DECT handset, which is then the initiating device.

Frequency Channel	Frequency	Test Frequency
CH4	1928.448 MHz	F _L
CH3	1926.720 MHz	-
CH2	1924.992 MHz	-
CH1	1923.264 MHz	-
CH0	1921.536 MHz	F _H

PART 3 TEST REPORT SUMMARY

Requirement	FCC Paragraph #	Required	Customer Declaration	Test Pass
Coordination with fixed microwave	15.307(b)	☒	☒	☐
Cross Reference	15.309(b)	☐	☐	☐
Labeling requirements	15.311 15.19(a)(3)	☒	☒	☐
Power line Conducted Emission	15.315 , 15.207	☒	☐	☒
Antenna Requirement	15.317, 15.203	☒	☒	☐
Digital Modulation Techniques	15.319(b)	☒	☒	☐
Peak transmit Power	15.319(c)	☒	☐	☒
Power spectral Density	15.319(d)	☒	☐	☒
Antenna gain	15.319(e)	☒	☒	☐
Automatic discontinuation of transmission	15.319(f)	☒	☒	☐
Safety exposure levels	15.319(i)	☒	☐	☒
Emission Bandwidth	15.323(a)	☒	☐	☒
Emissions inside and outside the subband	15.323(d)	☒	☐	☒
Frame period and jitter	15.323(e)	☒	☐	☒
Carrier frequency stability	15.323(f)	☒	☐	☒

PART 4 TEST SETUP

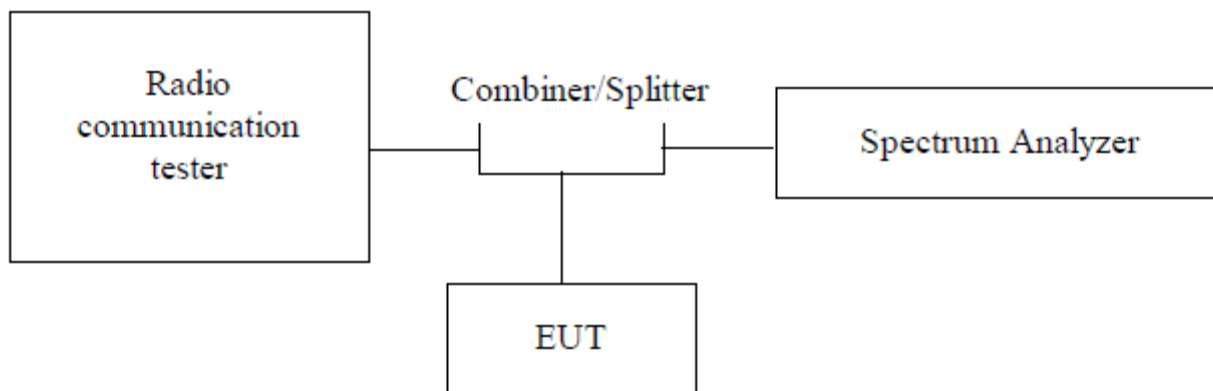
4.1 FREQUENCY AND TIMING MEASUREMENTS



Test Set-up 1

This setup is used for measuring Frame stability, Jitter, Carrier frequency stability at normal and extreme temperatures.

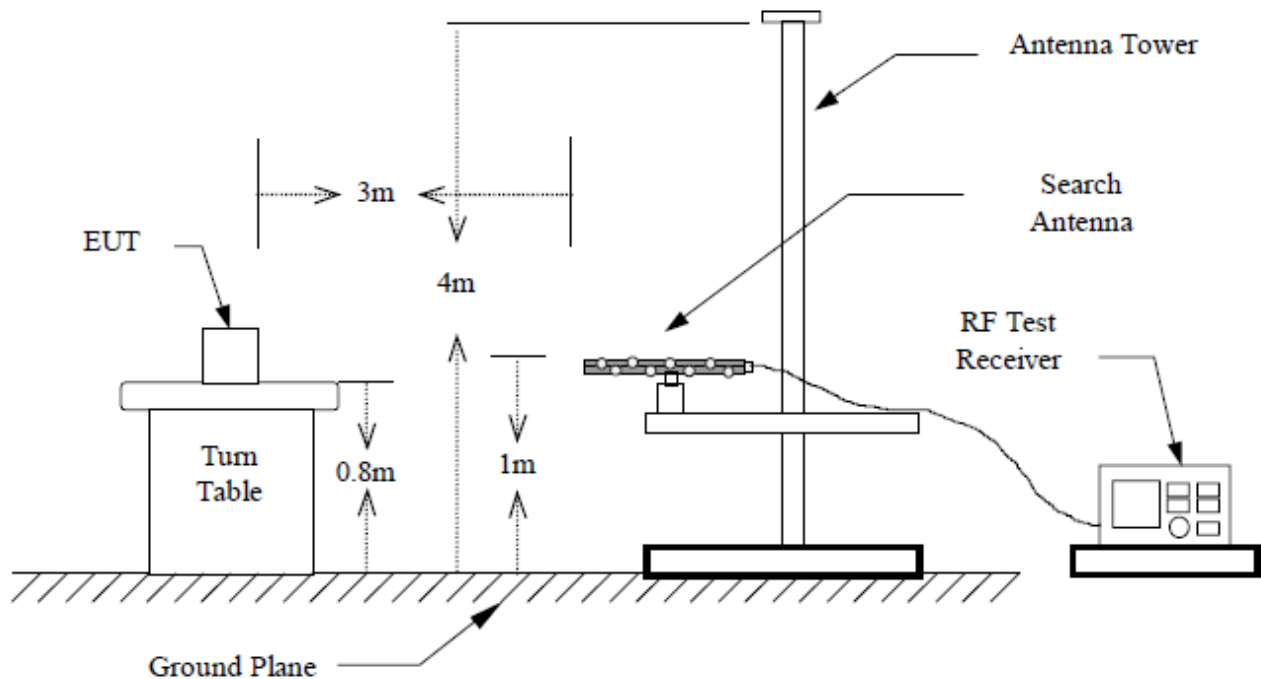
4.2 Conducted Emission Tests



Test Set-up 2

This setup is used for all conducted emission tests.

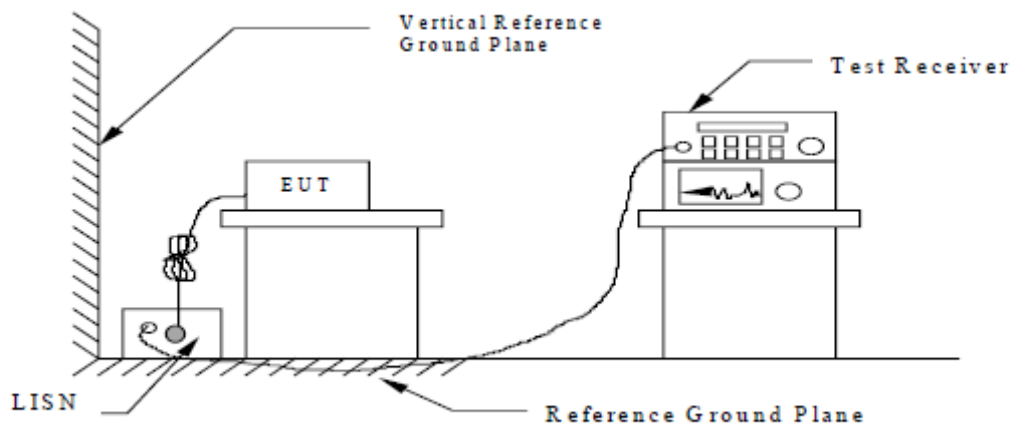
4.3 RADIATED EMISSION TESTS



Test Set-up 3

This test setup is used for all radiated emissions tests. For frequencies below 30 MHz the measuring distance is 10 m, for all other frequencies it is 3m. Emissions above 1 GHz were measured with the Spectrum Analyzer, Horn Antenna and the preamplifier after the antenna.

4.4 POWER LINE CONDUCTED TESTS



Test Set-up 4

**Part 5 TEST EQUIPMENT LIST**

Equipment	Manufacturer	Model No.	Next Cal. Due
Test Receiver	Rohde & Schwarz	ESCS 30	2010/06/25
Amplifier	HP	8447D	2010/05/12
Bi-Log Antenna	Schaffner	CBL 6111C	2010/03/20
Log-periodic Antenna	EMCO	3146	2010/05/25
Biconical Antenna	EMCO	3110	2010/06/25
EMI Test Receiver	Rohde & Schwarz	ESCI	2010/04/12
Spectrum	R&S	FSP3	2010/05/25
Signal generator	HP	8656B	2010/06/07
Double Ridged Antenna	EMCO	3115	2010/04/09
CTS60 DIGITAL RADIO TEST	R&S	CTS60	2010/05/12
Amplifier	HP	8449B	2010/06/24
Amplifier	HP	83051A	2010/06/13

Part 6 Test Result

6.1 Coordination with fixed microwave

6.1.1 STANDARD APPLICABLE

FCC 15.307 (b)

Each application for certification of equipment operating under the provisions of this Subpart must be accompanied by an affidavit from UTAM, Inc. certifying that the applicant is a participating member of UTAM, Inc. In the event a grantee fails to fulfill the obligations attendant to participation in UTAM, Inc., the Commission may invoke administrative sanctions as necessary to preclude continued marketing and installation of devices covered by the grant of certification, including but not limited to revoking certification.

Result

The affidavit from UTAM, Inc. is included in the documentation supplied by the applicant:

☒ Yes

☐ No

6.2 Cross Reference

6.2.1 Standard Applicable

15.309(b)

The requirements of Subpart D apply only to the radio transmitter contained in the PCS device. Other aspects of the operation of a PCS device may be subject to requirements contained elsewhere in this Chapter. In particular, a PCS device that includes digital circuitry not directly associated with the radio transmitter also is subject to the requirements for unintentional radiators in Subpart B.

15.109(a)

For unintentional device, according to FCC §15.109(a), the field strength of radiated emissions from unintentional except for class A digital device radiators at a distance of 3 meters shall not exceed the following values:

Frequency MHz	Distance Meters	Radiated μ V/m	Radiated dB μ V/m
30 - 88	3	100	40.0
88 - 216	3	150	43.5
216 - 960	3	200	46.0
Above 960	3	500	54.0

6.2.2 TEST RESULTS

This requirement is not applicable because test sample do not included digital circuitry which is not direct associated with the radio transmitter	☒
For test results according to FCC 15 subpart B, see the EMC report as attached	☐
For test results according to FCC 15 subpart B, see the measurement data as follow	☐
This requirement is covered b results of power line conducted emission test according to FCC 15.315	☐

6.3 Labeling Requirements

6.3.1 Standard Applicable

FCC 15.19

The FCC Identifier shall be displayed on the label, and the device(s) shall bear the following statement in a conspicuous location on the device or in the user manual if the device is too small:

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

The label itself shall be of a permanent type, not a paper label, and shall last the lifetime of the equipments.

6.3.2 Result

See separate documents showing the label design and the placement of the label on the EUT.



6.4 Power Line Conducted Emissions

6.4.1 Standard Applicable

15.315

An unlicensed PCS device that is designed to be connected to the public utility (AC) power line must meet the limits specified in Section 15.207.

15.207(a)

For an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150kHz to 30MHz shall not exceed the limits in the following table, as measured using a 50 μ H/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequency ranges.

6.4.2 Measurement procedure

ANSI C63.4-2003 using 50 μ H/50 ohms LISN.

6.4.3 Test Results: Complies

Measurement Data: See attached graph, (Peak detector)

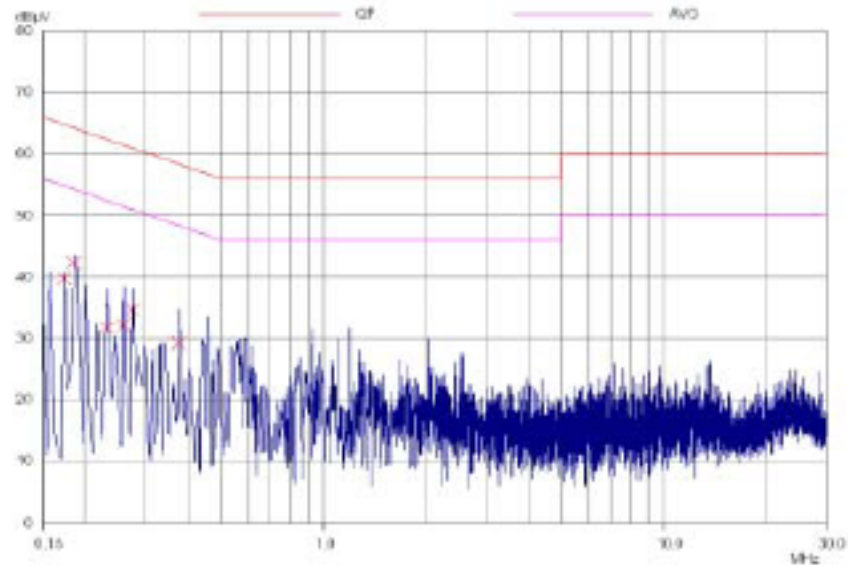
Highest measured value (L1 and L2):

All emissions were below the QP and Average limits when measured with Peak detector.



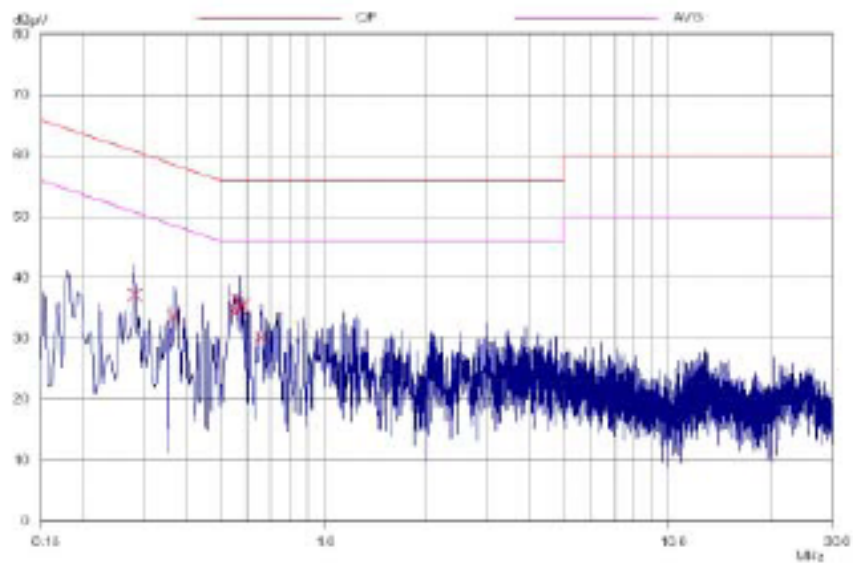
Mode: Handset Unit Charge

Neutral



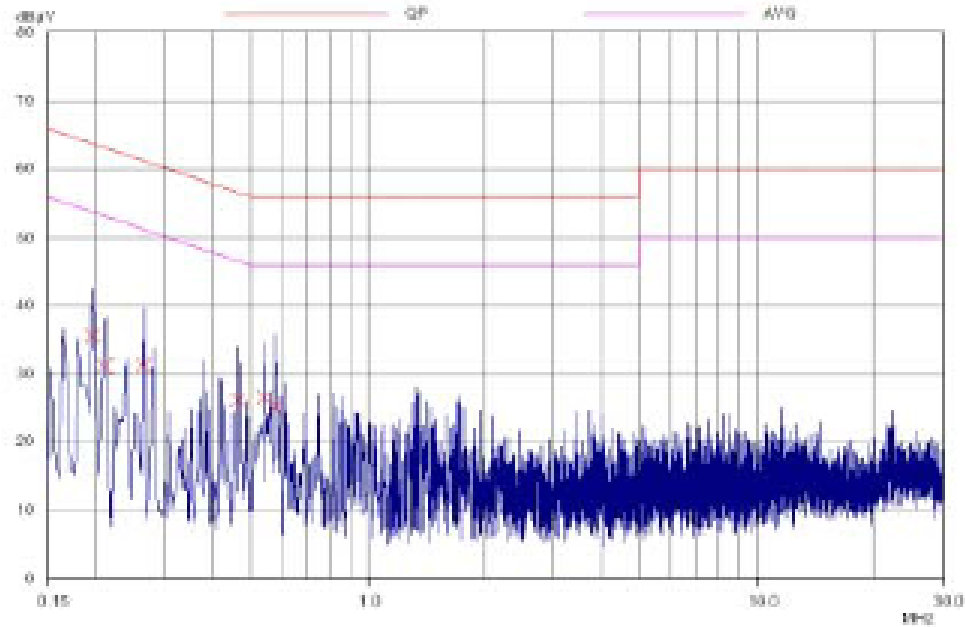
Mode: Handset Unit Charge

Line



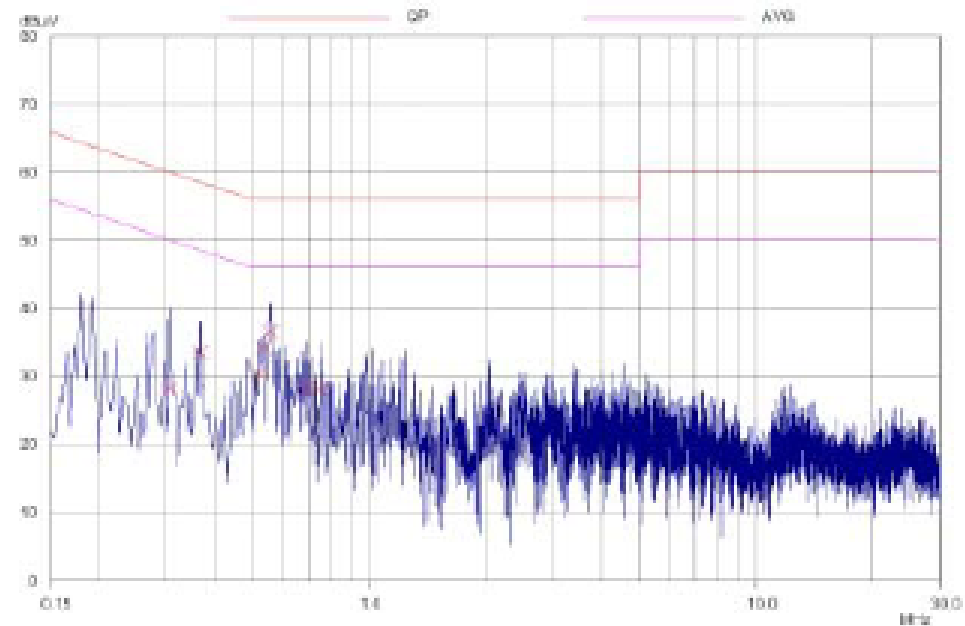
Mode: Handset Unit Charge

Neutral



Mode: Handset Unit Charge

Line





6.5 Antenna Requirement

6.5.1 Standard Applicable

FCC 15.317, 15.203

Does the EUT have detachable antenna?

☐ Yes

☒ No

If detachable, is the antenna connector non-standard?

☐ Yes

☐ No

The tested equipment has only integral antennas. The conducted tests were performed on a sample with a temporary antenna connects.

6.6 digital Modulation Techniques

6.6.1 Standard Applicable

FCC 15.319(b)

All transmissions must use only digital modulation techniques.

6.6.2 Result:

Meets the requirement

PLEASE SEE THE DECLARATION PROVIDED BY APPLICANT



6.7 Peak Power Output

6.7.1 Standard Applicable

FCC 15.319(c)(f)

Peak transmit power shall not exceed 100 microwatts multiplie by the square root of the emission bandwidth in Hz.

The peak transmit power shall be reduced by the amount in decibels that the maximum

DIRECTIONAL GAIN OF THE ANTENNA EXCEEDS 3 DBI.

6.7.2 Measurement procedure

Measurement method according to ANSI C63.17 2006 paragraph 6.1.2

6.7.3 Test Results: Complies

Measurement Data:

For FP

EBW = 1260000Hz

$$P_{\max} = 100\mu\text{W} \times (1260000)^{1/2} = 20.5\text{dBm}$$

Frequency (MHz)	Peak Transmit Power (dBm)	Limit (dBm)
1921.536	19.32	20.5
1924.992	19.20	20.5
1928.448	19.05	20.5

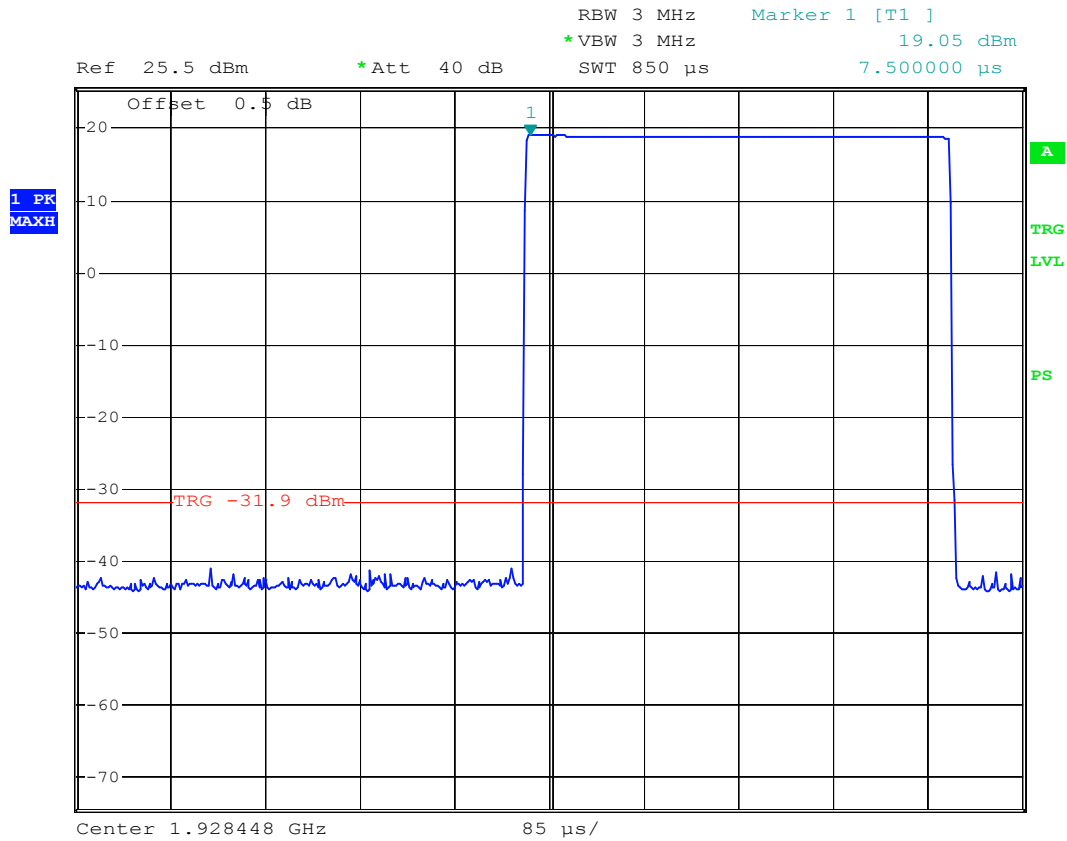


Figure 1: Last channel Peak transmit power

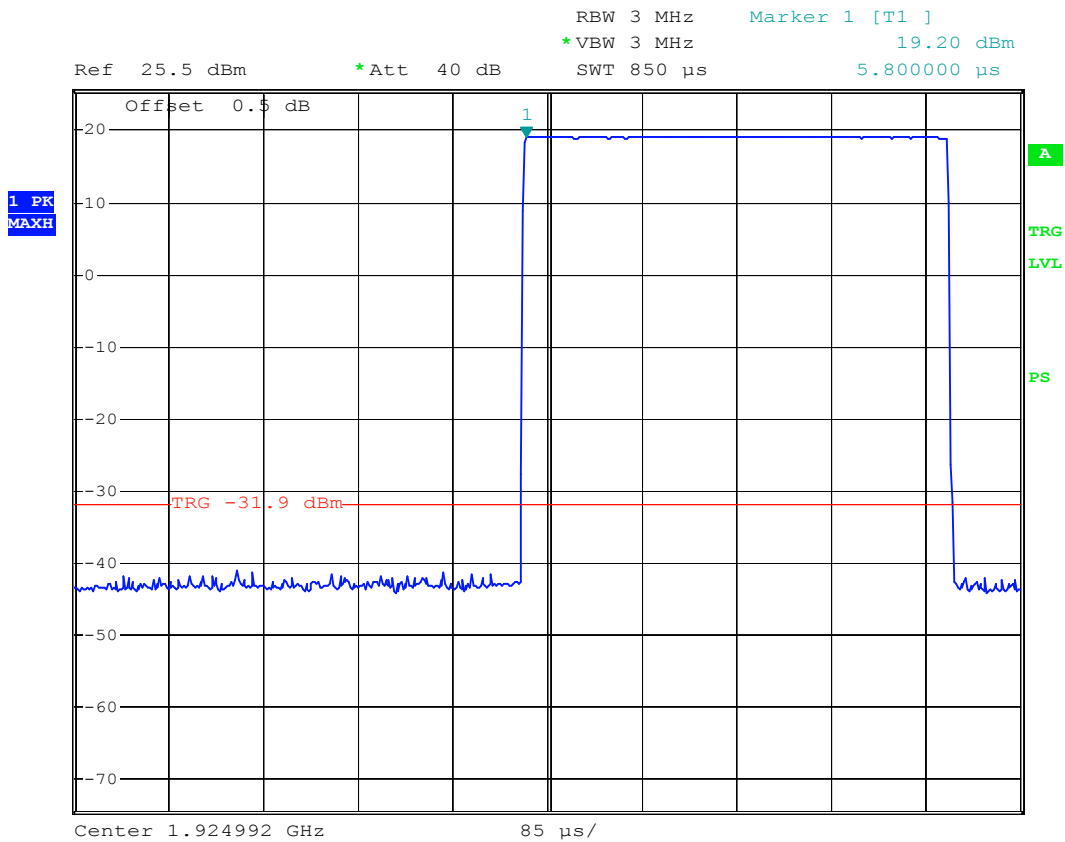


Figure 2: MID channel Peak transmit power

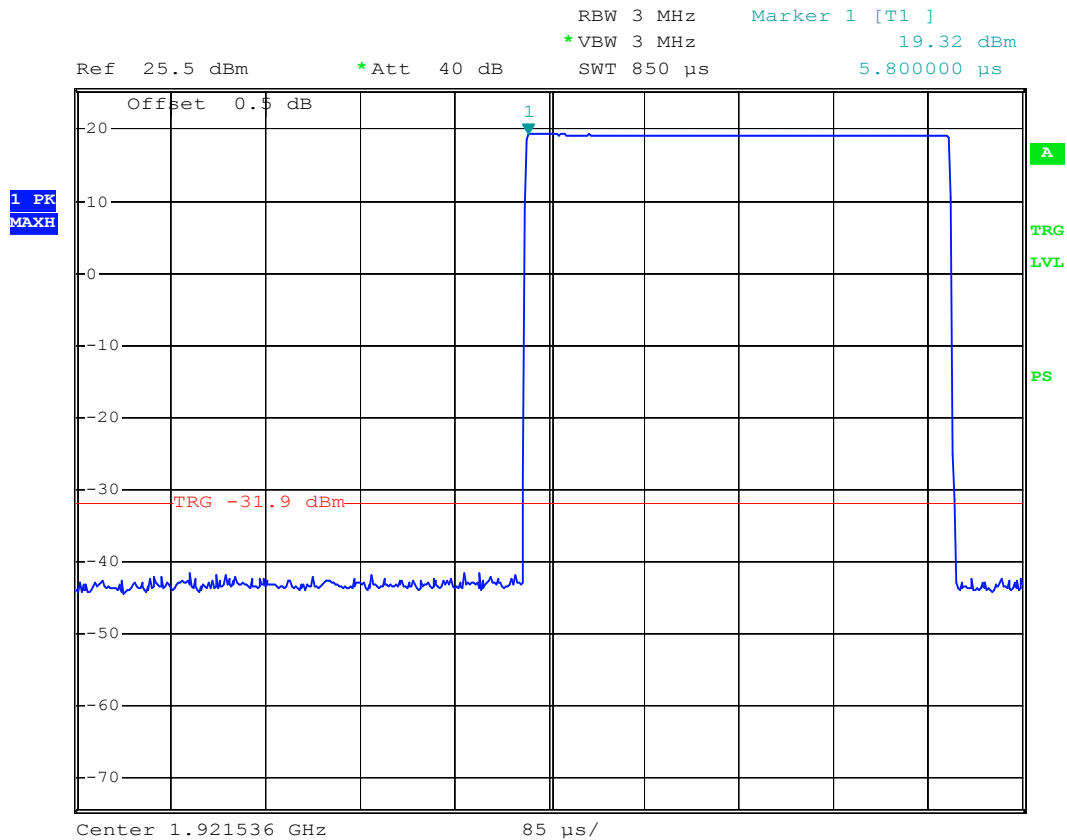


Figure 3: First channel Peak transmit power

6.8 Power Spectral Density

6.8.1 Standard Applicable

FCC 15.319(d)

Power spectral density shall not exceed 3 milliwatts in any 3 kHz bandwidth as measured with a spectrum analyzer having a resolution bandwidth of 3 kHz.

6.8.2 Measurement procedure

Measurement method according to ANSI C63.17 2006 paragraph 6.1.5

6.8.3 Test Results: Complies

Measurement Data:

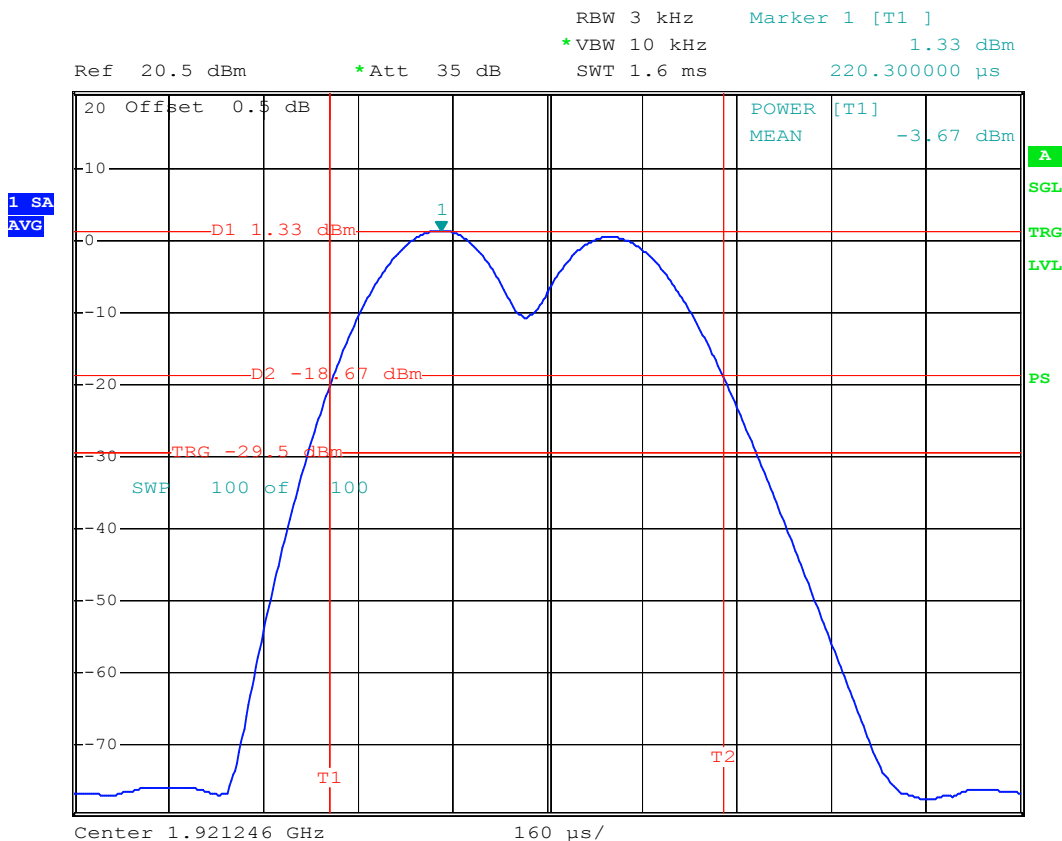


Figure 4 First channel power spectral density

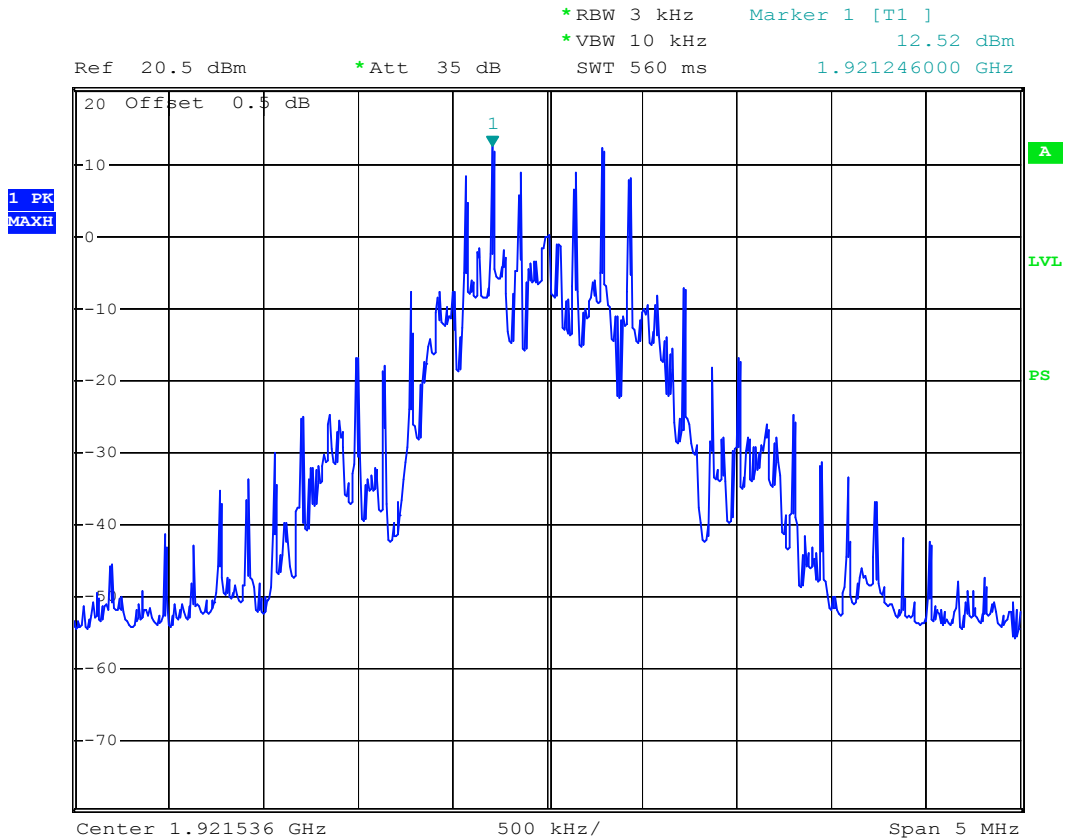


Figure 5: First channel power spectral density

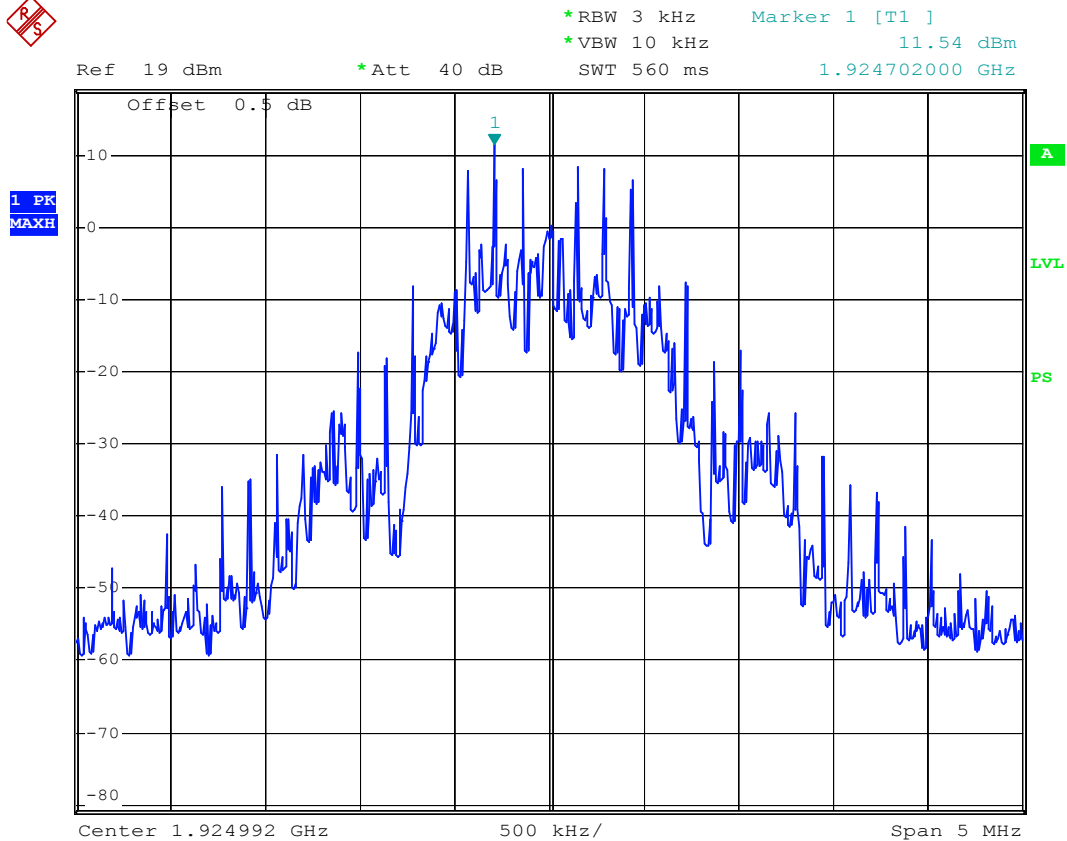


Figure 6: MID channel power spectral density

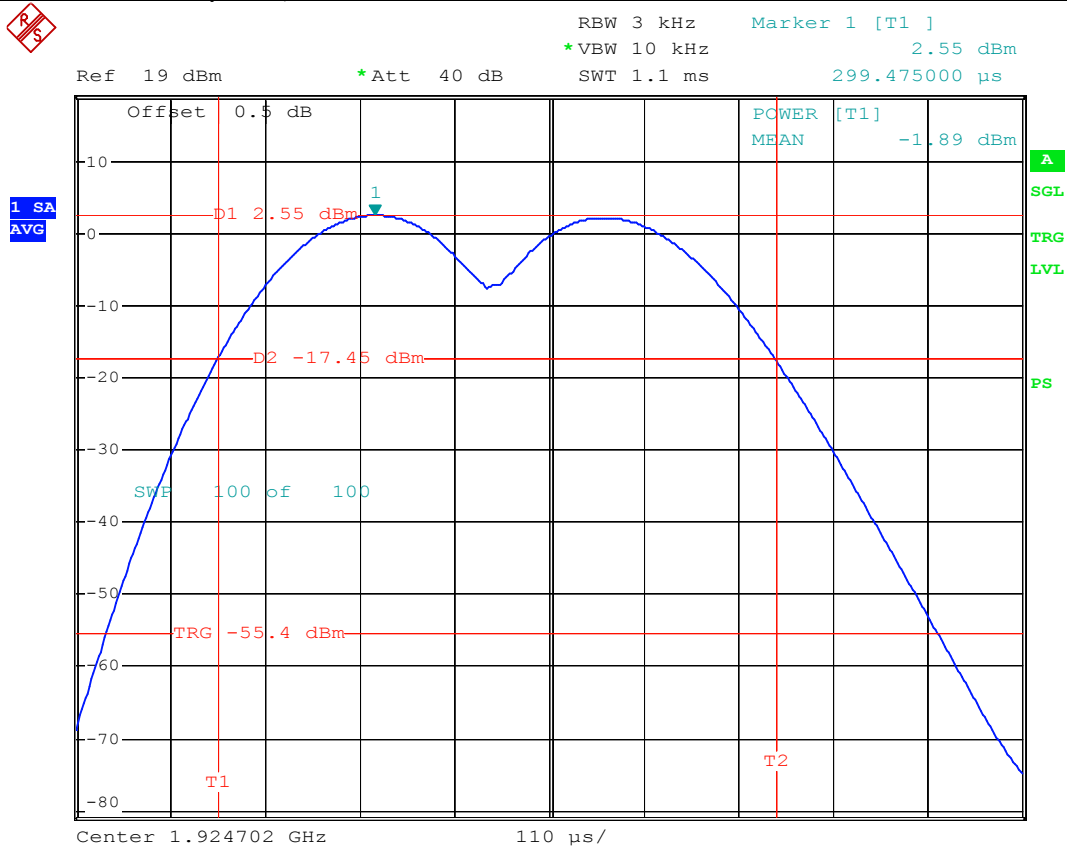


Figure 7: MID channel power spectral density

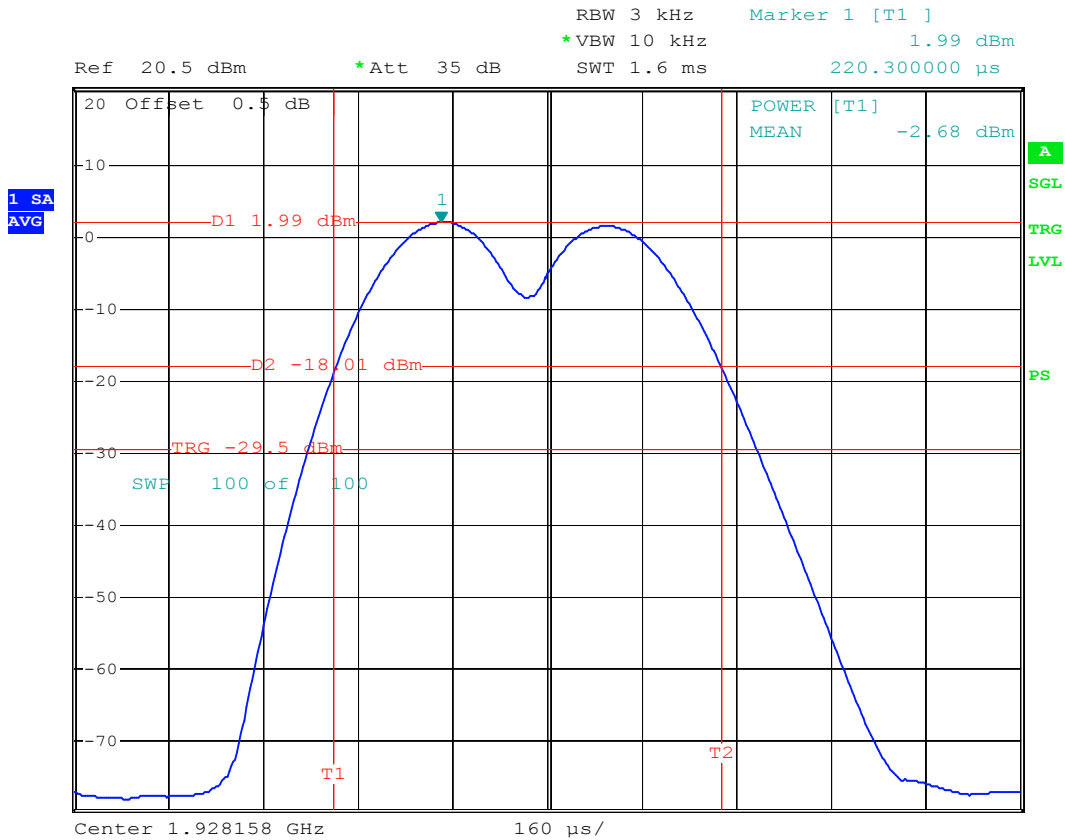


Figure 8: Last channel power spectral density

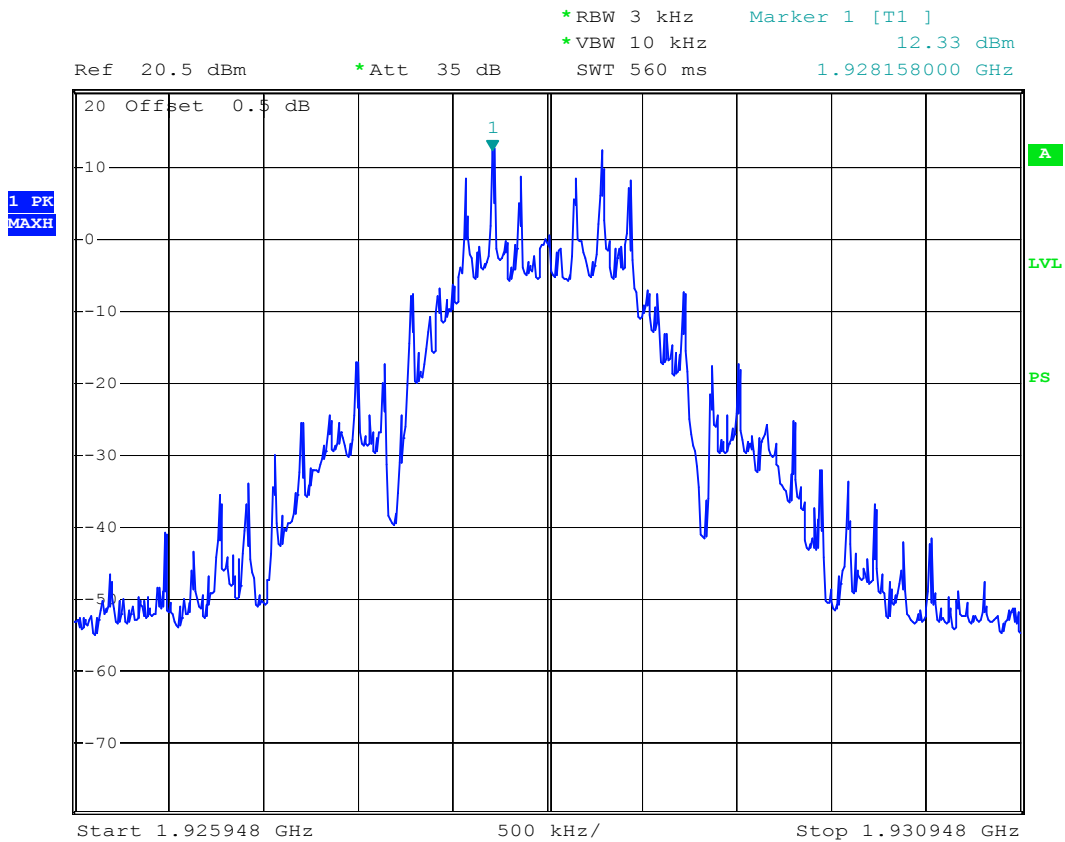


Figure 9: Last channel power spectral density

Test mode: Transmitting

For PP

Frequency (MHz)	Power Spectral Density		Limit (mW/3kHz)	Result
	(dBm/3kHz)	(mW/3kHz)		
1921.536	-3.67	0.430	3	Pass
1924.992	-1.89	0.647	3	Pass
1928.448	-2.68	0.540	3	Pass

6.9 Antenna Gain

6.9.1 Standard Applicable

FCC 15.323(e)

The peak transmit power shall be reduced by the amount in decibels that the maximum directional gain of the antenna exceeds 3 dBi.

6.9.2 Results: Meets the requirement

The antenna gain value provided by manufacturer is 0 dBi.

6.10 Automatic discontinuation of transmission

6.10.1 Standard Applicable

FCC 15.319(f)

The device shall automatically discontinue transmission in case of either absence of information to transmit or operational failure. These provisions are not intended to preclude transmission of control and signaling information or use of repetitive codes used by certain digital technologies to complete frame or burst intervals.

6.10.2 Procedure

Please see the declaration provided by applicant.

6.10.3 Results:

Meets the requirement

6.11 Safety exposure levels

6.11.1 STANDARD APPLICABLE

FCC 15.319(i)

UPCS devices are subject to the radio frequency radiation exposure requirements specified in FCC parts 1.1307 (b), 2.1091 and 2.1093, as appropriate. All equipment shall be considered to operate in a “general population / uncontrolled environment. For portable devices tests according to IEEE 1528 are requested, applicable.

PLEASE CHECK THE ATTACHED SAR TEST REPORT



6.12 Emission Bandwidth B

6.12.1 Standard Applicable

FCC 15.323(a)

The 26 dB Bandwidth B shall be larger than 50 kHz and less than 2.5 MHz.

6.12.2 Measurement procedure

Measurement method according to ANSI C63.17 2006 paragraph 6.1.3

6.12.3 Test Results: Complies

Measurement Data:

Test mode: Transmitting

Test mode: Transmitting

Channel	Center Frequency (MHz)	Occupied emission bandwidth (MHz)	Limit
Low	1921.536	1.26	50kHz < OBW <2.5MHz
Middle	1924.992	1.26	50kHz < OBW <2.5MHz
High	1928.448	1.25	50kHz < OBW <2.5MHz

\

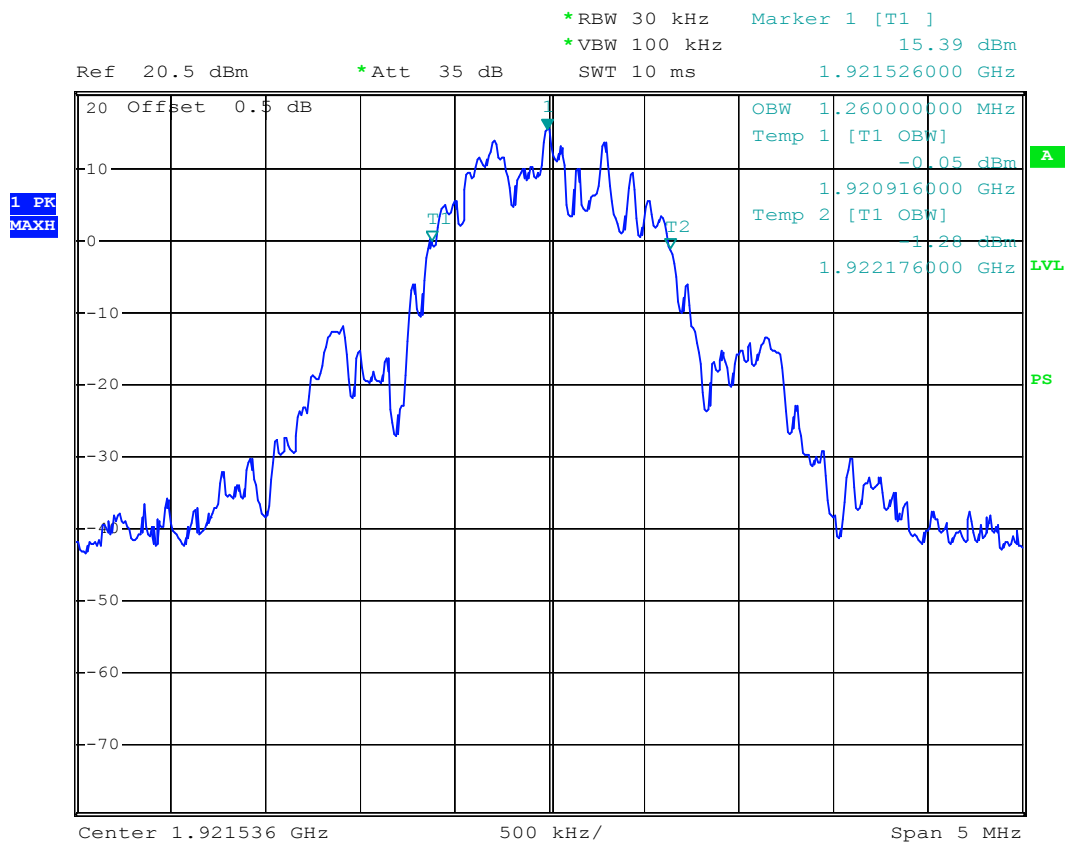


Figure 10: Occupied Bandwidth : First channel

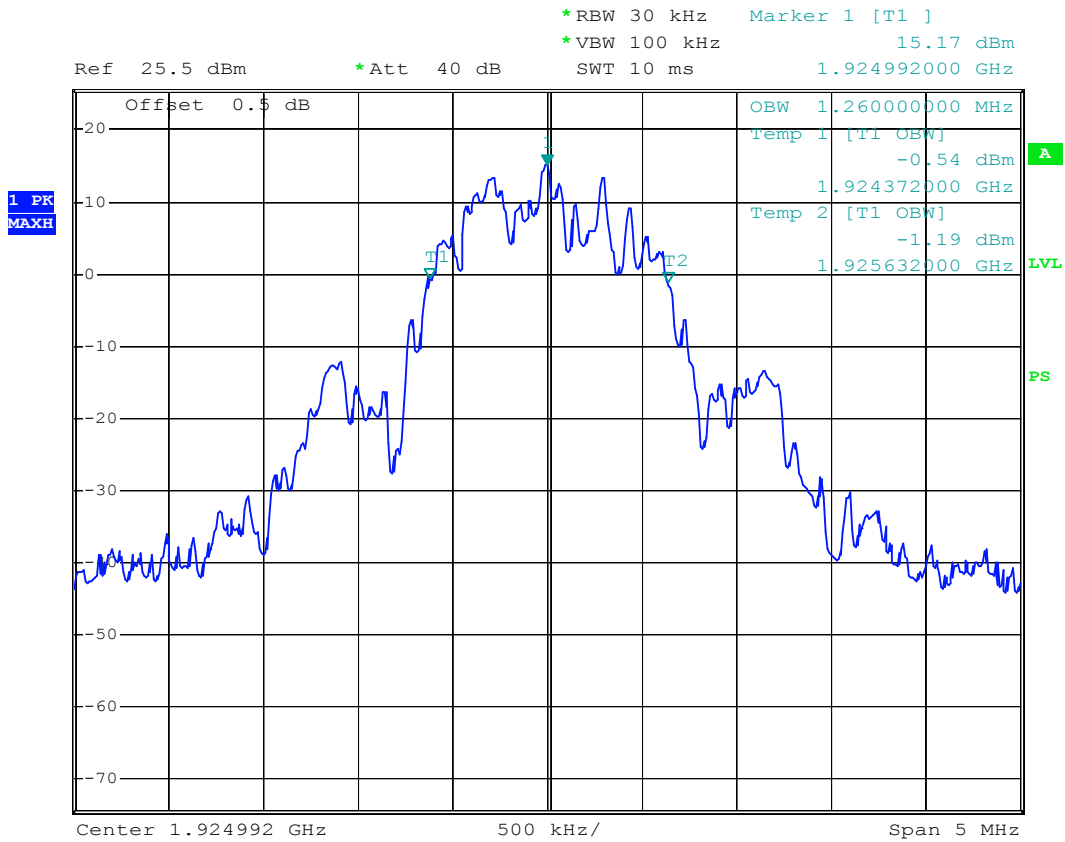


Figure 11: Occupied Bandwidth : MID channel

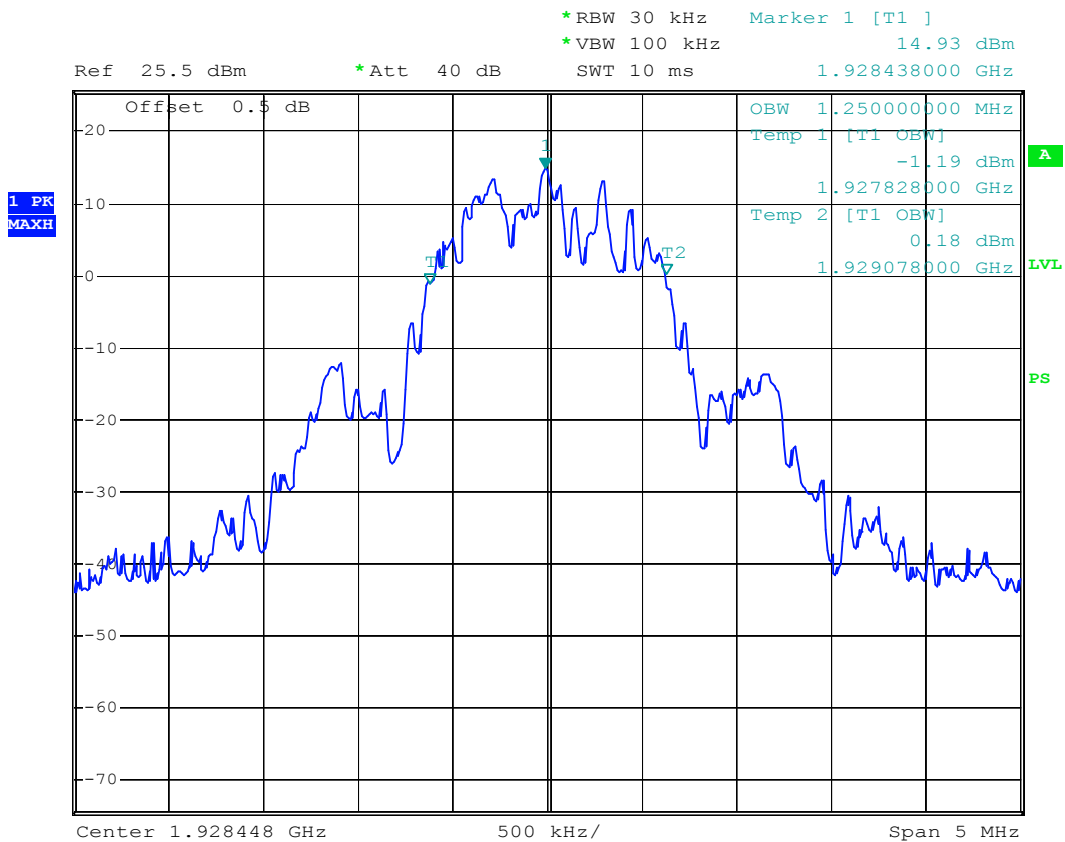


Figure 12: Occupied Bandwidth : Last channel

6.13 Emissions inside and outside the subband

6.13.1 Standard Applicable FCC 15.323(d)

Emissions inside the subband

$B < f \leq 2B$: less than or equal to 30dB below max. permitted peak power level

$2B < f \leq 3B$: less than or equal to 50 dB below max. permitted peak power level

$3B < f \leq$ UPCS Band Edge: less than or equal to 60 dB below max. permitted peak power level

Emissions outside the subband

$f \leq 1.25\text{MHz}$ outside UPCS band: $\leq -9.5\text{dBm}$

$1.25\text{MHz} < f \leq 2.5\text{MHz}$ outside UPCS band: $\leq -29.5\text{dBm}$

$f \geq 2.5\text{MHz}$ outside UPCS band: The EUT shall pass the test either a) or b) as follow:

a) In the region at 2.5 MHz or greater below and above the lower and upper band edges respectively, the measured emission level shall not exceed -39.5 dBm	☐
b) In the region at 2.5MHz or greater below and above the lower and upper band edges respectively, the measured emission level shall not exceed the limits of 47CFR15.209. Measurement shall be made as a radiated test.	☒

6.13.2 Measurement procedure

Measurement method according to ANSI C63.17 2006 paragraph 6.1.6

6.13.3 Results: Complies

MEASUREMENT DATA:

Test Result: Pass

Inside the sub-band Low Channel

For PP

Test Result: Pass

Please Refer to Plots:

Inside the sub-band

Low Channel

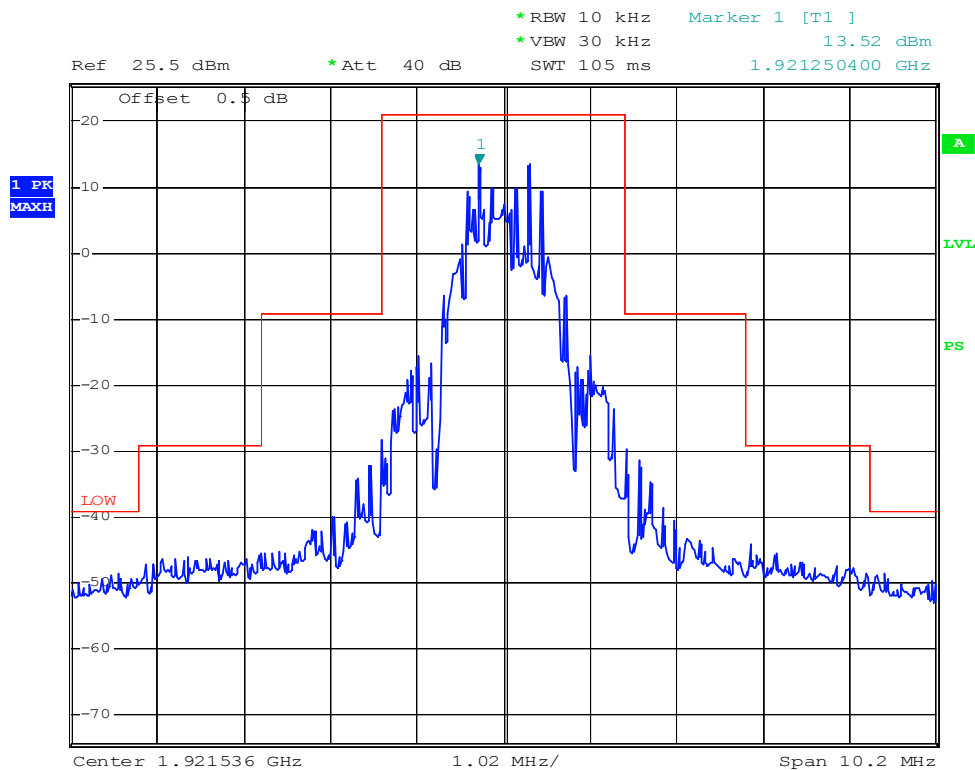
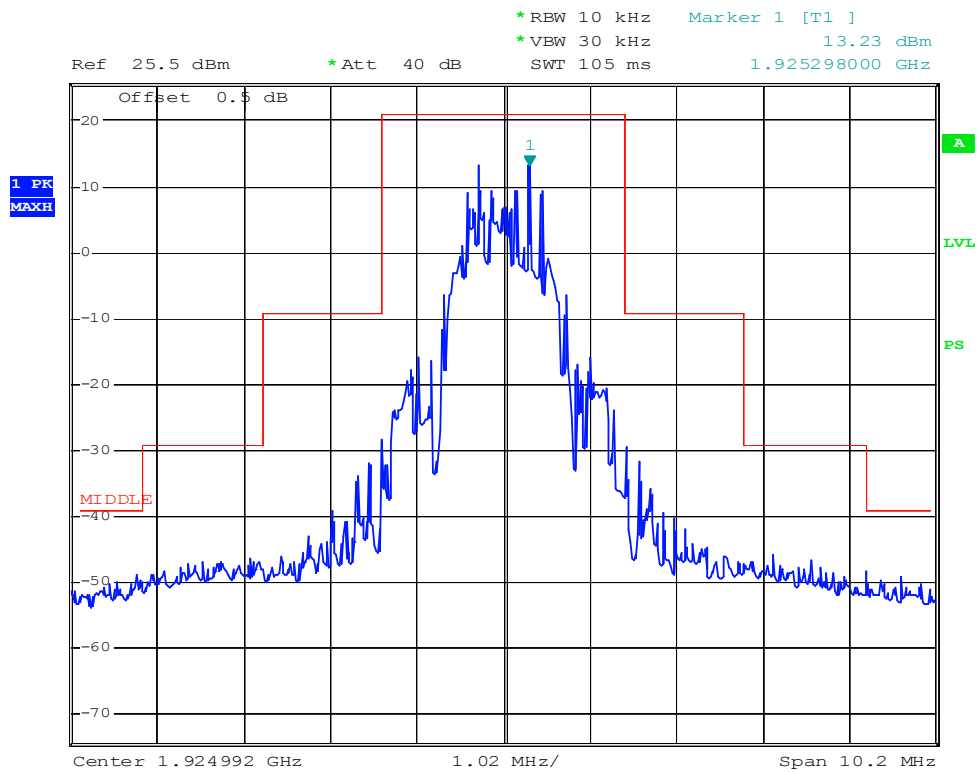
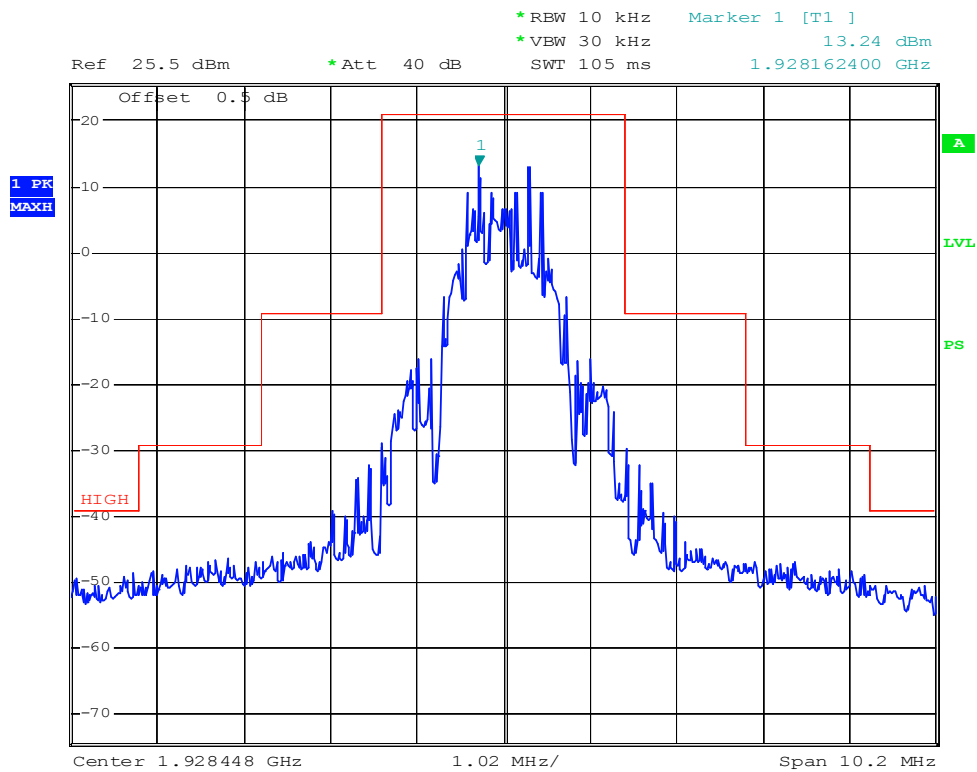


Figure 13: Inside the sub-band Low Channel



DATE: 05 MAR 2010 16:00:00

Figure 14: Inside the sub-band
Middle Channel



DATE: 05 MAR 2010 16:00:40

Figure 15: Inside the sub-band High Channel



Outside the sub-band

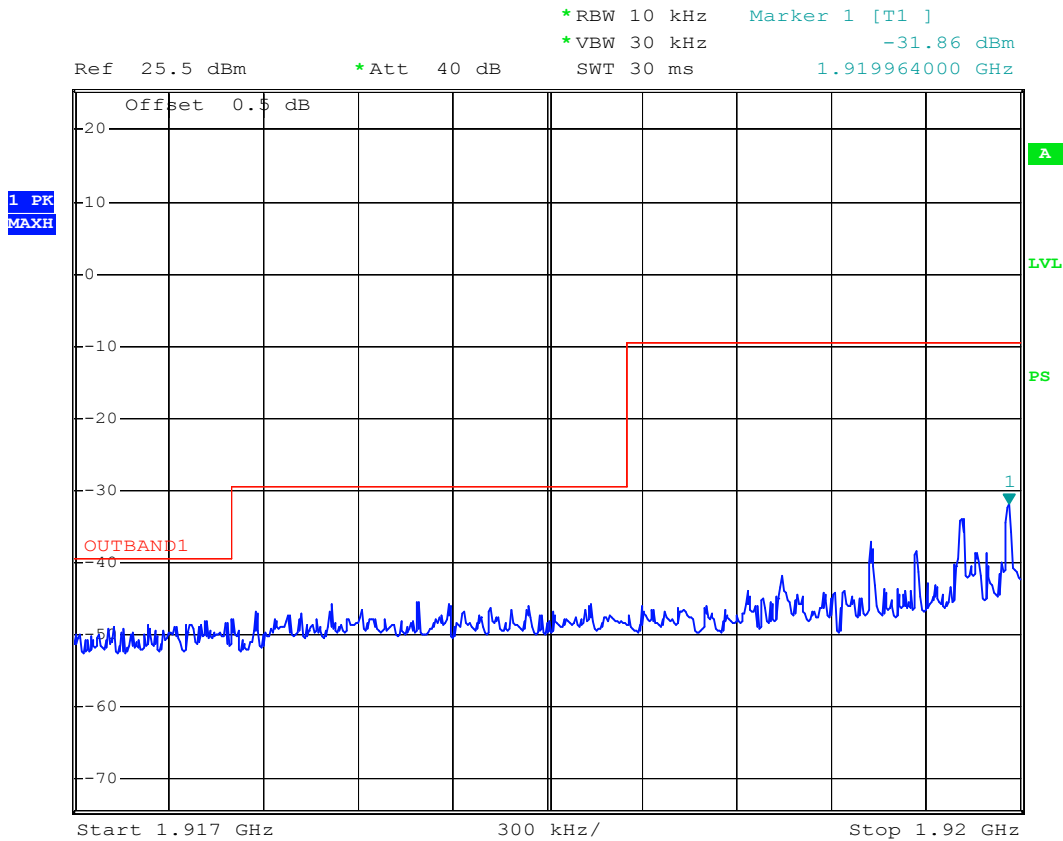


Figure 16: Outside the sub-band Low Channel

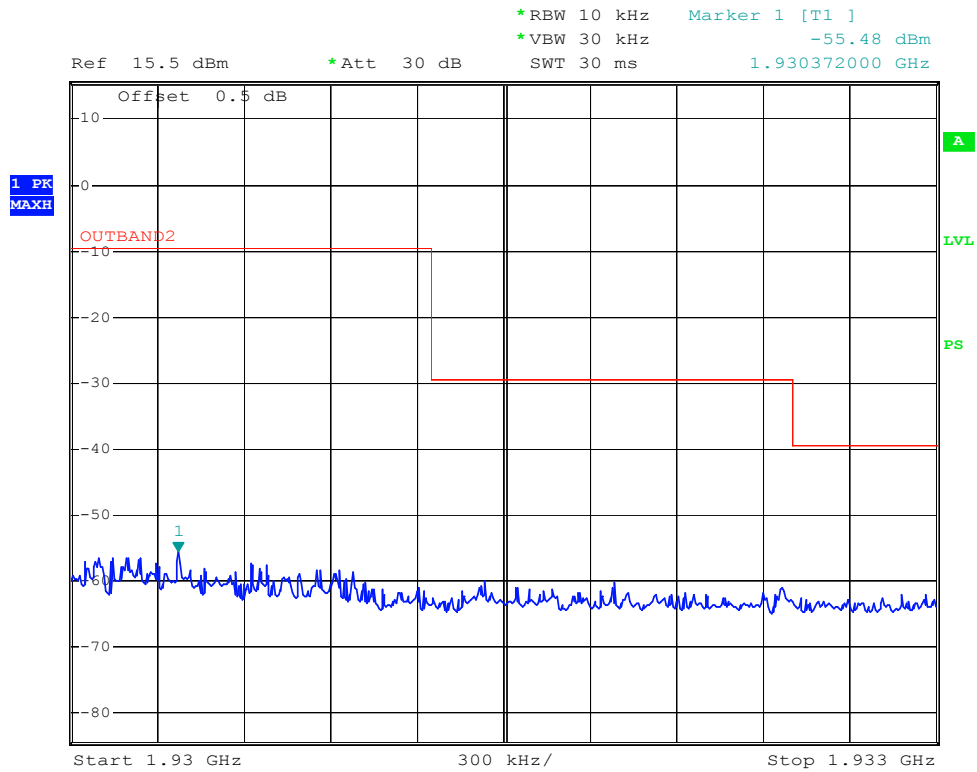


Figure 17: Outside the sub-band MID Channel

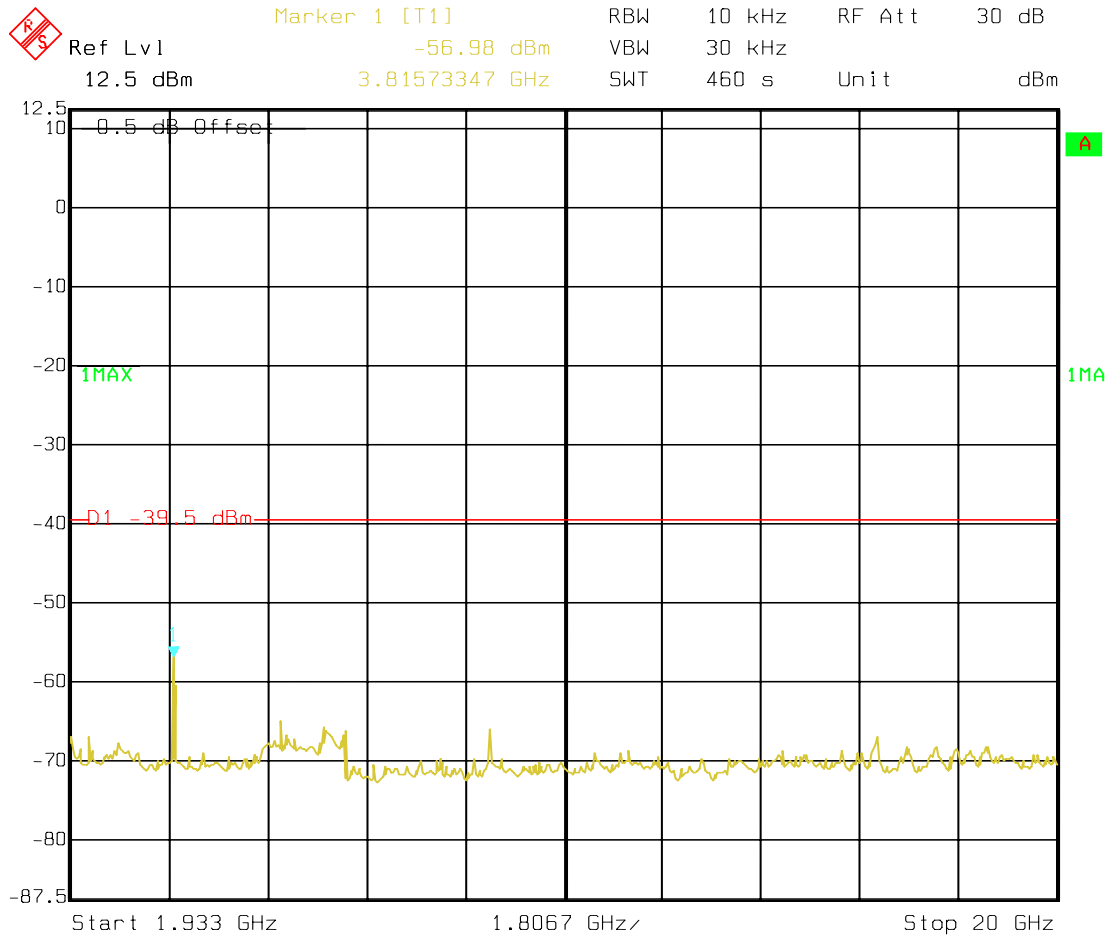


Figure 18: Outside the sub-band High Channel



High Channel

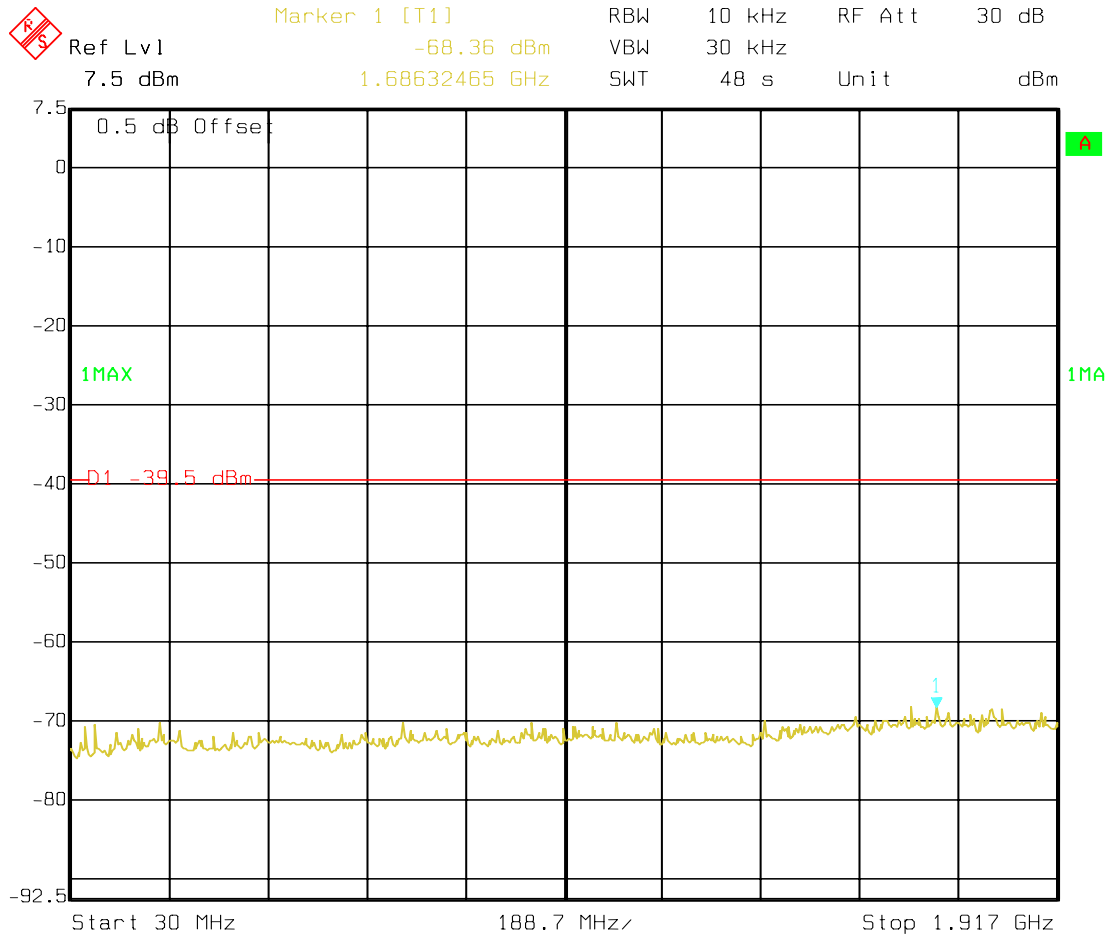


Figure 19: Outside the sub-band HIGH Channel

6.14 Frame period and jitter

6.14.1 Standard Applicable

FCC 15.323(e)

The frame period (a set of consecutive time slots in which the position of each time slot can be identified by reference to a synchronizing source) of an intentional radiator operating in these subbands shall be 20 milliseconds/X where X is a positive whole number. Each device that implements time division for the purposes of maintaining a duplex connection on a given frequency carrier shall maintain a frame repetition rate with a frequency stability of at least 50 parts per million (ppm). Each device which further divides access in time in order to support multiple communication links on a given frequency carrier shall maintain a frame repetition rate with a frequency stability of at least 10 ppm. The jitter (time-related, abrupt, spurious variations in the duration of the frame interval) introduced at the two ends of such a communication link shall not exceed 25 microseconds for any two consecutive transmissions. Transmissions shall be continuous in every time and spectrum window during the frame period defined for the device.

6.14.2 Measurement procedure

- ☐ Frame frequency stability $\leq$ 50 ppm
- ☐ TDMA frame frequency stability $\leq$ 10 ppm (That translates to frequency drift of 19.2 kHz/slot for 1920 MHz carrier)
- ☐ Frame jitter $\leq$ 25 μ s

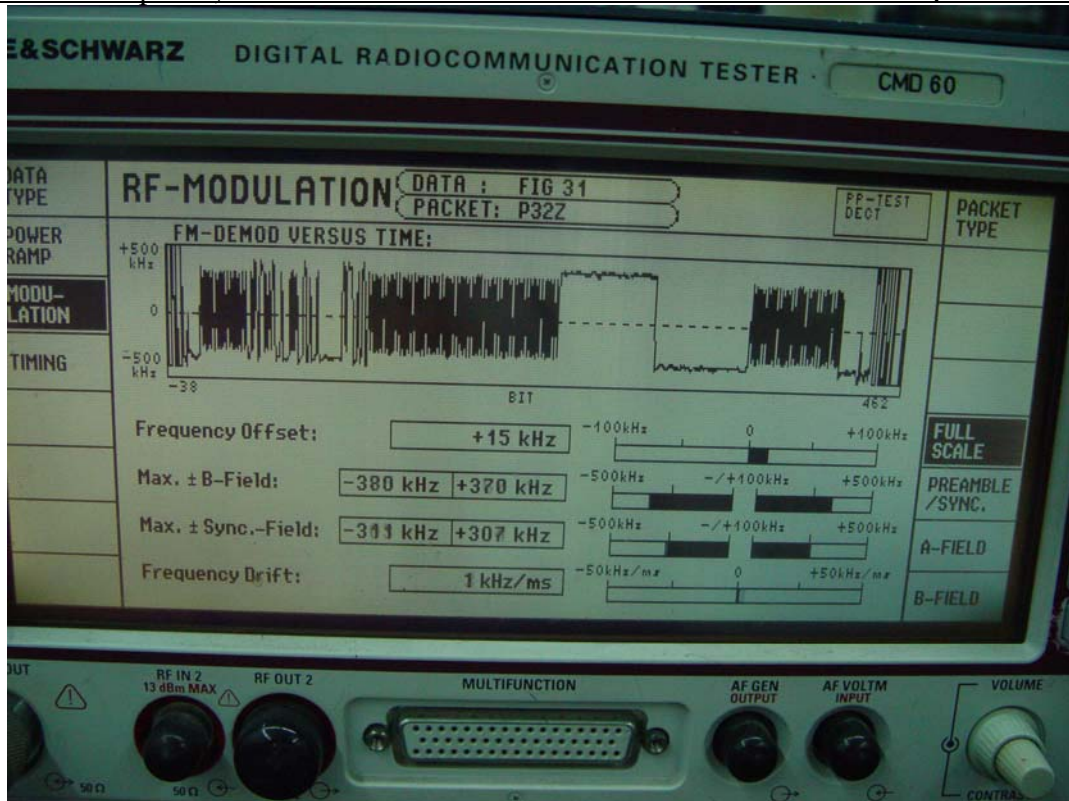


Figure 20: TDMA Frame Jitter



Figure 21: Frequency Drift

6.15 Carrier frequency stability

6.15.1 Standard Applicable

FCC 15.323(f)

The frequency stability of the carrier frequency of the intentional radiator shall be maintained within ± 10 ppm over 1 hour or the interval between channel access monitoring, whichever is shorter. The frequency stability shall be maintained over a temperature variation of -20°C to $+50^{\circ}\text{C}$ degrees C at normal supply voltage, and over a variation in the primary supply voltage of 85 percent to 115 percent of the rated supply voltage at a temperature of 20°C . For equipment that is capable only of operating from a battery, the frequency stability tests shall be performed using a new battery without any further requirement to vary supply voltage.

6.15.2 Measurement Requirement

- ☐ Carrier frequency stability ≤ 10 ppm over 1 hour or interval between channel access monitoring, whichever is shorter (That translates to frequency drift of 19.2 kHz for 1920 MHz carrier)
- ☐ Carrier frequency stability over -20°C to $+50^{\circ}\text{C}$ at normal supply voltage, and over 85% to 115% of rated supply voltage (voltage variation not required for battery operated device)

6.15.3 Test Data

Test Data

Temperature ($^{\circ}\text{C}$)	Voltage (Vdc)	Channel Frequency (MHz)	Offset (kHz)	Offset (ppm)	Limit (ppm)
20	3.6	1924.992	2	1.04	± 10
-20	3.6	1924.992	4	2.08	± 10
50	3.6	1924.992	2	1.04	± 10

Channel No.	Frequency Offset (KHz)			Limit (KHz)
	2.04V (85%)	2.4V (Normal)	2.76V (115%)	
F_L	6	6	6	± 19.2
F_H	5	5	6	± 19.2

Figure 22:Carrier Frequency Stability with Supply Voltage

6.16 Monitoring Time FCC 15.323 (c)(1)

Immediately prior to initiating transmission, devices must monitor the combined time and spectrum window in which they intend to transmit. For a period of at least 10 milliseconds for systems designed to use a 10 milliseconds or shorter frame period or at least 20 milliseconds for systems designed to use a 20 milliseconds frame period

Test procedure:

Measurement method according to ANSI C63.17 2006 clause 7.3.4

Test result:

EUT monitors the combined time and spectrum window prior to initiation of transmission. Test result please according to FCC15.323(c)(4).

NOTE : Lower Monitoring Threshold Part15.323 (c)(2)

The monitoring threshold must not be more than 30 dB above the thermal noise power for a bandwidth equivalent to the emission bandwidth used by the device.

Test procedure:

Measurement method according to ANSI C63.17 2006 clause 7.3.1

Test result: Not Apply

6.17 Maximum Transmit Period FCC Part15.323 (c)(3)

If no signal above the threshold level is detected, transmission may commence and continue with the same emission bandwidth in the monitored time and spectrum windows without further monitoring. However, occupation of the same combined time and spectrum windows by a device or group of cooperating devices continuously over a period of time longer than 8 hours is not permitted without repeating the access criteria.

Test procedure:

Measurement method according to ANSI C63.17 2006 clause 8.2.2

Test result:

Repetition of Access Criteria	Measured Maximum Transmission Time (Second)	Limit (Second)	Results
First	19,800	28,800	Pass
Second	18,000	28,800	Pass

6.18 System Acknowledgement, FCC Part15.323 (c) (4)

Once access to specific combined time and spectrum windows is obtained an acknowledgment from a system participant must be received by the initiating transmitter within one second or transmission must cease. Periodic acknowledgments must be received at least every 30 seconds or transmission must cease. Channels used exclusively for control and signaling information may transmit continuously for 30 seconds without receiving an acknowledgment, at which time the access criteria must be repeated.

Test procedure:

Measurement method according to ANSI C63.17 2006 clause 8.1.1, 8.2.1

Test result:

Test	Time taken(second)	Limit (second)	Result
Connection acknowledgement	0.0052	1	Pass
Change of access criteria for control information	N/A	30	Pass
Transmission cease time	5.80	30	Pass
Pulse length	0.01	0.01	Pass

Note: N/A=Not Applicable

6.19 Least Interfered Channel (LIC) Selection, FCC Part15.323 (c) (5)

If access to spectrum is not available as determined by the above, and a minimum of 40 duplex system access channels are defined for the system, the time and spectrum windows with the lowest power level below a monitoring threshold of 50 dB above the thermal noise power determined for the emission bandwidth may be accessed.

Calculation of monitoring threshold limits for isochroous devices:

Lower threshold: $T_L = -174 + 10\log_{10}B + M_u + P_{MAX} - P_{EUT}$ (dBm)

Upper threshold: $T_U = -174 + 10\log_{10}B + M_u + P_{MAX} - P_{EUT}$ (dBm)

Where: B=Emission bandwidth (Hz)

M_u =dB the threshold may exceed thermal noise (30 for T_L & 50 for T_U)

$P_{MAX} = 5\log_{10}B - 10$ (dBm)

P_{EUT} =Transmitted power (dBm)

Limit:

Monitor Threshold	B(MHz)	M_u (dB)	P_{MAX} (dBm)	P_{EUT} (dBm)	Threshold (dBm)
T_L	1.430	30	20.78	18.39	-80.06
T_U	1.430	50	20.78	18.39	-60.06

The EUT must not transmit until the interference level is less than or equal to:

Measured Threshold Level $\leq T_U$

Where: T_U =Upper threshold level

Test procedure:

Measurement method according to ANSI C63.17 clause 7.3.2, 7.3.3, 7.3.4

Test result:
Not apply

Monitor threshold	Measured Threshold Level	Limit (dBm)
Lower Threshold(dBm)	N/A	-80.06
Upper Threshold(dBm)	N/A	-60.06

Note: The upper threshold is applicable as the EUT utilizes more than 40 duplex system channels

6.20 Random waiting FCC 15.323(c)(6)

If the selected combined time and spectrum windows are unavailable, the device may either monitor and select different windows or seek to use the same window after waiting an amount of time, randomly chosen from a uniform random distribution between 10 and 150 milliseconds, commencing when the channel becomes available.

Test procedure:

Measurement method according to ANSI C63.17 2006 clause 8.1.3

Test result:

The manufacturer declares that this provision is not utilized by the EUT.

Monitoring Bandwidth, FCC Part 15.323 (c) (7)

The monitoring system bandwidth must be equal to or greater than the emission bandwidth of the intended transmission and have a maximum reaction time less than $50 \times \text{SQRT}(1.25/\text{emission bandwidth in MHz})$ microseconds for signals at the applicable threshold level but shall not be required to be less than 50 microseconds

Test procedure:

Measurement method according to ANSI C63.17 2006 clause 7.5

Test result:

Test Equation (μs)	B(bandwidth)(MHz)	Pulse width(μs)	Limit(μs)	Result
$50 (1.25/B)^{1/2}$	1.430	46.75	50	Pass
$35 (1.25/B)^{1/2}$	1.430	32.72	35	Pass

6.21 Monitoring Antenna, FCC Part15.323 (c) (8)

The monitoring system shall use the same antenna used for transmission, or an antenna that yields equivalent reception at that location.

Test procedure:

Measurement method according to ANSI C63.17 2006 paragraph 4

Test result:

The antenna of the EUT used for transmission is the same interior antenna that used for monitoring.

6.22 Monitoring threshold relation FCC 15.323(c)(9)

Devices that have a power output lower than the maximum permitted under the rules can increase their monitoring detection threshold by one decibel for each one decibel that the transmitter power is below the maximum permitted.

Test procedure:

Measurement method according to ANSI C63.17 2006 paragraph 4

Test result:

Not apply based on 15.323 (c)(5)

6.23 Duplex Connections, FCC Part15.323 (c) (10)

An initiating device may attempt to establish a duplex connection by monitors both its intended transmit and receive time and spectrum windows. If both the intended transmit and receive time and spectrum windows meet the access criteria, then the initiating device can initiate a transmission in the intended transmit time and spectrum window. If the power detected by the responding device can be decoded as a duplex connection signal from the initiating device, then the responding device may immediately begin transmitting on the receive time and spectrum window monitored by the initiating device.

Test procedure:

Measurement method according to ANSI C63.17 clause 8.3

Test result:

The manufacturer declares that this provision is not utilized by the EUT.

6.24 Alternative monitoring interval for co-located devices, FCC Part 15.323 (c) (11)

An initiating device that is prevented from monitoring during its intended transmit window due to monitoring system blocking from the transmissions of a co-located (within one meter) transmitter of the same system, may monitor the portions of the time and spectrum windows in which they intend to receive over a period of at least 10 milliseconds. The monitored time and spectrum window must total at least 50 percent of the 10 millisecond frame interval and the monitored spectrum must be within 1.25 MHz of the center frequency of channel(s) already occupied by that device or co-located co-operating devices. If the access criteria is met for the intended receive time and spectrum window under the above conditions, then transmission in the intended transmit window by the initiating device may commence.

Test procedure:

Measurement method according to ANSI C63.17 2006 clause 8.4

Test result:

The manufacturer declares that this provision is not utilized by the EUT.

6.25 Fair Access, FCC Part 15.323 (c)(12)

The provisions of FCC Part 15.323(c)(10) or (c)(11) shall not be used to extend the range of spectrum occupied over space or time for the purpose of denying fair access to spectrum to other devices.

Test result:

The manufacturer declares that this device does not use any mechanisms as provided by Part 15.323 (c) (10) or (c) (11) to extend the range of spectrum occupied over space or time for the purpose of denying fair access to spectrum to other device.

6.26 Frame Repetition Stability, Part15 .323 (e)

The frame period (a set of consecutive time slots in which the position of each time slot can be identified by reference to a synchronizing source) of an intentional radiator operating in these sub-bands shall be 20 milliseconds or 10 milliseconds/X where X is a positive whole number.

Test procedure:

Measurement method according to ANSI C63.17 2006 clause 6.2.2, 6.2.3

Test result:

Frame Repetition Stability:

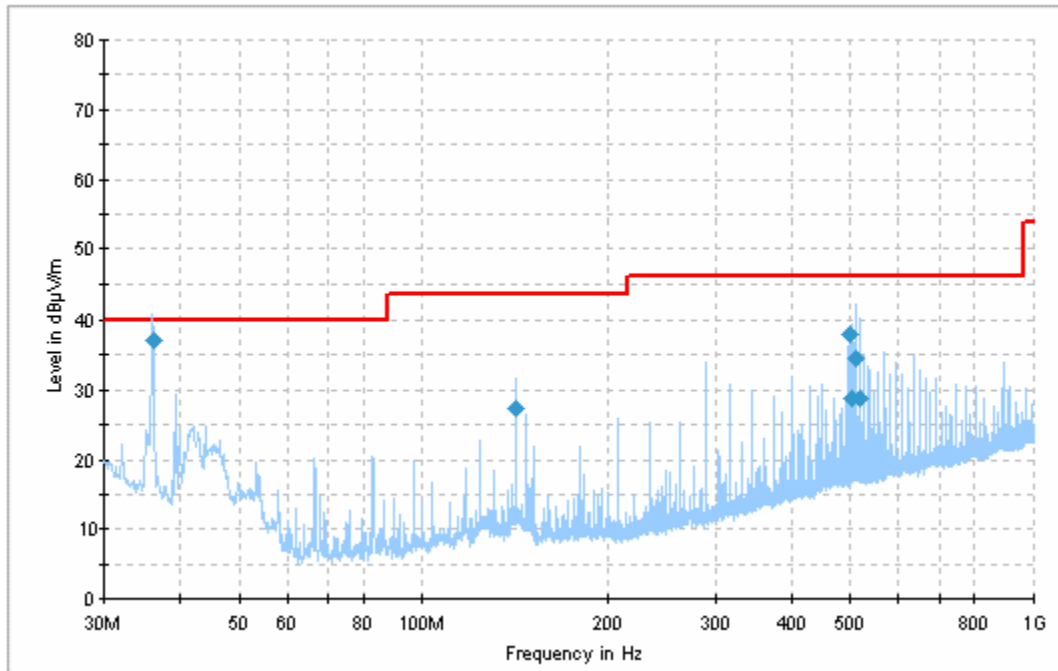
Frame Repetition Stability (ppm)	Limit (ppm)	Result (Pass/Fail)
1.64	10	Pass

Frame Period and Jitter:

Max.pos.Jitter (us)	Max.neg.Jitter (us)	Frame period (ms)	Limit	
			Frame Period (ms)	Jitter (μs)
0.02	-0.04	10.00000	20 or 10/X	25us

Note: X is a positive whole number.

6.27 Spurious Radiated Emission(First Channel)



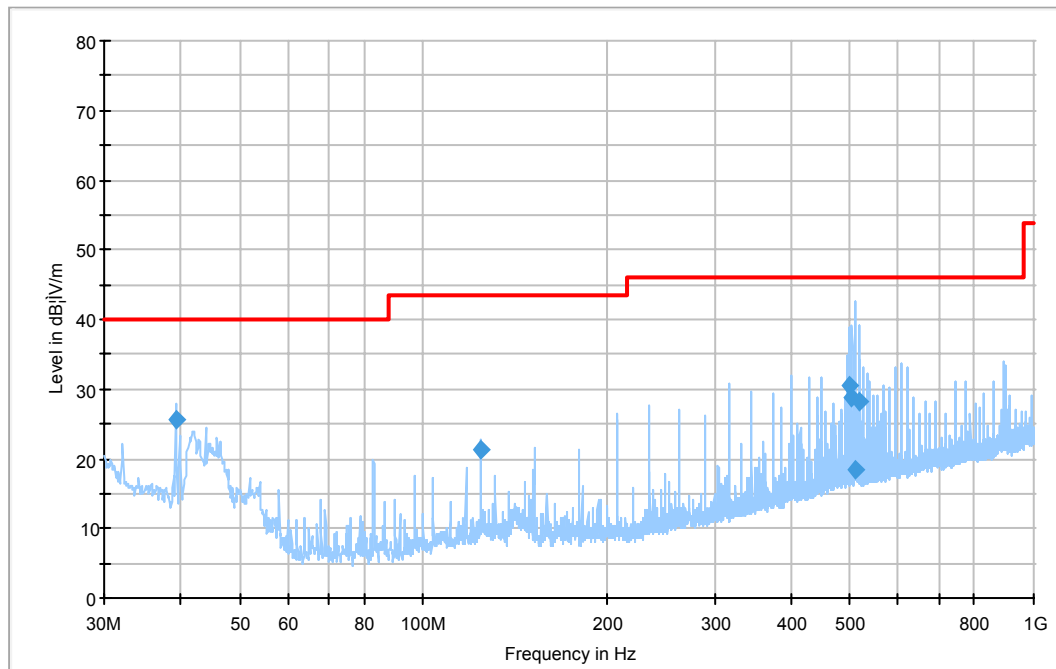
Final Measurement Detector 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity
36.120325	37.2	1000.000	120.000	277.0	V
141.463475	27.3	1000.000	120.000	211.0	H
497.640400	37.9	1000.000	120.000	100.0	V
504.568075	28.7	1000.000	120.000	314.0	H
511.485175	34.5	1000.000	120.000	206.0	H
518.397400	28.7	1000.000	120.000	292.0	H

(continuation of the "Final Measurement Detector 1" table from column 6 ...)

Frequency (MHz)	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
36.120325	27.0	-21.2	2.8	40.0	
141.463475	74.0	-9.5	16.2	43.5	
497.640400	88.0	-20.5	8.1	46.0	
504.568075	336.0	-20.2	17.3	46.0	
511.485175	143.0	-19.9	11.5	46.0	
518.397400	344.0	-20.0	17.3	46.0	

Spurious Radiated Emission (MIDChannel)



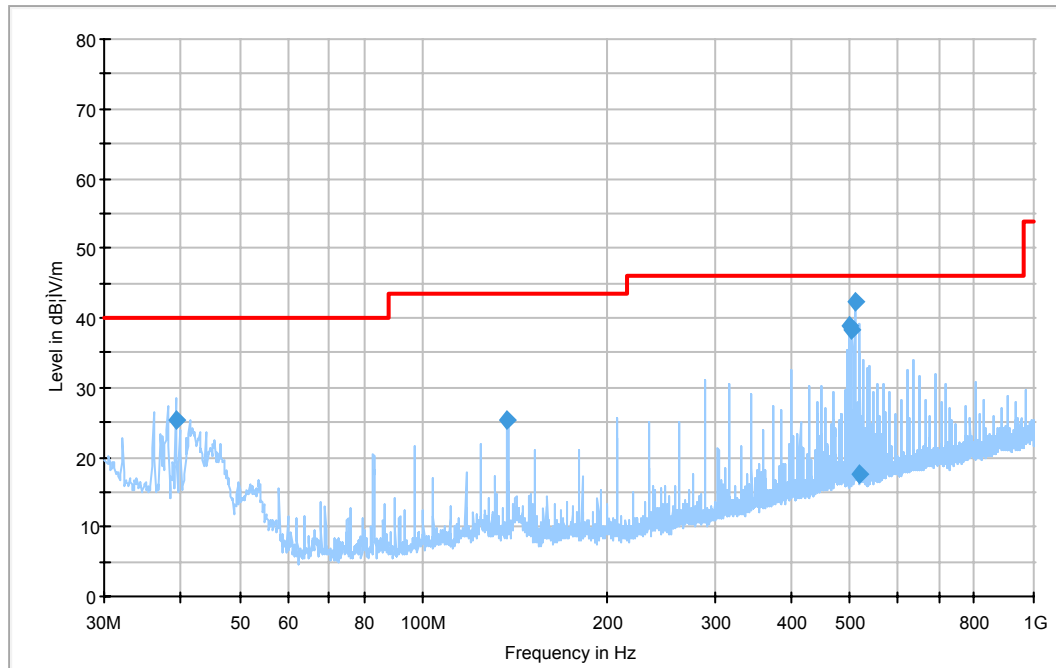
Final Measurement Detector 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity
39.336500	25.6	1000.000	120.000	184.0	H
124.453525	21.3	1000.000	120.000	100.0	V
497.658250	30.6	1000.000	120.000	233.0	H
504.579250	28.9	1000.000	120.000	317.0	H
511.374700	18.6	1000.000	120.000	100.0	V
518.406325	28.2	1000.000	120.000	284.0	H

(continuation of the "Final Measurement Detector 1" table from column 6 ...)

Frequency (MHz)	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
39.336500	97.0	-9.5	14.4	40.0	
124.453525	282.0	-9.5	22.2	43.5	
497.658250	152.0	-20.5	15.4	46.0	
504.579250	340.0	-20.2	17.1	46.0	
511.374700	53.0	-19.9	27.4	46.0	
518.406325	342.0	-20.0	17.8	46.0	

Spurious Radiated Emission (Last Channel)



Final Measurement Detector 1

Frequency (MHz)	QuasiPeak (dBμV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity
39.336200	25.2	1000.000	120.000	374.0	V
137.357400	25.2	1000.000	120.000	400.0	V
497.656975	39.0	1000.000	120.000	99.0	V
504.555775	38.3	1000.000	120.000	100.0	V
511.502650	42.3	1000.000	120.000	100.0	V
518.396125	17.5	1000.000	120.000	193.0	V

(continuation of the "Final Measurement Detector 1" table from column 6 ...)

Frequency (MHz)	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)	Comment
39.336200	11.0	-9.4	14.8	40.0	
137.357400	175.0	-9.5	18.3	43.5	
497.656975	112.0	-20.5	7.0	46.0	
504.555775	91.0	-20.2	7.7	46.0	
511.502650	105.0	-19.9	3.7	46.0	
518.396125	7.0	-20.0	28.5	46.0	

**Spurious Radiated Emission (Above 1 GHz)**

Test Mode: Transmitting

Frequency	Meter Reading	Detector	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier Gain	Corrected Amplitude	RSS213		
MHz	(dBμV/m)	PK/QP/AV	Degree	Meter	H / V	dB	dB	dB	(dBμV/m)	Limit (dBμV/m)	Margin dB	Comment
Low Channel												
1635.771	49.98	PK	125	1.6	H	27.8	3.62	34.4	47.00	74	27.00	Spurious
1506.613	51.89	PK	190	1	V	25.8	3.50	34.4	46.79	74	27.21	Spurious
3843.072	60.61	PK	200	1.5	H	32.1	4.32	33.7	63.33	74	10.67	Harmonic
3843.072	67.65	PK	75	1	V	32.1	4.32	33.7	70.37	74	3.63	Harmonic
5764.608	60.11	PK	207	1.4	H	34.5	6.50	33.6	67.51	74	6.49	Harmonic
5764.608	65.50	PK	315	1.6	V	34.5	6.50	33.6	72.90	74	1.10	Harmonic
Middle Channel												
1642.636	48.57	PK	0	1.5	H	27.8	3.62	34.4	45.59	74	28.41	Spurious
1640.453	50.62	PK	235	2	V	27.8	3.62	34.4	47.64	74	26.36	Spurious
3849.984	61.25	PK	185	1.2	H	32.1	4.32	33.7	63.97	74	10.03	Harmonic
3849.984	64.28	PK	230	1	V	32.1	4.32	33.7	67.00	74	7.00	Harmonic
5774.976	57.36	PK	310	1.5	H	34.5	6.5	33.6	64.76	74	9.24	Harmonic
5774.976	51.08	PK	260	1.5	V	34.5	6.5	33.6	58.48	74	15.52	Harmonic
High Channel												
1635.771	49.99	PK	215	1.5	H	27.8	3.62	34.4	47.01	74	26.99	Spurious
1506.613	50.13	PK	300	2	V	25.8	3.5	34.4	45.03	74	28.97	Spurious
3856.896	59.85	PK	200	1.2	H	32.1	4.32	33.7	62.57	74	11.43	Harmonic
3856.896	69.67	PK	25	1	V	32.1	4.32	33.7	72.39	74	1.61	Harmonic
5785.344	59.46	PK	200	1.5	H	34.5	6.5	33.6	66.86	74	7.14	Harmonic
5785.344	63.83	PK	185	1.5	V	34.5	6.5	33.6	71.23	74	2.77	Harmonic



Field Strength of Fundamental Emission Average							
Freq. (MHz)	Peak Corrected Amplitude @3m (dBμV/m)	Polar H/V	Duty Cycle Factor (dB)	Corrected Amp. (dBμV/m)	RSS213		Comment
					Limit (dBμV/m)	Margin	
Low Channel							
1562.725	47.00	H	-27.80	19.2	54	34.80	Spurious
1568.136	46.79	V	-27.80	18.99	54	35.01	Spurious
3843.072	63.33	H	-27.80	35.53	54	18.47	Harmonic
3843.072	70.37	V	-27.80	42.57	54	11.43	Harmonic
5764.608	67.51	H	-27.80	39.71	54	14.29	Harmonic
5764.608	72.90	V	-27.80	45.1	54	8.90	Harmonic
Middle Channel							
1560.578	45.59	H	-27.80	17.79	54	36.21	Spurious
1562.336	47.64	V	-27.80	19.84	54	34.16	Spurious
3849.984	63.97	H	-27.80	36.17	54	17.83	Harmonic
3849.984	67.00	V	-27.80	39.20	54	14.80	Harmonic
5774.976	64.76	H	-27.80	36.96	54	17.04	Harmonic
5774.976	58.48	V	-27.80	30.68	54	23.32	Harmonic
High Channel							
1568.136	47.01	H	-27.80	19.21	54	34.79	Spurious
1713.226	45.03	V	-27.80	17.23	54	36.77	Spurious
3843.072	62.57	H	-27.80	34.77	54	19.23	Harmonic
3843.072	72.39	V	-27.80	44.59	54	9.41	Harmonic
5764.608	66.86	H	-27.80	39.06	54	14.94	Harmonic
5764.608	71.23	V	-27.80	43.43	54	10.57	Harmonic

Note: Duty Cycle=Ton/Tp*100%

Ton=408μs=0.408ms

Tp=10.02ms

Duty Cycle=4.07%

Duty Cycle factor = 20lg(Duty Cycle)

AV=PK+20lg(Duty Cycle)



6.28 Duty Cycle

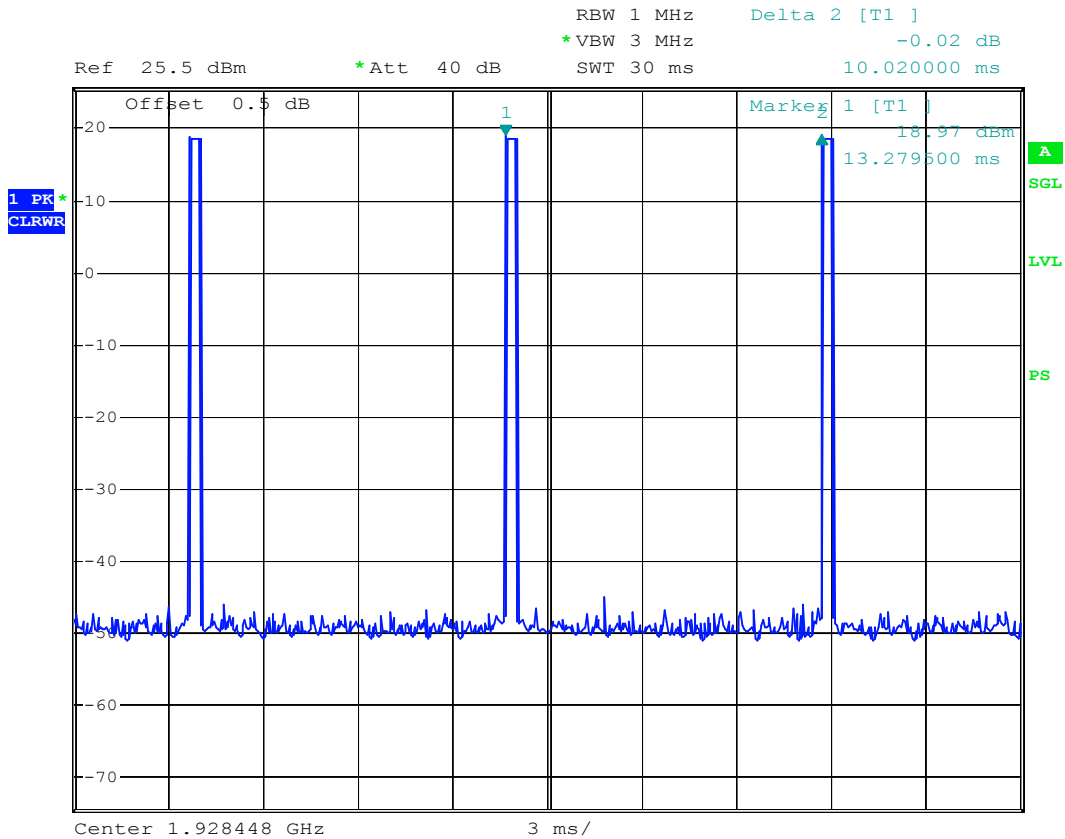


Figure 23:Duty Cycle of the Handset

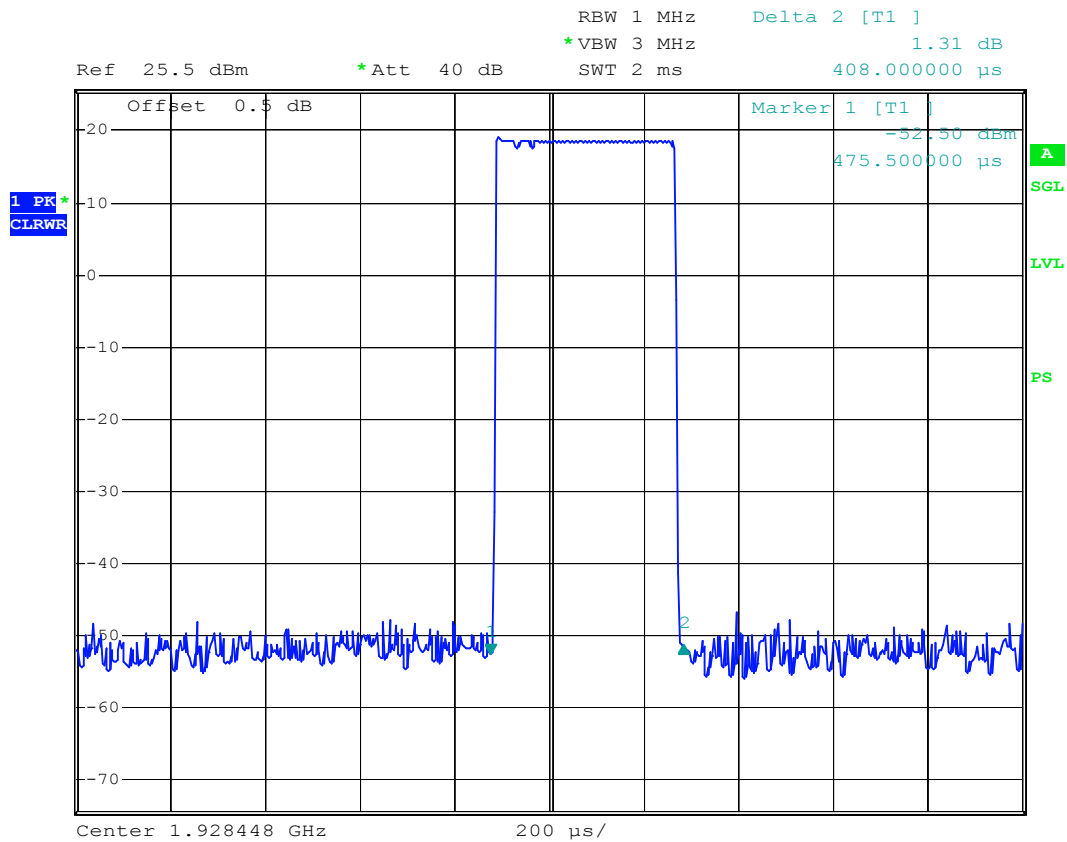


Figure 24:Duty Cycle of the Handset(zoomed)

Part 7 APPENDICES

A EUT TECHNICAL SPECIFICATION

Applicant	Unical Enterprises, Inc
General Description	DECT Cordless Phone
Model	CL 30, CL 35 , CL 60 , CL 65
Dimension	H=3/4 " ,L=6 " ,W= 3 " , Weight=6.3 Oz
Power Input	I/P: 120Vac 60Hz 0.1A; O/P: 6Vac 150mA model FD35UD-7.5

B. EUT PHOTOGRAPHS.



Figure 25: EUT Front View CL65



Figure 26: EUT Front View CL60