Partial FCC Test Report

Product Name	:	CRADLE
Brand Name	:	CIPHERLAB
Model No.	:	4GC-8001
FCC ID	:	Q3N-4GC-8001
Applicant	:	CipherLab Co., Ltd.
Address	:	12F, 333, Dunhua S.Rd., Sec.2, Taipei, Taiwan
Date of Receipt	:	Jul. 21, 2022
Issued Date	:	Aug. 23, 2022
Report No.	:	2270627R-RFUSWWAV04-A
Report Version	:	V1.0

The test results relate only to the samples tested.
The test results shown in the test report are traceable to the national/international standard through the calibration of the equipment and evaluated measurement uncertainty herein.
Measurement uncertainties evaluated for each testing system and associated connections are given here to provide the system information for reference. Compliance determinations do not take into account measurement uncertainties for each testing system, but are based on the results of the compliance measurement.

Product Name	:	CRADLE
Applicant	:	CipherLab Co., Ltd.
Address	:	12F, 333, Dunhua S.Rd., Sec.2, Taipei, Taiwan
Manufacturer	:	Cipherlab Co., Ltd.
Address	:	12F, 333, Dunhua S.Rd., Sec.2, Taipei, Taiwan
Brand Name	:	CIPHERLAB
Model No.	:	4GC-8001
FCC ID	:	Q3N-4GC-8001
EUT Voltage	:	DC 5V (adapter)
Testing Voltage	:	AC 120V/60Hz
Applicable Standard	:	FCC CFR Title 47 Part 27 Subpart F, Subpart L ANSI/TIA-603-E-2016 ANSI C63.26-2015
Laboratory Name	:	DEKRA Testing and Certification Co., Ltd. Hsin Chu Laboratory
Address	:	No.372-2, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County 310, Taiwan, R.O.C.
Test Result	:	Complied

Documented By : Amelia Wu

(Amelia Wu / Project Specialist)

Approved By : Rueyyan.Lin

(Rueyyan Lin / Supervisor)

The test results relate only to the samples tested.

Revision History

Version	Description	Issued Date
V1.0	Initial issue of report	Aug. 23, 2022

TABLE OF CONTENTS

1. General Information

1.1. EUT Description

Product Name	CRADLE
Brand Name	CIPHERLAB
Model No.	4GC-8001
Uplink Frequency Range (MHz)	LTE Band 4: 1710~1755 LTE Band 12: 699~716 LTE Band 13: 777~787
Downlink Frequency Range (MHz)	LTE Band 4: 2110~2115 LTE Band 12: 729~746 LTE Band 13: 746~756
Bandwidth (MHz)	LTE Band 4: 1.4 / 3 / 5 / 10 / 15 / 20 LTE Band 12: 1.4 / 3 / 5 / 10 LTE Band 13: 5 / 10
Type of Modulation	QPSK / 16QAM
Hardware Version	0.02
Software Version	V 1.04
IMEI No.	868032062979301

Accessories Information				
No.	Equipment Name	Brand Name	Model No.	Rating
1	Adapter (Removable plug)	CHANNEL WELL TECHNOLOGY	2AEA010BC3D	INPUT: 100-240V, 50-60Hz, 0.35A OUTPUT: 5.0V, 2.0A, 10.0W
No.	Equipment Name	Description		
2	Plug	US plug		
3	Power cable	Non-Shielded, 1.5m, with a core		

Antenna Information						
Ant.	Brand Name	Model No.	Type	Gain (dBi)		
				LTE Band 4	LTE Band 12	LTE Band 13
0	KAVX	KZWLLFC803511	Monopole	-1.93	-3.40	-3.18

Note: The EUT description is from the customer declaration.

1.2. Mode of Operation

DEKRA has verified the construction and function in typical operation. All the test modes were carried out with the EUT in normal operation, which was shown in this test report and defined as:

Test Mode	Mode 1: LTE Band 4 Mode 2: LTE Band 12 Mode 3: LTE Band 13

Test Items	Test Mode	Result
RF Output Power	Mode 1 ~ Mode 3	Pass (Note 2)
Occupied Bandwidth	-	- (Note 3)
Peak to Average Ratio	-	- (Note 3)
Conducted Band Edge	-	- (Note 3)
Spurious Emission	Mode 1 ~ Mode 3	Pass (Note 2)
Frequency Stability	-	- (Note 3)

Note:

1. Determining compliance shall be based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
2. The device contains a certified LTE module (Brand Name: Quectel, Model No.: EG91-NAXD, FCC ID: XMR202008EG91NAXD).
   Therefore, the worst result of the LTE module report is selected to verify the RF output power test to ensure compliance was kept, and the radiated spurious emissions tests were performed and recorded in the report.
3. Please refer to the test result of conducted test items which is recorded in the original part 27 report of the certified WWAN module (FCC ID: XMR202008EG91NAXD).

1.3. Comments and Remarks

The product specification and testing instructions for the EUT declared in the report are provided by the manufacturer who will take all responsibilities for the accuracy.

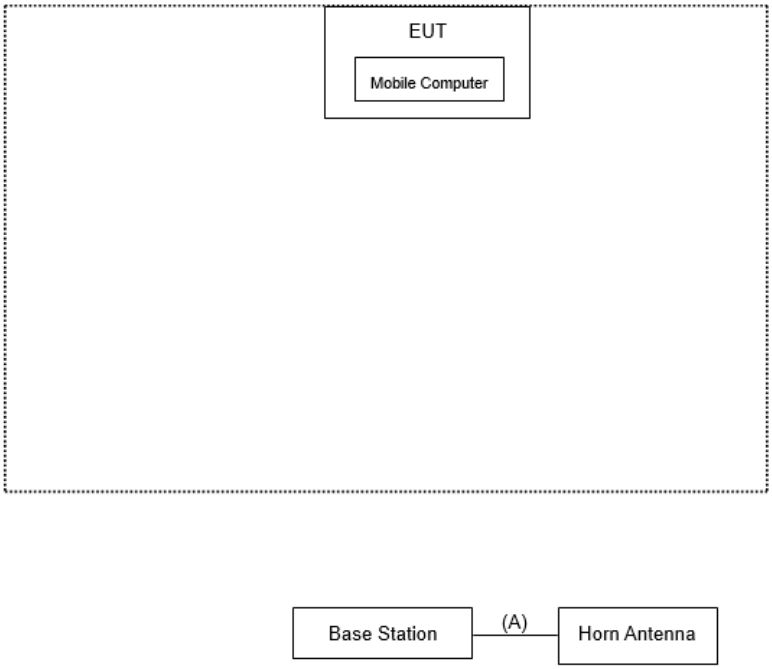
1.4. Tested System Details

The types for all equipment, plus descriptions of all cables used in the tested system.

	Product	Manufacturer	Model No.	Serial No.
1	Mobile Computer	CIPHERLAB	8001C	N/A
2	Horn Antenna	Schwarzbeck	BBHA 9120D	1640
3	Base Station	R&S	CMW500	157118

1.5. Configuration of Tested System

Connection Diagram



	Signal Cable Type	Signal cable Description
A	RF Cable	Shielded, 10m

1.6. EUT Operation of during Test

1	Setup the EUT and Base station as shown on.
2	Turn on the power of all equipment.
3	Configure test mode, test channel and data rate.
4	Keep the EUT and base station in Link mode.
5	Repeat the above procedure (3&4).

2. Technical Test

2.1. Summary of Test Result

☒ No deviations from the test standards

☐ Deviations from the test standards as below description:

LTE Band 4			
FCC Part 27 Subpart L			
Performed Item	FCC Reference Section	Limit	Result
RF Output Power	§2.1033 §2.1046 §27.50	< 1 Watts	Pass
Spurious Emission	§27.53	< -13 dBm	Pass

Note: Determining compliance shall be based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

LTE Band 12			
FCC Part 27 Subpart F			
Performed Item	FCC Reference Section	Limit	Result
RF Output Power	§2.1033 §2.1046 §27.50	< 3 Watts ERP	Pass
Spurious Emission	§27.53	< -13dBm	Pass

Note: Determining compliance shall be based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

LTE Band 13			
FCC Part 27 Subpart F			
Performed Item	FCC Reference Section	Limit	Result
RF Output Power	§2.1033 §2.1046 §27.50	< 3 Watts ERP	Pass
Spurious Emission	§27.53	< -13 dBm < −70 dBW/MHz e.i.r.p. of all emissions, including harmonics in the band 1559-1610 MHz	Pass

Note: Determining compliance shall be based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

2.2. Test Environment

Ambient conditions in the laboratory:

Items	Test Item	Actually	Tested by	Test Date	Test Site
Temperature (°C)	RF Output Power	25.3	Lion Wang	2022/07/28	HC-SR12
Humidity (%RH)		56			
Temperature (°C)	Conducted Spurious Emission	23	Scott Chang	2022/08/04	HC-SR12
Humidity (%RH)		64			
Temperature (°C)	Radiated Spurious Emission	22	Cyril Chen	2022/07/29	HC-CB02
Humidity (%RH)		60			

Note: Test site information refers to Laboratory Information.

Laboratory Information

USA	**:**	**FCC Registration Number: TW3024**
Canada		**CAB identifier : TW3024**

The address and introduction of DEKRA Testing and Certification Co., Ltd. laboratories can be founded in our Web site: http://www.dekra.com.tw

If you have any comments, please don't hesitate to contact us. Our test sites as below:

Test Laboratory	DEKRA Testing and Certification Co., Ltd.
Address	1. No.372-2, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County 31061, Taiwan, R.O.C. 2. No.372, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County 31061, Taiwan, R.O.C.
Phone number	1. +886-3-582-8001 2. +886-3-582-8001
Fax number	1. +886-3-582-8958 2. +886-3-582-8958
E mail address	info.tw@dekra.com
Website	http://www.dekra.com.tw
Note: Test site for address 1 includes HC-SR02. Test site for address 2 includes HC-CB02, HC-CB03, HC-CB04, HC-SR10 and HC-SR12.	

2.3. List of Test Equipment

HC-SR12

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
High Speed Peak Power Meter Dual Input	Anritsu	ML2496A	1602004	2021/11/12	2022/11/11
Pulse Power Sensor	Anritsu	MA2411B	1531043	2021/11/12	2022/11/11
Pulse Power Sensor	Anritsu	MA2411B	1531044	2021/11/12	2022/11/11
Power Meter	Keysight	8990B	MY51000248	2022/05/06	2023/05/05
Power Sensor	Keysight	N1923A	MY57240005	2022/05/06	2023/05/05
Wireless Conn. Tester	R&S	CMW500	157118	2022/07/11	2023/07/10
Spectrum Analyzer	Agilent	N9010A	US47140172	2022/05/08	2023/05/07
Signal and Spectrum Analyzer	R&S	FSVA40	101435	2022/05/30	2023/05/29

HC-CB02

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
Signal and Spectrum Analyzer	R&S	FSVA40	101435	2022/05/30	2023/05/29
EXA Signal Analyzer	Keysight	N9010A	MY51440132	2022/01/07	2023/01/06
Trilog Broadband Antenna	Schwarzbeck	VULB 9168	1272	2022/05/19	2023/05/18
Horn Antenna	Schwarzbeck	BBHA 9120D	639	2022/05/06	2023/05/05
Horn Antenna	Schwarzbeck	BBHA 9170	203	2022/02/23	2023/02/22
Pre-Amplifier	EMCI	EMC01820I	980365	2022/04/15	2023/04/14
Pre-Amplifier	EMEC	EM01G18GA	060741	2022/05/06	2023/05/05
Pre-Amplifier	DEKRA	AP-400C	201801231	2021/12/24	2022/12/23
Wireless Conn. Tester	R&S	CMW500	157118	2022/07/11	2023/07/10
Coaxial Cable(13m)	Huber+Suhner	SF104	HC-CB02	2021/08/17	2022/08/16
EMI Test Receiver	R&S	ESR7	102260	2021/12/22	2022/12/21
Magnetic Loop Antenna	Teseq	HLA 6121	44287	2021/09/06	2022/09/05
Radiated Software	AUDIX	e3 V9	HC-CB04_1	N/A	N/A

Note: All equipment upon which need to calibrated are with calibration period of 1 year.

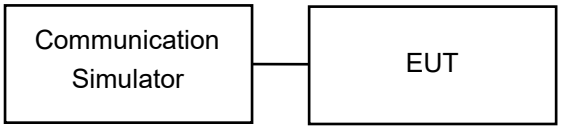
2.4. Measurement Uncertainty

Uncertainties have been calculated according to the DEKRA internal document with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2).

Test Item	Uncertainty
RF Output Power	± 1.16 dB
Spurious Emissions	± 3.25 dB below 1 GHz ± 3.32 dB above 1 GHz

3. RF Output Power

3.1. Test Setup



3.2. Test Procedure

The EUT makes a call to the communication simulator. The communication simulator station system controlled a EUT to export maximum conducted RF output power under transmission mode and specific channel frequency. The relevant equation for determining the ERP or EIRP from the conducted RF output power measured using the guidance provided above is:

$$ERP \text{ or } EIRP = P_{Meas} + G_T - L_C$$

where:

ERP or EIRP = effective radiated power or equivalent isotropically radiated power, respectively (expressed in the same units as PMeas, typically dBW or dBm);

P_{Meas} = measured transmitter output power or PSD, in dBm or dBW;

G_T = gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP);

L_C = signal attenuation in the connecting cable between the transmitter and antenna, in dB

3.3. Test Methodology and Reference Procedures

KDB 971168 D01 Power Meas License Digital Systems v03r01

ANSI C63.26-2015

3.4. Test Result of RF Output Power

Mode 1: LTE Band 4

Band	Channel Freq. (MHz)	Modulation	RB No.	RB offset	Conducted Output Power (dBm)	RF Output Power (W) EIRP	Limit (W) EIRP
Band 4 1.4 MHz	19957 1710.7	QPSK	1	0	23.28	0.136	1
				2	22.84	0.123	1
				5	23.05	0.129	1
			6	0	21.92	0.100	1
	20175 1732.5	QPSK	1	0	23.32	0.138	1
				2	23.11	0.131	1
				5	23.15	0.132	1
			6	0	22.24	0.107	1
	20393 1754.3	QPSK	1	0	23.24	0.135	1
				2	23.00	0.128	1
				5	23.05	0.129	1
			6	0	22.28	0.108	1
Band 4 3 MHz	19965 1711.5	QPSK	1	0	23.09	0.131	1
				7	22.86	0.124	1
				14	22.90	0.125	1
			15	0	22.39	0.111	1
	20175 1732.5	QPSK	1	0	23.38	0.140	1
				7	23.10	0.131	1
				14	23.15	0.132	1
			15	0	22.26	0.108	1
	20385 1753.5	QPSK	1	0	23.28	0.136	1
				7	23.00	0.128	1
				14	23.03	0.129	1
			15	0	22.28	0.108	1

Band	Channel Freq. (MHz)	Modulation	RB No.	RB offset	Conducted Output Power (dBm)	RF Output Power (W) EIRP	Limit (W) EIRP
Band 4 5 MHz	19957 1712.5	QPSK	1	0	23.20	0.134	1
				12	23.00	0.128	1
				24	23.08	0.130	1
			25	0	22.29	0.109	1
	20175 1732.5	QPSK	1	0	23.30	0.137	1
				12	23.00	0.128	1
				24	23.10	0.131	1
			25	0	22.29	0.109	1
	20375 1752.5	QPSK	1	0	23.13	0.132	1
				12	22.80	0.122	1
				24	22.95	0.126	1
			25	0	22.42	0.112	1
Band 4 10 MHz	20000 1715	QPSK	1	0	23.12	0.132	1
				24	22.85	0.124	1
				49	22.90	0.125	1
			50	0	22.42	0.112	1
	20175 1732.5	QPSK	1	0	23.18	0.133	1
				24	22.90	0.125	1
				49	22.98	0.127	1
			50	0	22.22	0.107	1
	20350 1750	QPSK	1	0	23.05	0.129	1
				24	22.91	0.125	1
				49	22.98	0.127	1
			50	0	22.41	0.112	1

Band	Channel Freq. (MHz)	Modulation	RB No.	RB offset	Conducted Output Power (dBm)	RF Output Power (W) EIRP	Limit (W) EIRP
Band 4 15 MHz	20025 1717.5	QPSK	1	0	23.26	0.136	1
				37	22.06	0.103	1
				47	22.14	0.105	1
			75	0	22.40	0.111	1
	20175 1732.5	QPSK	1	0	23.00	0.128	1
				37	22.80	0.122	1
				47	22.89	0.125	1
			75	0	22.36	0.110	1
	20325 1747.5	QPSK	1	0	23.44	0.142	1
				37	23.31	0.137	1
				47	23.35	0.139	1
			75	0	22.29	0.109	1
Band 4 20 MHz	20050 1720	QPSK	1	0	23.20	0.134	1
				49	23.00	0.128	1
				99	23.06	0.130	1
			100	0	22.30	0.109	1
	20175 1732.5	QPSK	1	0	23.09	0.131	1
				49	22.87	0.124	1
				99	22.89	0.125	1
			100	0	22.42	0.112	1
	20300 1745	QPSK	1	0	23.49	0.143	1
				49	23.24	0.135	1
				99	23.30	0.137	1
			100	0	22.58	0.116	1

Note:

1. RF Output Power (W) EIRP = Conducted Output Power (dBm) + Antenna Gain (dBi)
2. Power (W)= $(10^{(Power(dBm)/10)})*10^{-3}$

Mode 2: LTE Band 12

Band	Channel Freq. (MHz)	Modulation	RB No.	RB offset	Conducted Output Power (dBm)	RF Output Power (W) ERP	Limit (W) ERP
Band 12 1.4 MHz	23017 699.7	QPSK	1	0	23.44	0.062	3
				2	23.12	0.057	3
				5	23.22	0.058	3
			6	0	22.53	0.050	3
	23095 707.5	QPSK	1	0	23.36	0.060	3
				2	23.05	0.056	3
				5	23.10	0.057	3
			6	0	22.30	0.047	3
	23173 715.3	QPSK	1	0	23.00	0.056	3
				2	22.85	0.054	3
				5	22.87	0.054	3
			6	0	22.32	0.048	3
Band 12 3 MHz	23025 700.5	QPSK	1	0	23.28	0.059	3
				7	23.10	0.057	3
				14	23.19	0.058	3
			15	0	22.62	0.051	3
	23095 707.5	QPSK	1	0	23.56	0.063	3
				7	23.23	0.059	3
				14	23.32	0.060	3
			15	0	22.39	0.048	3
	23165 714.5	QPSK	1	0	23.35	0.060	3
				7	23.11	0.057	3
				14	23.18	0.058	3
			15	0	22.33	0.048	3

Band	Channel Freq. (MHz)	Modulation	RB No.	RB offset	Conducted Output Power (dBm)	RF Output Power (W) ERP	Limit (W) ERP
Band 12 5 MHz	23035 707.5	QPSK	1	0	23.37	0.061	3
				12	23.11	0.057	3
				24	23.18	0.058	3
			25	0	22.56	0.050	3
	23095 707.5	QPSK	1	0	23.29	0.059	3
				12	23.12	0.057	3
				24	23.18	0.058	3
			25	0	22.27	0.047	3
	23155 713.5	QPSK	1	0	23.04	0.056	3
				12	22.85	0.054	3
				24	22.89	0.054	3
			25	0	22.30	0.047	3
Band 12 10 MHz	23060 704	QPSK	1	0	23.57	0.063	3
				7	23.35	0.060	3
				14	23.41	0.061	3
			50	0	22.47	0.049	3
	23095 707.5	QPSK	1	0	23.39	0.061	3
				7	23.15	0.058	3
				14	23.21	0.058	3
			50	0	22.43	0.049	3
	23130 711	QPSK	1	0	23.51	0.063	3
				7	23.22	0.058	3
				14	23.33	0.060	3
			50	0	22.34	0.048	3

Note:

1. RF Output Power (W) ERP = Conducted Output Power (dBm) + Antenna Gain (dBi) - 2.15 dB

2. Power (W)= $(10^{(\text{Power(dBm)}/10)})*10^{-3}$

Mode 3: LTE Band 13

Band	Channel Freq. (MHz)	Modulation	RB No.	RB offset	Conducted Output Power (dBm)	RF Output Power (W) ERP	Limit (W) ERP
Band 13 5 MHz	23205 779.5	QPSK	1	0	23.33	0.063	3
				12	23.12	0.060	3
				24	23.22	0.062	3
			25	0	22.58	0.053	3
	23230 782	QPSK	1	0	23.26	0.062	3
				12	23.01	0.059	3
				24	23.05	0.059	3
			25	0	22.53	0.052	3
	23255 784.5	QPSK	1	0	23.31	0.063	3
				12	23.12	0.060	3
				24	23.15	0.061	3
			25	0	22.56	0.053	3
Band 13 10 MHz	23230 782	QPSK	1	0	23.34	0.063	3
				24	23.20	0.061	3
				49	23.22	0.062	3
			50	0	22.77	0.055	3

Note:

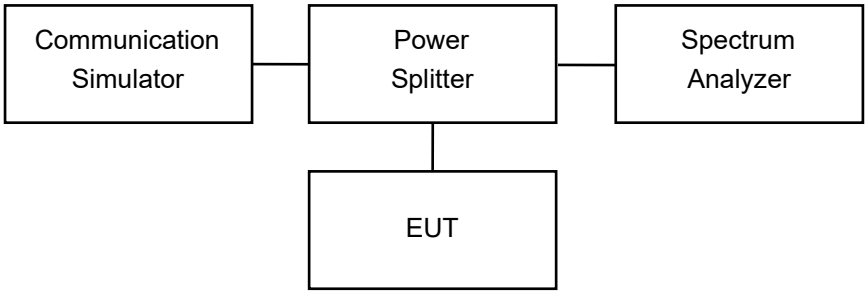
1. RF Output Power (W) ERP = Conducted Output Power (dBm) + Antenna Gain (dBi) - 2.15 dB

2. Power (W)= $(10^{(\text{Power(dBm)}/10)})*10^{-3}$

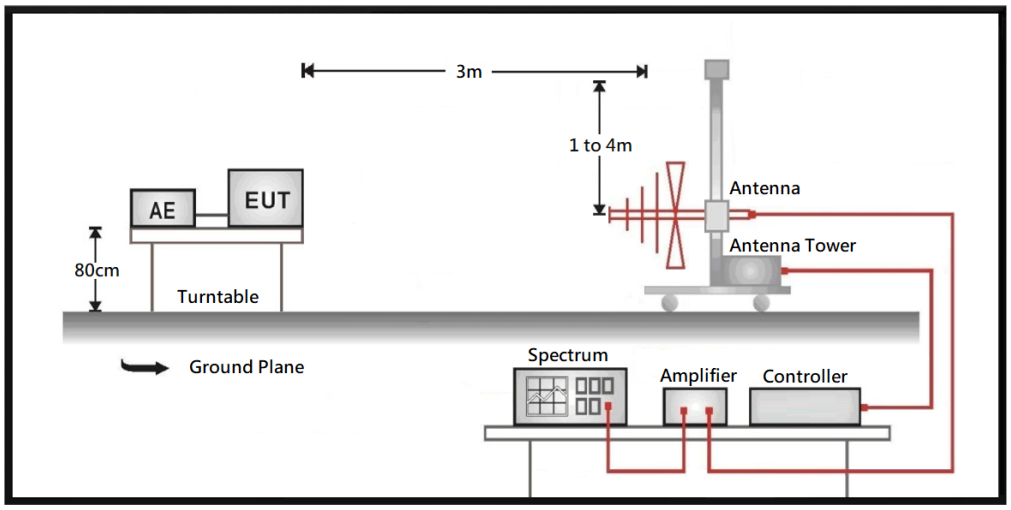
4. Spurious Emissions

4.1. Test Setup

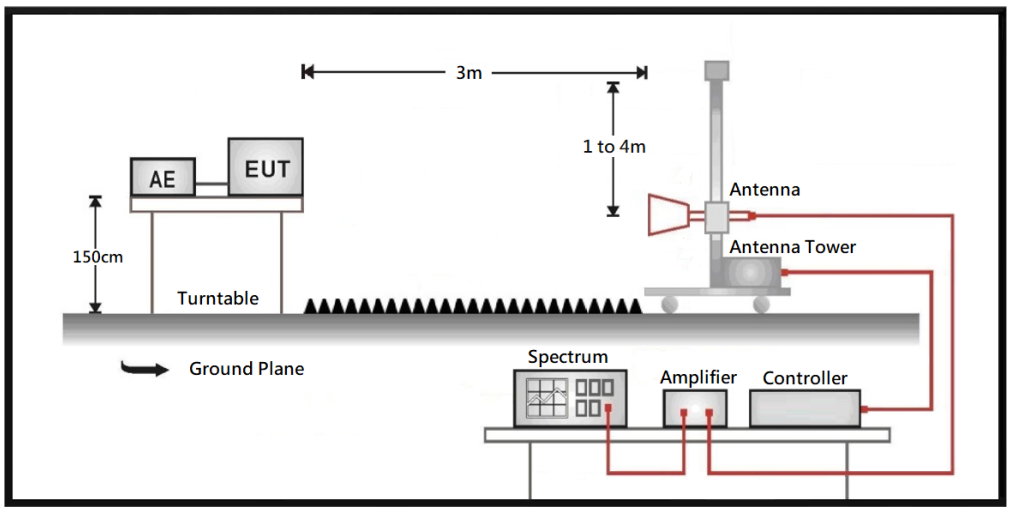
Conducted Spurious Measurement



Radiated Spurious Measurement: below 1GHz



Radiated Spurious Measurement: above 1GHz



4.2. Test Procedure

Conducted Spurious Measurement:

The EUT makes a call to the communication simulator. The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency. The path loss was compensated to the results for each measurement. The resolution bandwidth of the spectrum analyzer was set at 1 MHz, sufficient scans were taken to show the out of band Emission if any up to 10th harmonic.

Radiated Spurious Measurement:

The EUT and its simulators are placed on a turn table which is 0.8 or 1.5 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The height of the receiving antenna is varied between one meter and four meters to search the maximum spurious emission for both horizontal and vertical polarizations. The resolution bandwidth of the spectrum analyzer was set at 1 MHz, sufficient scans were taken to show the out of band Emission if any up to 10th harmonic. Taking the record of maximum spurious emission.

4.3. Test Methodology and Reference Procedures

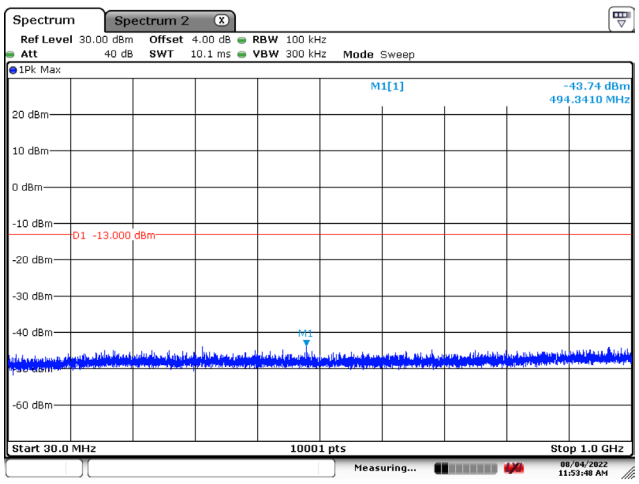
KDB 971168 D01 Power Meas License Digital Systems v03r01

ANSI C63.26-2015

4.4. Test Result of Conducted Spurious Emission

Mode 1: LTE Band 4

B4_CH20000_10M_1RB0_QPSK_Below 1G



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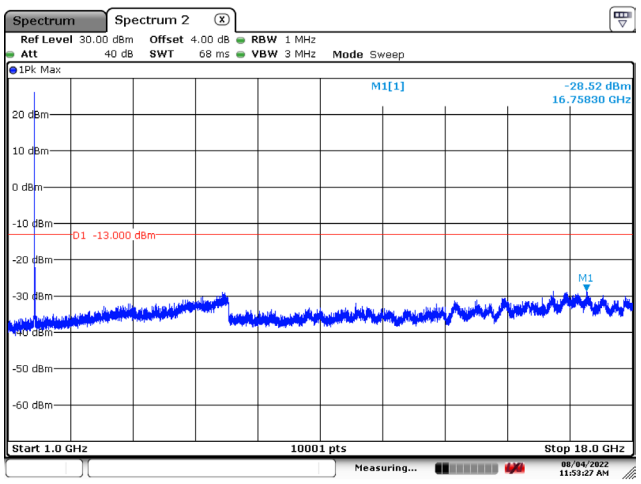
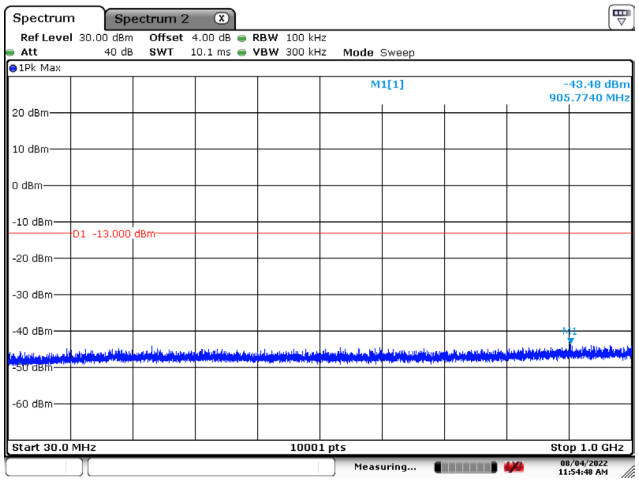
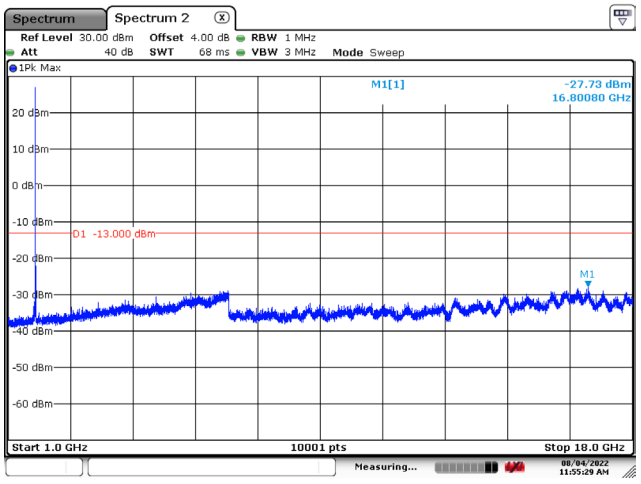


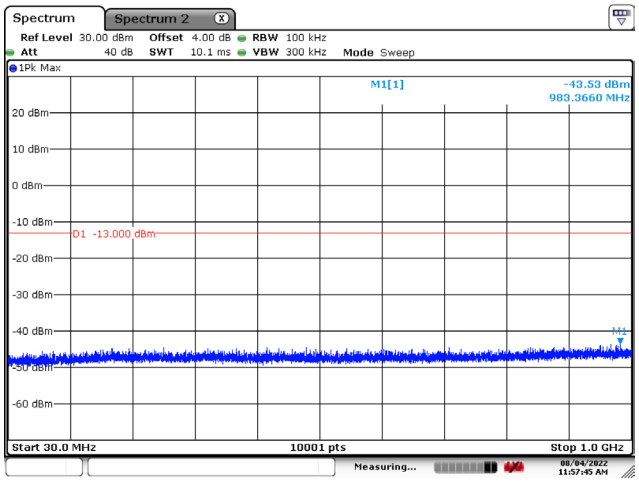
B4_CH20175_10M_1RB0_QPSK_Below 1G



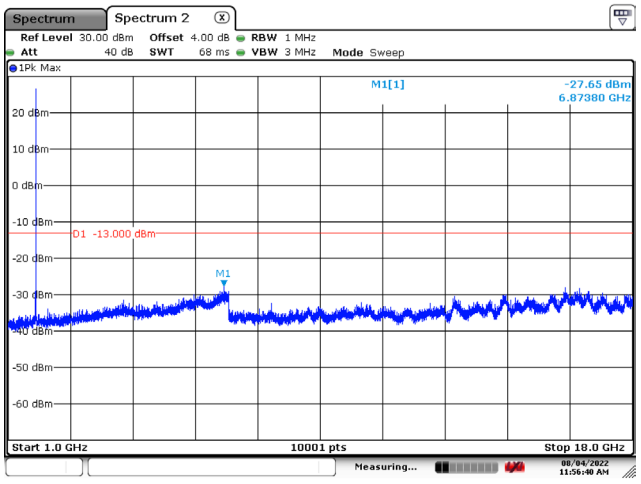
B4_CH20175_10M_1RB0_QPSK_Above 1G



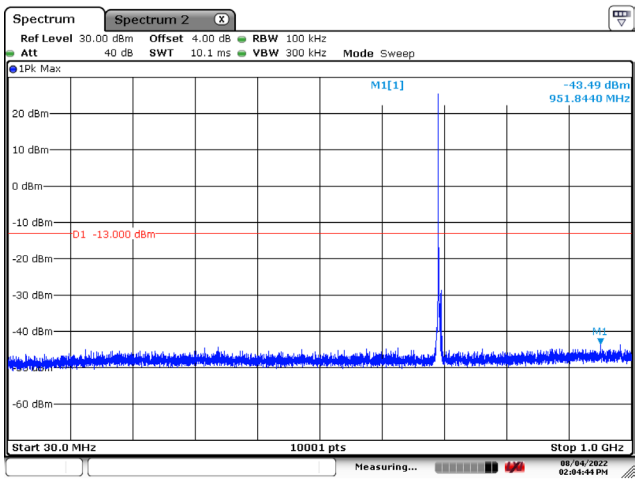
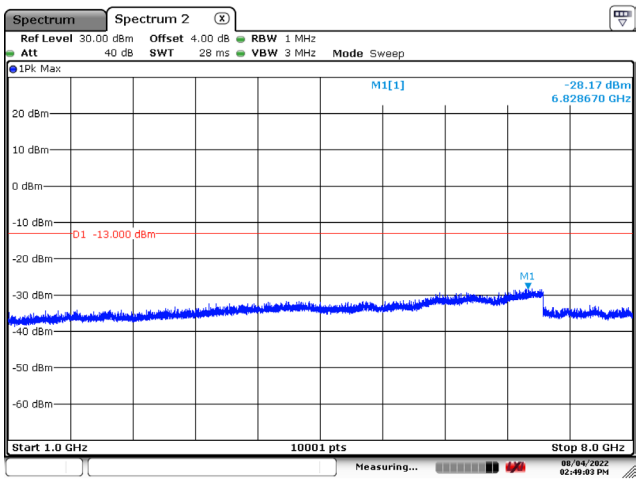
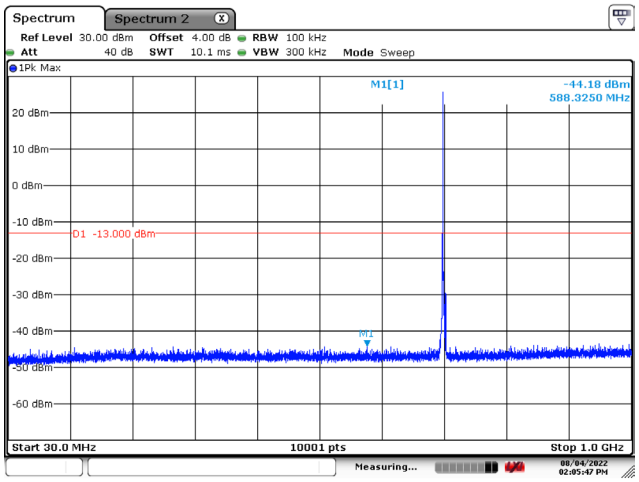
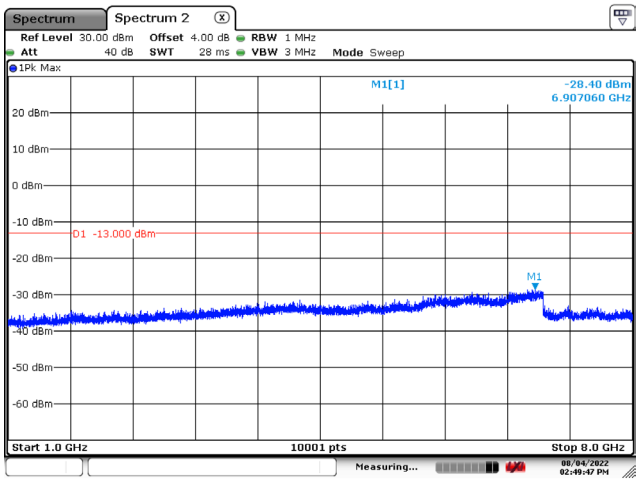
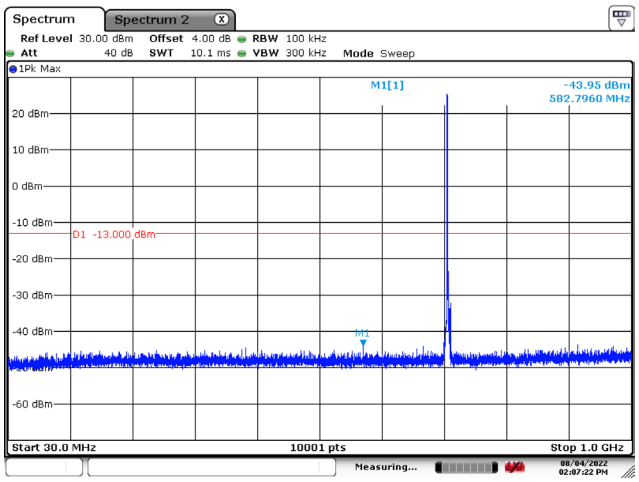
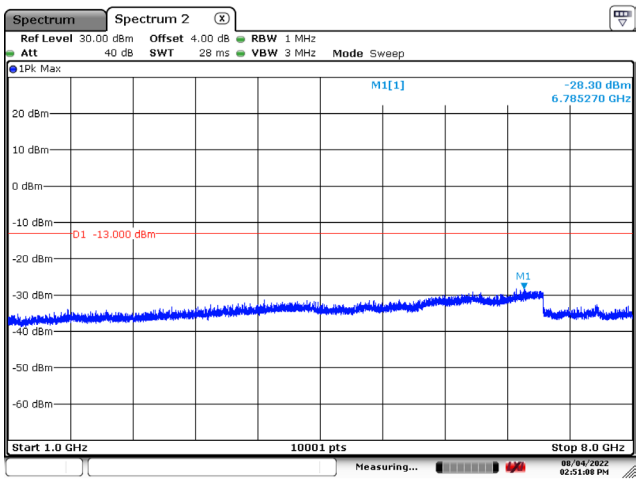
B4_CH20350_10M_1RB0_QPSK_Below 1G



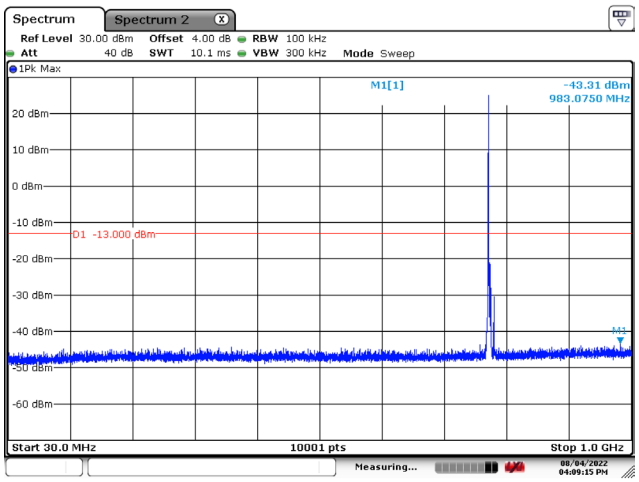
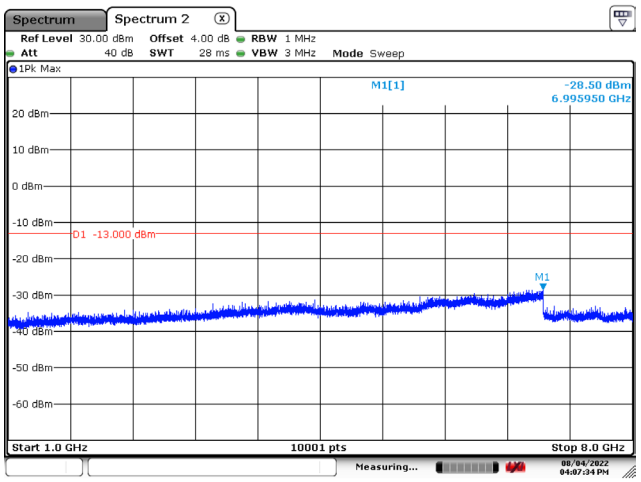
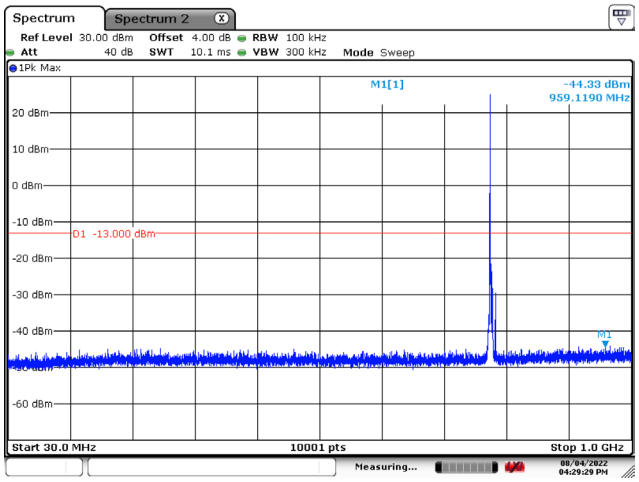
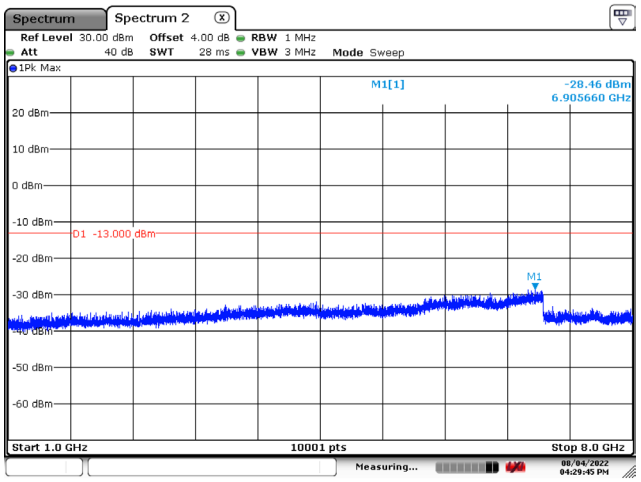
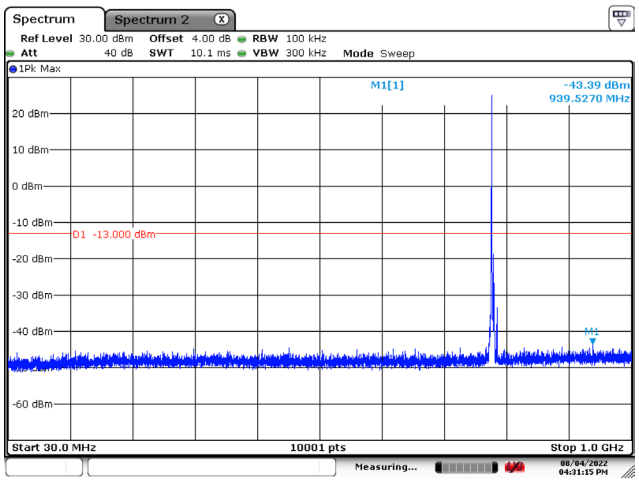
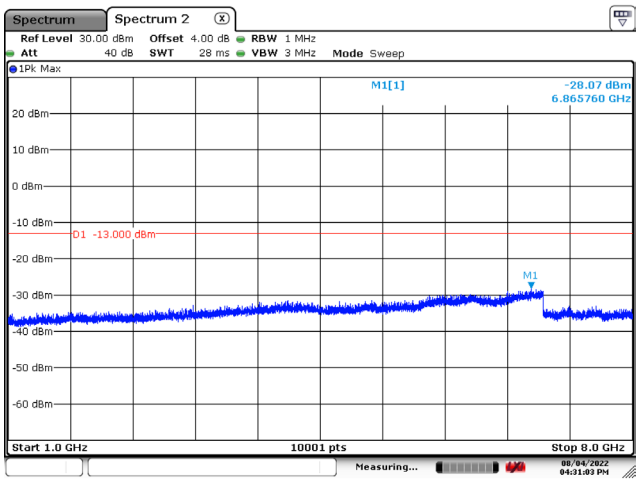
B4_CH20350_10M_1RB0_QPSK_Above 1G



Mode 2: LTE Band 12

B12_CH23025_3M_1RB0_QPSK_Below 1G	B12_CH23025_3M_1RB0_QPSK_Above 1G
 Date: 4.AUG.2022 14:04:45	 Date: 4.AUG.2022 14:49:04
B12_CH23095_3M_1RB0_QPSK_Below 1G	B12_CH23095_3M_1RB0_QPSK_Above 1G
 Date: 4.AUG.2022 14:05:48	 Date: 4.AUG.2022 14:49:47
B12_CH23165_3M_1RB0_QPSK_Below 1G	B12_CH23165_3M_1RB0_QPSK_Above 1G
 Date: 4.AUG.2022 14:07:22	 Date: 4.AUG.2022 14:51:08

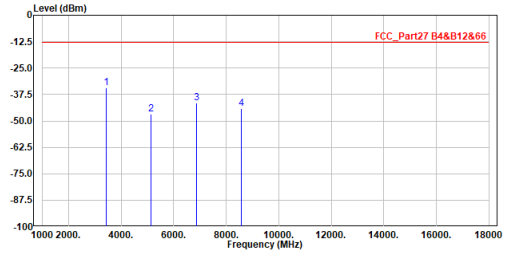
Mode 3: LTE Band 13

B13_CH23205_5M_1RB0_QPSK_Below 1G	B13_CH23205_5M_1RB0_QPSK_Above 1G
	
B13_CH23230_5M_1RB0_QPSK_Below 1G	B13_CH23230_5M_1RB0_QPSK_Above 1G
	
B13_CH23255_5M_1RB0_QPSK_Below 1G	B13_CH23255_5M_1RB0_QPSK_Above 1G
	

4.5. Test Result of Radiated Spurious Emission

Mode 1: LTE Band 4

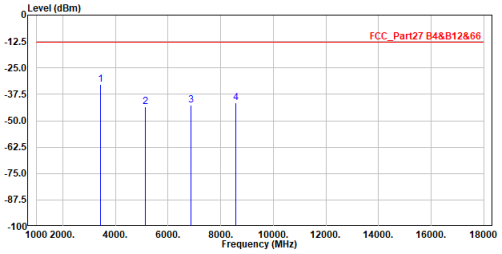
Site : HC-CB02
Condition : 3m Horizontal
Mode : LTE_B4_Ch20000
Test By : Cyril



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	3430.000	-34.25	-13.00	-21.25	-27.59	-6.66	Peak
2	5145.000	-46.93	-13.00	-33.93	-46.11	-0.82	Peak
3	6860.000	-41.48	-13.00	-28.48	-47.57	6.09	Peak
4	8575.000	-43.97	-13.00	-30.97	-52.15	8.18	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor + Aux Factor
3. Over Limit = Level - Limit Line
4. Aux Factor = Convert E (dBuVm) to EIRP (dBm)
= 107 + 20log(3) - 104.8 = 11.8 dB
5. The other emission levels were very low against the limit.
6. The emission under 1GHz was not included since the emission levels are very low against the limit.

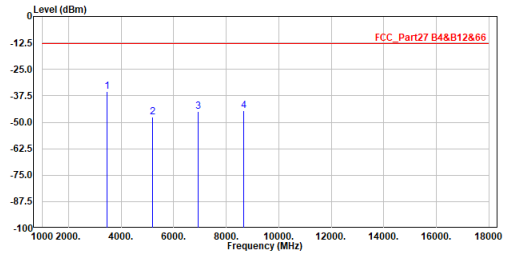
Site : HC-CB02
Condition : 3m Vertical
Mode : LTE_B4_Ch20000
Test By : Cyril



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	3430.000	-32.68	-13.00	-19.68	-26.02	-6.66	Peak
2	5145.000	-43.52	-13.00	-30.52	-42.70	-0.82	Peak
3	6860.000	-42.81	-13.00	-29.81	-48.90	6.09	Peak
4	8575.000	-41.53	-13.00	-28.53	-49.71	8.18	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor + Aux Factor
3. Over Limit = Level - Limit Line
4. Aux Factor = Convert E (dBuVm) to EIRP (dBm)
= 107 + 20log(3) - 104.8 = 11.8 dB
5. The other emission levels were very low against the limit.
6. The emission under 1GHz was not included since the emission levels are very low against the limit.

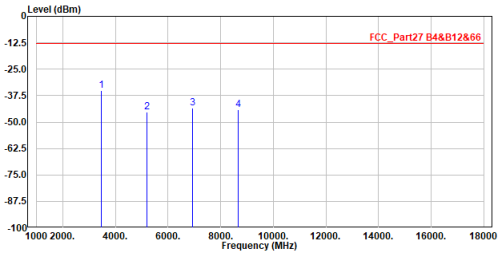
Site : HC-CB02
Condition : 3m Horizontal
Mode : LTE_B4_Ch20175
Test By : Cyril



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	3465.000	-35.34	-13.00	-22.34	-28.74	-6.60	Peak
2	5197.500	-47.58	-13.00	-34.58	-46.91	-0.67	Peak
3	6930.000	-44.94	-13.00	-31.94	-51.38	6.44	Peak
4	8662.500	-44.57	-13.00	-31.57	-52.86	8.29	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor + Aux Factor
3. Over Limit = Level - Limit Line
4. Aux Factor = Convert E (dBuVm) to EIRP (dBm)
= 107 + 20log(3) - 104.8 = 11.8 dB
5. The other emission levels were very low against the limit.
6. The emission under 1GHz was not included since the emission levels are very low against the limit.

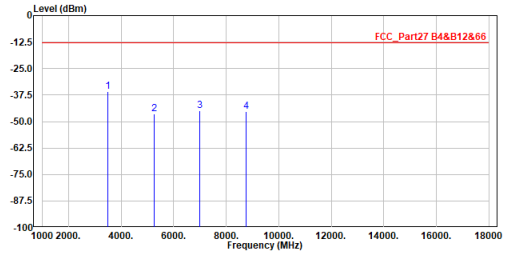
Site : HC-CB02
Condition : 3m Vertical
Mode : LTE_B4_Ch20175
Test By : Cyril



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	3465.000	-35.04	-13.00	-22.04	-28.44	-6.60	Peak
2	5197.500	-45.17	-13.00	-32.17	-44.50	-0.67	Peak
3	6930.000	-43.42	-13.00	-30.42	-49.86	6.44	Peak
4	8662.500	-43.97	-13.00	-30.97	-52.26	8.29	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor + Aux Factor
3. Over Limit = Level - Limit Line
4. Aux Factor = Convert E (dBuVm) to EIRP (dBm)
= 107 + 20log(3) - 104.8 = 11.8 dB
5. The other emission levels were very low against the limit.
6. The emission under 1GHz was not included since the emission levels are very low against the limit.

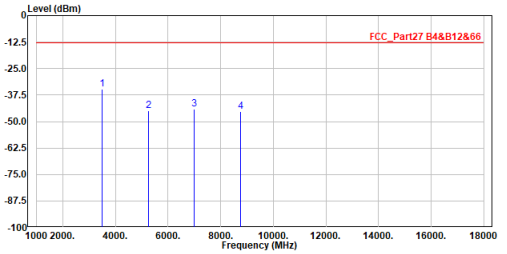
Site :HC-CB02
Condition :3m Horizontal
Mode :LTE_B4_Ch20350
Test By :Cyril



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	3500.000	-35.72	-13.00	-22.72	-29.16	-6.56	Peak
2	5250.000	-46.56	-13.00	-33.56	-46.06	-0.50	Peak
3	7000.000	-44.77	-13.00	-31.77	-51.57	6.80	Peak
4	8750.000	-45.21	-13.00	-32.21	-53.63	8.42	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor + Aux Factor
3. Over Limit = Level - Limit Line
4. Aux Factor = Convert E (dBuVm) to EIRP (dBm)
= 107 + 20log(3) - 104.8 = 11.8 dB
5. The other emission levels were very low against the limit.
6. The emission under 1GHz was not included since the emission levels are very low against the limit.

Site :HC-CB02
Condition :3m Vertical
Mode :LTE_B4_Ch20350
Test By :Cyril

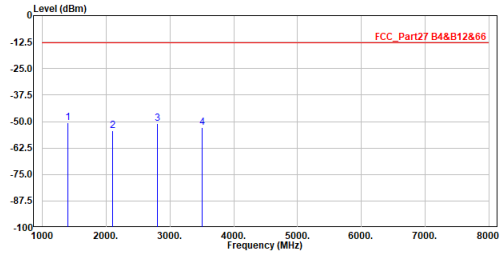


No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	3500.000	-34.55	-13.00	-21.55	-27.99	-6.56	Peak
2	5250.000	-44.76	-13.00	-31.76	-44.26	-0.50	Peak
3	7000.000	-44.33	-13.00	-31.33	-51.13	6.80	Peak
4	8750.000	-45.14	-13.00	-32.14	-53.56	8.42	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor + Aux Factor
3. Over Limit = Level - Limit Line
4. Aux Factor = Convert E (dBuVm) to EIRP (dBm)
= 107 + 20log(3) - 104.8 = 11.8 dB
5. The other emission levels were very low against the limit.
6. The emission under 1GHz was not included since the emission levels are very low against the limit.

Mode 2: LTE Band 12

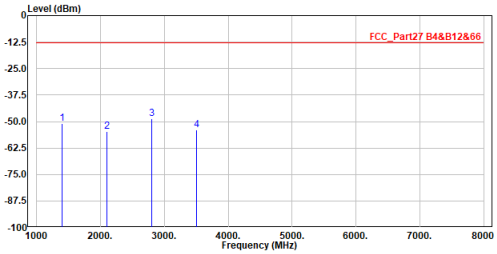
Site :HC-CB02
Condition :3m Horizontal
Mode :LTE_B12_Ch23025
Test By :Cyril



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	1401.000	-50.51	-13.00	-37.51	-36.88	-13.63	Peak
2	2101.500	-54.27	-13.00	-41.27	-43.15	-11.12	Peak
3	2802.000	-50.87	-13.00	-37.87	-42.84	-8.03	Peak
4	3502.500	-52.81	-13.00	-39.81	-46.26	-6.55	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor + Aux Factor
3. Over Limit = Level - Limit Line
4. Aux Factor = Convert E (dBuVm) to EIRP (dBm)
= 107 + 20log(3) - 104.8 = 11.8 dB
5. The other emission levels were very low against the limit.
6. The emission under 1GHz was not included since the emission levels are very low against the limit.

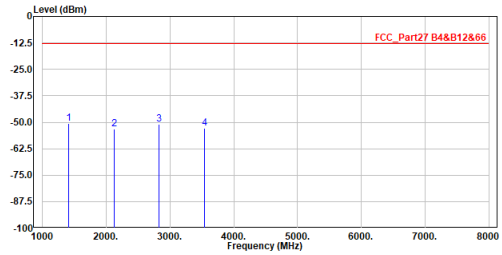
Site :HC-CB02
Condition :3m Vertical
Mode :LTE_B12_Ch23025
Test By :Cyril



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	1401.000	-51.02	-13.00	-38.02	-37.39	-13.63	Peak
2	2101.500	-54.69	-13.00	-41.69	-43.57	-11.12	Peak
3	2802.000	-48.61	-13.00	-35.61	-40.58	-8.03	Peak
4	3502.500	-54.01	-13.00	-41.01	-47.46	-6.55	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor + Aux Factor
3. Over Limit = Level - Limit Line
4. Aux Factor = Convert E (dBuVm) to EIRP (dBm)
= 107 + 20log(3) - 104.8 = 11.8 dB
5. The other emission levels were very low against the limit.
6. The emission under 1GHz was not included since the emission levels are very low against the limit.

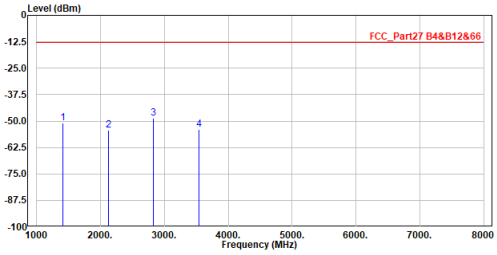
Site :HC-CB02
Condition :3m Horizontal
Mode :LTE_B12_Ch23095
Test By :Cyril



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	1415.000	-50.51	-13.00	-37.51	-36.94	-13.57	Peak
2	2122.500	-53.36	-13.00	-40.36	-42.34	-11.02	Peak
3	2830.000	-50.87	-13.00	-37.87	-42.95	-7.92	Peak
4	3537.500	-52.81	-13.00	-39.81	-46.39	-6.42	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor + Aux Factor
3. Over Limit = Level - Limit Line
4. Aux Factor = Convert E (dBuVm) to EIRP (dBm)
= 107 + 20log(3) - 104.8 = 11.8 dB
5. The other emission levels were very low against the limit.
6. The emission under 1GHz was not included since the emission levels are very low against the limit.

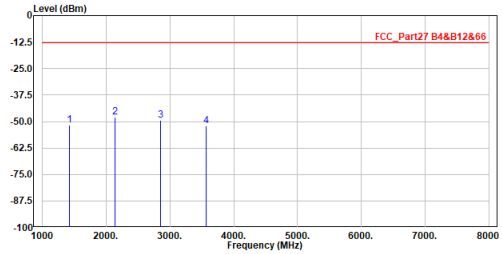
Site :HC-CB02
Condition :3m Vertical
Mode :LTE_B12_Ch23095
Test By :Cyril



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	1415.000	-51.02	-13.00	-38.02	-37.45	-13.57	Peak
2	2122.500	-54.23	-13.00	-41.23	-43.21	-11.02	Peak
3	2830.000	-48.61	-13.00	-35.61	-40.69	-7.92	Peak
4	3537.500	-54.01	-13.00	-41.01	-47.59	-6.42	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor + Aux Factor
3. Over Limit = Level - Limit Line
4. Aux Factor = Convert E (dBuVm) to EIRP (dBm)
= 107 + 20log(3) - 104.8 = 11.8 dB
5. The other emission levels were very low against the limit.
6. The emission under 1GHz was not included since the emission levels are very low against the limit.

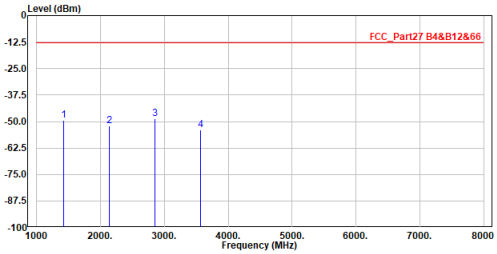
Site :HC-CB02
Condition :3m Horizontal
Mode :LTE_B12_Ch23165
Test By :Cyril



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	1429.000	-51.52	-13.00	-38.52	-37.98	-13.54	Peak
2	2143.500	-47.93	-13.00	-34.93	-37.01	-10.92	Peak
3	2858.000	-49.52	-13.00	-36.52	-41.72	-7.80	Peak
4	3572.500	-52.13	-13.00	-39.13	-45.84	-6.29	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor + Aux Factor
3. Over Limit = Level - Limit Line
4. Aux Factor = Convert E (dBuVm) to EIRP (dBm)
= 107 + 20log(3) - 104.8 = 11.8 dB
5. The other emission levels were very low against the limit.
6. The emission under 1GHz was not included since the emission levels are very low against the limit.

Site :HC-CB02
Condition :3m Vertical
Mode :LTE_B12_Ch23165
Test By :Cyril

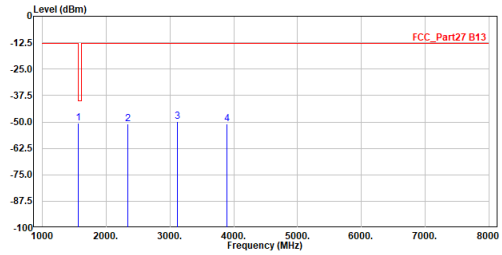


No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	1429.000	-49.37	-13.00	-36.37	-35.83	-13.54	Peak
2	2143.500	-52.14	-13.00	-39.14	-41.22	-10.92	Peak
3	2858.000	-48.71	-13.00	-35.71	-40.91	-7.80	Peak
4	3572.500	-53.98	-13.00	-40.98	-47.69	-6.29	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor + Aux Factor
3. Over Limit = Level - Limit Line
4. Aux Factor = Convert E (dBuVm) to EIRP (dBm)
= 107 + 20log(3) - 104.8 = 11.8 dB
5. The other emission levels were very low against the limit.
6. The emission under 1GHz was not included since the emission levels are very low against the limit.

Mode 3: LTE Band 13

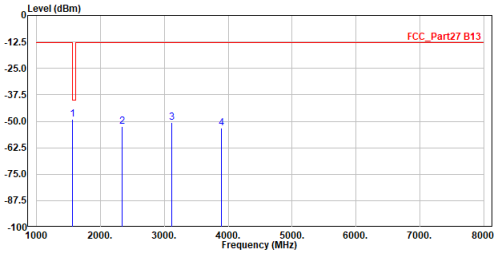
Site :HC-CB02
Condition :3m Horizontal
Mode :LTE_B13_Ch23205
Test By :Cyril



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	1559.000	-50.61	-40.00	-10.61	-37.50	-13.11	Peak
2	2338.500	-50.97	-13.00	-37.97	-40.94	-10.03	Peak
3	3118.000	-49.76	-13.00	-36.76	-42.71	-7.05	Peak
4	3897.500	-51.03	-13.00	-38.03	-46.00	-5.03	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor + Aux Factor
3. Over Limit = Level - Limit Line
4. Aux Factor = Convert E (dBuVm) to EIRP (dBm)
= 107 + 20log(3) - 104.8 = 11.8 dB
5. The other emission levels were very low against the limit.
6. The emission under 1GHz was not included since the emission levels are very low against the limit.

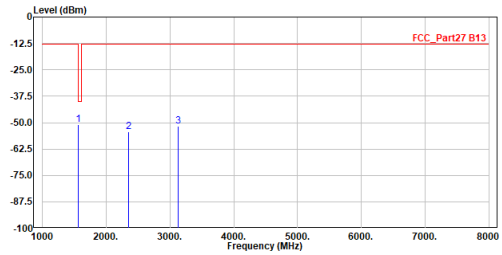
Site :HC-CB02
Condition :3m Vertical
Mode :LTE_B13_Ch23205
Test By :Cyril



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	1559.000	-48.87	-40.00	-8.87	-35.76	-13.11	Peak
2	2338.500	-52.60	-13.00	-39.60	-42.57	-10.03	Peak
3	3118.000	-50.51	-13.00	-37.51	-43.46	-7.05	Peak
4	3897.500	-53.10	-13.00	-40.10	-48.07	-5.03	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor + Aux Factor
3. Over Limit = Level - Limit Line
4. Aux Factor = Convert E (dBuVm) to EIRP (dBm)
= 107 + 20log(3) - 104.8 = 11.8 dB
5. The other emission levels were very low against the limit.
6. The emission under 1GHz was not included since the emission levels are very low against the limit.

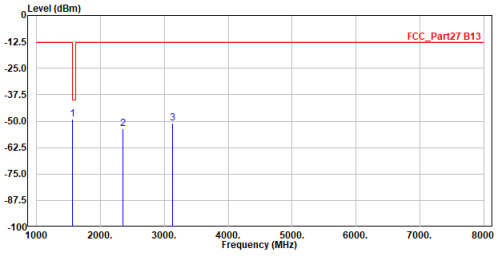
Site :HC-CB02
Condition :3m Horizontal
Mode :LTE_B13_Ch23230
Test By :Cyril



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	1564.000	-50.86	-40.00	-10.86	-37.77	-13.09	Peak
2	2346.000	-54.17	-13.00	-41.17	-44.17	-10.00	Peak
3	3128.000	-51.81	-13.00	-38.81	-44.77	-7.04	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor + Aux Factor
3. Over Limit = Level - Limit Line
4. Aux Factor = Convert E (dBuVm) to EIRP (dBm)
= 107 + 20log(3) - 104.8 = 11.8 dB
5. The other emission levels were very low against the limit.
6. The emission under 1GHz was not included since the emission levels are very low against the limit.

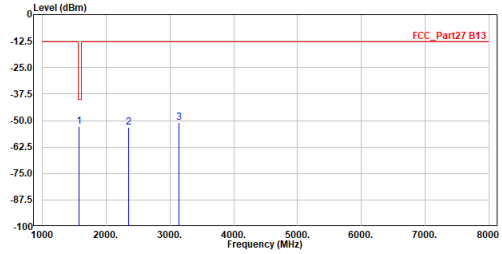
Site :HC-CB02
Condition :3m Vertical
Mode :LTE_B13_Ch23230
Test By :Cyril



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	1564.000	-48.97	-40.00	-8.97	-35.88	-13.09	Peak
2	2346.000	-53.76	-13.00	-40.76	-43.76	-10.00	Peak
3	3128.000	-50.98	-13.00	-37.98	-43.94	-7.04	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor + Aux Factor
3. Over Limit = Level - Limit Line
4. Aux Factor = Convert E (dBuVm) to EIRP (dBm)
= 107 + 20log(3) - 104.8 = 11.8 dB
5. The other emission levels were very low against the limit.
6. The emission under 1GHz was not included since the emission levels are very low against the limit.

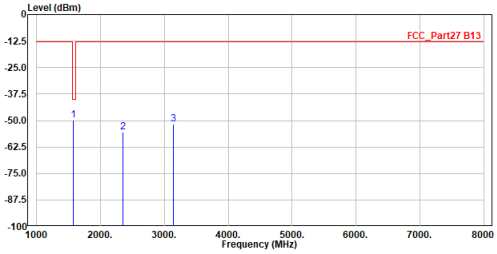
Site :HC-CB02
Condition :3m Horizontal
Mode :LTE_B13_Ch23255
Test By :Cyril



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	1569.000	-52.72	-40.00	-12.72	-39.65	-13.07	Peak
2	2353.500	-53.23	-13.00	-40.23	-43.26	-9.97	Peak
3	3138.000	-50.96	-13.00	-37.96	-43.93	-7.03	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor + Aux Factor
3. Over Limit = Level - Limit Line
4. Aux Factor = Convert E (dBuVm) to EIRP (dBm)
= 107 + 20log(3) - 104.8 = 11.8 dB
5. The other emission levels were very low against the limit.
6. The emission under 1GHz was not included since the emission levels are very low against the limit.

Site :HC-CB02
Condition :3m Vertical
Mode :LTE_B13_Ch23255
Test By :Cyril



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	1569.000	-49.98	-40.00	-9.98	-36.91	-13.07	Peak
2	2353.500	-55.29	-13.00	-42.29	-45.32	-9.97	Peak
3	3138.000	-51.85	-13.00	-38.85	-44.82	-7.03	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor + Aux Factor
3. Over Limit = Level - Limit Line
4. Aux Factor = Convert E (dBuVm) to EIRP (dBm)
= 107 + 20log(3) - 104.8 = 11.8 dB
5. The other emission levels were very low against the limit.
6. The emission under 1GHz was not included since the emission levels are very low against the limit.