

# **ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT**

OF

FCC Applicant:	VanMoof Asia Ltd. No. 9, Lane 71, Section 1, Hangzhou South Road, Zhongzheng District, Taipei City, 100
Product Name:	Electrified Bike SECTION A SUB-ASSY
Brand Name:	Vanmoof
Model No.:	VM13-144
Model Difference:	N/A
Report Number:	ER/2020/50029
FCC ID	2AWDQ-VM-ES3-SEC-A
FCC Rule Part:	2 , 22H & 24E & 27 C
Issue Date:	Jun. 22, 2020
Date of Test:	May 11, 2020 ~ Jun. 05, 2020
Date of EUT Received:	May 11, 2020

### We hereby certify that:

The above equipment was tested by SGS Taiwan Ltd. Central RF Lab The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.26-2015 and the energy emitted by the sample EUT tested as described in this report is in compliance with conducted and radiated emission limits.

The test results of this report relate only to the tested sample identified in this report.

Approved By:

Jay Lin

Jay Lin / Asst. Supervisor



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Revision History					
Report Number         Revision         Description         Issue Date         Remark					
ER/2020/50029	Rev.00	Original.	Jun. 22, 2020	Revised By: Elle Chang	

### Note:

1 · Disclaimer

Antenna information is provided by the applicant, test results of this report are applicable to the sample EUT received.

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#### **GENERAL PRODUCT INFORMATION** 1

#### 1.1 **Product Description**

### General:

Product Name:	Electrified Bike SECTION A SUB-ASSY		
Brand Name:	Vanmoof		
Model No.:	VM13-144		
Model Difference:	N/A		
Hardware Version:	N/A		
Software Version:	N/A		
	Operate voltage 3	6V	
Power Supply:	Battery Charger: Model No.: BC222360040, Supplier: VANMOOF		
IMEI:	357649071625190	)	

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#### **Operation Frequency Range** 1.2

Operating Frequency (MHz)				
WCDMA / HSPA+ Band II	1852.4	-	1907.6	
WCDMA / HSPA+ Band V	826.4	-	846.6	

LTE Band	BW (MHz)	Operation	Frequ	iency (MHz)
	1.4	1850.7	-	1909.3
	3	1851.5	-	1908.5
2	5	1852.5	-	1907.5
Z	10	1855.0	-	1905.0
	15	1857.5	-	1902.5
	20	1860.0	-	1900.0
	1.4	1710.7	-	1754.3
	3	1711.5	-	1753.5
л	5	1712.5	-	1752.5
4	10	1715.0	-	1750.0
	15	1717.5	-	1747.5
	20	1720.0	-	1745.0
	1.4	824.7	-	848.3
5	3	825.5	-	847.5
5	5	826.5	-	846.5
	10	829.0	-	844.0
	1.4	699.7	_	715.3
12	3	700.5	_	714.5
12	5	701.5	-	713.5
	10	704.0	-	711.0

#### 1.3 **Antenna Designation**

Vendor	Туре	Antenna Part No.	Modulation	Frequency (MHz)	Peak Antenna Gain (dBi)
			WCDMA / HSPA Band II	1852.4 ~ 1907.6	3.01
			WCDMA / HSPA Band V	826.4 ~ 846.6	0.41
VanMoof Asia	Internal	N/A	LTE Band 2	1850 ~ 1910	3.01
Ltd.	шена	N/A	LTE Band 4	1710 ~ 1755	-5.47
			LTE Band 5	824 ~ 849	0.41
			LTE Band 12	699 ~ 716	0.79

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#### Type of Emission & Max ERP/EIRP Power Measurement Result: 1.4

	ERP / EIR	ERP / EIRP (dBm)		99%	Type of Emission
WCDMA Band II	26.05	EIRP	0.403	4.0713	4M07F9W
HSDPA Band II	25.98	EIRP	0.396	4.0671	4M07F9W
HSUPA Band II	25.86	EIRP	0.385	4.0642	4M06F9W
WCDMA Band V	23.68	ERP	0.233	4.0663	4M07F9W
HSDPA Band V	23.58	ERP	0.228	4.0697	4M07F9W
HSUPA Band V	23.55	ERP	0.226	4.0758	4M08F9W

LTE Band	BW	Modulation	ERP / E (dBm		(W)	99%	Type of
Dallu		QPSK	24.91	U EIRP	0.310	1.1056	Emission 1M11G7D
2	1.4						
		16QAM	24.14	EIRP	0.259	1.1070	1M11D7W
2	3	QPSK	24.88	EIRP	0.308	2.7014	2M70G7D
		16QAM	24.23	EIRP	0.265	2.7052	2M71D7W
2	5	QPSK	24.96	EIRP	0.313	4.4985	4M50G7D
		16QAM	24.32	EIRP	0.270	4.4932	4M49D7W
2	10	QPSK	24.83	EIRP	0.304	9.0337	9M03G7D
_		16QAM	23.76	EIRP	0.238	8.9837	8M98D7W
2	15	QPSK	25.58	EIRP	0.361	13.555	13M6G7D
2	15	16QAM	23.77	EIRP	0.238	13.542	13M5D7W
2	20	QPSK	25.46	EIRP	0.352	18.028	18M0G7D
2	20	16QAM	24.78	EIRP	0.301	18.039	18M0D7W
LTE	BW	Modulation	ERP / E	IRP	(W)	99%	Type of
Band	DVV	wouldtion	(dBn	/	(00)	77/0	Emission
4	1.4	QPSK	16.76	EIRP	0.047	1.1023	1M10G7D
т	1.7	16QAM	15.86	EIRP	0 0 0 0	1 1040	1M10D7W
		TOUAIVI	15.00		0.039	1.1048	
1	2	QPSK	16.71	EIRP	0.039	2.7015	2M70G7D
4	3						
		QPSK	16.71	EIRP	0.047	2.7015	2M70G7D
4	3 5	QPSK 16QAM	16.71 15.90	EIRP EIRP	0.047 0.039	2.7015 2.7056	2M70G7D 2M71D7W
4	5	QPSK 16QAM QPSK	16.71 15.90 16.84	EIRP EIRP EIRP	0.047 0.039 0.048	2.7015 2.7056 4.4933	2M70G7D 2M71D7W 4M49G7D
		QPSK 16QAM QPSK 16QAM	16.71 15.90 16.84 16.27	EIRP EIRP EIRP EIRP	0.047 0.039 0.048 <b>0.042</b>	2.7015 2.7056 4.4933 4.4935	2M70G7D 2M71D7W 4M49G7D 4M49D7W
4	5 10	QPSK 16QAM QPSK 16QAM QPSK	16.71 15.90 16.84 16.27 16.29	EIRP EIRP EIRP EIRP EIRP	0.047 0.039 0.048 0.042 0.043	2.7015 2.7056 4.4933 4.4935 9.0171	2M70G7D 2M71D7W 4M49G7D 4M49D7W 9M02G7D
4	5	QPSK 16QAM QPSK 16QAM QPSK 16QAM	16.7115.9016.8416.2716.2915.20	EIRP EIRP EIRP EIRP EIRP EIRP	0.047 0.039 0.048 <b>0.042</b> 0.043 0.033	2.7015 2.7056 4.4933 4.4935 9.0171 8.9866	2M70G7D 2M71D7W 4M49G7D 4M49D7W 9M02G7D 8M99D7W
4	5 10	QPSK 16QAM QPSK 16QAM QPSK 16QAM QPSK	16.71           15.90           16.84           16.27           16.29           15.20           16.96	EIRP EIRP EIRP EIRP EIRP EIRP	0.047 0.039 0.048 <b>0.042</b> 0.043 0.033 <b>0.050</b>	2.7015 2.7056 4.4933 4.4935 9.0171 8.9866 13.539	2M70G7D 2M71D7W 4M49G7D 4M49D7W 9M02G7D 8M99D7W 13M5G7D

LTE Band	BW	Modulation	ERP / E (dBm		(W)	99%	Type of Emission
5	1.4	QPSK	20.16	ERP	0.104	1.1017	1M10G7D
5	1.4	16QAM	19.48	ERP	0.089	1.1048	1M10D7W
5	3	QPSK	19.96	ERP	0.099	2.7007	2M70G7D
5	5	16QAM	19.24	ERP	0.084	2.7047	2M70D7W
5	5	QPSK	20.05	ERP	0.101	4.4962	4M50G7D
5	5	16QAM	19.39	ERP	0.087	4.4957	4M50D7W
5	10	QPSK	20.08	ERP	0.102	9.0300	9M03G7D
5	10	16QAM	18.42	ERP	0.070	8.9896	8M99D7W
LTE	BW	Modulation	ERP / E	IRP	(14.0)	000/	Type of
Band			(dBm)		(VV)	99%	5.
Dunu		woodation	(dBn	1)	(W)	99%	Emission
	14	QPSK	(dBm) 20.71	n) ERP	(W) 0.118	99% 1.1010	5.
12	1.4			<i>′</i>			Emission
12		QPSK	20.71	ERP	0.118	1.1010	Emission 1M10G7D
	1.4 3	QPSK 16QAM	20.71 19.96	ERP ERP	0.118	1.1010 1.1041	Emission 1M10G7D 1M10D7W
12 12	3	QPSK 16QAM QPSK	20.71 19.96 20.51	ERP ERP ERP	0.118 0.099 0.112	1.1010 1.1041 2.7042	Emission 1M10G7D 1M10D7W 2M70G7D
12		QPSK 16QAM QPSK 16QAM	20.71 19.96 20.51 19.83	ERP ERP ERP ERP	0.118 0.099 0.112 0.096	1.1010 1.1041 2.7042 2.7028	Emission 1M10G7D 1M10D7W 2M70G7D 2M70D7W
12 12	3	QPSK 16QAM QPSK 16QAM QPSK	20.71 19.96 20.51 19.83 20.49	ERP ERP ERP ERP ERP	0.118           0.099           0.112           0.096           0.112	1.1010 1.1041 2.7042 2.7028 4.4971	Emission 1M10G7D 1M10D7W 2M70G7D 2M70D7W 4M50G7D

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# 1.5 Test Methodology of Applied Standards

FCC 47 CFR Part 2, 22H, 24E, 27C. ANSI C63.26-2015 KDB971168 D01 Power Meas license Digital System v03r01 KDB412172 D01 Determining ERP and EIRP v01r01 TS 151 010-1 is used to set, and measure the output power.

# 1.6 Test Facility

SGS Taiwan Ltd. Central RF Lab (TAF code 3702) No.134, Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803

FCC Designation number: TW0027

### 1.7 Special Accessories

No special accessories were used during testing.

### 1.8 Equipment Modifications

There was no modifications incorporated into the EUT.

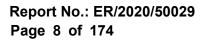
# 1.9 Radiated Emission Test Sites For Measurements From 9 kHz To 30 MHz

Radiated emission below 30MHz is measured in a 9m\*9m\*6m semi-anechoic chamber, the measurements correspond to those obtained at an open-field test site. There is a comparison data of both open-field test site and semi-Anechoic chamber, and the result came out very similar.

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# **2 SYSTEM TEST CONFIGURATION**

### 2.1 EUT Configuration

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

### 2.2 EUT Exercise

The EUT (Transmitter) was operated in the continuous transmission mode employed with the simulator of the Base Station that fixates at test default channels to fix the Tx frequency which was for the purpose of the measurements.

### 2.3 Test Procedure

# 2.3.1 Conducted Measurement at Antenna Port

The EUT is placed on a table which is 0.8 m above ground plane. A low loss of RF cable was used to connect the antenna port of EUT to measurement equipment.

# 2.3.2 Radiated Emissions (ERP/EIRP)

The EUT is placed on a turn table, for emission measurements below 1 GHz is 0.8 m above ground plane, for emission measurements above 1 GHz, the table height shall be 1.5 m. The turn table shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both Horizontal and Vertical. In order to find out the max. emission, the relative positions of this hand-held transmitter (EUT) was rotated through three orthogonal axes and measurement procedures for electric field radiated emissions above 1 GHz the EUT measurement is to be made "while keeping the antenna in the 'cone of radiation' from that area and pointed at the area both in azimuth and elevation, with polarization oriented for maximum response." is still within the 3dB illumination BW of the measurement antenna according to the requirements in Section 8 and 13.

# 2.4 Measurement Results Explanation Example

### For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuation factor between EUT conducted port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly EUT RF output level. **Note:** 

The spectrum analyzer offset is derived from RF cable loss and attenuator factor. Following shows an offset computation in physical test.

	ming one we an one of oompa	tation in physical toot.		
		RF cable loss (dB)	Attenuation factor(dB)	offset(dB)
Γ	Low Band (Below 1GHz)	0.8	13.2	14
	High Band (Above 1 GHz)	1.2	13.2	14.4

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#### **Final Amplifier Voltage and Current Information:** 2.5

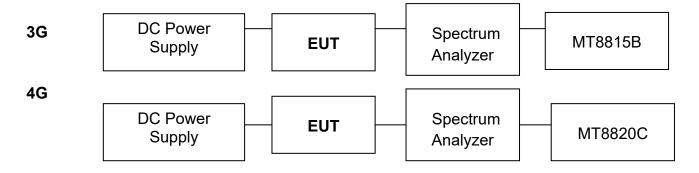
Test Mode	DC voltage (V)	DC current (mA)
WCDMA B2		261
WCDMA B5		264
LTE Band 2	26	228
LTE Band 4	- 36	217
LTE Band 5		227
LTE Band 12		224

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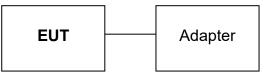


# 2.6 Configuration of Tested System

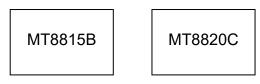
# Fig. 2-1 Configuration of Tested System (Fixed Channel-Conducted)



# Fig. 2-2 Configuration of Tested System (Fixed Channel-Radiated)



# Remote Side



# Table 2-1 Equipment Used in

ltem	Equipment	Mfr/Brand	Model/ Type No.	Series No.	Data Cable	Power Cord
1.	Radio Communication Analyer	Anritsu	MT8820C	6200995019	shielded	Un-shielded
2.	Radio Communication Analyer	Anritsu	MT8815B	6200711454	shielded	Un-shielded

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#### SUMMARY OF TEST RESULTS 3

FCC Rules	Description Of Test	Result
§2.1046(a)	RF Power Output	Compliant
§22.913(a)(5) §24.232(c) §27.50(c)(10) §27.50(d)(4)	ERP/ EIRP measurement	Compliant
§2.1049(h)	99% & 26dB Occuupied Bandwidth	Compliant
§2.1051 §22.917(a) §24.238(a) §27.53(g) §27.53(h)	Out of Band Emissions at Antenna Terminals and Band Edge / Emission mask re- quirements	Compliant
§2.1053 §24.238(a) §27.53(g) §27.53(h) §22.917(a)	Field Strength of Spurious Radiation	Compliant
§24.232(d) §27.50(B)	Peak to Average Ratio	Compliant
§2.1055(a)(1) §22.355 §24.235 §27.54	Frequency Stability	Compliant

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# **DESCRIPTION OF TEST MODES**

#### 4.1 The Worst Test Modes and Channel Details

- 1. The EUT has been tested under operating condition.
- 2. Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, X(E1)Y(E2)Z(H) axis and antenna ports. The worst case was found as listed below. Following channel(s) was (were) selected for the final test as listed below:

BAND	H PLAN	E1 PLAN	E2 PLAN
WCDMA/HSPA Band II	V		
WCDMA/HSPA Band V	V		
LTE Band 2	V		
LTE Band 4	V		
LTE Band 5	V		
LTE Band 12	V		

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#### **Measurement Configuration** 4.2

Test Items	WCDMA / HSPA	Test Channel				
restitems	Bands	L	М	Н		
ERP	Band V	V	V	V		
EIRP	Bnad II	V	V	V		
FREQUENCY STABILITY	Bnad II	-	V	-		
TREQUENCE STABLETT	Band V	-	V	-		
OCCUPIED BANDWIDTH	Bnad II	V	V	V		
OCCOFIED BANDWIDTH	Band V	V	V	V		
PEAK TO AVERAGE RATIO	Bnad II	V	V	V		
PEAK TO AVERAGE RATIO	Band V	V	V	V		
BAND EDGE	Bnad II	V	-	V		
BAND EDGE	Band V	V	-	V		
CONDCUDETED EMISSION	Bnad II	V	V	V		
CONDCODETED EMISSION	Band V	V	V	V		
RADIATED EMISSION	Bnad II	V	V	V		
KADIATED EMISSION	Band V	V	V	V		

Test Items	Band	Tes	t Char	nnel	Bandwidth (MHz)					M	odulati	on	RB #			
Test items	Dallu	L	М	Η	1.4	3	5	10	15	20	QPSK	16QAM	64QAM	1	Half	Full
	2	۷	۷	۷	۷	۷	۷	۷	۷	۷	٧	٧		۷	۷	۷
Max. Output	4	۷	٧	٧	٧	۷	٧	٧	٧	۷	v	v		٧	۷	٧
Power	5	٧	۷	٧	۷	۷	٧	٧	•	-	٧	٧		٧	۷	۷
	12	٧	٧	٧	٧	۷	٧	٧		-	٧	٧		٧	۷	۷
	2	-	v	-			v				v	-	-	-	-	v
Freqency	4	-	٧	-			٧				٧	-	-	-	-	٧
Stability	5	-	٧	-			٧		-	-	٧	-	-	-	-	۷
	12		٧	-			٧		•	•	٧	•	-	-	•	۷

Test Items	Band	Tes	st Char	nnel		Bandwidth (MHz)						Modulation			RB #		
restitents	Danu	L	М	Н	1.4	3	5	10	15	20	QPSK	16QAM	64QAM	1	Half	Full	
Band Edge	2	v	-	v	v	v	v	v	v	v	v	-	-	v	v	v	
	4	v	-	v	v	v	v	v	v	v	v		-	v	v	v	
	5	v	-	v	v	v	v	v	-	-	v	•	-	v	v	v	
	12	v	-	v	v	v	v	v	-	-	v	•	-	v	v	v	
Conducted Emission	2	v	v	v	v	v	v	v	v	v	v	-	-	v	-	-	
	4	v	v	v	v	v	v	v	v	v	v		-	v	-	-	
	5	v	v	v	v	v	v	v	-	-	v	•	-	v	-	-	
	12	v	v	v	v	v	v	v	-		v	-	-	v	-	-	

Test Items	Band	Test Channel			Bandwidth (MHz)						Modulation			RB #		
restitents	Danu	L	М	Н	1.4	3	5	10	15	20	QPSK	16QAM	64QAM	1	Half	Full
26dB and 99% Bandwidth	2	v	v	v	v	v	v	v	v	v	v	v		-	-	v
	4	v	v	v	v	v	v	v	v	v	v	v		-		v
	5	v	v	v	v	v	v	v	•		v	v		-		v
	12	v	v	v	v	v	v	v	•	-	v	v		-	•	٧
Peak-to-Av erage Ratio	2	v	v	v	v	v	v	v	v	v		v		-	-	v
Ĩ	4	v	v	v	v	v	v	v	v	v		v		-		v
	5	v	v	v	v	v	v	v	-	-		V		-	-	v
	12	v	v	v	v	v	v	v	•	-		V		•	-	v

Test Items Bar	Band	Test Channel			Bandwidth (MHz)						Modulation			RB #		
	Danu	L	М	Н	1.4	3	5	10	15	20	QPSK	16QAM	64QAM	1	Half	Full
Radiated Emission	2	v	v	v					v		v			v		
	4	v	v	v					v		v			v		
	5	v	v	v	v				-	-	v			v		
	12	٧	٧	V	٧				-	-	V			٧		

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# **MEASUREMENT UNCERTAINTY**

Test Items	Uncertainty
RF Power Output	+/- 1.10 dB
ERP/ EIRP measurement	Vertical Polarization = +/- 4.74dB Horizontal Polarization =+/- 4.62dB
99% Occupied Bandwidth	+/- 5.19 Hz
Out of Band Emissions at Antenna Terminals and Band Edge	+/- 0.70 dB
Peak to Average Ratio	+/- 0.70 dB
Frequency Stability vs. Temperature	+/- 5.19 Hz
Frequency Stability vs. Voltage	+/- 5.19 Hz
Temperature	+/- 0.65 °C
Humidity	+/- 4.6 %
DC / AC Power Source	DC= +/- 0.13%, AC=+/- 0.2%

### Radiated Spurious Emission:

	9kHz – 30MHz: +/- 2.87 dB					
	30MHz - 180MHz: +/- 3.37dB					
Measurement uncertainty (Polarization : <b>Vertical</b> )	180MHz -417MHz: +/- 3.19dB					
(i cialization : vertical)	0.417GHz-1GHz: +/- 3.19dB					
	1GHz - 18GHz: +/- 4.04dB					
	18GHz - 40GHz: +/- 4.04dB					

	9kHz – 30MHz: +/- 2.87 dB
	30MHz - 167MHz: +/- 4.22dB
Measurement uncertainty (Polarization : <b>Horizontal</b> )	167MHz -500MHz: +/- 3.44dB
	0.5GHz-1GHz: +/- 3.39dB
	1GHz - 18GHz: +/- 4.08dB
	18GHz - 40GHz: +/- 4.08dB

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

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# 6 MAXMUM OUTPUT POWER

### 6.1 Standard Applicable

A base station simulator was used to establish communication with the EUT. Its parameters were set to transmit the maximum power on the EUT. The measured power in the radio frequency on the transmitter output terminals.

### 6.1.1 ERP/EIRP LIMIT

According to FCC §2.1046

### FCC 22.913(a)

(5) mobile transmitters and auxiliary test transmitters must not exceed 7 watts.

### FCC 24.232(c)

Mobile and portable stations are limited to 2 W EIRP.

### FCC 27.50(c)

(9) Control and mobile stations in the 698-746 MHz band are limited to 30 watts ERP.

(10) Portable stations (hand-held devices) are limited to 3 watts ERP.

### FCC 27.50(d)

(4) Mobile, and portable (hand-held) stations operating in the 1710-1755 MHz, 1695-1710 MHz and 1755-1780 MHz bands are limited to 1W EIRP.

(7) Mobile, and portable (hand-held) stations operating in the 1710-1755 MHz band are limited to 2 watts EIRP.

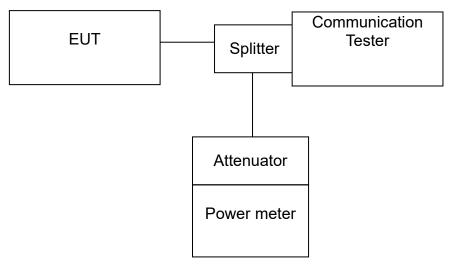
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### 6.2 Test Set-up



Note: Measurement setup for testing on Antenna connector

### 6.3 Output Power Measurement Applicable Guideance

The transmitter output was connected to a calibrated attenuator, the other end of which was connected to a power meter. Transmitter output was read off the power meter in dBm. The power output at the transmitter antenna port was determined by adding the value of the attenuator to the power meter reading. TS 151 010-1 is reference to conduct the test measurement of output power.

The Procedure of KDB941225 (SAR Measurement Procedures for 3G devices, (WCD-MA/HSPA) was used for EUT and Base station setting. RMC 12.2kps is used for this testing, and KDB 971168 D01 Power Meas License Digital System as the supplemental test methodology to adjust the proper setting obtaining the measurement results.

All LTE bands conducted average power is obtained from the simulator telecommunication test set.

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# 6.4 Determining ERP and/or EIRP from conducted RF output power measurements

According to KDB 412172 D01 Power Approach,

 $EIRP = P_{\tau} + G_{\tau} - L_c$ 

ERP= EIRP-2.15,

Where:

ERP or EIRP	<ul> <li>effective radiated power or equivalent isotropically radiated power (expressed in the same units as PT, typically dBW, dBm, or power spectral density (PSD)2), relative to either a dipole antenna (ERP) or an isotropic antenna (EIRP);</li> </ul>
Ρτ	= transmitter output power, expressed in dBW, dBm, or PSD;
Gτ Lc	<ul> <li>gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP);</li> <li>signal attenuation in the connecting cable between the transmitter and antenna, in dB.</li> </ul>

#### 6.5 **Measurement Equipment Used**

Conduc	Conducted Emission (measured at antenna port) Test Site										
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.						
DC Power Supply	Agilent	E3640A	MY40005907	10/22/2019	10/21/2020						
Radio Communication Analyer	Anritsu	MT8815B	6200711454	04/01/2020	03/31/2021						
Radio Communication Analyer	Anritsu	MT8820C	6200995019	04/01/2020	03/31/2021						

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# 6.6 WCDMA & HSPA Measurement Results:

The following tests were completed according to the test requirements outlined in section 5.2 of the 3GPP TS34.121-1 specification. The EUT supports power Class 3, which has a nominal maximum output power of 24 dBm (+1.7/-3.7). RMC 12.2kps is used for this testing. WCDMA/HSUPA/HSDPA Band II Result:

EUT Mode	Freq. (MHz)	СН	Conducted Avg. Power (dBm)	Antenna Gain (dBi)	ERP (dBm)	EIRP (dBm)	Limit (dBm)	Margin (dB)
	1852.4	9262	23.10	2.95	23.90	26.05	33.00	-6.95
WCDMA	1880.0	9400	23.05	2.95	23.85	26.00	33.00	-7.00
	1907.6	9538	23.10	2.95	23.90	26.05	33.00	-6.95
	1852.4	9262	23.03	2.95	23.83	25.98	33.00	-7.02
HSDPA	1880.0	9400	22.99	2.95	23.79	25.94	33.00	-7.06
	1907.6	9538	22.99	2.95	23.79	25.94	33.00	-7.06
	1852.4	9262	22.91	2.95	23.71	25.86	33.00	-7.14
HSUPA	1880.0	9400	22.89	2.95	23.69	25.84	33.00	-7.16
	1907.6	9538	22.81	2.95	23.61	25.76	33.00	-7.24

WCDMA/HSUPA/HSDPA Band V Result:

EUT Mode	Freq. (MHz)	СН	Conducted Avg. Power (dBm)	Avg. Power Gain		EIRP (dBm)	Limit (dBm)	Margin (dB)
	826.4	4132	23.13	0.41	21.39	23.54	38.50	-14.96
WCDMA	836.6	4183	23.11	0.41	21.37	23.52	38.50	-14.98
	846.6	4233	23.27	0.41	21.53	23.68	38.50	-14.82
	826.4	4132	23.02	0.41	21.28	23.43	38.50	-15.07
HSDPA	836.6	4183	23.08	0.41	21.34	23.49	38.50	-15.01
	846.6	4233	23.17	0.41	21.43	23.58	38.50	-14.92
	826.4	4132	23.00	0.41	21.26	23.41	38.50	-15.09
HSUPA	836.6	4183	23.09	0.41	21.35	23.50	38.50	-15.00
	846.6	4233	23.14	0.41	21.40	23.55	38.50	-14.95

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# 6.6.1 HSPA (HSDPA & HSUPA) Release 6:

The following 4 Sub-Tests were completed according to the test requirements outlined in section 5.2A of the 3GPP TS34.121-1 specification. All TX RMS power requirements for Power Class 3 were met according to table 5.2AA.5 and 5.2B.5 All UE channels and power ratio's are set according to table C10.1.4 & C11.1.3 in the 3GPP TS34.121-1. RMC 12.2kps is used for this testing.

# 6.6.2 HSDPA SUB-TEST Setting

Table C.10.1.4: β values for transmitter characteristics tests with HS-DPCCH(FOR HSDPA)

Sub-test	βc	βd	β <sub>d</sub> (SF)			CM (dB) (Note 3)	MPR (dB) (Note 3)	RMC (Kbps)
1	2/15	15/15	64	2/15	4/15	0.0	0.0	12.2
2	12/15 (Note 4)	15/15 (Note 4)	64	12/15 (Note 4)	24/15	1.0	0.0	12.2
3	15/15	8/15	64	15/8	30/15	1.5	0.5	12.2
4	15/15	4/15	64	15/4	30/15	1.5	0.5	12.2

Note: The recommended HSDPA MPRs are implemented as per following sub-tests.

Mode	Sub test	Ανς	Avg. Power (dBm) Channel						
	1031	9262.00	9400.00	9538.00					
	1	23.03	22.99	22.99					
HSDPA II	2	22.57	22.56	22.57					
NJOPA II	3	22.09	22.11	22.08					
	4	21.85	21.84	21.87					

Mode	Sub test	Avg. Power (dBm) Channel						
	1031	4132.00	4183.00	4233.00				
	1	23.02	23.08	23.17				
HSDPA V	2	22.54	22.58	22.71				
ΠΟΟΡΑ Υ	3	22.04	22.14	22.22				
	4	21.77	21.89	21.98				

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# 6.6.3 HSPA SUB-TEST Setting

Table C.11.1.3:  $\beta$  values for transmitter characteristics tests with HS-DPCCH and E-DCH(FOR HSUPA)

Sub- test	βc	βa	β <sub>d</sub> (SF)	βc/βd	βнs	ßec	βed	β <sub>ed</sub> (SF)	β <sub>ed</sub> (Code s)	CM (dB)	MPR (dB)	AG Index	E-TFCI	RMC (Kbps )
1	11/15 (Note 3)	15/15 (Note 3)	64	11/15 (Note 3)	22/15	209/22 5	1309/225	4	1	1.0	0.0	20	75	12.2
2	6/15	15/15	64	6/15	12/15	12/15	94/75	4	1	3.0	2.0	12	67	12.2
3	15/15	9/15	64	15/9	30/15	30/15	β <sub>ed</sub> 1: 47/15 β <sub>ed</sub> 2: 47/15	4 4	2	2.0	1.0	15	92	12.2
4	2/15	15/15	64	2/15	4/15	2/15	56/75	4	1	3.0	2.0	17	71	12.2
5	15/15 (Note 4)	15/15 (Note 4)	64	15/15 (Note 4)	30/15	24/15	134/15	4	1	1.0	0.0	21	81	12.2

Note: The recommended HSUPA MPRs are implemented as per following sub-tests.

	Cul	Av	g. Power (dB	Sm)
Mode	Sub test		Channel	
	1031	9262.00	9400.00	9538.00
	1	22.91	22.89	22.81
	2	22.42	22.44	22.45
HSUPA II	3	21.95	22.03	22.00
	4	22.42	22.48	22.46
	5	22.44	22.51	22.50

	Sub	Avg. Power (dBm)							
Mode	test	Channel							
	1051	4132.00	4183.00	4233.00					
	1	23.00	23.09	23.14					
	2	22.65	22.68	22.70					
HSUPA V	3	22.21	22.21	22.26					
	4	22.70	22.62	22.75					
	5	22.72	22.66	22.71					

# 6.6.4 WCDMA/HSDPA/HSUPA band II, V

The EUT output power was controlled by simulator and enter max rated power 24dBm. The EUT is going to be set to max output power to 24dBm then record the read. The min. power was measures by a function key "minimum power" then record the read. It is -52.3dBm. The power variation can be 0.1dB step by setting.

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#### **LTE Measurement Results:** 6.7

Antenna gain (dBi) 3.01

			LTE Band 2_	Uplin	k freque	ency band : 185	0 to 1910 MHz		
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				1	0	21.67	24.68	33	-8.32
18607	1850.7	QPSK	1	5	21.81	24.82	33	-8.18	
	10007	1030.7	UP SIX	3	2	21.86	24.87	33	-8.13
				6	0	20.88	23.89	33	-9.11
				1	0	21.02	24.03	33	-8.97
	18900	1880	QPSK	1	5	21.19	24.20	33	-8.8
	10700	1000	UP SIX	3	2	21.90	24.91	33	-8.09
				6	0	20.84	23.85	33	-9.15
				1	0	21.80	24.81	33	-8.19
	19193	1909.3	QPSK	1	5	21.66	24.67	33	-8.33
	17175			3	2	21.84	24.85	33	-8.15
1.4				6	0	20.84	23.85	33	-9.15
1.4				1	0	21.13	24.14	33	-8.86
	18607	1850.7	16QAM	1	5	21.03	24.04	33	-8.96
	10007	1030.7	TOQAIN	3	2	20.85	23.86	33	-9.14
				6	0	19.90	22.91	33	-10.09
				1	0	20.63	23.64	33	-9.36
	18900	1880	16QAM	1	5	20.78	23.79	33	-9.21
	10700	1000	TUQAIN	3	2	20.28	23.29	33	-9.71
				6	0	19.93	22.94	33	-10.06
				1	0	21.13	24.14	33	-8.86
	19193	1909.3	16QAM	1	5	20.10	23.11	33	-9.89
	17175	1707.3		3	2	20.91	23.92	33	-9.08
				6	0	19.97	22.98	33	-10.02

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### Report No.: ER/2020/50029 Page 22 of 174

Antenna gain (dBi) 3.01

			LTE Band 2	_Uplinl	k freque	ency band : 1850	0 to 1910 MHz		
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				1	0	21.87	24.88	33	-8.12
	18615	1851.5	QPSK	1	14	21.52	24.53	33	-8.47
	10010	1001.0	ULDY	8	4	20.80	23.81	33	-9.19
				15	0	20.84	23.85	33	-9.15
				1	0	21.58	24.59	33	-8.41
	18900	1880	QPSK	1	14	21.72	24.73	33	-8.27
	10900	1000	UPSK	8	4	20.83	23.84	33	-9.16
				15	0	20.85	23.86	33	-9.14
				1	0	21.72	24.73	33	-8.27
	19185	1908.5	QPSK	1	14	21.80	24.81	33	-8.19
	19100	1900.0	ULDV	8	4	20.88	23.89	33	-9.11
3				15	0	20.87	23.88	33	-9.12
5				1	0	21.09	24.10	33	-8.9
	18615	1851.5	16QAM	1	14	20.91	23.92	33	-9.08
	10010	1001.0	TOQAIVI	8	4	19.84	22.85	33	-10.15
				15	0	19.94	22.95	33	-10.05
				1	0	20.69	23.70	33	-9.3
	18900	1880	16QAM	1	14	20.99	24.00	33	-9
	10900	1000	TOQAIVI	8	4	19.83	22.84	33	-10.16
				15	0	19.98	22.99	33	-10.01
				1	0	21.22	24.23	33	-8.77
	1010F	1908.5	1400.0	1	14	20.92	23.93	33	-9.07
	19185	1900.0	16QAM	8	4	19.91	22.92	33	-10.08
				15	0	20.02	23.03	33	-9.97

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### Report No.: ER/2020/50029 Page 23 of 174

Antenna gain (dBi)

3.01

			LTE Band 2	Uplin	k freque	ency band : 1850	0 to 1910 MHz		
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				1	0	21.46	24.47	33	-8.53
	18625	1852.5	QPSK	1	24	21.57	24.58	33	-8.42
	10025	1052.5	QUSIC	12	6	20.83	23.84	33	-9.16
				25	0	20.85	23.86	33	-9.14
				1	0	21.46	24.47	33	-8.53
	18900	00 1880	QPSK	1	24	21.51	24.52	33	-8.48
	10700	1000	UP SIX	12	6	20.66	23.67	33	-9.33
				25	0	20.84	23.85	33	-9.15
				1	0	21.95	24.96	33	-8.04
	19175	1907.5	QPSK	1	24	20.96	23.97	33	-9.33 -9.15 -8.04 -9.03 -9.08 -9.07 -9.29 -9.75
	17175	1707.3	UP SIX	12	6	20.91	23.92	33	
5				25	0	20.92	23.93	33	-9.07
5				1	0	20.70	23.71	33	-9.29
	18625	1852.5	16QAM	1	24	20.24	23.25	33	-9.75
	10025	1052.5		12	6	19.88	22.89	33	-10.11
				25	0	19.82	22.83	33	-10.17
				1	0	20.88	23.89	33	-9.11
	18900	1880	16QAM	1	24	20.94	23.95	33	(dB) -8.53 -8.42 -9.16 -9.14 -8.53 -8.48 -9.33 -9.15 -8.04 -9.03 -9.03 -9.07 -9.07 -9.29 -9.75 -10.11 -10.17
	10700	1000	TUQAIN	12	6	19.89	22.90	33	-10.1
				25	0	19.93	22.94	33	-10.06
				1	0	21.31	24.32	33	-8.68
	19175	1907.5	16QAM	1	24	21.29	24.30	33	-8.7
	17175	1707.5		12	6	19.95	22.96	33	-10.04
				25	0	19.99	23.00	33	-10

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### Report No.: ER/2020/50029 Page 24 of 174

Antenna gain (dBi)

3.01

			LTE Band 2_	Uplin	k freque	ency band : 1850	0 to 1910 MHz		
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				1	0	21.04	24.05	33	-8.95
	18650	1855	QPSK	1	49	20.94	23.95	33	-9.05
	10030	1033	UF SK	25	12	20.75	23.76	33	-9.24
				50	0	20.83	23.84	33	-9.16
			QPSK	1	0	21.14	24.15	33	-8.85
	18900	1880		1	49	20.86	23.87	33	-9.13
	10900	1000	UF SK	25	12	19.84	22.85	33	-10.15
				50	0	20.91	23.92	33	-9.08
		1905	QPSK	1	0	21.33	24.34	33	-8.66
	19150			1	49	21.82	24.83	33	-8.17
	17130			25	12	20.85	23.86	33	-9.14
10				50	0	20.93	23.94	33	-9.06
10				1	0	20.37	23.38	33	-9.62
	18650	1855	16QAM	1	49	19.14	22.15	33	-10.85
	10030	1000	TOQAM	25	12	19.81	22.82	33	-10.18
				50	0	19.89	22.90	33	-10.1
				1	0	19.53	22.54	33	-10.46
	18900	1880	16QAM	1	49	20.18	23.19	33	-9.81
	10700	1000		25	12	19.90	22.91	33	-10.09
				50	0	19.94	22.95	33	-10.05
				1	0	20.75	23.76	33	-9.24
	19150	1905	16QAM	1	49	19.08	22.09	33	-10.91
	17130	1905		25	12	19.89	22.90	33	-10.1
				50	0	19.93	22.94	33	-10.06

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### Report No.: ER/2020/50029 Page 25 of 174

Antenna gain (dBi)

3.01

			LTE Band 2_	Uplin	k freque	ency band : 185	0 to 1910 MHz		
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				1	0	21.26	24.27	33	-8.73
	18675	1857.5	QPSK	1	74	21.00	24.01	33	-8.99
	10075	1037.3	UP SIX	36	18	19.63	22.64	33	-10.36
				75	0	21.12	24.13	33	-8.87
				1	0	22.44	25.45	33	-7.55
	18900	1880	QPSK	1	74	20.95	23.96	33	-9.04
	10900	1000	UFJK	36	18	20.89	23.90	33	-9.1
				75	0	20.98	23.99	33	-9.01
		1902.5	QPSK	1	0	22.57	25.58	33	-7.42
	19125			1	74	20.84	23.85	33	-9.15
	19120			36	18	21.10	24.11	33	-8.89
15				75	0	21.16	24.17	33	-8.83
15				1	0	20.55	23.56	33	-9.44
	18675	1857.5	16QAM	1	74	20.23	23.24	33	-9.76
	10075	1037.3	TOQAIN	36	18	20.05	23.06	33	-9.94
				75	0	20.17	23.18	33	-9.82
				1	0	20.65	23.66	33	-9.34
	18900	1880	16QAM	1	74	20.15	23.16	33	-9.84
	10900	1000	TOQAIVI	36	18	19.93	22.94	33	-10.06
				75	0	19.97	22.98	33	-10.02
				1	0	20.76	23.77	33	-9.23
	19125	1002.5	160AM	1	74	20.14	23.15	33	-9.85
	1712J	1902.5	16QAM	36	18	20.11	23.12	33	-9.88
				75	0	20.20	23.21	33	-9.79

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### Report No.: ER/2020/50029 Page 26 of 174

Antenna gain (dBi)

3.01

			LTE Band 2_	_Uplinl	k freque	ency band : 1850	0 to 1910 MHz		
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				1	0	22.34	25.35	33	-7.65
	18700	1860	QPSK	1	99	20.65	23.66	33	-9.34
	10700	1000	UFSK	50	25	21.02	24.03	33	-8.97
				100	0	21.19	24.20	33	-8.8
			QPSK	1	0	22.29	25.30	33	-7.7
	18900	1880		1	99	21.71	24.72	33	-8.28
	10900	1000	UFSK	50	25	19.76	22.77	33	-10.23
				100	0	20.92	23.93	33	-9.07
			QPSK	1	0	22.45	25.46	33	-7.54
	19100	1900		1	99	21.66	24.67	33	-8.33
	17100	1700		50	25	20.07	23.08	33	-9.92
20				100	0	21.21	24.22	33	-8.78
20				1	0	21.61	24.62	33	-8.38
	18700	1860	16QAM	1	99	19.06	22.07	33	-10.93
	10700	1000		50	25	20.05	23.06	33	-9.94
				100	0	20.21	23.22	33	-9.78
				1	0	20.66	23.67	33	-9.33
	18900	1880	16QAM	1	99	20.01	23.02	33	-9.98
	10700	1000		50	25	18.82	21.83	33	-11.17
				100	0	19.94	22.95	33	-10.05
				1	0	21.77	24.78	33	-8.22
	19100	1900	16OAM	1	99	21.05	24.06	33	-8.94
	17100	1900	16QAM	50	25	19.09	22.10	33	-10.9
				100	0	20.24	23.25	33	-9.75

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Antenna ga	ain (dBi)	-5.47							
		LTE Bar	nd 4_Uplink	freque	ncy bar	nd : 1710 to	1755 MHz		
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducte d Average	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				1	0	21.72	16.25	30	-13.75
	19957	1710.7	QPSK	1	5	21.71	16.24	30	-13.76
	19907	1710.7	UPSK	3	2	22.16	16.69	30	-13.31
				6	0	21.01	15.54	30	-14.46
				1	0	21.53	16.06	30	-13.94
	20175	1732.5	QPSK	1	5	21.78	16.31	30	-13.69
	20175	1752.5	UF SK	3	2	21.79	16.32	30	-13.68
				6	0	20.80	15.33	30	-14.67
		1754.3	QPSK	1	0	22.23	16.76	30	-13.24
	20393			1	5	22.22	16.75	30	-13.25
				3	2	22.20	16.73	30	-13.27
1.4				6	0	21.19	15.72	30	-14.28
1.7				1	0	20.88	15.41	30	-14.59
	19957	1710.7	16QAM	1	5	21.14	15.67	30	-14.33
	17757	1710.7		3	2	21.09	15.62	30	-14.38
				6	0	20.09	14.62	30	-15.38
				1	0	20.99	15.52	30	-14.48
	20175	1732.5	16QAM	1	5	20.99	15.52	30	-14.48
	20175	1752.5		3	2	20.82	15.35	30	-14.65
				6	0	19.92	14.45	30	-15.55
		20393 1754.3		1	0	21.33	15.86	30	-14.14
	20202		16 <b>∩</b> ΔM	1	5	20.93	15.46	30	-14.54
	20070		16QAM	3	2	20.91	15.44	30	-14.56
				6	0	20.15	14.68	30	-15.32



Antenna ga	ain (dBi)	-5.47							
		LTE Bar	nd 4_Uplink i	freque	ncy bar	nd : 1710 to	1755 MHz		
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducte d Average	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				1	0	22.04	16.57	30	-13.43
	19965	1711.5	QPSK	1	14	21.53	16.06	30	-13.94
	17700	1711.5	UF 3N	8	4	20.97	15.50	30	-14.5
				15	0	20.95	15.48	30	-14.52
				1	0	21.42	15.95	30	-14.05
	20175	1732.5	QPSK	1	14	21.70	16.23	30	-13.77
	20175	1752.5	QLOK	8	4	20.67	15.20	30	-14.8
			[[	15	0	19.98	14.51	30	-15.49
	20385		QPSK	1	0	22.18	16.71	30	-13.29
		1753.5		1	14	22.04	16.57	30	-13.43
				8	4	21.15	15.68	30	-14.32
3				15	0	21.18	15.71	30	-14.29
5				1	0	21.37	15.90	30	-14.1
	19965	1711.5	16QAM	1	14	20.47	15.00	30	-15
	17703	1711.5		8	4	20.01	14.54	30	-15.46
				15	0	19.97	14.50	30	-15.5
				1	0	20.61	15.14	30	-14.86
	20175	1732.5	16QAM	1	14	20.91	15.44	30	-14.56
	20175	1752.5		8	4	19.77	14.30	30	-15.7
				15	0	19.71	14.24	30	-15.76
				1	0	20.96	15.49	30	-14.51
	20385	1753 5	160AM	1	14	20.59	15.12	30	-14.88
	20303	1753.5	16QAM	8	4	20.19	14.72	30	-15.28
				15	0	20.20	14.73	30	-15.27



Antenna ga	ain (dBi)	-5.47							
		LTE Bar	nd 4_Uplink i	freque	ncy bar	nd : 1710 to	1755 MHz		
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducte d Average	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				1	0	22.14	16.67	30	-13.33
	19975	1712.5	QPSK	1	24	21.47	16.00	30	-14
	19975	1712.0	ULDV	12	6	20.88	15.41	30	-14.59
				25	0	20.91	15.44	30	-14.56
				1	0	21.80	16.33	30	-13.67
	20175	1732.5	QPSK	1	24	21.69	16.22	30	-13.78
	20175	1752.5	UFJK	12	6	20.73	15.26	30	-14.74
				25	0	20.45	14.98	30	-15.02
	20375	1752.5	QPSK	1	0	22.31	16.84	30	-13.16
				1	24	22.03	16.56	30	-13.44
				12	6	21.16	15.69	30	-14.31
5				25	0	21.14	15.67	30	-14.33
5				1	0	20.83	15.36	30	-14.64
	19975	1712.5	16QAM	1	24	20.98	15.51	30	-14.49
	17775	1712.5		12	6	19.93	14.46	30	-15.54
				25	0	19.79	14.32	30	-15.68
				1	0	21.21	15.74	30	-14.26
	20175	1732 5	16QAM	1	24	20.58	15.11	30	-14.89
	20175       1732.5         20375       1752.5	1752.5		12	6	19.78	14.31	30	-15.69
				25	0	19.69	14.22	30	-15.78
			1	0	21.74	16.27	30	-13.73	
		1752 5	752.5 16QAM	1	24	21.44	15.97	30	-14.03
		1752.5		12	6	20.13	14.66	30	-15.34
				25	0	20.13	14.66	30	-15.34



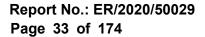
Antenna ga	ain (dBi)	-5.47							
		LTE Bar	nd 4_Uplink i	freque	ncy ban	id : 1710 to	1755 MHz		
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducte d Average	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				1	0	21.15	15.68	30	-14.32
	20000	1715	QPSK	1	49	21.75	16.28	30	-13.72
	20000	1715	ULDV	25	12	19.91	14.44	30	-15.56
				50	0	19.86	14.39	30	-15.61
				1	0	21.08	15.61	30	-14.39
	20175	1732.5	QPSK	1	49	21.76	16.29	30	-13.71
	20175	1752.5	UF 3K	25	12	20.78	15.31	30	-14.69
				50	0	19.75	14.28	30	-15.72
		1750	QPSK	1	0	21.42	15.95	30	-14.05
	20375			1	49	21.29	15.82	30	-14.18
				25	12	21.21	15.74	30	-14.26
10				50	0	21.21	15.74	30	-14.26
10				1	0	20.46	14.99	30	-15.01
	20000	1715	16QAM	1	49	20.05	14.58	30	-15.42
	20000	1715		25	12	19.91	14.44	30	-15.56
				50	0	18.94	13.47	30	-16.53
				1	0	20.38	14.91	30	-15.09
	20175	1732.5	16QAM	1	49	19.06	13.59	30	-16.41
	20175	1752.5	TOQAIN	25	12	19.78	14.31	30	-15.69
			50	0	18.82	13.35	30	-16.65	
				1	0	20.67	15.20	30	-14.8
	20375 1750	1750	16QAM	1	49	20.40	14.93	30	-15.07
		1750	16QAM	25	12	19.13	13.66	30	-16.34
				50	0	20.14	14.67	30	-15.33



Antenna ga	ain (dBi)	-5.47							
		LTE Bar	nd 4_Uplink i	freque	ncy ban	d : 1710 to	1755 MHz		
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducte d Average	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
				1	0	22.43	16.96	30	-13.04
	20025	1717.5	QPSK	1	74	21.79	16.32	30	-13.68
	20025	1717.5	UPSK	36	18	20.86	15.39	30	-14.61
				75	0	20.94	15.47	30	-14.53
				1	0	21.18	15.71	30	-14.29
	20175	1732.5	QPSK	1	74	21.72	16.25	30	-13.75
	20175	1752.5	QI SK	36	18	19.73	14.26	30	-15.74
				75	0	20.85	15.38	30	-14.62
	20325		QPSK	1	0	21.36	15.89	30	-14.11
		1747.5		1	74	21.10	15.63	30	-14.37
				36	18	19.79	14.32	30	-15.68
15				75	0	21.24	15.77	30	-14.23
10				1	0	20.63	15.16	30	-14.84
	20025	1717.5	16QAM	1	74	19.99	14.52	30	-15.48
	20025	1717.5	TOCAM	36	18	18.87	13.40	30	-16.6
				75	0	19.88	14.41	30	-15.59
				1	0	20.44	14.97	30	-15.03
	20175	1732.5	16QAM	1	74	19.00	13.53	30	-16.47
	20170	1702.0	1002/101	36	18	18.73	13.26	30	-16.74
				75	0	18.89	13.42	30	-16.58
			1	0	20.60	15.13	30	-14.87	
	20325	1747.5	160AM	1	74	20.33	14.86	30	-15.14
	20020	1747.5	16QAM	36	18	20.09	14.62	30	-15.38
				75	0	20.19	14.72	30	-15.28



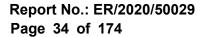
Antenna gain (dBi) -5.47 LTE Band 4_Uplink frequency band : 1710 to 1755 MHz											
		LTE Bar	nd 4_Uplink i	freque	ncy bar	nd : 1710 to	1755 MHz				
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducte d Average	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)		
				1	0	22.24	16.77	30	-13.23		
	20050	1720	QPSK	1	99	21.41	15.94	30	-14.06		
	20030	1720	UFJK	50	25	20.69	15.22	30	-14.78		
				100	0	20.83	15.36	30	-14.64		
				1	0	22.22	16.75	30	-13.25		
	20175	1732.5	QPSK	1	99	21.65	16.18	30	-13.82		
	20175	1752.5	QF SK	50	25	20.74	15.27	30	-14.73		
				100	0	19.84	14.37	30	-15.63		
		1745	QPSK	1	0	22.20	16.73	30	-13.27		
	20300			1	99	21.77	16.30	30	-13.7		
				50	25	19.96	14.49	30	-15.51		
20				100	0	21.19	15.72	30	-14.28		
20				1	0	21.63	16.16	30	-13.84		
	20050	1720	16QAM	1	99	19.71	14.24	30	-15.76		
	20000	1720	100/101	50	25	18.64	13.17	30	-16.83		
				100	0	18.76	13.29	30	-16.71		
				1	0	21.56	16.09	30	-13.91		
	20175	1732.5	16QAM	1	99	19.12	13.65	30	-16.35		
	20175	1752.5	TOQAM	50	25	18.72	13.25	30	-16.75		
			100	0	19.82	14.35	30	-15.65			
				1	0	21.60	16.13	30	-13.87		
	20300 1745	160AM	1	99	20.13	14.66	30	-15.34			
	20300	1745	16QAM	50	25	18.99	13.52	30	-16.48		
				100	0	20.05	14.58	30	-15.42		





	LTE Band 5_Uplink frequency band : 824 to 849 MHz													
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	ERP Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)				
				1	0	21.15	19.41	21.56	38.45	-16.89				
	20407	824.7	QPSK	1	5	21.81	20.07	22.22	38.45	-16.23				
	20407	024.7	UF 3K	3	2	21.77	20.03	22.18	38.45	-16.27				
				6	0	20.46	18.72	20.87	38.45	-17.58				
				1	0	21.61	19.87	22.02	38.45	-16.43				
	20525	836.5	QPSK	1	5	21.90	20.16	22.31	38.45	-16.14				
	20323	030.3	QUUIK	3	2	21.90	20.16	22.31	38.45	-16.14				
				6	0	20.84	19.10	21.25	38.45	-17.2				
	20643 848.3		1	0	21.56	19.82	21.97	38.45	-16.48					
		848.3	QPSK	1	5	21.77	20.03	22.18	38.45	-16.27				
	20043	040.3		3	2	21.81	20.07	22.22	38.45	-16.23				
1.4				6	0	20.52	18.78	20.93	38.45	-17.52				
1.7				1	0	20.60	18.86	21.01	38.45	-17.44				
	20407	824.7	16QAM	1	5	20.62	18.88	21.03	38.45	-17.42				
	20407	024.7	1002/101	3	2	19.87	18.13	20.28	38.45	-18.17				
				6	0	19.82	18.08	20.23	38.45	-18.22				
				1	0	21.07	19.33	21.48	38.45	-16.97				
	20525	836.5	16QAM	16QAM	16QAM	16QAM	16QAM	1	5	21.22	19.48	21.63	38.45	-16.82
	20020	000.0						16QAM	16QAM	16QAM	16QAM	3	2	20.63
				6	0	20.02	18.28	20.43	38.45	-18.02				
			1	0	20.91	19.17	21.32	38.45	-17.13					
	20643	848 3	848.3 16QAM	1	5	20.84	19.10	21.25	38.45	-17.2				
	20010	010.0		3	2	20.62	18.88	21.03	38.45	-17.42				
			6	0	19.93	18.19	20.34	38.45	-18.11					

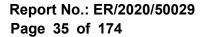
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	LTE Band 5_Uplink frequency band : 824 to 849 MHz												
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	ERP Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)			
				1	0	21.39	19.65	21.80	38.45	-16.65			
	20415	825.5	QPSK	1	14	21.65	19.91	22.06	38.45	-16.39			
	20410	020.0	ULDV	8	4	20.69	18.95	21.10	38.45	-17.35			
				15	0	20.43	18.69	20.84	38.45	-17.61			
			QPSK	1	0	21.69	19.95	22.10	38.45	-16.35			
	20525	836.5		1	14	21.70	19.96	22.11	38.45	-16.34			
	20525	030.5	UF SK	8	4	20.81	19.07	21.22	38.45	-17.23			
				15	0	20.81	19.07	21.22	38.45	-17.23			
				1	0	21.54	19.80	21.95	38.45	-16.5			
	20635 847.	847.5	QPSK	1	14	21.43	19.69	21.84	38.45	-16.61			
	20033	047.5	QPSK	8	4	20.78	19.04	21.19	38.45	-17.26			
3				15	0	20.79	19.05	21.20	38.45	-17.25			
5				1	0	20.56	18.82	20.97	38.45	-17.48			
	20415	825.5	16QAM	1	14	20.59	18.85	21.00	38.45	-17.45			
	20413	020.0	TOCAIN	8	4	19.85	18.11	20.26	38.45	-18.19			
				15	0	19.84	18.10	20.25	38.45	-18.2			
				1	0	20.98	19.24	21.39	38.45	-17.06			
	20525	836.5	16QAM	1	14	20.72	18.98	21.13	38.45	-17.32			
	20525	030.5	TOCAM	8	4	19.96	18.22	20.37	38.45	-18.08			
			15	0	19.97	18.23	20.38	38.45	-18.07				
			1	0	20.70	18.96	21.11	38.45	-17.34				
	20635	847.5	16QAM	1	14	20.85	19.11	21.26	38.45	-17.19			
	20000	017.0		8	4	19.91	18.17	20.32	38.45	-18.13			
		-	15	0	19.91	18.17	20.32	38.45	-18.13				

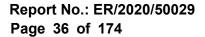
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	LTE Band 5_Uplink frequency band : 824 to 849 MHz																
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	ERP Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)							
				1	0	21.41	19.67	21.82	38.45	-16.63							
	20425	826.5	QPSK	1	24	21.68	19.94	22.09	38.45	-16.36							
	20420	020.0	ULDY	12	6	20.72	18.98	21.13	38.45	-17.32							
				25	0	20.73	18.99	21.14	38.45	-17.31							
				1	0	21.79	20.05	22.20	38.45	-16.25							
	20525	836.5	QPSK	1	24	21.66	19.92	22.07	38.45	-16.38							
	20020	030.5	UF SK	12	6	20.76	19.02	21.17	38.45	-17.28							
				25	0	20.78	19.04	21.19	38.45	-17.26							
			1	0	21.58	19.84	21.99	38.45	-16.46								
	20625	846.5	QPSK	1	24	21.30	19.56	21.71	38.45	-16.74							
	20025	040.0		12	6	20.73	18.99	21.14	38.45	-17.31							
5				25	0	20.46	18.72	20.87	38.45	-17.58							
5				1	0	21.13	19.39	21.54	38.45	-16.91							
	20425	826.5	16QAM	1	24	21.01	19.27	21.42	38.45	-17.03							
	20423	020.5	TOCAIN	12	6	19.84	18.10	20.25	38.45	-18.2							
				25	0	19.85	18.11	20.26	38.45	-18.19							
				1	0	20.77	19.03	21.18	38.45	-17.27							
	20525	836.5	16OAM	16QAM	16 <b>0</b> M	160AM	160AM	160AM	16001	16001	1	24	20.61	18.87	21.02	38.45	-17.43
	20020	030.5	TOCAIN	12	6	19.92	18.18	20.33	38.45	-18.12							
				25	0	19.83	18.09	20.24	38.45	-18.21							
			1	0	20.80	19.06	21.21	38.45	-17.24								
	20625	846.5		1	24	20.84	19.10	21.25	38.45	-17.2							
	20020	010.0		12	6	19.79	18.05	20.20	38.45	-18.25							
			25	0	19.81	18.07	20.22	38.45	-18.23								

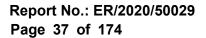
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LTE Band 5_Uplink frequency band : 824 to 849 MHz										
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	ERP Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
10	20450	829	QPSK	1	0	21.65	19.91	22.06	38.45	-16.39
				1	49	21.64	19.90	22.05	38.45	-16.4
				25	12	20.70	18.96	21.11	38.45	-17.34
				50	0	20.70	18.96	21.11	38.45	-17.34
	20525	836.5	QPSK	1	0	21.82	20.08	22.23	38.45	-16.22
				1	49	21.66	19.92	22.07	38.45	-16.38
				25	12	18.91	17.17	19.32	38.45	-19.13
				50	0	20.81	19.07	21.22	38.45	-17.23
	20600	844	QPSK	1	0	21.70	19.96	22.11	38.45	-16.34
				1	49	20.57	18.83	20.98	38.45	-17.47
				25	12	19.78	18.04	20.19	38.45	-18.26
				50	0	19.81	18.07	20.22	38.45	-18.23
	20450	829	16QAM	1	0	20.14	18.40	20.55	38.45	-17.9
				1	49	19.20	17.46	19.61	38.45	-18.84
				25	12	19.82	18.08	20.23	38.45	-18.22
				50	0	18.85	17.11	19.26	38.45	-19.19
	20525	836.5	16QAM	1	0	19.29	17.55	19.70	38.45	-18.75
				1	49	19.18	17.44	19.59	38.45	-18.86
				25	12	19.91	18.17	20.32	38.45	-18.13
				50	0	20.00	18.26	20.41	38.45	-18.04
	20600	844	16QAM	1	0	20.16	18.42	20.57	38.45	-17.88
				1	49	19.17	17.43	19.58	38.45	-18.87
				25	12	19.83	18.09	20.24	38.45	-18.21
				50	0	19.82	18.08	20.23	38.45	-18.22

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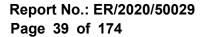
	LTE Band 12_Uplink frequency band : 699 to 716 MHz											
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	ERP Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)		
				1	0	21.37	20.01	22.16	34.77	-12.61		
	23017	699.7	QPSK	1	5	22.00	20.64	22.79	34.77	-11.98		
	23017	077.7	UP SIX	3	2	22.04	20.68	22.83	34.77	-11.94		
				6	0	21.00	19.64	21.79	34.77	-12.98		
				1	0	21.90	20.54	22.69	34.77	-12.08		
	23095	707.5	QPSK	1	5	21.92	20.56	22.71	34.77	-12.06		
2305	23075	101.5	UP SK	3	2	21.93	20.57	22.72	34.77	-12.05		
				6	0	20.93	19.57	21.72	34.77	-13.05		
	23173	715.5		1	0	22.07	20.71	22.86	34.77	-11.91		
			QPSK	1	5	22.03	20.67	22.82	34.77	-11.95		
				3	2	22.04	20.68	22.83	34.77	-11.94		
1.4				6	0	21.07	19.71	21.86	34.77	-12.91		
1.4			16QAM	1	0	20.82	19.46	21.61	34.77	-13.16		
	23017	699.7		1	5	20.97	19.61	21.76	34.77	-13.01		
	23017	077.7		3	2	20.87	19.51	21.66	34.77	-13.11		
				6	0	20.05	18.69	20.84	34.77	-13.93		
				1	0	21.09	19.73	21.88	34.77	-12.89		
	23095	707.5	16QAM	1	5	21.32	19.96	22.11	34.77	-12.66		
	23075	101.5		3	2	20.41	19.05	21.20	34.77	-13.57		
				6	0	20.00	18.64	20.79	34.77	-13.98		
				1	0	21.22	19.86	22.01	34.77	-12.76		
	23173	715.5	16QAM	1	5	21.18	19.82	21.97	34.77	-12.8		
	23173	110.0		3	2	20.14	18.78	20.93	34.77	-13.84		
				6	0	20.04	18.68	20.83	34.77	-13.94		

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	LTE Band 12_Uplink frequency band : 699 to 716 MHz											
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	ERP Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)		
				1	0	21.83	20.47	22.62	34.77	-12.15		
	23025	700.5	QPSK	1	14	21.87	20.51	22.66	34.77	-12.11		
	23025	700.5	UFSK	8	4	20.97	19.61	21.76	34.77	-13.01		
	23095 707.5			15	0	20.96	19.60	21.75	34.77	-13.02		
				1	0	21.77	20.41	22.56	34.77	-12.21		
		QPSK	1	14	21.48	20.12	22.27	34.77	-12.5			
23073 7	101.5	UF SK	8	4	20.90	19.54	21.69	34.77	-13.08			
				15	0	20.93	19.57	21.72	34.77	-13.05		
	23165	714.5	QPSK	1	0	21.79	20.43	22.58	34.77	-12.19		
				1	14	21.72	20.36	22.51	34.77	-12.26		
				8	4	21.09	19.73	21.88	34.77	-12.89		
3				15	0	20.99	19.63	21.78	34.77	-12.99		
5			16QAM	1	0	21.19	19.83	21.98	34.77	-12.79		
	23025	700.5		1	14	20.89	19.53	21.68	34.77	-13.09		
	23023	700.5		8	4	19.93	18.57	20.72	34.77	-14.05		
				15	0	19.98	18.62	20.77	34.77	-14		
				1	0	20.82	19.46	21.61	34.77	-13.16		
	23095	707.5	16QAM	1	14	20.56	19.20	21.35	34.77	-13.42		
	20070	101.5	100/101	8	4	19.92	18.56	20.71	34.77	-14.06		
				15	0	19.94	18.58	20.73	34.77	-14.04		
				1	0	20.22	18.86	21.01	34.77	-13.76		
	23165	714.5	16QAM	1	14	20.87	19.51	21.66	34.77	-13.11		
	20100	717.0		8	4	19.99	18.63	20.78	34.77	-13.99		
				15	0	20.00	18.64	20.79	34.77	-13.98		

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	LTE Band 12_Uplink frequency band : 699 to 716 MHz											
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	ERP Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)		
		701.5		1	0	21.57	20.21	22.36	34.77	-12.41		
	23035		QPSK	1	24	21.51	20.15	22.30	34.77	-12.47		
	23030	701.5	UFSK	12	6	20.97	19.61	21.76	34.77	-13.01		
				25	0	20.96	19.60	21.75	34.77	-13.02		
				1	0	21.85	20.49	22.64	34.77	-12.13		
	23095 7	707.5	QPSK	1	24	21.78	20.42	22.57	34.77	-12.2		
	23095	707.5	UPSK	12	6	20.87	19.51	21.66	34.77	-13.11		
				25	0	20.87	19.51	21.66	34.77	-13.11		
	23155	713.5		1	0	21.49	20.13	22.28	34.77	-12.49		
			QPSK	1	24	21.60	20.24	22.39	34.77	-12.38		
				12	6	20.91	19.55	21.70	34.77	-13.07		
5				25	0	21.02	19.66	21.81	34.77	-12.96		
5		701.5	16QAM	1	0	21.29	19.93	22.08	34.77	-12.69		
	23035			1	24	20.42	19.06	21.21	34.77	-13.56		
	23033	701.5		12	6	19.95	18.59	20.74	34.77	-14.03		
				25	0	19.91	18.55	20.70	34.77	-14.07		
				1	0	20.88	19.52	21.67	34.77	-13.1		
	23095	707.5	16QAM	1	24	20.77	19.41	21.56	34.77	-13.21		
	23075	101.5	TOQAIN	12	6	19.97	18.61	20.76	34.77	-14.01		
				25	0	19.85	18.49	20.64	34.77	-14.13		
				1	0	21.21	19.85	22.00	34.77	-12.77		
	23155	713.5	16QAM	1	24	20.95	19.59	21.74	34.77	-13.03		
	20100	/13.3		12	6	20.00	18.64	20.79	34.77	-13.98		
				25	0	20.00	18.64	20.79	34.77	-13.98		

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	LTE Band 12_Uplink frequency band : 699 to 716 MHz											
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	ERP Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)		
				1	0	21.88	20.52	22.67	34.77	-12.1		
	23060	704	QPSK	1	49	20.77	19.41	21.56	34.77	-13.21		
	23000	704	ULDV	25	12	19.87	18.51	20.66	34.77	-14.11		
	23095 707.5			50	0	19.88	18.52	20.67	34.77	-14.1		
				1	0	21.76	20.40	22.55	34.77	-12.22		
		707 5	QPSK	1	49	21.77	20.41	22.56	34.77	-12.21		
		707.5	ULDV	25	12	20.85	19.49	21.64	34.77	-13.13		
ļ				50	0	19.81	18.45	20.60	34.77	-14.17		
	23130	711	QPSK	1	0	21.76	20.40	22.55	34.77	-12.22		
				1	49	21.90	20.54	22.69	34.77	-12.08		
				25	12	20.94	19.58	21.73	34.77	-13.04		
10				50	0	20.96	19.60	21.75	34.77	-13.02		
10			16QAM	1	0	20.31	18.95	21.10	34.77	-13.67		
	23060	704		1	49	19.20	17.84	19.99	34.77	-14.78		
	23000	704		25	12	18.91	17.55	19.70	34.77	-15.07		
				50	0	18.89	17.53	19.68	34.77	-15.09		
				1	0	19.15	17.79	19.94	34.77	-14.83		
	23095	707.5	16QAM	1	49	20.10	18.74	20.89	34.77	-13.88		
	23073	101.5		25	12	19.90	18.54	20.69	34.77	-14.08		
				50	0	19.86	18.50	20.65	34.77	-14.12		
				1	0	19.22	17.86	20.01	34.77	-14.76		
	23130	711	16QAM	1	49	20.33	18.97	21.12	34.77	-13.65		
	20100	, 1 1		25	12	18.95	17.59	19.74	34.77	-15.03		
				50	0	19.93	18.57	20.72	34.77	-14.05		

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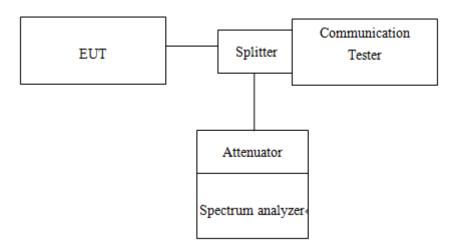


# 7 OCCUPIED BANDWIDTH MEASUREMENT

# 7.1 Standard Applicable

The occupied bandwidth is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power.

# 7.2 Test Set-up



# 7.3 Measurement Procedure

# 99% &26dB Bandwidth with detector peak

The EUT's output RF connector was connected with a short cable to the spectrum analyzer, RBW was set to about 1% of emission BW, VBW= 3 times RBW, -26dBc display line was placed on the screen (or 26dB bandwidth), the occupied bandwidth is the delta frequency between the two points where the display line intersects the signal trace. Then set RBW to 99% bandwidth, RBW= 1%, VBW= 3 RBW, with span > 2 \* Signal BW, set % Power = 99%.

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### 7.4 Measurement Equipment Used

Conduct	Conducted Emission (measured at antenna port) Test Site										
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.						
PXA Spectrum Analyzer	Agilent	N9030A	MY53120760	04/21/2020	04/20/2021						
DC Power Supply	Agilent	E3640A	MY40005907	10/22/2019	10/21/2020						
Temperature Chamber	TERCHY	MHG-120LF	911009	05/20/2020	05/19/2021						
Radio Communication Analyer	Anritsu	MT8815B	6200711454	04/01/2020	03/31/2021						
Attenuator	Mini-Circuit	BW-S10W2+	2	01/02/2020	01/01/2021						
DC Block	Mini-Circuits	BLK-18-S+	1	01/02/2020	01/01/2021						
Splitter	RF-LAMBAD	RFLT2W1G1 8G	11-JSPF412- 018	01/02/2020	01/01/2021						

### 7.5 **Measurement Result**

Erog		99	9% BW (MH	lz)	26 dB BW (MHz)			
Freq. (MHz)	СН	WCDMA II	HSDPA II	HSUPA II	WCDMA II	HSDPA II	HSUPA II	
1852.40	9262	4.07130	4.06710	4.05290	4.625	4.612	4.628	
1880.00	9400	4.06140	4.05960	4.06420	4.615	4.593	4.595	
1907.60	9538	4.06230	4.05430	4.05510	4.626	4.612	4.599	

Freq. (MHz)	СН	99	9% BW (MH	lz)	26 dB BW (MHz)			
		WCDMA	HSDPA	HSUPA	WCDMA	HSDPA	HSUPA	
		V	V	V	V	V	V	
826.40	4132	4.05660	4.05870	4.05700	4.589	4.572	4.632	
836.60	4183	4.06630	4.06970	4.06590	4.594	4.604	4.586	
846.60	4233	4.05970	4.06340	4.07580	4.619	4.578	4.592	

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-										
L	LTE BAND 2 Channel bandwidth: 1.4MHz									
Freq.	СН	99% B\	N (MHz)	26 dB BW (MHz)						
(MHz)	СП	QPSK	16QAM	QPSK	16QAM					
1850.7	18607	1.1032	1.1046	1.329	1.365					
1880.0	18900	1.1041	1.1051	1.377	1.340					
1909.3	19193	1.1056	1.1070	1.356	1.390					

	LTE BAND 2 Channel bandwidth: 3MHz								
Freq.	СН	99% BV	V (MHz)	26 dB BW (MHz)					
(MHz)	СП	QPSK	16QAM	QPSK	16QAM				
1851.5	18615	2.7005	2.7023	3.015	3.021				
1880.0	18900	2.7008	2.7001	2.983	3.037				
1908.5	19185	2.7014	2.7052	3.012	3.021				

LTE BAND 2 Channel bandwidth: 5MHz									
Freq.	СН	99% B\	N (MHz)	26 dB BW (MHz)					
(MHz)	СП	QPSK	16QAM	QPSK	16QAM				
1852.5	18625	4.4944	4.4932	5.063	5.072				
1880.0	18900	4.4985	4.4918	5.081	5.063				
1907.5	19175	4.4904	4.4853	5.073	5.096				

LTE BAND 2 Channel bandwidth: 10MHz									
Freq.		99% BV	V (MHz)	26 dB BW (MHz)					
(MHz)	СП	QPSK	16QAM	QPSK	16QAM				
1855.0	18650	9.0213	8.9700	10.340	10.140				
1880.0	18900	9.0337	8.9827	10.330	10.120				
1905.0	19150	9.0199	8.9837	10.380	10.160				

	LTE BAND 2 Channel bandwidth: 15MHz									
Freq.	СН	99% B\	N (MHz)	26 dB BW (MHz)						
(MHz)	СП	QPSK	16QAM	QPSK	16QAM					
1857.5	18675	13.525	13.504	15.640	15.770					
1880.0	18900	13.520	13.525	15.770	15.850					
1902.5	19125	13.555	13.542	15.920	15.880					
L	te ban	D 4 Chanı	nel bandwi	dth: 1.4M	Hz					
Freq.	СН	99% B\	N (MHz)	26 dB E	BW (MHz)					
(MHz)	CIT	QPSK	16QAM	QPSK	16QAM					
1710.7	19957	1.1012	1.1048	1.321	1.348					
1732.5	20175	1.0996	1.1019	1.338	1.350					
1754.3	20393	1.1023	1.1031	1.336	1.357					

LTE BAND 4 Channel bandwidth: 5MHz								
Freq.	СН	99% BW (MHz)		26 dB BW (MHz)				
(MHz)	CH	QPSK	16QAM	QPSK	16QAM			
1712.5	19957	4.4926	4.4906	5.088	5.068			
1732.5	20175	4.4933	4.4905	5.097	5.032			
1752.5	20375	4.4933	4.4935	5.083	5.096			

LTE BAND 4 Channel bandwidth: 15MHz							
Freq.	СН	99% B\	99% BW (MHz)		26 dB BW (MHz)		
(MHz)	CIT	QPSK	16QAM	QPSK	16QAM		
1717.5	20025	13.502	13.509	15.670	15.910		
1732.5	20175	13.511	13.533	15.620	15.840		
1747.5	20325	13.539	13.543	15.710	16.000		

LTE BAND 2 Channel bandwidth: 20MHz								
Freq.	СН	99% BW (MHz)		26 dB BW (MHz)				
(MHz)	СП	QPSK	16QAM	QPSK	16QAM			
1860.0	18700	17.998	18.006	20.730	20.350			
1880.0	18900	18.018	18.010	20.640	20.380			
1900.0	19100	18.028	18.028 18.039		20.570			
LTE BAND 4 Channel bandwidth: 3MHz								
	LTE BA	ND 4 Char	nnel bandw	vidth: 3MH	Z			
Freq.			nnel bandw W (MHz)		z W (MHz)			
Freq. (MHz)	LTE BA							
		99% BV	W (MHz)	26 dB B	W (MHz)			
(MHz)	СН	99% B QPSK	W (MHz) 16QAM	26 dB B QPSK	W (MHz) 16QAM			

LTE BAND 4 Channel bandwidth: 10MHz								
Freq.	СН	99% B\	N (MHz)	26 dB BW (MHz)				
(MHz)	CIT	QPSK	16QAM	QPSK	16QAM			
1715.0	20000	9.0028	8.9726	10.36	10.070			
1732.5	20175	9.0171	8.9842	10.34	10.140			
1750.0	20350	9.0108	8.9866	10.18	10.060			

LTE BAND 4 Channel bandwidth: 20MHz								
Freq.	СН	99% BW (MHz)		26 dB BW (MHz)				
(MHz)	CIT	QPSK	16QAM	QPSK	16QAM			
1720.0	20050	17.955	18.001	20.600	20.310			
1732.5	20175	18.002	18.006	20.530	20.400			
1745.0	20300	18.034	18.050	20.760	20.570			

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LTE BAND 5 Channel bandwidth: 1.4MHz							
Freq.	СН	99% B\	N (MHz)	26 dB BW (MHz)			
(MHz)	CIT	QPSK	16QAM	QPSK	16QAM		
824.7	20407	1.1017	1.1020	1.320	1.357		
836.5	20525	1.1016	1.1048	1.328	1.356		
848.3	20643	1.1011	1.1027	1.327	1.344		

I	LTE BAND 5 Channel bandwidth: 3MHz								
	Freq.	СН	99% BW (MHz)		26 dB BW (MHz)				
	(MHz)	CH	QPSK	16QAM	QPSK	16QAM			
	825.5	20415	2.7007	2.7028	2.985	3.023			
	836.5	20525	2.6984	2.7047	2.989	3.037			
	847.5	20635	2.6973	2.7045	3.012	3.030			

	LTE BAN	ND 5 Char	nel bandw	idth: 5MH	Z	
Freq.	СН	99% B\	N (MHz)	26 dB BW (MHz)		
(MHz)	СП	QPSK	16QAM	QPSK	16QAM	
826.5	20425	4.4962	4.4935	5.108	5.064	
836.5	20525	4.4959	4.4957	5.081	5.121	
846.5	20625	4.4896 4.4918		5.089	5.077	
Ľ	te bani	D 12 Chan	inel bandw	idth: 1.4M	Hz	
Freq.	СН	99% B\	N (MHz)	26 dB B	W (MHz)	
(MHz)	CIT	QPSK	16QAM	QPSK	16QAM	
699.7	23017	1.1006	1.1009	1.321	1.348	
	22005	1.1010	1.1041	1.325	1.343	
707.5	23095	1.1010	1.1041	1.525	1.343	

LTE BAND 5 Channel bandwidth: 10MHz								
Freq.	СН	99% BW (MHz)		26 dB BW (MHz)				
(MHz)	CIT	QPSK	16QAM	QPSK	16QAM			
829.0	20450	9.0127	8.9896	10.400	10.220			
836.5	20525	9.0300	8.9845	10.310	10.140			
844.0	20600	8.9827 8.9715		10.240	10.190			
	LTE BAND 12 Channel bandwidth: 3MHz							
					Z			
Freq.		99% BV			z W (MHz)			
Freq. (MHz)	CH							
		99% BV	V (MHz)	26 dB B	W (MHz)			
(MHz)	СН	99% BV QPSK	V (MHz) 16QAM	26 dB B QPSK	W (MHz) 16QAM			

l	_TE BAN	D 12 Cha	nnel bandv	vidth: 5MF	łz	
Freq.	СН	99% B\	N (MHz)	26 dB BW (MHz)		
(MHz)	СП	QPSK	16QAM	QPSK	16QAM	
701.5	23035	4.4873	4.4846	5.055	5.022	
707.5	23095	4.4933	4.4907	5.074	5.071	
713.5	23155	4.4971	4.4945	5.067	5.023	

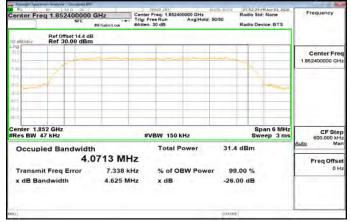
LTE BAND 12 Channel bandwidth: 10MHz								
Freq.	СН	99% BW (MHz)		26 dB BW (MHz)				
(MHz)	СП	QPSK	16QAM	QPSK	16QAM			
704.0	23060	9.0540	9.0002	10.400	10.350			
707.5	23095	9.0224	8.9846	10.190	10.030			
711.0	23130	8.9773	8.9464	10.240	10.040			

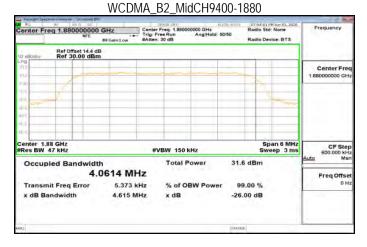
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### WCDMA\_B2\_LowCH9262-1852.4

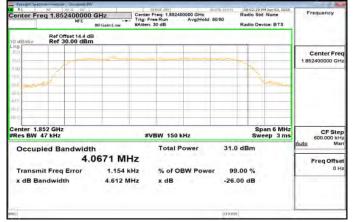




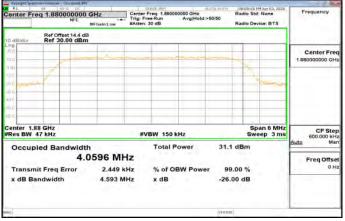
### WCDMA\_B2\_HighCH9538-1907.6

enter Fr	eq 1.90760000 NFE	Tr Tr	enter Freq: 1,907 lig: Free Run Atten: 30 dB		0/50 105 auro	Radio St	vice: BTS	Frequency
10 dBrdiv	Ref Offset 14.4 e Ref 30.00 dB							
1910 1910 1910	-				-	1		Center Freq 1.907600000 GHz
20.0 20.0 20.0	1						-TOTAL CO	
40.0 60.0			_					
Center 1.9 #Res BW			#VBW 150	kHz			oan 6 MHz eep 3 ms	CF Step 600.000 kHz
Occup	bied Bandwid	th .0623 MHz	1 2 1 1 1	Power	31.2	2 dBm		Auto Man
	nit Freq Error andwidth	4.333 kHz 4.626 MHz	% of C	DBW Power		0.00 % 00 dB		0 Hz
00					TATO	5		

### HSDPA\_B2\_LowCH9262-1852.4



### HSDPA\_B2\_MidCH9400-1880



### HSDPA\_B2\_HighCH9538-1907.6

RL	HE SHID DE		Freq: 1.907600000 GH	WIGE BUILD	Radio Std: 6		Frequency		
Senter Fre	g 1.907600000 NFE	- Trig:		old >50/50	Radio Device: BTS				
10 dBrdiv	Ref Officet 14.4 dB dB/div Ref 30.00 dBm								
10.0 10.0	-				5		Center Fred 1 907600000 GHz		
00 00 77 / 10-14	1								
an									
enter 1.9						n 6 MHz			
Res BW 4			VBW 150 kHz	_		p 3 ms	CF Step 600.000 kH		
Occupi	ed Bandwidt	h	Total Power	30.	9 dBm		Auto Mar		
	4.0	0543 MHz					Freq Offset		
Transm	t Freq Error	2.905 kHz	% of OBW Po	wer 9	9.00 %		0 Ha		
x dB Ba	ndwidth	4.612 MHz	x dB	-26	.00 dB				
ia l				TAT	15				

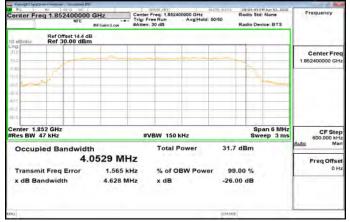
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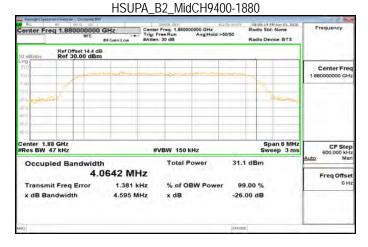
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### HSUPA\_B2\_LowCH9262-1852.4





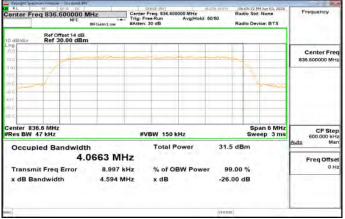
### HSUPA\_B2\_HighCH9538-1907.6

Center Fr	eg 1.907600000 NFE	Trig:	Center Freq: 1.907600000 GHz Trig: Freq: AvgiHold: 50/50 #Atten: 30 dB			Radio Device: BTS		Frequency	
10 dBidiy	Ref Offset 14.4 dl Ref 30.00 dBn								
10.0 10.0	-							Center Freq 1.907600000 GHz	
10.0 minut	~					1	-		
40.0			-						
Center 1.9			-						
#Res BW			VBW 150	kHz		SV	pan 6 MHz veep 3 ms	CF Step 600.000 kHz	
Occup	oled Bandwidt 4.	<sub>h</sub> 0551 MHz	Total I	Power	31.	3 dBm		Auto Man Freq Offset	
	nit Freq Error andwidth	-7 Hz 4.599 MHz	% of C x dB	BW Powe		9.00 % .00 dB		0 Hz	
enc)					ITAN	н			

# WCDMA\_B5\_LowCH4132-826.4



### WCDMA\_B5\_MidCH4183-836.6



### WCDMA\_B5\_HighCH4233-846.6

RL Center Fre	aq 846.6000 N	DOO MH	2 Gain:Low	Trig: Fre	Center Freq: 846.600000 MHz Trig: Free Run AvgiHold: 50/50 #Atten: 30 dB			Radio St	d: None wice: BTS	Frequency
0 dB/div	Ref Offset 1 Ref 30.00									
ng no no	1			~~~~	- mit					Center Fred 846.600000 MHz
10	1					1				
10					-					
0 0.										-
enter 840 Res BW 4				#V	BW 150 k	Hz			pan 6 MHz /eep 3 ms	CF Ster 600.000 kH
Occup	led Bandy		5 mm		Total P	ower	31.	7 dBm		Auto Mar
Transm	it Freq Erro		-6.638 kl		% of O	3W Powe	r 9	9.00 %		Freq Offse
	ndwidth		4.619 MI		x dB	Ser l'ouc		.00 dB		
5							TATE			

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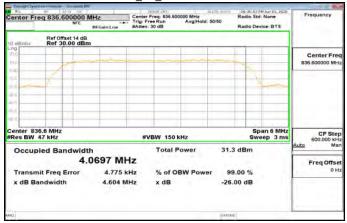
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# SGS

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### HSDPA\_B5\_LowCH4132-826.4

Center Fre	eq 826.400	NFE	Z FGainiLow		Freq: 826.400 ree Run : 30 dB		50/50	Radio St	evice: BTS	Frequency
10 dB/div	Ref Offset Ref 30.00		_							
310 10.0	-	~~~				inner	-	-		Center Freq 826.400000 MHz
10.0										
-10 0. -10 0										
40.0 60.0			-							
Center 82 #Res BW			-	#	VBW 150	Hz			pan 6 MHz veep 3 ms	CF Step 600.000 kH
Occup	led Band		587 MH	łz	Total P	ower	31.	5 dBm		Auto Mar
	it Freq Err	or	-7.935 H 4.572 M		% of O x dB	BW Power		9.00 % .00 dB		0 H2
660							TATE	15		

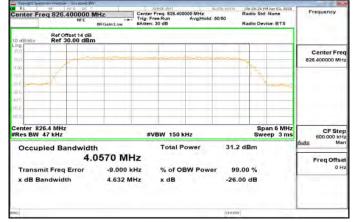


### HSDPA\_B5\_HighCH4233-846.6

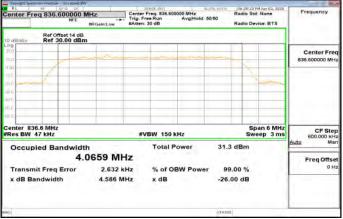
Center Fre	eq 846.6000	00 MHz	Trig:	Center Freq: 846.600000 MHz Trig: Free Run AvgiHold: 50/50 #Atten: 30 dB			Radio Device: BTS		Frequency
10 dB/div	Ref Offset 14 Ref 30.00								
10.0 10.0 0.00		minister		~~~~~~	-	~~~	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		Center Freq 846,600000 MHz
20.0	w.							2 mily	
40.0 40.0 40.0									
Center 84 #Res BW		_	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	VBW 150	kHz	_	s	Span 6 MHz weep 3 ms	CF Step 600.000 kHz
Occup	led Bandw	idth 4.0634	MHz	Total	Power	31.	.6 dBm		Auto Man Freq Offset
	ilt Freq Errol Indwidth		90 kHz 8 MHz	% of C x dB	DBW Powe		9.00 % 5.00 dB		0 Hz
00						IFFAD	05	_	

### HSDPA\_B5\_MidCH4183-836.6

### HSUPA\_B5\_LowCH4132-826.4



### HSUPA\_B5\_MidCH4183-836.6



### HSUPA\_B5\_HighCH4233-846.6

RL	- HF 50 0 DC 1		SENSE SNT		TOP SPLUT	Radio St	PM Jun 03, 2020	Frequency	
center Fr	eq 846.600000 M NFE	Trig	Center Freq: 846.600000 MHz Trig: Free Run AvgiHold: 60/60 #Atten: 30 dB				d: None vice: BTS	( codacito)	
0 dB/div	Ref Offset 14 dB 0 dB/div Ref 30.00 dBm								
10,0	-			-				Center Freq 846.600000 MHz	
100 100 200	1					1	an		
30 0.							Strey Ins		
60.0		_	_						
enter 84 Res BW			#VBW 150	kHz			pan 6 MHz eep 3 ms	CF Step 600.000 kHz	
Occup	led Bandwidt	h	Total F	ower	31.4	4 dBm	-	Auto Man	
		0758 MHz						Freq Offset	
	hit Freq Error	-9.840 kHz		BW Power		9.00 %		0 Hz	
x dB Ba	andwidth	4.592 MHz	x dB		-26.	00 dB			
10					TATE	s			

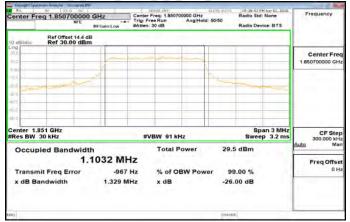
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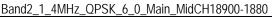
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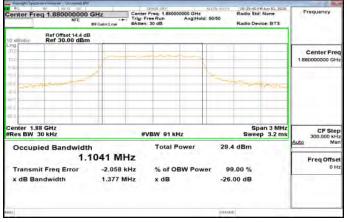


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### Band2\_1\_4MHz\_QPSK\_6\_0\_Main\_LowCH18607-1850.7



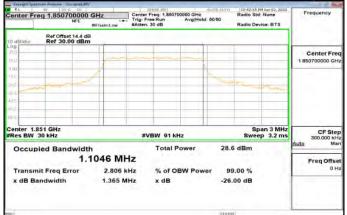




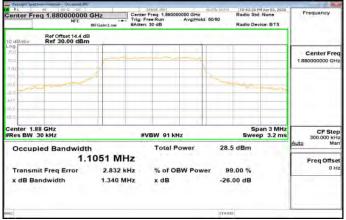
### Band2\_1\_4MHz\_QPSK\_6\_0\_Main\_HighCH19193-1909.3

Center Fre	eq 1.909300000 G		Center Freq: 1,909300000 GHz Trig: Free Run Avg Hold: 50/50 #Atten: 30 dB			Radio Device: BTS		Frequency
10 dBrdiv	Ref Offset 14.4 dB Ref 30.00 dBm							
100 100		-						Center Freq 1.909300000 GHz
20.0	mon	4			-			
40.0								
-60 0.								
Center 1.9 #Res BW			#VBW 91	kHz	_	Span 3 Sweep 3	.2 ms	CF Step 300.000 kHz
Occup	ied Bandwidth	Same		Power	29.5	dBm	e	uto Man
	1.1	056 MH	z				- 1	Freq Offset
	hit Freq Error	-1.627 kH	z % of	OBW Powe	r 99.	00 %		0 Hz
x dB Ba	andwidth	1.356 MH	z xdB		-26.0	0 dB		1.1
enc)					TATUS		1	

### Band2\_1\_4MHz\_16QAM\_6\_0\_Main\_LowCH18607-1850.7



### Band2\_1\_4MHz\_16QAM\_6\_0\_Main\_MidCH18900-1880



### Band2\_1\_4MHz\_16QAM\_6\_0\_Main\_HighCH19193-1909.3

Center Fr	eq 1.909300000 NFE		enter Freq: 1,9093 rig: Free Run Atten: 30 dB	AvgiHold: 50/5	Radio Std		Frequency
10 dB/div							
32,0 10,0 0,00		Jam					Center Freq 1 909300000 GHz
-20.0	and the second second	Å		-	and the second second		
-10 0. 							
-60 C							
Center 1. #Res BW			#VBW 91 k	Hz	Sp Swee	an 3 MHz p 3.2 ms	CF Step 300.000 kHz
Occup	led Bandwidt	h	Total	Power	28.6 dBm		Auto Man
	1.1	1070 MHz	1.1				Freq Offset
	nit Freq Error andwidth	1.638 kHz 1.390 MHz		BW Power	99.00 % -26.00 dB		0 Hz
90					TATOS		

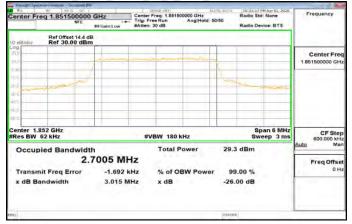
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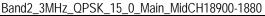
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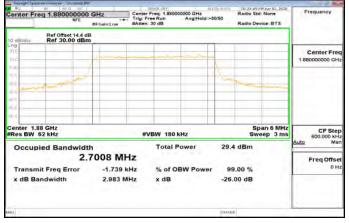


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### Band2\_3MHz\_QPSK\_15\_0\_Main\_LowCH18615-1851.5







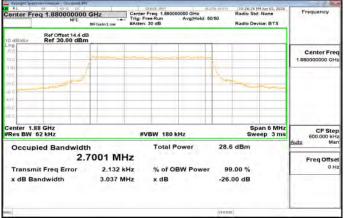
### Band2\_3MHz\_QPSK\_15\_0\_Main\_HighCH19185-1908.5

Center Fre	eq 1.908500000 NFE	Trig	er Freq: 1,908 Free Run en: 30 dB	Frequency				
10 dB/div	Ref Offset 14.4 dB Ref 30.00 dBm							
.09. 35,0 10,0				-				Center Fred 1 908500000 GHz
20.0	man				- win			
470			-					
60 0.								
Res BW			#VBW 180	kHz			eep 3 ms	CF Step 600.000 kHz
Occup	ied Bandwidth	014 MHz	Total	Power	29.4	dBm		Auto Mar
	it Freq Error Indwidth	-1.994 kHz 3.012 MHz	% of C x dB	DBW Power		.00 % 00 dB		Freq Offset 0 Hz
NG C					TATUS		-	

### Band2\_3MHz\_16QAM\_15\_0\_Main\_LowCH18615-1851.5



### Band2\_3MHz\_16QAM\_15\_0\_Main\_MidCH18900-1880



### Band2\_3MHz\_16QAM\_15\_0\_Main\_HighCH19185-1908.5

Center Fre	eq 1.908500000 NFE	Trig	Center Freq: 1,908500000 GHz Trig: Free Run AvgiHold >50/50 #Atten: 30 dB			None ce: BTS	Frequency
10 dB/div	Ref Offset 14.4 dB Ref 30.00 dBm						
10.0 10.0		pinin					Center Freq 1.908500000 GHz
20.0				- Bree	No.No		
40.0 40.0							_
Center 1.9			#VBW 180 kHz			n 6 MHz ep 3 ms	CF Step
	oz knz		Total Power	28	8 dBm		600.000 kHz Auto Man
Occup		052 MHz					Freq Offset
	hit Freq Error andwidth	515 Hz 3.021 MHz	% of OBW Pow x dB		9.00 % .00 dB	1	0 Hz
enc)				TATE	s	-	-

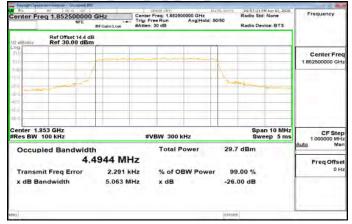
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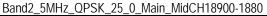
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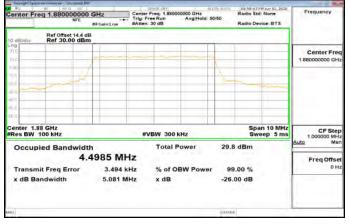


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### Band2\_5MHz\_QPSK\_25\_0\_Main\_LowCH18625-1852.5







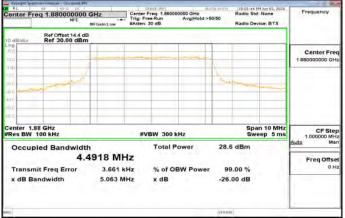
### Band2\_5MHz\_QPSK\_25\_0\_Main\_HighCH19175-1907.5

Center Fr	eg 1.907500000 NFE	UTIL Tri	tter Freq: 1,907 g: Free Run tten: 30 dB	Frequency			
10 dBrdiv	Ref Offset 14.4 dB Ref 30.00 dBm				~		
39,0 19,0						_	Center Freq 1.907500000 GHz
N 0000 X 0 0 20 0					Luni		
ag C			_				
40.0 -60.0			-				
Center 1.9 Res BW			#VBW 300	kHz		Span 10 MHz Sweep 5 ms	CF Step 1.000000 MHz
Occup	led Bandwidt	h 4904 MHz	Total	Power	29.6 dE	Bm	Auto Man Freg Offset
	hit Freq Error andwidth	1.086 kHz 5.073 MHz	% of C x dB	DBW Power	99.00 -26.00		0 Hz
80					TATUS	_	

### Band2\_5MHz\_16QAM\_25\_0\_Main\_LowCH18625-1852.5



### Band2\_5MHz\_16QAM\_25\_0\_Main\_MidCH18900-1880



### Band2\_5MHz\_16QAM\_25\_0\_Main\_HighCH19175-1907.5

Averant Seat	Instant Ansatzer - Occupted BW		conceratori.					
	eq 1.907500000 NFE	Trig:	Center Freq: 1,907500000 GHz				Mone d: None wice: BTS	Frequency
10 dB/div	Ref Offset 14.4 dB Ref 30.00 dBm	(				_		
10,0		ļ						Center Fred 1 907500000 GHz
N 000 N0 10 20 0	- Andrew				1 me			
400								
Center 1.9	108 GHz					Sp	an 10 MHz	
Res BW		1	VBW 300 k	Hz		SW	eep 5 ms	CF Step 1.000000 MH2
Occup	led Bandwidth		Total P	ower	28.6	dBm		Auto Man
Transm	4.4 It Freg Error	-65 Hz	% of OE	W Power	99	.00 %		Freq Offset 0 Hi
x dB Ba	indwidth	5.096 MHz	x dB		-26.0	00 dB		
					ITA105			

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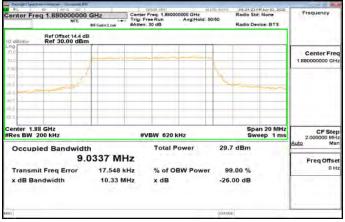


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### Band2\_10MHz\_QPSK\_50\_0\_Main\_LowCH18650-1855

Center Fre	ng 1.855000000 NFE	GILL Tri	nter Freq: 1,855 g: Free Run tten: 30 dB		05 auro 0/50	Radio St	d: None	Frequency
10 dB/div	Ref Offset 14.4 dl Ref 30.00 dBm					_		
30,0 10,0								Center Fred 1 855000000 GHz
10000 X(0.0	1		_		1			
20.0 -30.0	and the second s		_		-	-		
-10.0 -10.0 -10.0								
Center 1.8 #Res BW			#VBW 620	kHz			an 20 MHz eep 1 ms	CF Step
Occup	led Bandwidt		Total	Power	29.9	dBm		Auto Mar
		0213 MHz						Freq Offse
	it Freq Error ndwidth	4.005 kHz 10.34 MHz	% of 0 x dB	DBW Power		.00 % 00 dB		0 H
					TATUS			

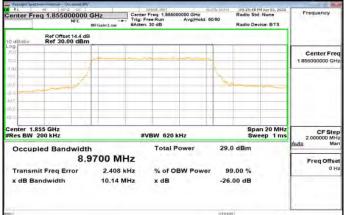
### Band2\_10MHz\_QPSK\_50\_0\_Main\_MidCH18900-1880



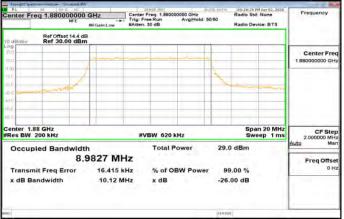
### Band2\_10MHz\_QPSK\_50\_0\_Main\_HighCH19150-1905

Center Fre	eq 1.905000000 NFE	Trig:	Freq: 1,905000000 GHz Free Run AvgiHo n: 30 dB	ALION AUTO	Radio Std: Radio Devi		Frequency
10 dB/div	Ref Offset 14.4 dB Ref 30.00 dBm						
10.0 10.0						_	Center Fred 1 905000000 GHz
20.0	- Aller			1			
30.0 40.0 90.0							
Center 1.9	05 GHz				Spar	1 20 MHz	
Res BW	200 kHz	1	VBW 620 kHz			ep 1 ms	CF Step 2.000000 MHz Auto Mar
Occup	ed Bandwidth	1	Total Power	29.	8 dBm		Auto Man
	9.0	0199 MHz					Freq Offset
Transm	it Freq Error	7.244 kHz	% of OBW Pov	ver 9	9.00 %		0 Hz
x dB Ba	ndwidth	10.38 MHz	x dB	-26	.00 dB		
-				ITAT	w.		

### Band2\_10MHz\_16QAM\_50\_0\_Main\_LowCH18650-1855



### Band2\_10MHz\_16QAM\_50\_0\_Main\_MidCH18900-1880



### Band2\_10MHz\_16QAM\_50\_0\_Main\_HighCH19150-1905

Center Fre	eq 1.905000000 NFE		Center Freq: 1,90500 Trig: Free Run Atten: 30 dB	AvgiHold: 50/5	Radio St	d: None avice: BTS	Frequency
10 dB/div	Ref Offset 14.4 dB Ref 30.00 dBm						
39,0 10,0 		mone	لاستنب	many			Center Freq 1.905000000 GHz
1000 101 200	1 million				m		-
-30 0. 40 0.							
-60 0							
Res BW			#VBW 620 H	Hz		an 20 MHz /eep 1 ms	CF Step 2.000000 MHz
Occup	led Bandwidtl 8.9	9837 MH2	Total P	ower	29.0 dBm		Auto Man Freg Offset
	it Freq Error Indwidth		z % of O	BW Power	99.00 % -26.00 dB		0 Hz
mo l					STATUS	-	-

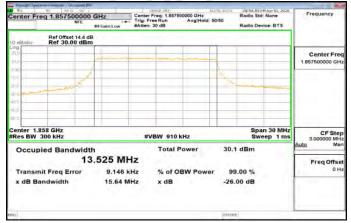
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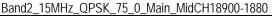
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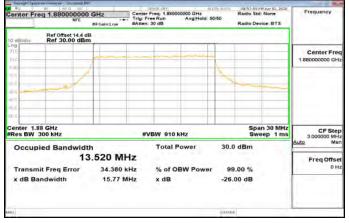


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### Band2\_15MHz\_QPSK\_75\_0\_Main\_LowCH18675-1857.5







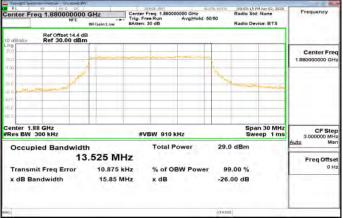
### Band2\_15MHz\_QPSK\_75\_0\_Main\_HighCH19125-1902.5

Center Fre	eq 1.902500000 NFE	Trip.	ter Freq: 1,902 g: Free Run ten: 30 dB		05 atira 2/50	Radio Str	t: None vice: BTS	Frequency
10 dB/div	Ref Offset 14.4 dB Ref 30.00 dBm					_		
39,0 19,0								Center Fred 1 902500000 GHz
N0.0 20.0					1			
40.0								
60 0.								
Res BW		-	#VBW 910	kHz		Sw	eep 1 ms	CF Step 3.000000 MHz
Occup	led Bandwidth		Total	Power	30.3	dBm		Auto Mar
	13	.555 MHz						Freq Offset
	it Freq Error	3.146 kHz		DBW Power		.00 %	. A.	0 Hz
x dB Ba	indwidth	15.92 MHz	x dB		-26.0	00 dB		
660					STATUS		-	

### Band2\_15MHz\_16QAM\_75\_0\_Main\_LowCH18675-1857.5



### Band2\_15MHz\_16QAM\_75\_0\_Main\_MidCH18900-1880



### Band2\_15MHz\_16QAM\_75\_0\_Main\_HighCH19125-1902.5

Center Fre	eg 1.902500000 NFE	- Trig	Freq: 1,902500000 GHz Free Run AvgiHo en: 30 dB	ld >50/50	Radio Std: None Radio Device: BT	Frequency
10 dB/div	Ref Offset 14.4 d Ref 30.00 dBn	B N				
2000. 2010						Center Fred 1.902500000 GHz
20.0	and a second second			-		-
0 0 0 0 0 0						
center 1.9	903 GHz				Span 30 I	MHz
Res BW			#VBW 910 kHz		Sweep 1	ms 3.000000 MH
Occup	led Bandwidt	h	Total Power	29.3	2 dBm	Auto Man
	13	3.542 MHz				Freq Offset
	hit Freq Error		% of OBW Pov		9.00 %	OH
x dB Ba	andwidth	15.88 MHz	x dB	-26	.00 dB	
a				TATO	5	

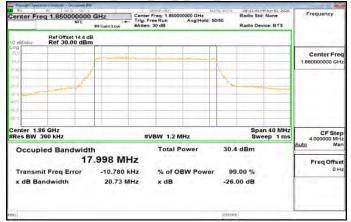
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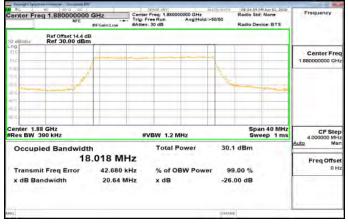


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### Band2\_20MHz\_QPSK\_100\_0\_Main\_LowCH18700-1860



### Band2\_20MHz\_QPSK\_100\_0\_Main\_MidCH18900-1880



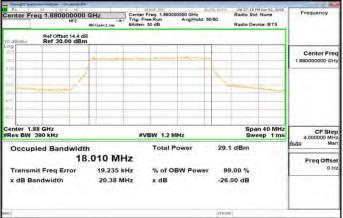
### Band2\_20MHz\_QPSK\_100\_0\_Main\_HighCH19100-1900

Center Fr	eg 1.900000000 NFE	Tri	nter Freq: 1,900 g: Free Run tten: 30 dB		0/50 Ra	edio Std: None adio Device: BTS	Frequency
10 dB/div	Ref Offset 14.4 dl Ref 30.00 dBn				-		
10.0 10.0							Center Freq 1.900000000 GHz
20.0	1		_				
40.0							
-60 0							
Center 1.9 #Res BW			#VBW 1.2	MHz	1.1	Span 40 MHz Sweep 1 ms	CF Step 4.000000 MHz
Occup	led Bandwidt		Total	Power	30.4 d	Bm	Auto Man
		3.028 MHz -11.381 kHz 20.66 MHz	% of C x dB	DBW Power	99.00 -26.00		Freq Offset 0 Hz
60(3)					TATOS	_	

### Band2\_20MHz\_16QAM\_100\_0\_Main\_LowCH18700-1860



### Band2\_20MHz\_16QAM\_100\_0\_Main\_MidCH18900-1880



### Band2\_20MHz\_16QAM\_100\_0\_Main\_HighCH19100-1900

Center Fre	aq 1.900000000 NFE	Trip	ter Freq: 1,9000 Free Run en: 30 dB		R 80/50	adio Std: I adio Devic		Frequency
10 dBrdiv	Ref Offset 14.4 dl Ref 30.00 dBn							
31,0 10,0 0,00		-		-				Center Freq 1 900000000 GHz
10.0 20.0 30.0					X			
0.0						_	_	
Center 1.9 Res BW			#VBW 1.2 M	NHZ			40 MHz	CF Step 4.00000 MH2
Occup	ied Bandwidt	h 3.039 MHz	Total F	ower	29.2 d	Bm		Auto Mar
		-31.556 kHz 20.57 MHz	% of O x dB	BW Power	99.0 -26.00			0 Hz
a					STATOS			

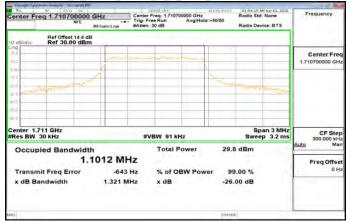
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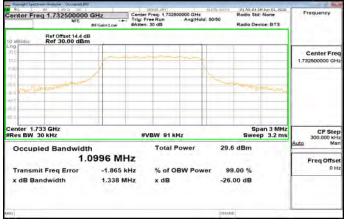


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### Band4\_1\_4MHz\_QPSK\_6\_0\_Main\_LowCH19957-1710.7



### Band4\_1\_4MHz\_QPSK\_6\_0\_Main\_MidCH20175-1732.5



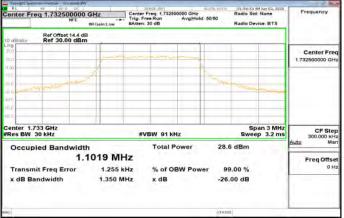
### Band4\_1\_4MHz\_QPSK\_6\_0\_Main\_HighCH20393-1754.3

Center Fre	eq 1.754300000 NFE	The T	enter Freq: 1,754 rig: Free Run Atten: 30 dB		50/50	Radio St	Mi Jun 03, 2020 d: None wice: BTS	Frequency
10 dB/div	Ref Offset 14.4 dB Ref 30.00 dBm							
1000. 10.0 10.0		J						Center Freq 1,754300000 GHz
0.0	Water and	4			ill in-	toran -		
40.0								
ed 0.		-			_			
Res BW			#VBW 91	KHZ		Swe	pan 3 MHz ep 3.2 ms	CF Step 300.000 kHz
Occup	led Bandwidth			Power	29.	8 dBm		Auto Man
	1.1	023 MHz						Freq Offset
	it Freq Error			DBW Powe		9.00 %	. A	0 Hz
x dB Ba	indwidth	1.336 MHz	x dB		-26	.00 dB		
660					TAR	05	-	

### Band4\_1\_4MHz\_16QAM\_6\_0\_Main\_LowCH19957-1710.7



### Band4\_1\_4MHz\_16QAM\_6\_0\_Main\_MidCH20175-1732.5



### Band4\_1\_4MHz\_16QAM\_6\_0\_Main\_HighCH20393-1754.3

RL	10 DE 50 DE		SUNSU SUIT		vrice enua	Radio St	AM Jun 03, 2020	Frequency
Center Fre	eg 1.754300000 NFE		Center Freq: 1,754 Trig: Free Run #Atten: 30 dB	AvgiHold	50/50		d: None wice: BTS	( toquency
10 dB/div	Ref Offset 14.4 dE Ref 30.00 dBm							
.09. 35,0 10,0 0.00		1 miles						Center Fred 1.754300000 GHz
20.0	and the second	4			1	-		
40.0								
90.0 60.0		-						
Res BW			#VBW 91	kHz		Swe	pan 3 MHz ep 3.2 ms	CF Step 300.000 kHz
Occup	led Bandwidt	1	Total	Power	29.	0 dBm		Auto Man
	1.1	1031 MH	z					Freq Offset
Transm	it Freq Error	2.666 kH	z % of	OBW Powe	er 91	9.00 %		0 Hz
x dB Ba	Indwidth	1.357 MH	z x dB		-26	.00 dB		
10					TATE	ie.	-	

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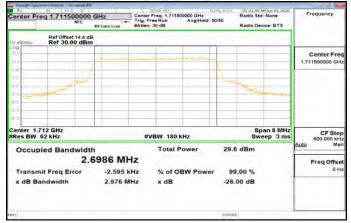
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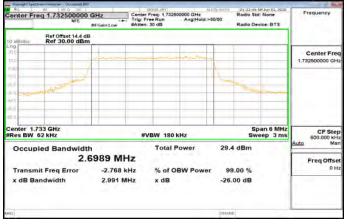


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### Band4\_3MHz\_QPSK\_15\_0\_Main\_LowCH19965-1711.5



### Band4\_3MHz\_QPSK\_15\_0\_Main\_MidCH20175-1732.5



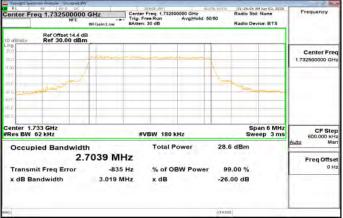
### Band4\_3MHz\_QPSK\_15\_0\_Main\_HighCH20385-1753.5

Center Fre	eg 1.753500000 NFE	Tr Tr	nter Freq: 1,7535 Ig: Free Run tten: 30 dB		Radio	Std: None Device: BTS	Frequency
10 dBrdiv	Ref Offset 14.4 dB Ref 30.00 dBm				_		
39,0 10,0 10,0						_	Center Freq 1,753500000 GHz
10400 X010 2010							
40.0							
-60 C							
Res BW			#VBW 180	kHz		Span 6 MHz Sweep 3 ms	CF Step 600.000 kHz
Occup	led Bandwidt	<sup>h</sup> 7015 MHz	Total I	ower	29.8 dBm		Auto Man Freq Offset
	hit Freq Error andwidth	-203 Hz 2.980 MHz	% of C x dB	BW Power	99.00 % -26.00 dE		0 Hz
80					TAIUS	-	

### Band4\_3MHz\_16QAM\_15\_0\_Main\_LowCH19965-1711.5



### Band4\_3MHz\_16QAM\_15\_0\_Main\_MidCH20175-1732.5



### Band4\_3MHz\_16QAM\_15\_0\_Main\_HighCH20385-1753.5

Averant Seat	Instituti-Analityper - Occupted BW						
	eq 1.753500000 NFE	- Trig:	r Freq: 1,753500000 GH Free Run AvgiH n: 30 dB	eld: 50/50	Radio Std	C. CERTINE .	Frequency
10 dB/div	Ref Offset 14.4 dB Ref 30.00 dBm						
30,0 30,0 10,0 1,00		participant and the second sec		-			Center Fred 1.753500000 GHz
20.0	and			-	~		
	n						
Center 1.7			VBW 180 kHz		Sp	an 6 MHz eep 3 ms	CF Step
	led Bandwidt		Total Power	29.	1 dBm		600.000 kHz Auto Mar
	2.6	6967 MHz					Freq Offset
	it Freq Error Indwidth	1.260 kHz 3.028 MHz	% of OBW Po x dB		9.00 % 6.00 dB		0 Hz
ec.				TAD	95	-	-

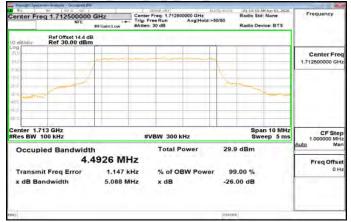
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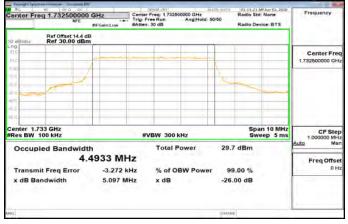


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### Band4\_5MHz\_QPSK\_25\_0\_Main\_LowCH19975-1712.5



### Band4\_5MHz\_QPSK\_25\_0\_Main\_MidCH20175-1732.5



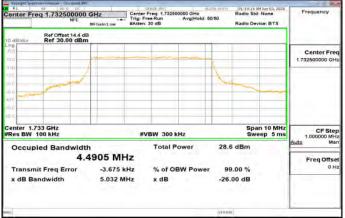
### Band4\_5MHz\_QPSK\_25\_0\_Main\_HighCH20375-1752.5

Center Fre	eg 1.752500000 NFE	Trig	ter Freq: 1,752 Free Run ten: 30 dB		R:	adio Std: None adio Device: BTS	Frequency
10 dB/div	Ref Offset 14.4 dB Ref 30.00 dBm						
39,0 10,0 10,0							Center Freq 1,752500000 GHz
10.000 X0.0 20.0	-		-		1 mon	_	
40 0			_				
-60.0							
Center 1.7 #Res BW			#VBW 300	kHz		Span 10 MHz Sweep 5 ms	CF Step 1.000000 MHz
Occup	ied Bandwidth 4.4	933 MHz	Total	Power	30.2 d	Bm	Auto Man Freq Offset
	iit Freq Error Indwidth	5.303 kHz 5.083 MHz	% of C x dB	DBW Power	99.00 -26.00		0 Hz
60					TATUS		

### Band4\_5MHz\_16QAM\_25\_0\_Main\_LowCH19975-1712.5



# Band4\_5MHz\_16QAM\_25\_0\_Main\_MidCH20175-1732.5



### Band4\_5MHz\_16QAM\_25\_0\_Main\_HighCH20375-1752.5

Average Seat	Instini Analyzer - Occupted BW					
	eq 1.752500000 NFE	- Trig:	Freq: 1,752500000 GHz Free Run AvgiHo n: 30 dB	ALIOS AUTO E ald: 50/50	Radio Std: None Radio Device: BT	Frequency
10 dB/div	Ref Offset 14.4 dE Ref 30.00 dBm					
30,0 30,0 10,0						Center Fred 1.752500000 GHz
0.0						-
an						~
enter 1.7	53 GHz				Span 10 M	1Hz
Res BW		*	VBW 300 kHz		Sweep 5	ms 1.000000 MH
Occup	led Bandwidt		Total Power	29.	4 dBm	Auto Man
2.00		4935 MHz	S. Statistics			Freq Offset
	lit Freq Error Indwidth	3.858 kHz 5.096 MHz	% of OBW Po x dB		9.00 % .00 dB	
NO O				ITAN	н	-

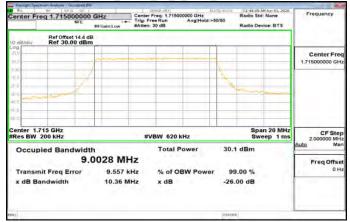
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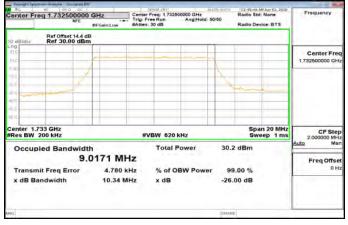


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### Band4\_10MHz\_QPSK\_50\_0\_Main\_LowCH20000-1715



### Band4\_10MHz\_QPSK\_50\_0\_Main\_MidCH20175-1732.5



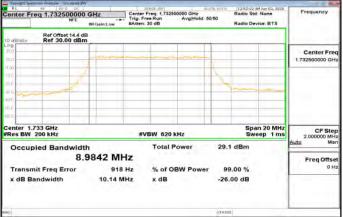
### Band4\_10MHz\_QPSK\_50\_0\_Main\_HighCH20350-1750

Center Fre	eq 1.750000000 NFE	Trip	ter Freq: 1,7500 Free Run en: 30 dB		Rad	dio Std: None dio Device: BTS	Frequency
10 dBrdiv	Ref Offset 14.4 dB Ref 30.00 dBm				_		
39,0 10,0 10,0				-		_	Center Fred 1,75000000 GHz
x0.0	1		_		he		-
40.0			_				
Center 1.7	4 6 4 2					Span 20 MHz	
Res BW			#VBW 620	kHz		Sweep 1 ms	CF Step 2.000000 MHz
Occup	led Bandwidth	, 0108 MHz	Total F	ower	30.2 dE	Im	Auto Man
	it Freq Error Indwidth		% of O x dB	BW Power	99.00 -26.00 d		Freq Offset 0 Hz
nici l					STATUS		

### Band4\_10MHz\_16QAM\_50\_0\_Main\_LowCH20000-1715



### Band4\_10MHz\_16QAM\_50\_0\_Main\_MidCH20175-1732.5



### Band4\_10MHz\_16QAM\_50\_0\_Main\_HighCH20350-1750

Sweets Seet	Instant Answer/per - Occupted BV	Ν.					
	ag 1.750000000 NFE	- Trig	Free Run en: 30 dB	AvgiHold: 50/50	Radio Std: / Radio Devic	Vone	Frequency
10 dB/div	Ref Offset 14.4 d Ref 30.00 dBn						
10,0 10,0		phane -	~~~~~	mon			Center Freq 1,750000000 GHz
x0.0	1			- 15			
-0 0 -400							
Center 1.7						20 MHz	CF Step
Res BW			#VBW 620 kH	-		ep 1 ms	2.000000 MHz Auto Man
Occup	led Bandwidt 8.	9866 MHz	Total Po	wer 29	9.6 dBm	1	Freq Offset
	it Freq Error Indwidth	13.040 kHz 10.06 MHz	% of OB x dB		99.00 % 6.00 dB		0 Hz
(Inc.)					105	_	-

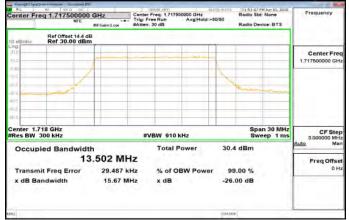
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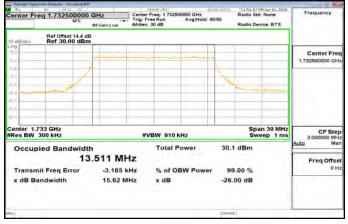


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### Band4\_15MHz\_QPSK\_75\_0\_Main\_LowCH20025-1717.5



### Band4\_15MHz\_QPSK\_75\_0\_Main\_MidCH20175-1732.5



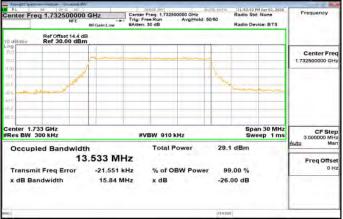
### Band4\_15MHz\_QPSK\_75\_0\_Main\_HighCH20325-1747.5

Center Fr	eg 1.747500000 NFE	Griz Tr	nter Freq: 1,7470 ig: Free Run tten: 30 dB		0/50 R	adio Std: N	lone	Frequency
	Ref Offset 14.4 de		sten: 30 dB		H	Caldio Devici	013	
10 dB/div	Ref 30.00 dBm							1
3910		-		مرتب محمد ا			_	Center Fred 1.747500000 GHz
9.000	1	1			the second			
30.0					1		- en	
0.0								-
60 0.	-		-					
Center 1. Res BW			#VBW 910	kHz		Span Swee	30 MHz p 1 ms	CF Step 3.000000 MHz
Occup	led Bandwidt	h	Total	Power	30.4 d	Bm		Auto Man
	13	.539 MHz						Freq Offset
Transm	nit Freq Error	30.807 kHz	% of C	BW Power	99.0	0 %	- 11	0 Hz
x dB Ba	andwidth	15.71 MHz	x dB		-26.00	dB		
90					TATUS			
943					EIAIUS			

### Band4\_15MHz\_16QAM\_75\_0\_Main\_LowCH20025-1717.5



### Band4\_15MHz\_16QAM\_75\_0\_Main\_MidCH20175-1732.5



### Band4\_15MHz\_16QAM\_75\_0\_Main\_HighCH20325-1747.5

RL	10 SIN 12 DC		SENSE SNT		as elina		M Jun 02, 2020	Frequency
Senter Fre	eg 1.747500000 NFE	- ma Tri	nter Freq: 1,747 g: Free Run tten: 30 dB	AvgiHold: 50	0/50	Radio Std Radio Dev		( (oquality)
10 dBrdiv	Ref Offset 14.4 dl Ref 30.00 dBn	B						
no no 10.0								Center Free 1,747500000 GH
0.0	1		_		X			
10								
00								-
Res BW			#VBW 910	kHz			n 30 MHz ep 1 ms	CF Step 3.000000 MH
Occup	led Bandwidt		Total	Power	29.5	dBm		Auto Mar
	13	3.543 MHz						Freq Offse
	it Freq Error Indwidth	12.807 kHz 16.00 MHz	% of C x dB	DBW Power		.00 % 10 dB	- 0	0 H
0					TATUS			

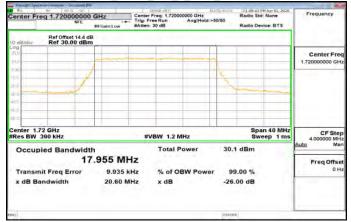
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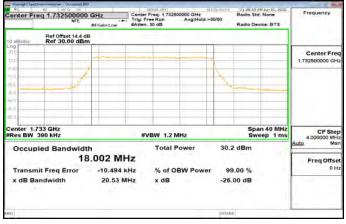


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### Band4\_20MHz\_QPSK\_100\_0\_Main\_LowCH20050-1720



### Band4\_20MHz\_QPSK\_100\_0\_Main\_MidCH20175-1732.5



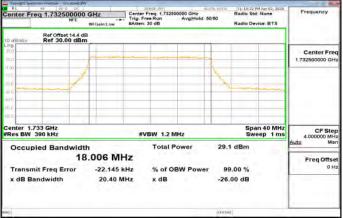
### Band4\_20MHz\_QPSK\_100\_0\_Main\_HighCH20300-1745

Center Fre	eq 1.745000000 NFE		enter Freq: 1,745 rig: Free Run Atten: 30 dB		v50	Radio Std Radio Dev	C.C.C.	Frequency
10 dB/div	Ref Offset 14.4 d Ref 30.00 dBr					_		
200 200 100					_			Center Freq 1,745000000 GHz
0.000	1				N.			
-0 0:								
-60 0.								
Center 1.7 #Res BW		· · · · ·	#VBW 1.2	MHz			eep 1 ms	CF Step 4.000000 MHz
Occup	ied Bandwid			Power	31.1	dBm		Auto Man
	11	3.034 MHz						Freq Offset
	hit Freq Error andwidth	30.481 kHz 20.76 MHz		DBW Power		.00 % 00 dB		0 Hz
660					TATUS		-	-

### Band4\_20MHz\_16QAM\_100\_0\_Main\_LowCH20050-1720



### Band4\_20MHz\_16QAM\_100\_0\_Main\_MidCH20175-1732.5



### Band4\_20MHz\_16QAM\_100\_0\_Main\_HighCH20300-1745

Sweeth Seet	testern-testingate - Occupted BV	V.					22.2
	eg 1.745000000 NFE	Trig:	Free Run n: 30 dB	AvgiHold >50/50	Radio Std: No Radio Device:	eme	Frequency
10 dB/div	Ref Offset 14.4 dl Ref 30.00 dBn						
10,0							Center Fred 1.745000000 GHz
1000 100 210				1			
40 0. 40 0.							
CD C.							
Res BW			VBW 1.2 MH		Span 4 Sweep	1 ms	CF Step 4.000000 MH
Occup	ied Bandwidt		Total Pov	ver 29	.5 dBm	A	uto Man
	18	3.050 MHz					Freq Offset
	hit Freq Error	13.097 kHz 20.57 MHz	% of OBV		99.00 % 5.00 dB		0 Hz
A GB Ba	indwidth	20.07 1112	X UB	-2	0.00 08		
ec				INTAT	05	L	

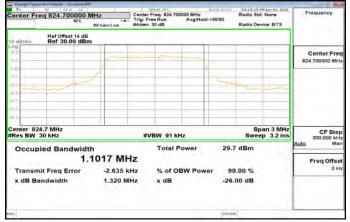
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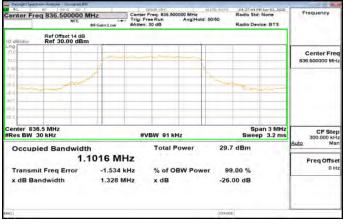


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### Band5\_1\_4MHz\_QPSK\_6\_0\_Main\_LowCH20407-824.7



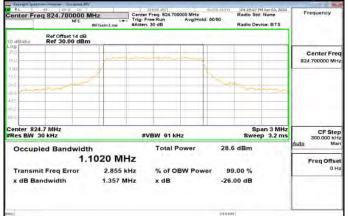
### Band5\_1\_4MHz\_QPSK\_6\_0\_Main\_MidCH20525-836.5



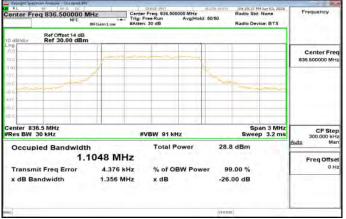
### Band5\_1\_4MHz\_QPSK\_6\_0\_Main\_HighCH20643-848.3

Center Fre	eq 848.300000 M	IHz	Center Freq: 848 Trig: Free Run #Atten: 30 dB	300000 MHz AvgiHol	d: 50/50	Radio Sto	None	Frequency
	Ref Offset 14 dB		AALIEN. SV UD	_		Rakato De	VILLE, DT 3	
10 dB/div	Ref 30.00 dBm				-		-	
10,0 10,0		-						Center Free 848.300000 MH
0.00		1	_					
					The			
ía ú								
0.0 10 0		_	_			-		
enter 84			#VBW 91	kHz		Swee	pan 3 MHz p 3.2 ms	CF Step 300.000 kH
Occup	led Bandwidth	1	Tota	I Power	29.	6 dBm		Auto Mar
	1.1	011 MH	z					Freq Offse
Transm	nit Freq Error	-3.104 kl	tz % of	OBW Pow	ver 9	9.00 %	1 A	0 H
x dB Ba	andwidth	1.327 M	tz x dB		-26	.00 dB		
_								
0					TAR	05		

### Band5\_1\_4MHz\_16QAM\_6\_0\_Main\_LowCH20407-824.7



### Band5\_1\_4MHz\_16QAM\_6\_0\_Main\_MidCH20525-836.5



### Band5\_1\_4MHz\_16QAM\_6\_0\_Main\_HighCH20643-848.3

RL	HE SEC DO P		Center Freq: 848.3	ALIGN	Radio Std: No		Frequency
Center Fr	eq 848.300000 M		Trig: Free Run #Atten: 30 dB	AvgiHold>50/5		2.0	C. Caroline
10 dB/div	Ref Offset 14 dB Ref 30.00 dBm						
39,0 10,0			min				Center Freq 848.300000 MHz
9.00 10.0 20.0		4		1			
40.0.							
-60 C							
Center 84 #Res BW			#VBW 911	KHZ	Span Sweep		CF Step 300.000 kHz
Occup	led Bandwidt	h	Total	Power	28.6 dBm		Auto Man
	1,	1027 MH	z			1	Freq Offset
Transm	nit Freq Error	2.276 kH	z % of C	DBW Power	99.00 %		0 Hz
x dB Ba	andwidth	1.344 MH	z xdB		-26.00 dB		
610					TATUS		

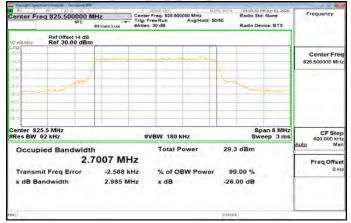
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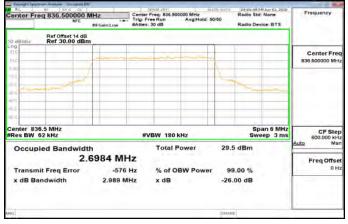


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### Band5\_3MHz\_QPSK\_15\_0\_Main\_LowCH20415-825.5



### Band5\_3MHz\_QPSK\_15\_0\_Main\_MidCH20525-836.5



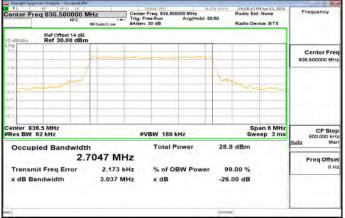
### Band5\_3MHz\_QPSK\_15\_0\_Main\_HighCH20635-847.5

Center Fre	eq 847.500000 M NFE	Trig	ter Freq: 847.5 Free Run en: 30 dB		0/50 R	adio Std: None adio Device: BTS	Frequency
10 dB/div	Ref Offset 14 dB Ref 30.00 dBm						
39,0 10,0 0,00							Center Freq 847.500000 MHz
900 900					-		-
40 0. 40 0.							
HD.0			_				
Res BW			#VBW 180	kHz		Span 6 MHz Sweep 3 ms	600.000 kHz
Occup	led Bandwidth 2.6	973 MHz	Total	Power	29.4 d	Bm	Auto Man Freq Offset
	hit Freq Error andwidth	-3.374 kHz 3.012 MHz	% of C x dB	DBW Power	99.0 -26.00		0 Hz
80					STATUS		

### Band5\_3MHz\_16QAM\_15\_0\_Main\_LowCH20415-825.5



### Band5\_3MHz\_16QAM\_15\_0\_Main\_MidCH20525-836.5



### Band5\_3MHz\_16QAM\_15\_0\_Main\_HighCH20635-847.5

Sweets Seet	tester Anulyzer - Occupied BW						<b></b>
	RF 500 00 F BQ 847.500000 M NFE	Trig:	r Freq: 847.500000 MHz Free Run AvgiHold n: 30 dB	50/50	Radio Std: No Radio Device	one	Frequency
10 dB/div	Ref Offset 14 dB Ref 30.00 dBm						
30,0 10,0 10,0							Center Freq 847.500000 MHz
200				The	-	-	
40 0. 40 0. 10 0.							
center 84						6 MHz	CF Step
Res BW	62 KHZ	1	VBW 180 kHz			3 ms	600.000 kHz Auto Man
Occup	led Bandwidt	h 7045 MHz	Total Power	28.	8 dBm	Î	Freq Offset
	lit Freq Error andwidth	-286 Hz 3.030 MHz	% of OBW Powe x dB		9.00 % .00 dB		0 Hz
660				TAIL	15		

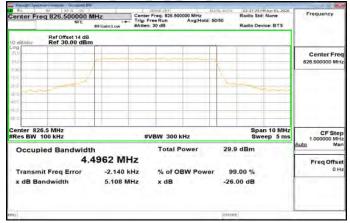
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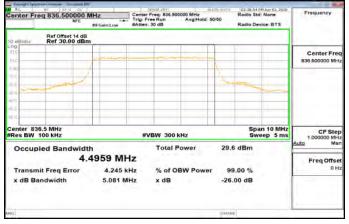


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### Band5\_5MHz\_QPSK\_25\_0\_Main\_LowCH20425-826.5



# Band5\_5MHz\_QPSK\_25\_0\_Main\_MidCH20525-836.5



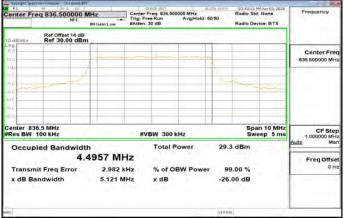
### Band5\_5MHz\_QPSK\_25\_0\_Main\_HighCH20625-846.5

Center Fre	NFE NFE	Trig	er Freq: 846.500 Free Run en: 30 dB		Radio 1	27 PH Jun 03, 2020 Std: None Device: BTS	Frequency
10 dB/div	Ref Offset 14 dB Ref 30.00 dBm	-					
10,0 10,0							Center Freq 846.500000 MHz
9.000 10.00 20.0					Lon		
40 Q. 40 D							
40.0 ED C							
Res BW		-	#VBW 300	kHz		pan 10 MHz weep 5 ms	CF Step 1.000000 MHz
Occup	led Bandwidth		Total F	ower	29.5 dBm		Auto Man
	4.4	1896 MHz					Freq Offset
	it Freq Error ndwidth	-3.910 kHz 5.089 MHz	% of O x dB	BW Power	99.00 % -26.00 dB	i di	0 Hz
					ETATO5		

### Band5\_5MHz\_16QAM\_25\_0\_Main\_LowCH20425-826.5



### Band5\_5MHz\_16QAM\_25\_0\_Main\_MidCH20525-836.5



### Band5\_5MHz\_16QAM\_25\_0\_Main\_HighCH20625-846.5

RL	NP SPIG DC	and a second	TWE REALES				PM Jun 03, 2020	Frequency
Center Fre	eq 846,500000 NFE	Tri	nter Freq: 846.50 g: Free Run tten: 30 dB	AvgiHold: 5	0/50	Radio St Radio De	d: None vice: BTS	requency
10 dB/div	Ref Offset 14 dE Ref 30.00 dB					_		
39,0 10,0 10,0								Center Fred 846.500000 MHz
90.0 20.0	-				1	-		
00 iaŭ								
Center 84	6.5 MH2					Sn	an 10 MHz	
Res BW		_	#VBW 300	kHz			eep 5 ms	CF Step 1.000000 MHz
Occup	led Bandwid		Total	Power	28.	7 dBm		Auto Man
	it Freq Error	.4918 MHz -5.875 kHz		BW Power		9.00 %		Freq Offset 0 Ha
x dB Ba	indwidth	5.077 MHz	x dB		-20	00 dB		1
0					ITATO	5		

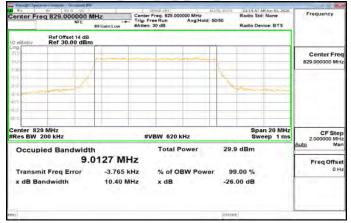
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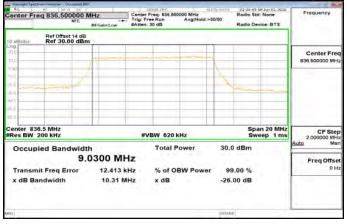


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### Band5\_10MHz\_QPSK\_50\_0\_Main\_LowCH20450-829



### Band5\_10MHz\_QPSK\_50\_0\_Main\_MidCH20525-836.5



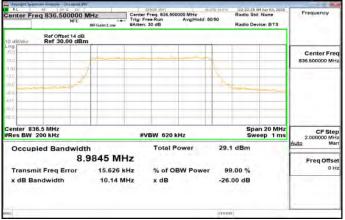
### Band5\_10MHz\_QPSK\_50\_0\_Main\_HighCH20600-844

Center Fre	eq 844,000000 N NFE	Trig	ter Freq: 844.00 Free Run en: 30 dB		Ra 0/50	dio Std: None dio Device: BTS	Frequency
10 dBrdiv	Ref Offset 14 dB Ref 30.00 dBm						
39,0 39,0 10,0				· · · · · ·			Center Freq 844,000000 MHz
20.0	1				the second	_	
40.0							
ed C.							
Res BW			#VBW 620	kHz		Span 20 MHz Sweep 1 ms	CF Step 2.000000 MHz
Occup	led Bandwidth	9827 MHz	Total F	Power	29.9 dE	3m	Auto Man
	o.c	-1.207 kHz 10.24 MHz	% of O x dB	BW Power	99.00 -26.00		Freq Offset 0 Hz
nici l					STATUS		

### Band5\_10MHz\_16QAM\_50\_0\_Main\_LowCH20450-829



### Band5\_10MHz\_16QAM\_50\_0\_Main\_MidCH20525-836.5



### Band5\_10MHz\_16QAM\_50\_0\_Main\_HighCH20600-844

Sweet:Seet	Intern Analyzer - Occupied BW						
	eq 844,000000 M NFE	Trig:	Freq: 844.00000 Free Run n: 30 dB	0 MHz AvgiHold: 50/50	Radio Std: Radio Devi		Frequency
10 dB/div	Ref Offset 14 dB Ref 30.00 dBm			-			
39,0 39,0 10,0 2,00				minnen			Center Fred 844.000000 MHz
20.0	1			1	a second		
40.0							
Center 84						1 20 MHz [	CF Step
Res BW	200 kHz	1	VBW 620 KH	z	Swe	ep 1 ms	2.000000 MHz
Occup	led Bandwidt		Total Por	wer 2	9.1 dBm		Auto Man
	8.9	9715 MHz					Freq Offset
Transm	it Freq Error	921 Hz	% of OB	V Power	99.00 %		0 Hz
x dB Ba	Indwidth	10.19 MHz	x dB	-2	6.00 dB		
nc)					TUS		-

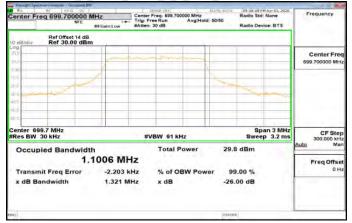
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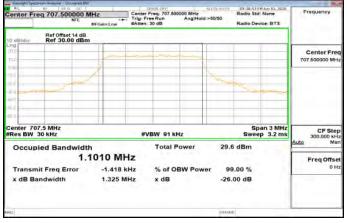


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### Band12\_1\_4MHz\_QPSK\_6\_0\_Main\_LowCH23017-699.7



### Band12\_1\_4MHz\_QPSK\_6\_0\_Main\_MidCH23095-707.5



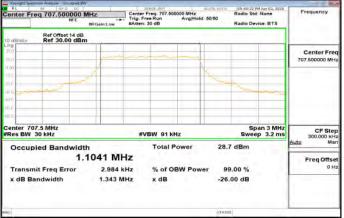
### Band12\_1\_4MHz\_QPSK\_6\_0\_Main\_HighCH23173-715.3

Center Fre	eq 715.300000 N NFE		Center Freq: 715.3 Trig: Free Run Atten: 30 dB	00000 MHz AvgiHol	d>50/50	Radio Std	e centre -	Frequency
10 dBrdiv	Ref Offset 14 dB Ref 30.00 dBm			-				
.09. 31,0 10,0		-						Center Free 715.300000 MHz
1000 1010 200		4			1	_		_
4110								
40.0 60 C								
Res BW			#VBW 91	Hz	-	Swee	an 3 MHz p 3.2 ms	CF Step 300.000 kH
Occup	ied Bandwidth	i	Total	Power	29.	8 dBm		Auto Man
	1.0	996 MH2	۲					Freq Offset
	hit Freq Error	-2.809 kH		DBW Pow	ver 9	9.00 %	. A	0 Hz
x dB Ba	andwidth	1.333 MH	z xdB		-26	.00 dB		
60					TATE	15	-	

### Band12\_1\_4MHz\_16QAM\_6\_0\_Main\_LowCH23017-699.7



### Band12\_1\_4MHz\_16QAM\_6\_0\_Main\_MidCH23095-707.5



### Band12\_1\_4MHz\_16QAM\_6\_0\_Main\_HighCH23173-715.3

Center Fre	eq 715.300000 M NFE	MHZ MFGain:Low	Center Freq: 715.30 Trig: Free Run #Atten: 30 dB		150	Radio Std	vice: BTS	Frequency
10 dBrdiv	Ref Offset 14 dB Ref 30.00 dBm							
39,0 19,0 19,0		1						Center Freq 715 300000 MHz
N 000 N 0 10 20 0		4		5	~			_
40.0					-			
40.0 60 C								
Res BW			#VBW 91 k	Hz			an 3 MHz p 3.2 ms	CF Step 300.000 kHz
Occup	led Bandwidt	h	Total	Power	28.6	dBm		Auto Man
	1.1	1018 MH	z					Freq Offset
	it Freq Error Indwidth	3.148 kH 1.351 MH		DBW Power	99.0 -26.0	00 % 0 dB		0 Hz
10					TATUS		_	

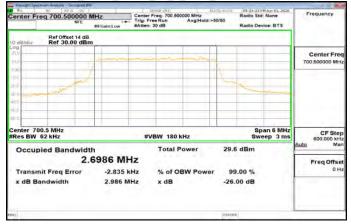
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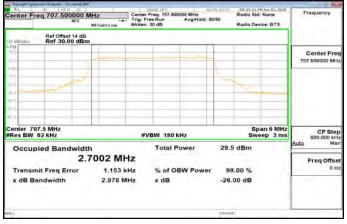


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### Band12\_3MHz\_QPSK\_15\_0\_Main\_LowCH23025-700.5



# Band12\_3MHz\_QPSK\_15\_0\_Main\_MidCH23095-707.5



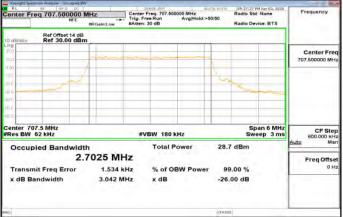
### Band12\_3MHz\_QPSK\_15\_0\_Main\_HighCH23165-714.5

Center Fre	eq 714.500000 N	Tr Tr	stines ovr nter Freq: 714.5 g: Free Run tten: 30 dB		Rad 150	25:49 PH Jun 03, 2020 flo Std: None flo Device: BTS	Frequency
10 dB/div	Ref Offset 14 dB Ref 30.00 dBm				_		
.09. 39.0 10.0							Center Fred 714.500000 MHz
9.00 10.0 20.0					1		_
30 0. 40 0			_				
60 C.							
Res BW			#VBW 180	kHz		Span 6 MHz Sweep 3 ms	CF Step 600.000 kHz
Occup	led Bandwidtl 2.7	h 7042 MHz	Total	Power	29.5 dB	im	Auto Mar
	hit Freq Error andwidth	-6.302 kHz 3.009 MHz	% of C x dB	DBW Power	99.00 -26.00 d		0 Hz
RG .					STATUS	_	

### Band12\_3MHz\_16QAM\_15\_0\_Main\_LowCH23025-700.5



### Band12\_3MHz\_16QAM\_15\_0\_Main\_MidCH23095-707.5



### Band12\_3MHz\_16QAM\_15\_0\_Main\_HighCH23165-714.5

RL	M SD D DC 1		TWL REALES			05:27:56 PM Jun 03,	2028	requency
Center Fre	eq 714,500000 N NFE	MEGain:Low	Center Freq: 714. Trig: Free Run #Atten: 30 dB	500000 MHz AvgiHold>5	0/50	Radio Std: None Radio Device: BT		requency
10 dB/div	Ref Offset 14 dB Ref 30.00 dBm							
39,0 10,0 10,0		provenue						Center Fred 4.500000 MHz
200	and the second second				12-1	_		
00. d1								
enter 714	4.5 MHz					Span 6 I	//Hz	
Res BW			#VBW 18	0 kHz		Sweep 3	ms	CF Step 600.000 kHz
Occup	led Bandwidt			Power	28.7	dBm	Auto	Man
Transm	2.1 It Freg Error	-3.414 kH	Sec. 1997	OBW Power	99.	00 %	12	Freq Offset 0 Ha
	indwidth	3.014 MH			-26.0			
					TATUS			

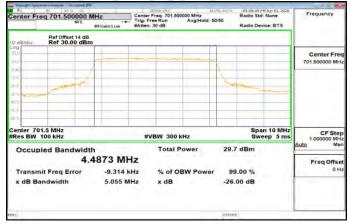
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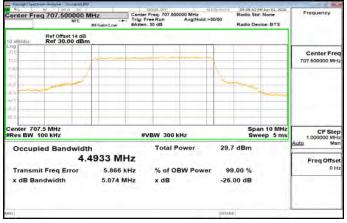


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### Band12\_5MHz\_QPSK\_25\_0\_Main\_LowCH23035-701.5



### Band12\_5MHz\_QPSK\_25\_0\_Main\_MidCH23095-707.5



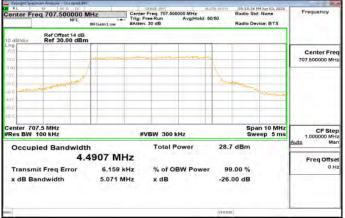
### Band12\_5MHz\_QPSK\_25\_0\_Main\_HighCH23155-713.5

Center Fr	eq 713.500000   NFE	Tri	tter Freq: 713.5 g: Free Run ten: 30 dB		Rad	tio Std: None tio Device: BTS	Frequency
10 dBrdiv	Ref Offset 14 dB Ref 30.00 dBn	n			-		
39,0 10,0 10,0							Center Freq 713.500000 MHz
9.00 AUL 20.0	manner				2m	_	
-0 0. 4011			_				
-60 0.							
Center 71 #Res BW			#VBW 300	kHz	1	Span 10 MHz Sweep 5 ms	CF Step 1.000000 MHz
Occup	led Bandwidt	h 4971 MHz	Total	Power	29.8 dB	im	Auto Man Freq Offset
	nit Freq Error andwidth		% of C x dB	DBW Power	99.00 -26.00 d		0 Hz
600					ITATOS		

# Band12\_5MHz\_16QAM\_25\_0\_Main\_LowCH23035-701.5



### Band12\_5MHz\_16QAM\_25\_0\_Main\_MidCH23095-707.5



### Band12\_5MHz\_16QAM\_25\_0\_Main\_HighCH23155-713.5

RL	- RF 58 0 DC			11/12:112		ion auro		M Jun 0.3, 2020	Frequency
Center Fre	NFE NFE	MHZ MFGain:Low	Center Fre Trig: Free #Atten: 30	Run	AvgiHold: 6	0/50	Radio Sto	vice: BTS	( requirey
10 dB/div	Ref Offset 14 dB Ref 30.00 dBn					_	_		
10,0 10,0 0,00				ine.					Center Fred 713 500000 MHz
20.0	moner	4				1º	-		
40 0. 40 0.									
Center 713		+							
Res BW			#VB	W 300 H	Hz			eep 5 ms	CF Step 1.000000 MHz
Occupi	led Bandwidt			Total P	ower	28.	8 dBm		Auto Man
	4.	4945 MH	z						Freq Offset
	it Freq Error				BW Power		9.00 %		0 Hz
x dB Ba	ndwidth	5.023 MI	Hz	x dB		-26	.00 dB		
ó						TATE	15		

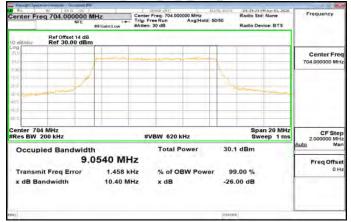
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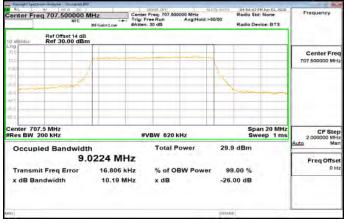


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### Band12\_10MHz\_QPSK\_50\_0\_Main\_LowCH23060-704



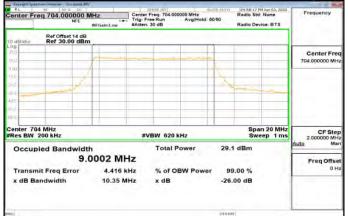
### Band12\_10MHz\_QPSK\_50\_0\_Main\_MidCH23095-707.5



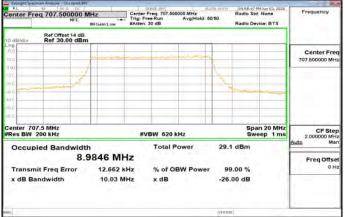
### Band12\_10MHz\_QPSK\_50\_0\_Main\_HighCH23130-711

Center Fr	reg 711.000000 M NFE	Triber Tri	nter Freq: 711.0 g: Free Run tten: 30 dB		50/50	Radio Std: No Radio Device	one	Frequency
10 dB/div	Ref Offset 14 dB Ref 30.00 dBm	ç.						
391,0 10,0								Center Freq 711.000000 MHz
40.0 20.0	-		_		the			
40.0								
Center 7								
Res BW			#VBW 620	kHz		Sweep	20 MHz 0 1 ms	CF Step 2.000000 MHz
Occur	oled Bandwidt	h	Total	Power	30.1	dBm	é	uto Mar
	8.9	9773 MHz					- 1	Freq Offset
	nit Freq Error		% of C	BW Power	99	.00 %		0 Hz
x dB B	andwidth	10.24 MHz	x dB		-26.	00 dB		
660					TATOS		_	

### Band12\_10MHz\_16QAM\_50\_0\_Main\_LowCH23060-704



### Band12\_10MHz\_16QAM\_50\_0\_Main\_MidCH23095-707.5



### Band12\_10MHz\_16QAM\_50\_0\_Main\_HighCH23130-711

Karpenghit Speak	In Analyzer - Occupied BW	C	cance and	ALION AUTO	04 59 15 PM ton 03	20 2 M
Center Fre	Pq 711.000000 M	Trig:	r Freq: 711.000000 MHz	old: 50/50	Radio Std: None Radio Device: BT	Frequency
10 dB/div	Ref Offset 14 dB Ref 30.00 dBm					1
10.0 10.0				-		Center Freq 711.000000 MHz
20.0	- and a for			1		
40.0						1975 - C
Center 71					Span 20 I	
Res BW	200 kHz		VBW 620 kHz		Sweep 1	ms 2.000000 MHz
Occup	ied Bandwidt 8.1	h 9464 MHz	Total Power	29.	2 dBm	Auto Man
	it Freq Error Indwidth	-5.646 kHz 10.04 MHz	% of OBW Po x dB		9.00 % .00 dB	0 Hz
690				TAIL	15	

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# 8 OUT OF BAND EMISSION AT ANTENNA TERMINALS

# 8.1 Standard Applicable

# FCC §22.917(a), §24.238(a), §27.53(h

Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.

# FCC §27.53(c) (5) & FCC §27.53(g) for LTE B12

Compliance for operations in the 600 MHz, 698-746 MHz, 746-758 MHz and the 776-788 MHz band with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

# FCC §27.53(h)(3) for LTE B4

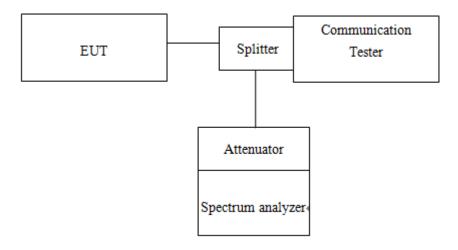
Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater. However, in the 1 megahertz bands immediately outside and adjacent to the licensee's frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

# FCC §90.691 Emission mask requirements for EA-based systems for LTE B26

(a) Out-of-band emission requirement shall apply only to the "outer" channels included in an EA license and to spectrum adjacent to interior channels used by incumbent licensees. The emission limits are as follows: (1) For any frequency removed from the EA licensee's frequency block by up to and including 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least 116 Log10(f/6.1) decibels or 50 + 10 Log10(P) decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 12.5 kHz.

(2) For any frequency removed from the EA licensee's frequency block greater than 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least 43 + 10Log10(P) decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 37.5 kHz.

# 8.2 Test SET-UP



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# 8.3 Measurement Procedure

# 8.3.1 Conducted Emission

The RF output of the transceiver was connected to a spectrum analyzer through appropriate attenuation The resolution bandwidth of the spectrum analyzer was set at 1MHz, sufficient scans were taken to show the out of band Emissions if any up to 10th harmonic.

- 1. To connect Antenna Port of EUT to Spectrum.
- 2. Set RBW = 1MHz & VBW = 1MHz on Spectrum.
- 3. Allow trace to fully stabilize
- 4. Repeat above procedures until all default test channel measured were complete.

# 8.3.2 Band Edge

- 1. To connect Antenna Port of EUT to Spectrum.
- The band edge of low and high channels for the highest RF powers was measured. Setting RBW ≥ 1% EBW.
- 3. Allow trace to fully stabilize
- 4. Repeat above procedures until all default test channel measured were complete.

# 8.4 Measurement Equipment Used

Conduc	ted Emission (m	neasured at a	antenna port)	Test Site	
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
PXA Spectrum Analyz- er	Agilent	N9030A	MY53120760	04/21/2020	04/20/2021
DC Power Supply	Agilent	E3640A	MY40005907	10/22/2019	10/21/2020
Temperature Chamber	TERCHY	MHG-120LF	911009	05/20/2020	05/19/2021
Radio Communication Analyer	Anritsu	MT8815B	6200711454	04/01/2020	03/31/2021
Attenuator	Mini-Circuit	BW-S10W2+	2	01/02/2020	01/01/2021
DC Block	Mini-Circuits	BLK-18-S+	1	01/02/2020	01/01/2021
Splitter	RF-LAMBAD	RFLT2W1G1 8G	11-JSPF412- 018	01/02/2020	01/01/2021

# 8.5 Measurement Result:

Refer to next pages.

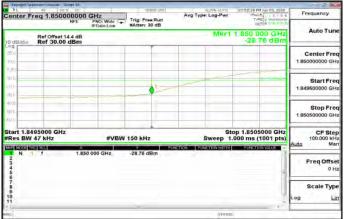
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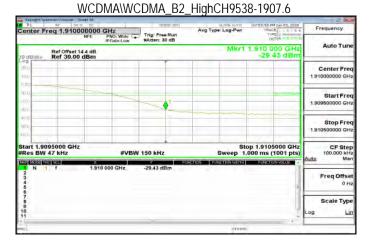
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Band Edge WCDMA\WCDMA\_B2\_LowCH9262-1852.4

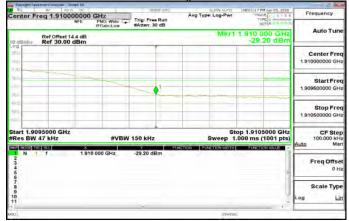




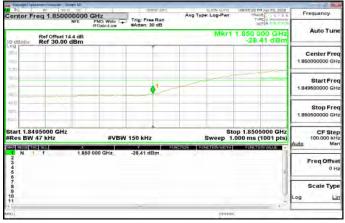
## HSDPA\HSDPA B2 LowCH9262-1852.4

22						t House - Strapt SA	Avergett.Spante
Frequency	NACE 5 5 5 TYPE a wordwork		Avg Type: Log-Pwr	Trig: Free Run	PNO: Wide ()	1.850000000 NFE	Center Fre
Auto Tun			Mkr	Atten: 30 dB	IFfsein:Low	ef Offset 14.4 dB ef 30.00 dBm	10 dBrdiv
Center Free 1 850000000 GH							2001 1000 1.201
Start Free 1.849500000 GH	Sec. States to			· ·			100 (0) (0)
Stop Fre 1.850500000 GH							40.0 00.0 60.0
CF Ster 100.000 kH Auto Ma	505000 GHz s (1001 pts)	1.000 r			#VBW	kHz	Start 1.8495 Res BW 43
Freq Offse 0 H				29.49 dBm	0 000 GHz	1.850	1 N 1 2 3 4 5
Scale Type	ļ						6 7 8 9 10 11
		TELE:	=7×7				600

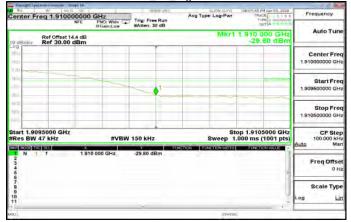
### HSDPA\HSDPA\_B2\_HighCH9538-1907.6



### HSUPA\HSUPA\_B2\_LowCH9262-1852.4



### HSUPA\HSUPA\_B2\_HighCH9538-1907.6



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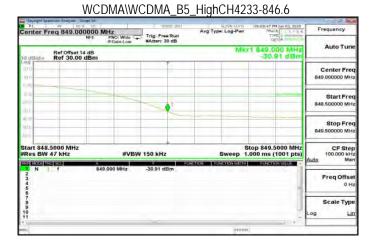
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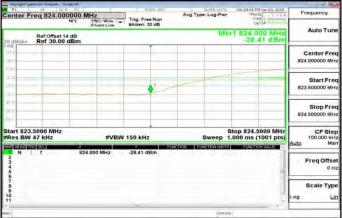
# Report No.: ER/2020/50029 Page 71 of 174

### WCDMA\WCDMA\_B5\_LowCH4132-826.4

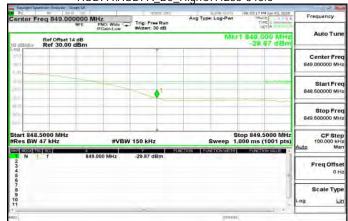




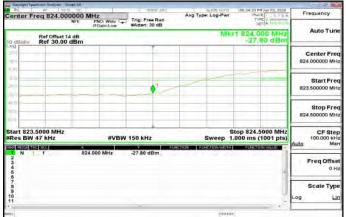
## HSDPA\HSDPA B5 LowCH4132-826.4



# HSDPA\HSDPA\_B5\_HighCH4233-846.6



### HSUPA\HSUPA\_B5\_LowCH4132-826.4



### HSUPA\HSUPA B5 HighCH4233-846.6

	attriaer Annivaer - Simpt SA	-		and the second se		5.2
Center F	req 849.000000		Trig: Free Run	Avg Type: Log-Pwr	00,30,40 FH Jun B1, 2018 TRACE 1 8 5 6 TVPE 4 VMV	Frequency
	Are	IFGain:Low	#Atten: 30 dB		DET A	Auto Tun
vibide 0	Ref Offset 14 dB Ref 30.00 dBm			NIK)	1 849,000 MHz -29.28 dBm	
21/1			-			Center Fre
0.0	-					849.000000 MH
00		_				Start Fre
(0)	-					848.500000 Mi
0.0						
- 1/2						Stop Fre 849 500000 MH
600						849.500000 mm
tart 848 Res BW	.5000 MHz 47 kHz	#VBW	150 kHz	Sweep 1	top 849.5000 MHz 000 ms (1001 pts)	CF Ste 100.000 kH
		849.000 MHz	-29.28 dBm	HORON HORONANDIH	FUNCTIONWILLE	Auto Ma
234		19.000 MEL2	-29.20 UBIN			Freq Offse
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10						Log L
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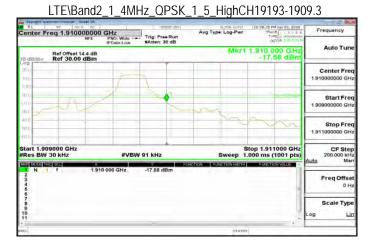
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### LTE\Band2\_1\_4MHz\_QPSK\_1\_0\_LowCH18607-1850.7

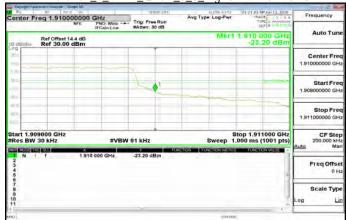




## LTE\Band2 1 4MHz QPSK 6 0 LowCH18607-1850.7



### LTE\Band2\_1\_4MHz\_QPSK\_6\_0\_HighCH19193-1909.3



### LTE\Band2\_3MHz\_QPSK\_1\_0\_LowCH18615-1851.5



### LTE\Band2 3MHz QPSK 1 14 HighCH19185-1908.5

PL: N	Analyzer - Stratet SA			ALION 4010	10:22:44 PM Jun 82, 2028	
Center Freq		BND: Wide	Trig: Free Run	Avg Type: Log-Pwr	TRACE 1 3 5 5	Frequency
-		IFGain:Low	#Atten: 30 dB	MRr1		Auto Tune
	f Offset 14.4 dB f 30.00 dBm			inter 1	-16.54 dBm	
20.0						Center Fred
1000			7			1.91000000 GH
1(B)		1	1			1. 20.542
-00		1				Start Fred 1.909000000 GHz
3())		-	2000		173	
40)0					and the second	Stop Free
EDID						1.911000000 GH
Start 1.90900			-		Stop 1.911000 GHz	CF Step
#Res BW 39 k	Hz	#VBW	120 kHz	Sweep	200.000 kH	
		0 000 GHz	-16.64 dBm	ACTION FUNCTION WEITH	FUNCTION VALUE	EDMANE INTER
2 3 4 5 6 7 8 9						Freq Offse
7.8					_	Scale Type
10 11						Log Li
11			-	1		
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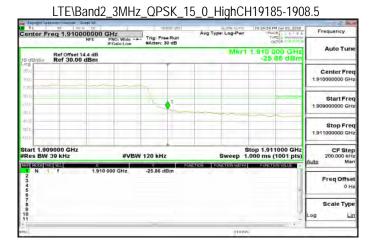
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## LTE\Band2\_3MHz\_QPSK\_15\_0\_LowCH18615-1851.5





## LTE\Band2 5MHz QPSK 1 0 LowCH18625-1852.5



#### LTE\Band2\_5MHz\_QPSK\_1\_24\_HighCH19175-1907.5 Avg Type: Log-Pw Frequency Auto Tu Mkr1 1.910 000 GI Ref Offset 14.4 dB Ref 30.00 dBm Center Fre Start Fre Stop Fre 1.91 Stop 1.911000 Gi CF Step 1.909000 BW 51 kH WRW 150 kH Freq Offse Scale Tvp ы

#### LTE\Band2\_5MHz\_QPSK\_25\_0\_LowCH18625-1852.5



### LTE\Band2 5MHz QPSK 25 0 HighCH19175-1907.5

Ave-percip	attemption - Sea	pt 54			and the second second second	0.2.1
Center F	reg 1.91000	0000 GHz	Trig: Free Run	Avg Type: Log-Pwr	10:00:19 PM Jun 82, 2028	Frequency
		IFGain:Low	#Atten: 30 dB		DET A TEO	Auto Tune
10 dB/div	1.910 000 GHz -28.43 dBm	Auto Tun				
201						Center Free
0.00						1.91000000 GH
0.0	_					Start Free
(11)	-		A1			1.909000000 GH
300					~~~~	
40.0		1				Stop Free
EDID						1.911000000 GH
Start 1.9	09000 GHz	#VBW	150 kHz	Sweep 1	top 1.911000 GHz .000 ms (1001 pts)	CF Step 200.000 kH
ARE BOOKS IN		×		HETTON FUNCTION WOTH	FUNCTION WALUE	Auto Ma
1 N 2 3 4 5 6 7 8 9	177	1.910 000 GHz	-28.43 dBm			Freq Offse 0 H
7 8						Scale Type
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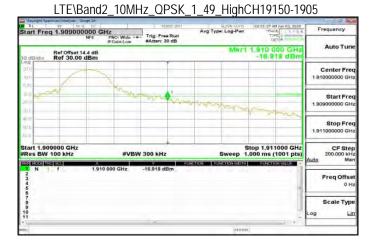
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## LTE\Band2\_10MHz\_QPSK\_1\_0\_LowCH18650-1855





## LTE\Band2 10MHz QPSK 50 0 LowCH18650-1855



# LTE\Band2\_10MHz\_QPSK\_50\_0\_HighCH19150-1905 Avg Type: Log-Pw



## LTE\Band2\_15MHz\_QPSK\_1\_0\_LowCH18675-1857.5



## LTE\Band2 15MHz QPSK 1 74 HighCH19125-1902.5



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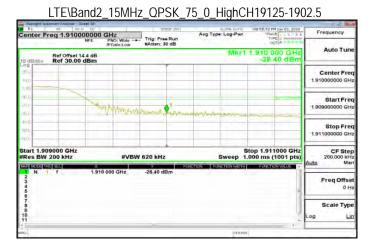
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### LTE\Band2\_15MHz\_QPSK\_75\_0\_LowCH18675-1857.5



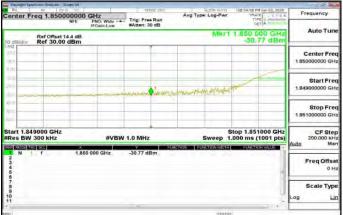


## LTE\Band2\_20MHz\_QPSK\_1\_0\_LowCH18700-1860



#### LTE\Band2\_20MHz\_QPSK\_1\_99\_HighCH19100-1900 art Freq 1.909000000 GHz NFE PNO Wide - Trigi Free Run Atten: 30 dB Frequency Avg Type: Log-Pw Auto Tu 310 000 C Ref Offset 14.4 dB Ref 30.00 dBm Center Fre Start Fre Stop Fre 1.91 CF Step Stop 1.911000 G VRW 620 kH Freq Offse Scale Tvp L

### LTE\Band2\_20MHz\_QPSK\_100\_0\_LowCH18700-1860



### LTE\Band2 20MHz QPSK 100 0 HighCH19100-1900

			-		-	_		greght Spectroley Analyz	
Frequency	A PH Jun 82, 2028	TRU	g Type: Log-Pwr		Trig: Free	PNO: Wide	0000000	ter Freq 1.9	
Auto Tune	000 GHz	H GainLow HAtten: 30 dB DOTA 10.910 DOG GH: 10 dB/db/ Ref Offset 14.4 dB							
Center Free 1.910000000 GH									
Start Free 1.909000000 GH	and a standard			1 Mariana	Nothing	W. Magoodaliya	wany We		
Stop Free 1.911000000 GH									
CF Step 200.000 kH Auto Mar	11000 GHz (1001 pts)	1.000 ms	Sweep 1		1.0 MHz	#VBW		rt 1.909000 GH s BW 300 kHz	
Freq Offse	TION VALUE	FUNCT	FUNCTION WORTH	HE HERE	-30,15 dE	000 GHz	1.910	N 1 T	
Scale Type	ļ								
		15	TATE	_	_				

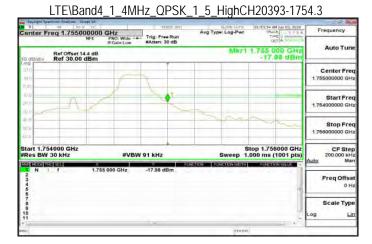
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## LTE\Band4\_1\_4MHz\_QPSK\_1\_0\_LowCH19957-1710.7

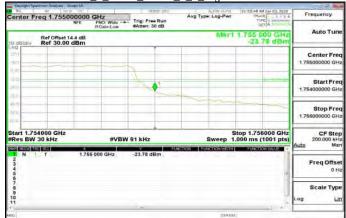




## LTE\Band4 1 4MHz QPSK 6 0 LowCH19957-1710.7

Faryworkt Spe	eticaer Anniyaar - Sirver			and the second	Marrie and and an and an and an	
	eq 1.710000		Trig: Free Run	Avg Type: Log-Pwr	01:54126 AM Jun Rb, 2020 TRACE 7 8 5 6 TUPE 1 VIVIONI	Frequency
-	1.710 000 GHz	Auto Tune				
10 dB/dtv	Ref Offset 14.4 Ref 30.00 di				-25.02 dBm	
23.0 100.0						Center Free 1.710000000 GH
().000 (0:0) (0:0)			e /		10-7-7-4	Start Fre 1.709000000 GH
40		~~~				Stop Fre 1.711000000 GH
Res BW		#VBW	91 kHz	Sweep 1	Stop 1.711000 GHz .000 ms (1001 pts)	CF Ste 200.000 kH Auto Ma
2 3 4	1	1.710 000 GHz	-25.02 dBm	itenen Fonstein wern	FUNCTION WILLIE	Freq Offse
5 6 7 8 9					]	Scale Typ
11			-	TAIL		

#### LTE\Band4\_1\_4MHz\_QPSK\_6\_0\_HighCH20393-1754.3



#### LTE\Band4\_3MHz\_QPSK\_1\_0\_LowCH19965-1711.5



#### LTE\Band4 3MHz QPSK 1 14 HighCH20385-1753.5

2.2.6			and the second second		thiser Analyzer - Simpli SA	Farywight Spe					
Frequency	TIPE A	Avg Type: Log-Pwr	Trig: Free Run	DMC Mide -	eq 1.755000000						
Auto Tun		If Gaint Low #Atten: 30 dB Det A rooms If Gaint Low #Atten: 30 dB Det A rooms Ref Offset 14 4 dB Mir/1 1.755 GOO GHz Ref 30.00 dBm -16.23 dBm									
Center Fre 1,755000000 GH	-10.20 0 000			1	Ref 30.00 dBm						
Start Fre 1,754000000 GH		~	1º	/							
Stop Fre 1.756000000 GH	20000					900 900					
CF Step 200.000 kHz Auto Man	top 1.756000 GHz 000 ms (1001 pts)	Sweep 1.		#VBW 1		Res BW					
Freq Offse	FUNCTION WALKE	TON FUNCTION WOTH	-16.23 dBm	5 000 GHz		205 02000 http 1 N 1 2 3 4 5					
Scale Typ	J					2 3 4 5 6 7 8 9 10					
	- I -	TAUS				0					

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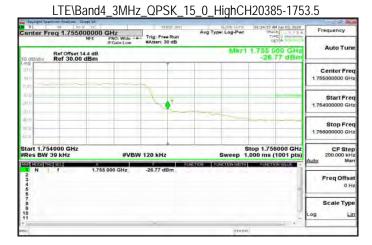
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### LTE\Band4\_3MHz\_QPSK\_15\_0\_LowCH19965-1711.5





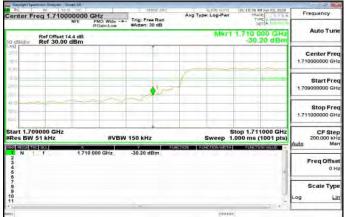
## LTE\Band4 5MHz QPSK 1 0 LowCH19975-1712.5



## LTE\Band4\_5MHz\_QPSK\_1\_24\_HighCH20375-1752.5



### LTE\Band4\_5MHz\_QPSK\_25\_0\_LowCH19975-1712.5



### LTE\Band4 5MHz QPSK 25 0 HighCH20375-1752.5

5.2			-	_	nicer Analyzer - Simpt SA				
Frequency	TRACE TRACE	Avg Type: Log-Pwr	Trig: Free Run	PNO Wide	q 1.755000000	Center Fr			
Auto Tune	DETA		#Atten: 30 dB	IFGain:Low	in the				
Auto Tuli	Ref Offset 14.4 dB								
Center Free						ala			
1.755000000 GH				_	_	in n			
						1.00			
Start Free				A.		(D.D)			
1,754000000 GH						200			
-		m			-	in the second			
Stop Free 1.756000000 GH				_	_	50			
1.756000000 GH						EDU			
CF Step 200.000 kHz	top 1.756000 GHz 000 ms (1001 pts)	Sweep 1.	150 kHz	#VBW		Start 1.75 #Res BW			
Auto Mar	FUNCTIONWARDE	TION FORCEONINGTH				MAR MODE TH			
Freq Offse 0 Hi			-29.78 dBm	55 000 GHz	1 1.76	1 N 1			
Scale Type						5 6 7 8 9 10			
Log Lin						10			
	- I - I					6			
-		STATUS				OBN			

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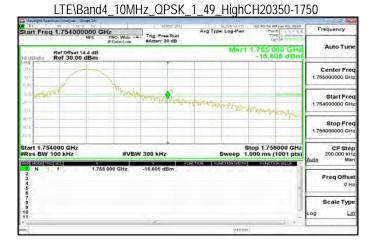
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# Report No.: ER/2020/50029 Page 78 of 174

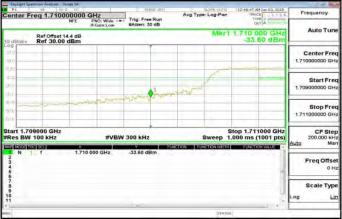


## LTE\Band4\_10MHz\_QPSK\_1\_0\_LowCH20000-1715





## LTE\Band4 10MHz QPSK 50 0 LowCH20000-1715



#### LTE\Band4\_10MHz\_QPSK\_50\_0\_HighCH20350-1750 Frequency Avg Type: Lo Auto Tu Ref Offset 14.4 dB Ref 30.00 dBm Center Fre Start Fre Stop Fre 1.754000 Stop 1.756000 G 1.000 ms (1001 p CF Step VRW 300 kH Freq Offse Scale Tvp L

### LTE\Band4\_15MHz\_QPSK\_1\_0\_LowCH20025-1717.5



### LTE\Band4 15MHz QPSK 1 74 HighCH20325-1747.5

5.2			-	_	mann Anwijyawr - Simuph SA			
Frequency	02-38126 AM Jun Rb, 2020 TRACE	Avg Type: Log-Pwr	Trig: Free Run	Hz PNO: Wide	1.754000000 G	Start Free		
Auto Tune	IFGaint.ow #Atten: 30 dB Detra Code Ref Offset 14.4 dB Mir/1 17.55 000 GHz 10 dB/dv Ref 30.00 dBm -17.488 dBm							
Center Free 1.755000000 GH					1	00 0.00		
Start Fre 1,754000000 GH	Myper-Mynnie y	Man with Manuer	www.www.www.	of the state of th	799	0.05 (0.0) (0.0) (0.0)		
Stop Free 1,756000000 GH						1000		
CF Ste 200.000 kH Auto Ma	top 1.756000 GHz 000 ms (1001 pts)	Sweep 1.	170 kHz	#VBW	150 kHz	tart 1.754 Res BW		
Freq Offse	FUNCTION WALKE	PON FUNCTION WIZTH	17.488 dBm	5 000 GHz		N		
Scale Type	)					2 3 4 5 6 7 8 9 10		
	•	TAUS	-			< [		

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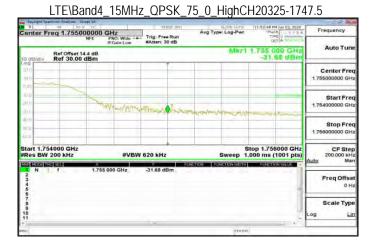
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### LTE\Band4\_15MHz\_QPSK\_75\_0\_LowCH20025-1717.5



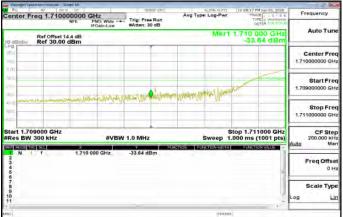


## LTE\Band4\_20MHz\_QPSK\_1\_0\_LowCH20050-1720



#### LTE\Band4\_20MHz\_QPSK\_1\_99\_HighCH20300-1745 tart Freq 1.754000000 GHz NFE PNO Wide - Trig Free Run Atten: 30 dB Frequency Avg Type: Log-Pw Auto Tu Ref Offset 14.4 dB Ref 30.00 dBm Center Fre a stary the new Start Fre Stop Fre Stop 1.756000 G CF Step VRW 620 kH Freq Offse Scale Tvp L

#### LTE\Band4\_20MHz\_QPSK\_100\_0\_LowCH20050-1720



### LTE\Band4 20MHz QPSK 100 0 HighCH20300-1745

	and the second se				attester ( Angenty Ann - So				
Frequency	1114/22 PM Jun 82, 2028 TRACE 1 5 5 5 TVPE A VIOLENTY	Avg Type: Log-Pwr	Trig: Free Run	00000 GHz	reg 1.7550	Center Fi			
Auto Tun	NPE         PMC Wide								
Center Free 1,755000000 GH					Ref 30.00	2001 1000			
Start Free 1.754000000 GH	and the second se		Mashum Manager	- WWWWWWWWW	me	1,8) (0.0) (11)			
Stop Free 1.756000000 GH						40.0 90°0 60°0			
CF Ste 200.000 kH Auto Ma	top 1.756000 GHz 000 ms (1001 pts)	Sweep 1.	1.0 MHz	#VBW		Start 1.75 #Res BW			
Freq Offse 0 H			-29.56 dBm	1.755 000 GHz	ſ	1 N 1			
Scale Type	J		_			2 3 4 5 6 7 8 9 10 11			
h	1	TATUS				209			

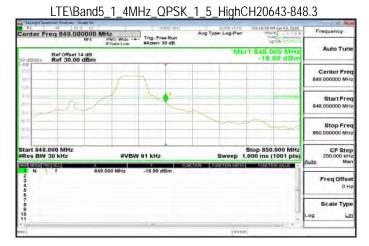
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LTE\Band5\_1\_4MHz\_QPSK\_1\_0\_LowCH20407-824.7

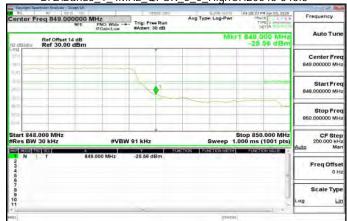




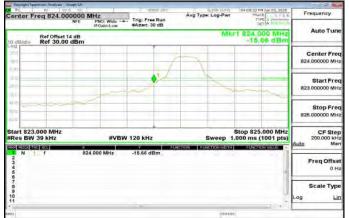
# LTE\Band5 1 4MHz QPSK 6 0 LowCH20407-824.7

	atticer Analyzer - 3				and Barrier and		
Center F	req 824.00	00000 P	AHz PNO Wide	Trig: Free Run	Avg Type: Log-Pwr	04:27:12 PH Jun Rb, 2028 TRACE	Frequency
		HILE	IFGain:Low	#Atten: 30 dB		DET A non n	Auto Tune
10 dB/dtv	Ref Offset 1 Ref 30.00				Mk	-24.11 dBm	Auto Tulk
and min							Center Free 824.000000 MH
0.85 (0.0 240)				- 1			Start Free 823.00000 MH
400							Stop Free 825.000000 MH
Start 823 #Res BW	5255 (1777 B		#VBW		Sweep 1	Stop 825.000 MHz .000 ms (1001 pts)	CF Step 200.000 kH Auto Mar
N 2345	1	82	4.000 MHz	-24.11 dBm			Freq Offse
5 6 7 8 9 10 11							Scale Type
100					STATU	15	

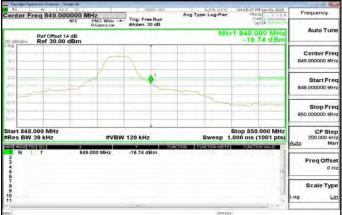
#### LTE\Band5\_1\_4MHz\_QPSK\_6\_0\_HighCH20643-848.3



### LTE\Band5\_3MHz\_QPSK\_1\_0\_LowCH20415-825.5



## LTE\Band5 3MHz QPSK 1 14 HighCH20635-847.5



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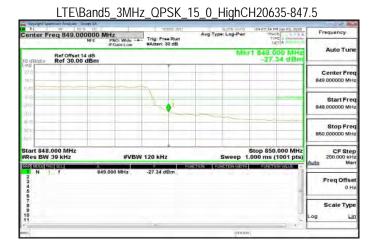
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## LTE\Band5\_3MHz\_QPSK\_15\_0\_LowCH20415-825.5

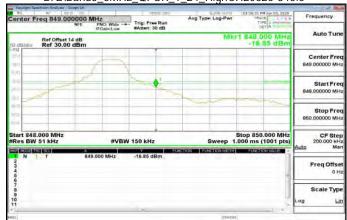




## LTE\Band5 5MHz QPSK 1 0 LowCH20425-826.5



#### LTE\Band5\_5MHz\_QPSK\_1\_24\_HighCH20625-846.5



#### LTE\Band5\_5MHz\_QPSK\_25\_0\_LowCH20425-826.5



#### LTE\Band5 5MHz QPSK 25 0 HighCH20625-846.5

5.2.6	and the second se		-				etnizer Annihane -			
Trequency	THACE	Type: Log-Pwr	Trig: Free Run		Center Freq 849.000000 MHz			Center Fr		
Auto Tun	1 849.000 MHz	Mkr	n: 30 dB	#Atten:	IFGain:Low	IFGain:Low Ref Offset 14 dB				
	-31.14 0.00	10 dB/dsv Ref 30.00 dBm -31.14 dBr								
Center Fre 849.000000 MH				_				and inco		
Start Fre			1	-	1			(D (D) (D (D) (D (D)		
			-		-		-	800		
Stop Fre 850.000000 MH			_					40.00		
CF Ste 200.000 kH	Stop 850.000 MHz 000 ms (1001 pts)		Hz	150 kH	#VBW	z		Start 848. Res BW		
Auto Ma		EURCTORMORE	-	-31.14	9.000 MHz	× 849.0	SIESCI III	-		
OH	-							23456		
Scale Typ								5 6 7 8 9 10		
Log Li	-							10 11		
	- 1-	TAIUS		-				enc.		

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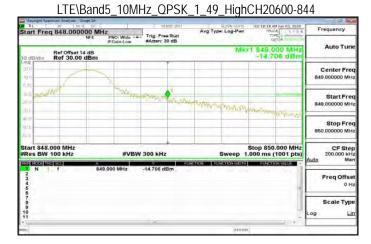
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## LTE\Band5\_10MHz\_QPSK\_1\_0\_LowCH20450-829





## LTE\Band5\_10MHz\_QPSK\_50\_0\_LowCH20450-829

Faryaight Spa	ettioner Analyzan - Skrept S			and the state of the state	The second second second	5.2		
	req 824.00000	0 MHz	Trig: Free Run	Avg Type: Log-Pwr	TRACE	Frequency		
-	Ref Offset 14 dB         Mkr1 824.000 MHz           0 dB/ddw         Ref 30.00 dBm							
a1.0		_				Center Free 824,000000 MH		
(D.D.)				1		Start Fre		
200			- Ain	I EW POR		823,000000 MH		
10.00 S(L)						Stop Fre 825.000000 MI-		
Res BW		#VBW	300 kHz		Stop 825.000 MHz 1.000 ms (1001 pts)	CF Ste 200.000 kH Auto Ma		
1 N 1 2 3 4 5	T T	824.000 MHz	-29.90 dBm	NCTION FUNCTION WOTH	FUNCTION WALVE	Freq Offse		
5 6 7 8 9					J	Scale Typ		
11			-	STAIL				

#### PE III SVG DC MHz nter Freq 849.000000 MHz NFE PNO Wide --- Trig: Free Run Atten: 30 dB Avg Type: Log-Pw Frequency Auto Tu Ref Offset 14 dB Ref 30.00 dBn Center Fre Start Fre 848.000000 Stop Fre 848.000 MH Stop 850.000 Mi 1.000 ms (1001 pt CF Step VRW 300 kH Freq Offse Scale Tvp L

LTE\Band5\_10MHz\_QPSK\_50\_0\_HighCH20600-844

## LTE\Band12\_1\_4MHz\_QPSK\_1\_0\_LowCH23017-699.7



## LTE\Band12\_1\_4MHz\_QPSK\_1\_5\_HighCH23173-715.3



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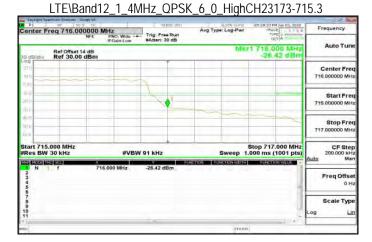
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## LTE\Band12\_1\_4MHz\_QPSK\_6\_0\_LowCH23017-699.7





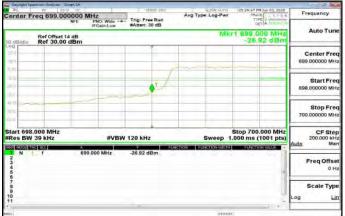
## LTE\Band12 3MHz QPSK 1 0 LowCH23025-700.5



#### LTE\Band12\_3MHz\_QPSK\_1\_14\_HighCH23165-714.5



#### LTE\Band12\_3MHz\_QPSK\_15\_0\_LowCH23025-700.5



### LTE\Band12 3MHz QPSK 15 0 HighCH23165-714.5

Fay sight Spattions An				and the second se	The same address of the second			
Center Freq 7	16.000000 I	MHz PNO Wide -	Trig: Free Run	Avg Type: Log-Pwr	CS 26,83 PH Jun R1, 2028 TRACE	Frequency		
Ref Offset 14 dB 10 dB/dv Ref 30.00 dBm -28.02 dBm								
	boloo ubm					Center Fre 716.000000 MH		
			1.			Start Fre 715.000000 MH		
00						Stop Fre 717.000000 MH		
tart 715.000 M Res BW 39 kH		#VBW	120 kHz	Sweep 1	Stop 717.000 MHz .000 ms (1001 pts)	CF Step 200.000 kHz		
kH C	x	#VBW		Sweep 1 North Electronic		200.000 kHz Auto Mar Freq Offset 0 Hz		
2 3 4 5 6 7 8 9 9					Ĵ	Scale Type		
e				TAIL	1			

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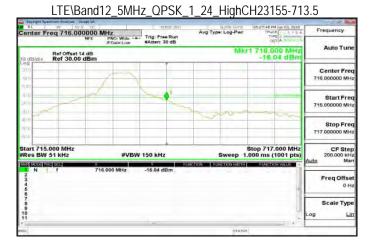
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## LTE\Band12\_5MHz\_QPSK\_1\_0\_LowCH23035-701.5

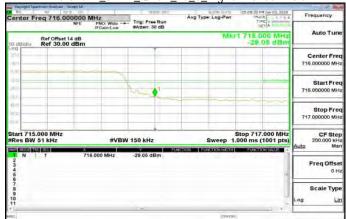




## LTE\Band12\_5MHz\_QPSK\_25\_0\_LowCH23035-701.5



#### LTE\Band12\_5MHz\_QPSK\_25\_0\_HighCH23155-713.5



#### LTE\Band12\_10MHz\_QPSK\_1\_0\_LowCH23060-704



### LTE\Band12 10MHz QPSK 1 49 HighCH23130-711

Keyaght Spectrum Analyze					
Start Freq 715.00	0000 MHz	Trig: Free Run	Avg Type: Log-Pwr	04:38:46 PM Jun Rb, 2028	Frequency
Ref Offset	1 716.000 MHz -15.653 dBm	Auto Tuni			
20 200 100	-				Center Fre 716.000000 MH
DD grant W	100	Company of the second	A Manaharaka Wanging	(Income of the other	Start Fre 715.000000 MH
ມຫ ເປັນ ລະມ				. In reaching	Stop Fre 717.000000 MI
tart 715.000 MHz Res BW 100 kHz		#VBW 300 kHz	Sweep 1	Stop 717.000 MHz .000 ms (1001 pts)	CF Ste 200.000 kH Auto Ma
22 22 22 22 22 22 22 22 22 22 22 22 22	716.000 MH		PACTION FUNCTION WORK	FUNCTION WILLIE	Freq Offse
5 6 7 8 9 0				1	Scale Typ
10			STATUS		

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No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號 f (886-2) 2298-0488



## LTE\Band12\_10MHz\_QPSK\_50\_0\_LowCH23060-704





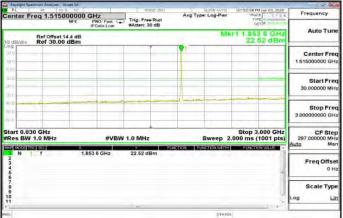


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Spurious Emission 30MHz~3GHz\_WCDMA\_B2\_LowCH9262-1852.4



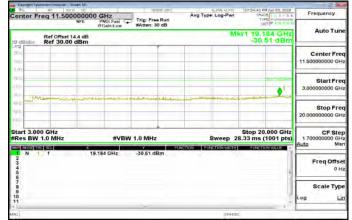
enter Freg 11.50000000 GHz Trig Free Run NFE PN0: Fest Trig: Free Run Free Avg Type: Log-Py Auto Tu 19.490 G -29.85 dB Ref Offset 14.4 dB Ref 30.00 dBm Center Fre Start Fre ٥ Stop Fre Start 3.000 GHz CF Ste Stop 20.000 GHz 28.33 ms (1001 pts Freq Offs ŌE Scale Typ

3GHz~10GHz\_WCDMA\_B2\_LowCH9262-1852.4

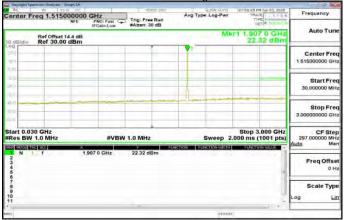
### 30MHz~3GHz WCDMA B2 MidCH9400-1880

5.2						n Anwiyaar - Sinan SA	Farywight Spectrum
Frequency	TRACE 1 3 5 6 TIPE How man	Avg Type: Log-Pwr	Run	Trig: Free	PNO: East (-)	1.515000000	
Auto Tun	1 1.880 3 GHz 22.51 dBm	Mar	0 dB	#Atten: 30	IFGain Low	ef Offset 14.4 dB ef 30.00 dBm	O dB/div R
Center Fre 1.515000000 GH		1					21.0 10.0
Start Fre 30,000000 MH							00
Stop Fre 3.00000000 GH		Name aloo					
CF Ste 297.000000 MH Auto Ma	Stop 3.000 GHz 000 ms (1001 pts)		800	1.0 MHz	#VBW	MHz	tart 0.030 G Res BW 1.0
Freq Offse			Bm	22.51 dE	380 3 GHz	rc ju	N 1 1 2 3 4 5
Scale Typ	J						6 7 8 9 10 11
		TAUS					DBD

#### 3GHz~10GHz\_WCDMA\_B2\_MidCH9400-1880



#### 30MHz~3GHz\_WCDMA\_B2\_HighCH9538-1907.6



#### 3GHz~10GHz\_WCDMA\_B2\_HighCH9538-1907.6

Center Freq 11.500		101.091	Avg Type: Log-Pwr	07:56:19 PM Jun 83, 2028	Frequency
Senter Fred 11.500	NFE PNOt Fast (	Trig: Free Run #Atten: 30 dB	1314 Lane 200 + 11	DET P IN	1.5.5
10 dBidiy Ref Offset			M	471 19.762 GHz -29.98 dBm	Auto Tune
2001 1000					Center Free 11.500000000 GH
0.0) (0.0) (10) (10) (10)					Start Free 3.000000000 GH
			Same and the second	The shine of	Stop Free 20.000000000 GH
Start 3.000 GHz #Res BW 1.0 MHz	#VBW	1.0 MHz	Sweep 2	Stop 20.000 GHz 8.33 ms (1001 pts)	CF Step 1.700000000 GH Auto Mar
1 N 1 f 2 3 4 5	19.762 GHz	-29.98 dBm			Freq Offse 0 H
6 7 8 9 10				J	Scale Type
+ [			=7=105		

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## 30MHz~3GHz HSDPA B2 LowCH9262-1852.4

Center F	req 1.5150	NEE PNO	Fast ()	Trig: Free Ru	Ave T	ALIGN ALIG	07-5912 PM Jae 82, 2018 TRACE 1 8 5 6 TVPE 11-10-10	Frequency
-	Ref Offset		in:Low	#Atten: 30 dt	-	Ma	1 1.853 6 GHz	Auto Tune
o dB/div	Ref 30.00						22.72 dBm	-
20.0 10.0				_	1			Center Fre 1 515000000 GH
(10) (0.0) (0.0)								Start Fre 30.000000 MH
					and have			Stop Fre 3.00000000 GH
tart 0.03 Res BW	0 GHz 1.0 MHz		#VBW	1.0 MHz		Sweep 2	Stop 3.000 GHz 000 ms (1001 pts)	CF Ste 297.000000 MH Auto Ma
N N		1.853 6	711.0	22.72 dBm	HUNGTON	Real Property lies	FUNCTION VALUE	Auto Ma
2345		1,603 6 1	SHE	22.72 0.5m				Freq Offse
7 8 9							1	Scale Typ
11								

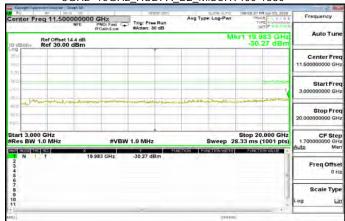




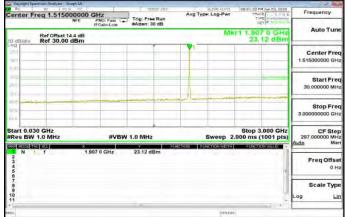
## 30MHz~3GHz HSDPA B2 MidCH9400-1880

2.2					Analyzer - Singer SA	- Karyangha Space		
Frequency	THACE	vg Type: Log-Pwr	Trig: Free Run	NO: Fast	1.515000000 GI	Center Fre		
Auto Tun	Ref Offset 144 dB 8 23.56 dBm 23.56 dBm							
Center Free 1 515000000 GH		*				200 100		
Start Free 30,000000 MH	and the second					(00) 200)		
Stop Free 3.000000000 GH						alien en e		
CF Ste 297.000000 MH Auto Ma	Stop 3.000 GHz 000 ms (1001 pts)		.0 MHz	#VBW	MHz	Start 0.030 #Res BW 1		
Freq Offse	POWLICH WEDE	Participation and the	23.56 dBm	3 GHz		2 3 4		
Scale Type	1					5 6 7 8 9 10 11		
		STATUS				100		

#### 3GHz~10GHz\_HSDPA\_B2\_MidCH9400-1880



### 30MHz~3GHz\_HSDPA\_B2\_HighCH9538-1907.6



### 3GHz~10GHz HSDPA B2 HighCH9538-1907.6

	08-01-04 PM Jun 61, 2028	NUON HUTO	area avri		HE SHOLDS	PL:			
Frequency	TRACE 1 3 5 5 TIPE P VIOLENCE	Avg Type: Log-Pwr	Trig: Free Run	PNO: East ()	11.500000000				
Auto Tun	Ref Offset 14.4 dB Mkr1 19.966 GHz 10 dB/du Ref 30.00 dBm -28.87 dBm								
Center Fre 11.500000000 GH						1000			
Start Fre 3.000000000 GH	1					5,85) (6.6) -,000			
Stop Fre 20.000000000 GH		There are a second of the	And an induced			4000			
CF Ste 1.700000000 GH Auto Ma	Stop 20.000 GHz 8.33 ms (1001 pts)	Sweep 21	1.0 MHz	#VBW	0 MHz	Start 3.00 #Res BW			
Freq Offse 0 H			-28.87 dBm	966 GHz	f 19.5	T N I			
Scale Typ	J					2 3 4 5 6 7 8 9 10 11			
		STATUS				90			

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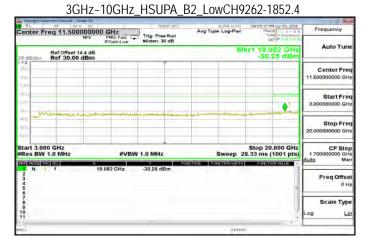
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## 30MHz~3GHz HSUPA B2 LowCH9262-1852.4

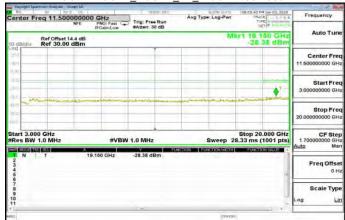
BL I	eq 1.515000000	) GHz PNO: Fast	Trig: Free Run	Avg Type: Log-Pwr	08-05-18 PH Jun 83, 2028	Frequency	
	NPE	IFGain:Low	#Atten: 30 dB		DET P. N	Auto Tun	
a dB/div	Ref Offset 14.4 dB Mkr1 1.853 6 GHz dBldiv Ref 30.00 dBm 23.02 dBm						
10 10 10 10						Center Fre 1 515000000 GH	
						Start Fre 30.000000 MH	
		~				Stop Fre 3.000000000 GH	
tart 0.03 Res BW	1.0 MHz	#VBW	1.0 MHz	Sweep 2	Stop 3.000 GHz .000 ms (1001 pts)	CF Ste 297.000000 MH Auto Ma	
2 3 4 5		.863 6 GHz	23.02 dBm	ACTION	FUNCTION WALK	Freq Offse 0 H	
6 7 8 9					J	Scale Typ	
			-				



## 30MHz~3GHz HSUPA B2 MidCH9400-1880

2.2			_	-	-		ethioni Analyan -	
Frequency	THACE 1 & S & THACE 1 & S & TIPE HUMMING	Type: Log-Pwr		Trig: Free Ru	PND: Fast (-)	5000000 G		Center Fi
Auto Tune		MR	-	#Atten: 30 dB	IFGain:Low	t 14.4 dB	Ref Offset Ref 30.0	10 dB/div
Center Fre 1 515000000 GH								10 10 10 10 10 10 10 10 10 10 10 10 10 1
Start Fre 30,00000 MH	-							
Stop Fre 3 00000000 GH		and the second					-	
CF Ste 297.000000 MH Auto Ma	Stop 3.000 GHz 000 ms (1001 pts)	Sweep 2.	ente	1.0 MHz	#VBW		1.0 MHz	tart 0.03 Res BW
Freq Offs 0 F		110.00		22.56 dBm	80 3 GHz		r	T N 1 2 3 4
Scale Typ	1							5 6 7 8 9 10
		STATUS		-				* (00)

#### 3GHz~10GHz\_HSUPA\_B2\_MidCH9400-1880



#### 30MHz~3GHz\_HSUPA\_B2\_HighCH9538-1907.6



#### 3GHz~10GHz HSUPA B2 HighCH9538-1907.6

					tenen inserver - Simpli SA				
Frequency	TRACE 1 5 5 5 TRACE 1 5 5 5 TIPE In concentration	Avg Type: Log-Pwr	Trig: Free Run	PNO: Fast	eg 11.50000000	Center Fre			
Auto Tuni	Ref Offset 14.4 dB         Mkr1 19.303 GHz           10 dBrdw         8ef 30.00 dBm								
Center Free 11.500000000 GH						2000 1000			
Start Free 3.000000000 GH	•	ulard and a				400 400 400			
Stop Free 20.000000000 GH		. Julian Carachine	And an and the particular of the case of the second s			4000			
CF Step 1.700000000 GH Auto Mar	Stop 20.000 GHz 8.33 ms (1001 pts)	Sweep 2	1.0 MHz	#VBW	1.0 MHz	Start 3.000 #Res BW 1			
Freq Offse 0 H		2112.2	-29.49 dBm	19.303 GHz		1 N 1			
Scale Type	J					4 6 7 8 9 10 11			
L		Status				CON			

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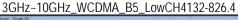
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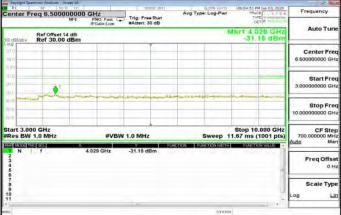
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## 30MHz~3GHz WCDMA B5 LowCH4132-826.4

Frequency	THACE 1 3 5 5	ype: Log-Pwr		Trig: Free	GHz PNO: Fast		q 1.5150	
	DET P. N. S.			#Atten: 30	IFGain:Low	MPE		
Auto Tur	2.479 2 GHz -33.64 dBm	Mikr					Ref Offset 1 Ref 30.00	
Center Fre 1 515000000 GH					н	1	_	
Start Fre 30.000000 MH			2					
Stop Fre 3.00000000 GH								
CF Ste 297.000000 MH	top 3.000 GHz ms (1001 pts)	Sweep 2.0	-	1.0 MHz	#VBW			0.030 BW 1
Auto Ma	FUNCTION VALUE	HURTING	<b>HOME DO</b>	-		×	302	90: 1 H H
Freq Offs 0 F				23.21 dB -37.64 dB -33.64 dB	26.0 MHz 62 8 GHz 79 2 GHz	1.68	1	NNN
Scale Typ								

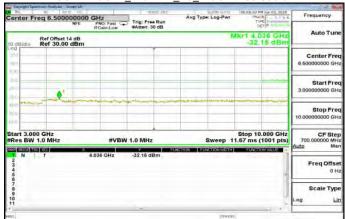




## 30MHz~3GHz WCDMA B5 MidCH4183-836.6

Any agent Spectrum American - Sime	DC P	1 1002-001	4L10%	de abiec PH Jun Bit, 2020	
Center Freq 1.51500	NFE PNO: Fast G	Trig: Free Run	Avg Type: Log-Pwr	TRACE T RESE	Frequency
Ref Offset 14	dB	Printing of the	Ma	13 2 509 8 GHz -34.26 dBm	Auto Tune
90 200 100	VI				Center Free 1.515000000 GH
		A2		A.	Start Fre 30,000000 MH
um viu pi		and and a seal of	and the contract of the second		Stop Free 3.000000000 GH
tart 0.030 GHz Res BW 1.0 MHz	#VBV	V 1.0 MHz	Sweep 2	Stop 3.000 GHz .000 ms (1001 pts)	CF Ste 297.000000 MH Auto Ma
	837.8 MHz 1.673 2 GHz 2.509 8 GHz	23.10 dBm -36.94 dBm -34.26 dBm			Freq Offse
4 5 6 7 8 9 10					Scale Type

### 3GHz~10GHz\_WCDMA\_B5\_MidCH4183-836.6



## 30MHz~3GHz\_WCDMA\_B5\_HighCH4233-846.6



## 3GHz~10GHz\_WCDMA\_B5\_HighCH4233-846.6

Frequency	de drize PH Jun Biz, 2028	1410% HUTO	1 10 10 20 10 11	5 DC 0	Spectroser Analyzer - Sing 1 III Sty G	BL I		
Frequency	TRACE 1 & S & TUPE IN WOMEN	Avg Type: Log-Pwr	Trig: Free Run	NEE PNO East	Freq 6.50000	Center F		
Auto Tun	Ref Offset 14 dB Mkr1 30 dB Mkr1 30 dB 29 17 dBm 29 17 dBm							
Center Fre 6.500000000 GH					Rei 30.00 a	and		
Start Fre 3.000000000 GH					1	(0.0) (0.0) (0.0)		
Stop Fre 10.000000000 GH	Presenting (1971) - September (1994)		ar ng ha ng hang ng han			ann the second		
CF Ste 700.000000 MH Auto Ma	Stop 10.000 GHz 1.67 ms (1001 pts)	Sweep 1		X	W 1.0 MHz	NOR THERE		
Freq Offse			-29.17 dBm	3.826 GHz	1.1	N 2345		
Scale Typ	Į					2 3 4 5 6 7 8 9 10 11		
		STATUS				*		

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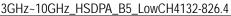
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## 30MHz~3GHz HSDPA B5 LowCH4132-826.4

q 1.51500	00000 GHz	Trig: Free Run	Avg Type: Log-Pwr	00,00,00,05 PM Jun 83, 70,0 TRACE TURE TURE DET P	Frequency
Ref Offset 14 Ref 30.00 d	dB		Ma	13 2.479 2 GHz -34.19 dBm	Auto Tuni
	Υ1				Center Fre 1 515000000 GH
		12			Start Fre 30.000000 MH
		a denn der an og Men			Stop Fre 3.000000000 GH
0 MHz	#VB				CF Ste 297.000000 Mi Auto Ma
1	826.0 MHz 1.652 8 GHz 2.479 2 GHz	23.13 dBm -37.74 dBm -34.19 dBm	ACTION POWERSHIP		Freq Offse
					Scale Typ
	q 1.51500	G 1.515000000 GHz PRO Fest C IFGain.Low Ref 30.00 dBm Y1 GHz 0 MHz 1502 B GHz 1502 B GHz 1502 B GHz 1502 B GHz 1502 B GHz	q. 1.515000000 GHz         Trig: Free Run           ME         FRO Free Run         Extent: 30 dB           Ref 30.00 dBm         Trig: Stee Run         Extent: 30 dB           Ref 30.00 dBm         Trig: Stee Run         Extent: 30 dB           GHz         WBW 1.0 MHz         2313 dBm           GHz         1002 BMHz         2373 dBm           Coll         E308 MHz         2373 dBm	q. 15/15000000 GHz         Trig: Free Run         Avg Type: Log-Per           MFE         Trig: Free Run         Eduit.com         Free Run           Ref 30.00 dBm         Mile         Mile         Mile           GHz         FVBW 1.0 MHz         Sweep 2         Sweep 2           GHz         233.0 MHz         233.0 MHz         Sweep 2           CHz         377.4 Bm         Sweep 3         Sweep 2	g 1.51500000 GHz Header.com         Trig Free Run Avg Type: Log-Per Taster: 30 db         Avg Type: Log-Per Taster: 30 db         Trice Free Run Compared taster: 30 db           Ref 30.00 dBm         Mart 3 2 474 34.10 dBm         Mart 3 2 474 34.10 dBm         Mart 3 2 474 34.10 dBm           GHz 1.000 Hz 1.000 Hz 1.0000 Hz 1.0000 Hz 1.000 Hz 1.000 Hz 1.000 Hz 1.000 Hz 1.0000 Hz 1.00

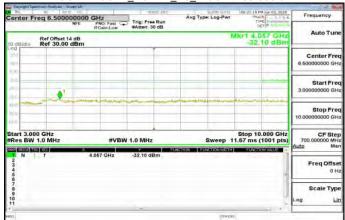




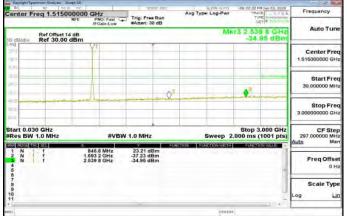
## 30MHz~3GHz HSDPA B5 MidCH4183-836.6

5.2		The set of		_					thom Analyzer - Sin				
Frequency	PN Jun 81, 2028	TRA	Avg Type: Log-Pwr		Trig: Free Run		Z KO: Fast 😱	00000 GH:	eq 1.51500	Center Fr			
Auto Tun	DET P TONING		Mk		#Atten: 30 dB		IFGain:Low			-			
	17 dBm		_			_	_	dBm	Ref Offset 14 Ref 30.00 d	0 dB/div			
Center Fre 1 515000000 GH								Vi		2010 1010			
Start Fre 30.000000 MH										(25) (0:0) (0:0)			
Stop Fre 3 000000000 GH		. L.			2 <sup>2</sup>		1999-1-11-2- Jack	May					
CF Ste 297.000000 MH Auto Ma	(1001 pts)	Stop 3.000 GHz 1.0 MHz Sweep 2.000 ms (1001 pts)						Start 0.030 GHz #Res BW 1.0 MHz #VBW 1.0 MHz					
Freq Offse	23.40 dBm -37.63 dBm -37.63 dBm -36.17 dBm						8 MHz 2 GHz 8 GHz	837.8 1.673.2 2.509.8		1 N 1 2 N 1 3 N 1 4 5			
Scale Typ	ļ									4 5 6 7 8 9 10 11			
			TATUS							80			

3GHz~10GHz\_HSDPA\_B5\_MidCH4183-836.6







### 3GHz~10GHz\_HSDPA\_B5\_HighCH4233-846.6

Frequency	00,32:45 PH Jun H1, 2010	84.10% #LITO	E-11/11	1.188			107 539	BL I		
Auto Tur	TRACE 1 1 5 5 5 TUPE IN WOMEN	Avg Type: Log-Pwr		Trig: Free	NO Fast	NFE F	eq 6.5000	enter Fr		
	Ref Offset 14 dB Mkr1 4.575 GHz									
	-91.14 0.00	Biddiv Ref 30.00 dBm -31.14 dBm								
Center Fre 6.500000000 GH		-					_	0		
Start Fre 3.000000000 GH										
Stop Fre 10.00000000 GH	- In- and - Arited				enere e	-	June			
CF Ste 700.000000 MH	Stop 10.000 GHz Sweep 11.67 ms (1001 pts)				#VBW		GHz	rt 3.00 s BW		
Auto Ma		COLUMN STREET		-31.14 dB	75 GHz	45				
Freq Offs 01					ro on a			N		
Scale Typ										
Log L										
		TATUS								

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

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