TEST REPORT

775	DI A O	DT&C Co., Ltd.					
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1. Report No	DRTFCC2111-0136	8					
2. Customer	2. Customer						
• Name (FC	C) : Point Mobile Co., LTI	D. / Name (IC) : POINTMOBILE CO.,LTD					
		Valley 32 Digital-ro 9-gil, Geumcheon-gu Seoul South Korea 153-709 lley, 32, Digital-ro 9-gil, Geumcheon-gu Seoul Korea (Republic Of)					
3. Use of Re	eport : FCC & IC Certific	cation					
	V2X-PM75	lobile Computer / PM75					
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6. Date of Te	est : 2021.09.06 ~ 2021	1.10.27					
7. Location of	of Test : 🛛 Permanent	t Testing Lab 🛛 On Site Testing					
8. Testing E	nvironment : See appe	nded test report.					
9. Test Resu	ult : Refer to attached te	est result.					
	nown in this test report ref rt is not related to KOLAS	fer only to the sample(s) tested unless otherwise stated. S accreditation.					
Affirmation	ested by	Reviewed by					
	Animation Name : JaeHyeok Bang (Signature) Name : JaeJin Lee						
	2021 . 11 . 17 .						
DT&C Co., Ltd.							

If this report is required to confirmation of authenticity, please contact to report@dtnc.net

Test Report Version

Test Report No.	Date	Description	Revised by	Reviewed by
DRTFCC2111-0136	Nov. 17, 2021	Initial issue	JaeHyeok Bang	JaeJin Lee



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1. GENERAL INFORMATION

FCC Classification	PCS Licensed Transmitter held to ear (PCE)
FCC ID	V2X-PM75
IC	10664A-PM75
Product Name	Mobile Computer
Model Name	PM75
Add Model Name	-
FVIN(Firmware Version Identification Number)	75.00
EUT Serial Number	21196A0010(Radiated), 21196A0013(Conducted)
Supplying power	DC 3.85 V
Antenna Information	Antenna Type: LDS Antenna Gain: -2.55 dBi (Band 850), -0.66 dBi (Band 1700), 2.68 dBi (Band 1900)

Mode	Tx Frequency	Emission	ERP (Max. Power)		EIRP (Max. Power)	
Wode	(MHz)	Designator	dBm	w	dBm	w
GSM850	824.2 ~ 848.8	251KGXW	27.84	0.608	29.99	0.998
EDGE850	824.2 ~ 848.8	248KG7W	22.98	0.199	25.13	0.326
GSM1900	1 850.2 ~ 1 909.8	246KGXW	-	-	31.93	1.560
EDGE1900	1 850.2 ~ 1 909.8	243KG7W	-	-	28.98	0.791
WCDMA850	826.4 ~ 846.6	4M12F9W	18.55	0.072	20.70	0.117
WCDMA1700	1 712.4 ~ 1 752.6	4M12F9W	-	-	25.96	0.394
WCDMA1900	1 852.4 ~ 1 907.6	4M12F9W	-	-	25.79	0.379

2. INTRODUCTION

2.1. EUT DESCRIPTION

The Equipment Under Test (EUT) supports 850/1900 GSM, 850/1700/1900 WCDMA, Multi-band LTE, 802.11b/g/n/ac WLAN(2.4GHz), 802.11a/n/ac WLAN(5GHz), Bluetooth(BDR, EDR, LE) and NFC.

2.2. TESTING ENVIRONMENT

Ambient Condition		
• Temperature +21 °C ~ +24 °C		
 Relative Humidity 	42 % ~ 45 %	

2.3. MEASURING INSTRUMENT CALIBRATION

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipment, which is traceable to recognized national standards.

2.4. MEASUREMENT UNCERTAINTY

The measurement uncertainties shown below were calculated in accordance with requirements of ANSI C63.4-2014. All measurement uncertainty values are shown with a coverage factor of k = 2 to indicate a 95 % level of confidence.

Parameter	Measurement uncertainty
Radiated Disturbance (Below 1 GHz)	4.9 dB (The confidence level is about 95 %, $k = 2$)
Radiated Disturbance (1 GHz ~ 18 GHz)	5.0 dB (The confidence level is about 95 %, $k = 2$)
Radiated Disturbance (Above 18 GHz)	5.3 dB (The confidence level is about 95 %, $k = 2$)

2.5. TEST FACILITY

DT&C Co., Ltd.

The 3 m test site and conducted measurement facility used to collect the radiated data are located at the 42, Yurim-ro, 154beon-gil, Cheoin-gu, Yongin-si, Gyeonggi-do, Korea 17042.

The test site complies with the requirements of Part 2.948 according to ANSI C63.4-2014.

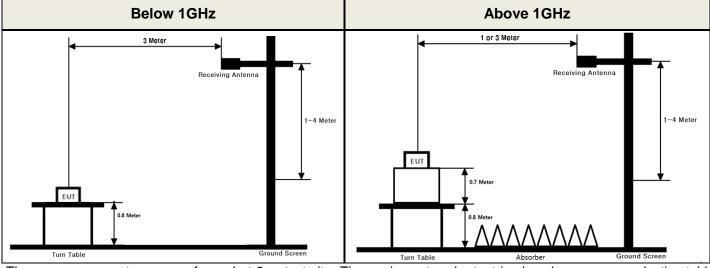
- FCC & IC MRA Designation No. : KR0034
- ISED#: 5740A

www.dtnc.net		
Telephone	:	+ 82-31-321-2664
FAX	:	+ 82-31-321-1664

3. DESCRIPTION OF TESTS

3.1. ERP & EIRP (Effective Radiated Power & Equivalent Isotropic Radiated Power)

Test Set-up



These measurements were performed at 3 m test site. The equipment under test is placed on a non-conductive table 0.8 or 1.5 meters above a turntable which is flush with the ground plane and 3 meters from the receive antenna. For measurements above 1 GHz absorbers are placed on the floor between the turn table and the antenna mast in such a way so as to maximize the reduction of reflections. For measurements below 1 GHz, the absorbers are removed.

Test Procedure

- ANSI/TIA-603-E-2016 Section 2.2.17
- KDB971168 D01v03 Section 5.2.2
- ANSI 63.26-2015 Section 5.2.4.4.1

Test setting

- 1. Set span to 2 x to 3 x the OBW.
- 2. Set RBW = 1 % to 5 % of the OBW.
- 3. Set VBW \ge 3 x RBW.
- 4. Set number of points in sweep \geq 2 × span / RBW.
- 5. Sweep time:
 - 1) Set = auto-couple, or

2) Set \geq [10 \times (number of points in sweep) \times (transmission period)] for single sweep (automation-compatible) measurement. Transmission period is the on and off time of the transmitter.

- 6. Detector = power averaging (rms).
- 7. If the EUT can be configured to transmit continuously, then set the trigger to free run.
- 8. If the EUT cannot be configured to transmit continuously, then use a sweep trigger with the level set to enable triggering only on full power bursts and configure the EUT to transmit at full power for the entire duration of each sweep. Verify that the sweep time is less than or equal to the transmission burst duration. Time gating can also be used under similar constraints (i.e., configured such that measurement data is collected only during active full-power transmissions).



- 9. Trace average at least 100 traces in power averaging (rms) mode if sweep is set to auto-couple. To accurately determine the average power over multiple symbols, it can be necessary to increase the number of traces to be averaged above 100 or, if using a manually configured sweep time, increase the sweep time.
- 10. Compute the power by integrating the spectrum across the OBW of the signal using the instrument's band or channel power measurement function, with the band/channel limits set equal to the OBW band edges. If the instrument does not have a band or channel power function, then sum the spectrum levels (in linear power units) at intervals equal to the RBW extending across the entire OBW of the spectrum.

The receiver antenna height and turntable rotations were adjusted for the highest reading on the receive spectrum analyzer.

A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same receive spectrum analyzer reading. The conducted power at the terminal of the substitute antenna is measured.

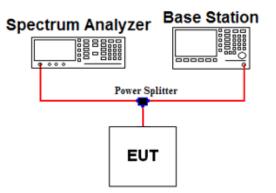
The ERP/EIRP is calculated using the following formula:

ERP/EIRP = The conducted power at the substitute antenna's terminal [dBm] + Substitute Antenna gain [dBd for ERP, dBi for EIRP]

For readings above 1 GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn antenna and an isotropic antenna are taken into consideration.

3.2. PEAK TO AVERAGE RATIO

Test set-up



Test Procedure

- KDB971168 D01v03 Section 5.7.2
- ANSI C63.26-2015 Section 5.2.3.4

A peak to average ratio measurement is performed at the conducted port of the EUT.

The spectrum analyzers Complementary Cumulative Distribution Function (CCDF) measurement profile is used to determine the largest deviation between the average and the peak power of the EUT in a given bandwidth. The CCDF curve shows how much time the peak waveform spends at or above a given average power level. The present of time the signal spends at or above the level defines the probability for that particular power level.

Test setting

The spectrum Analyzer's CCDF measurement function is enabled.

- 1. Set resolution/measurement bandwidth \geq OBW or specified reference bandwidth.
- 2. Set the number of counts to a value that stabilizes the measured CCDF curve.
- 3. Set the measurement interval as follows:
 - 1) For continuous transmissions, set to the greater of [10 × (number of points in sweep) × (transmission symbol period)] or 1 ms.
 - 2) For burst transmissions, employ an external trigger that is synchronized with the EUT burst timing sequence, or use the internal burst trigger with a trigger level that allows the burst to stabilize. Set the measurement interval to a time that is less than or equal to the burst duration.
 - 3) If there are several carriers in a single antenna port, the peak power shall be determined for each individual carrier (by disabling the other carriers while measuring the required carrier) and the total peak power calculated from the sum of the individual carrier peak powers.
- 4. Record the maximum PAPR level associated with a probability of 0.1 %.
- 5. The peak power level is calculated form the sum of the PAPR value from step d) to the measured average power.



Alternate Procedure

- KDB971168 D01v03 - Section 5.7.3

- ANSI C63.26-2015 – Section 5.2.6

Use one of the measurement procedures of the peak power and record as $\mathsf{P}_{\mathsf{Pk}}.$

Use one of the measurement procedures of the average power and record as $\mathsf{P}_{\mathsf{Avg}}$

Both the peak and average power levels must be expressed in the same logarithmic units (e.g., dBm). Determine the PAPR from:

PAPR (dB) = P_{Pk} (dBm or dBW) - P_{Avg} (dBm or dBW).

Where,

PAPR peak-to-average power ratio, in dB PPk measured peak power or peak PSD level, in dBm or dBW PAvg measured average power or average PSD level, in dBm or dBW

- Peak Power Measurement

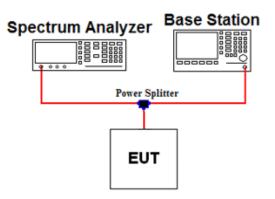
- 1. Set the RBW ≥ OBW
- 2. Set VBW ≥ 3 x RBW
- 3. Set span ≥ 2 x RBW
- 4. Sweep time \ge 10 x (number of points in sweep) x (transmission symbol period).
- 5. Detector = peak
- 6. Trace mode = max hold
- 8. Allow trace to fully stabilize.
- 9. Use the peak marker function to determine the peak amplitude level.

- Average Power Measurement

- 1. Set span to 2 x to 3 x the OBW.
- 2. Set RBW = 1 % to 5 % of the OBW.
- 3. Set VBW \geq 3 × RBW.
- 4. Set number of measurement points in sweep \geq 2 \times span / RBW..
- 5. Sweep time = 1) auto-couple, or
 - 2) set \geq [10 x (number of points in sweep) x (transmission period)] for single sweep (automationcompatible (measurement. Transmission period is the on and off time of the transmitter.
- 6. Detector = power averaging (RMS).
- 7. If the EUT can be configured to transmit continuously, then set the trigger to free run.
- 8. If the EUT cannot be configured to transmit continuously, then use a sweep trigger with the level set to enable Triggering only on full power bursts and configure the EUT to transmit at full power for the entire duration of each Sweep. Verify that the sweep time is less than or equal to the transmission burst duration. Time gating can also be used under similar constraints (i.e., configured such that measurement data is collected only during active full-Power transmissions)
- 9. Trace average at least 100 traces in power averaging (rms) mode if sweep is set to auto-couple. To accurately determine the average power over multiple symbols, it can be necessary to increase the number of traces to be averaged above 100 or, if using a manually configured sweep time, increase the sweep time.
- 10. Compute the power by integrating the spectrum across the OBW of the signal using the instrument's band or channel power measurement function, with the band/channel limits set equal to the OBW band edges. If the instrument does not have a band or channel power function, then sum the spectrum levels (in linear power units) at intervals equal to the RBW extending across the entire OBW of the spectrum.

3.3. OCCUPIED BANDWIDTH (99 % Bandwidth)

Test set-up



Offset value information

Frequency (MHz)	Offset Value (dB)	Frequency (MHz)	Offset Value (dB)
824.2	7.25	1 850.2	7.87
826.4	7.26	1 852.4	7.88
836.6	7.26	1 880.0	7.89
846.6	7.27	1 907.6	7.89
848.8	7.27	1 909.8	7.89
1 712.4	7.78	-	-
1 732.4	7.78	-	-
1 752.6	7.78	-	-

Note. 1: The offset values from EUT to Spectrum analyzer were measured and used for test.

Test Procedure

- KDB971168 D01v03 Section 4.3
- ANSI C63.26-2015 Section 5.4.4

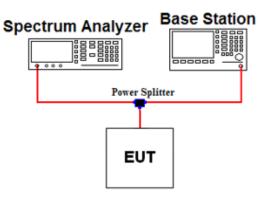
The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power of a given emission.

Test setting

- 1. The signal analyzer's automatic bandwidth measurement capability was used to perform the 99 % occupied bandwidth and the 26 dB bandwidth. The bandwidth measurement was not influenced by any intermediate power nulls in the fundamental emission.
- 2. RBW = 1 % ~ 5 % of the expected OBW & VBW \ge 3 X RBW
- 3. Detector = Peak
- 4. Trance mode = Max hold
- 5. Sweep = Auto couple
- 6. The trace was allowed to stabilize
- If necessary, step 2 ~ 6 were repeated after changing the RBW such that it would be within 1 % ~ 5 % of the 99 % occupied bandwidth observed in step 6.

3.4. SPURIOUS EMISSIONS AT ANTENNA TERMINAL

Test set-up



Offset value information

Frequency (MHz)	Offset Value (dB)	Frequency (MHz)	Offset Value (dB)
10 000	9.03	20 000	10.37
-	-	-	-

Note. 1: The offset value from EUT to Spectrum analyzer was measured and used for test.

Test Procedure

- KDB971168 D01v03 - Section 6

- ANSI C63.26-2015 - Section 5.7

The level of the carrier and the various conducted spurious and harmonic frequencies is measured by means of a calibrated spectrum analyzer. The EUT was setup to maximum output power at its low, middle, high channel with all bandwidths. The spectrum is scanned from 9 kHz up to a frequency including its 10th harmonic.

The power of any spurious emission shall be attenuated below the transmitter power (P) by at least $43 + 10 \log(P) dB$, where P is the transmitter power in Watts.

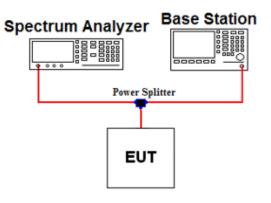
Test setting

- 1. RBW = 100 kHz(Below 1 GHz) or 1 MHz(Above 1 GHz) & VBW ≥ 3 X RBW (Refer to Note 1)
- 2. Detector = RMS & Trace mode = Max hold
- 3. Sweep time = Auto couple
- 4. Number of sweep point \geq 2 X span / RBW
- 5. The trace was allowed to stabilize

Note 1: Compliance with these provisions is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater for Part 22 and 1 MHz or greater for Part 24, 27

3.5. BAND EDGE EMISSIONS AT ANTENNA TERMINAL

Test set-up



Offset value information

Frequency	Offset Value	Frequency	Offset Value	Frequency	Offset Value
Range(MHz)	(dB)	Range(MHz)	(dB)	Range(MHz)	(dB)
819 - 823	7.25	1 701 – 1 709	7.78	1 845 – 1 855	7.88
823 - 825	7.26	1 705 – 1 715	7.78	1 909 – 1 911	7.89
819 - 829	7.26	1 750 – 1 760	7.78	1 905 – 1 915	7.89
848 - 850	7.27	1 756 – 1 764	7.78	1 911 – 1 915	7.89
844 - 854	7.27	1 845 – 1 849	7.88	-	-
850 - 854	7.27	1 849 – 1 851	7.88	-	-

Note. 1: The offset value from EUT to Spectrum analyzer was measured and used for test.

Test Procedure

- KDB971168 D01v03 - Section 6

- ANSI C63.26-2015 - Section 5.7

All out of band emissions are measured by means of a calibrated spectrum analyzer. The EUT was setup to maximum output power at its lowest and highest channel with all modulations.

The power of any spurious emission shall be attenuated below the transmitter power (P) by at least $43 + 10 \log(P) dB$, where P is the transmitter power in Watts.

Test setting

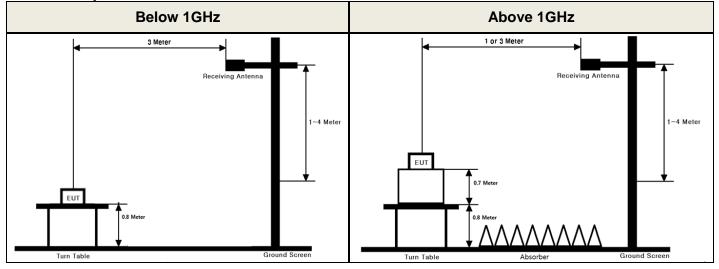
- 1. Start and stop frequency were set such that the band edge would be placed in the center of the plot
- 2. Span was set large enough so as to capture all out of band emissions near the band edge
- 3. RBW \geq 1 % of the emission
- 4. VBW \geq 3 X RBW
- 5. Detector = RMS & Trace mode = Max hold
- 6. Sweep time = Auto couple or 1 s for band edge
- 7. Number of sweep point $\ge 2 \text{ X span} / \text{RBW}$
- 8. The trace was allowed to stabilize

Note 1: In the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of **at least one percent** of the emission bandwidth of the fundamental emission of the transmitter may be employed to demonstrate compliance with the out-of-band emissions limit.

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 emission are attenuated at least 26 dB below the transmitter power.

3.6. RADIATED SPURIOUS EMISSIONS

Test Set-up



These measurements were performed at 3 m test site. The equipment under test is placed on a non-conductive table 0.8 or 1.5 meters above a turntable which is flush with the ground plane and 3 meters from the receive antenna. For measurements above 1 GHz absorbers are placed on the floor between the turn table and the antenna mast in such a way so as to maximize the reduction of reflections. For measurements below 1 GHz, the absorbers are removed.

Test Procedure

- ANSI/TIA-603-E-2016 Section 2.2.12
- KDB971168 D01v03 Section 5.8
- ANSI C63.26-2015 Section 5.5

Test setting

- 1. RBW = 100 kHz for below 1 GHz and 1 MHz for above 1 GHz / VBW \geq 3 X RBW
- 2. Detector = RMS & Trace mode = Max hold
- 3. Sweep time = Auto couple
- 4. Number of sweep point \geq 2 X span / RBW
- 5. The trace was allowed to stabilize

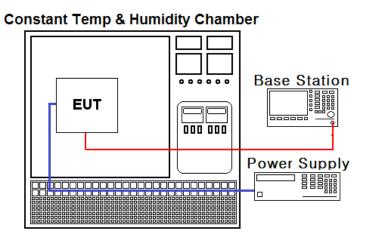
The receive antenna height and turntable rotations were adjusted for the highest reading on the receive spectrum analyzer.

For radiated spurious emission measurements below 1 GHz, a half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same spectrum analyzer reading.

For radiated spurious emission measurements above 1 GHz, a Horn antenna was substituted in place of the EUT. This Horn antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same spectrum analyzer reading. The difference between the gain of the horn and an isotropic antenna are taken into consideration.

3.7. FREQUENCY STABILITY / VARIATION OF AMBIENT TEMPERATURE

Test Set-up



Test Procedure

- ANSI/TIA-603-E-2016
- KDB971168 D01v03 Section 9

The frequency stability of the transmitter is measured by:

a.) Temperature:

The temperature is varied from - 30 °C to + 50 °C in 10 °C increments using an environmental chamber.

b.) Primary Supply Voltage:

The primary supply voltage is varied from 85 % to 115 % of the nominal value for non hand-carried battery and AC powered equipment. For hand-carried, battery-powered equipment, primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacturer.

Specification:

The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block for Part 24, 27. The frequency stability of the transmitter shall be maintained within \pm 0.000 25 % (\pm 2.5 ppm) of the center frequency for Part 22.

Time Period and Procedure:

- The carrier frequency of the transmitter is measured at room temperature. (20 °C to provide a reference)
- 2. The equipment is turned on in a "standby" condition for one minute before applying power to the transmitter. Measurement of the carrier frequency of the transmitter is made within one minute after applying power to the transmitter.
- Frequency measurements are made at 10 °C intervals ranging from -30 °C to +50 °C.
 A period of at least one half-hour is provided to allow stabilization of the equipment at each temperature level.

4. LIST OF TEST EQUIPMENT

Туре	Manufacturer	Model	Cal.Date (yy/mm/dd)	Next.Cal. Date (yy/mm/dd)	S/N
Spectrum Analyzer	Agilent Technologies	N9020A	21/06/24	22/06/24	US47360812
Spectrum Analyzer	Agilent Technologies	N9020A	20/12/16	21/12/16	MY50410399
DC power supply	Agilent Technologies	66332A	21/06/24	22/06/24	US37474125
Multimeter	FLUKE	17B+	20/12/16	21/12/16	36390701WS
Power Splitter	Anritsu	K241B	21/06/24	22/06/24	1701102
Temp & Humi	SJ Science	SJ-TH-S50	20/12/14	21/12/14	U5542113
Radio Communication Analyzer	Agilent Technologies	E5515C	21/04/29	22/04/29	MY48360842
Thermohygrometer	BODYCOM	BJ5478	20/12/16	21/12/16	120612-2
Thermohygrometer	XIAOMI	MHO-C201	20/12/16	21/12/16	00089675
Signal Generator	Rohde Schwarz	SMBV100A	20/12/16	21/12/16	255571
Signal Generator	ANRITSU	MG3695C	20/12/16	21/12/16	173501
Loop Antenna	ETS-Lindgren	6502	21/01/28	23/01/28	00226186
Bilog Antenna	Schwarzbeck	VULB 9160	20/12/16	21/12/16	3362
Dipole Antenna	A.H.Systems Inc.	FCC-4	20/12/16	22/12/16	710A
Dipole Antenna	Schwarzbeck	UHA9105	20/04/10	22/04/10	2262
HORN ANT	ETS	3117	20/12/16	21/12/16	00140394
HORN ANT	ETS	3117	21/06/24	22/06/24	00143278
HORN ANT	A.H.Systems	SAS-574	21/06/24	22/06/24	154
HORN ANT	A.H.Systems	SAS-574	21/06/24	22/06/24	155
Amplifier	EMPOWER	BBS3Q7ELU	21/06/24	22/06/24	1020
PreAmplifier	H.P	8447D	20/12/16	21/12/16	2944A07774
PreAmplifier	Agilent	8449B	21/06/24	22/06/24	3008A02108
High-pass filter	Wainwright	WHKX12-935-1000- 15000-40SS	21/06/24	22/06/24	7
High-pass filter	Wainwright	WHKX10-2838-3300- 18000-60SS	21/06/24	22/06/24	2
High-pass filter	Wainwright	WHKX6-6320-8000- 26500-40CC	21/06/24	22/06/24	2
Cable	HUBER+SUHNER	SUCOFLEX100	21/01/08	22/01/08	M-1
Cable	HUBER+SUHNER	SUCOFLEX100	21/01/08	22/01/08	M-2
Cable	JUNFLON	MWX241/B	21/01/08	22/01/08	M-3
Cable	JUNFLON	MWX221	21/01/08	22/01/08	M-4
Cable	JUNFLON	MWX221	21/01/08	22/01/08	M-5
Cable	DTNC	Cable	21/01/08	22/01/08	M-6
Cable	JUNFLON	J12J101757-00	21/01/08	22/01/08	M-7
Cable	HUBER+SUHNER	SUCOFLEX104	21/01/08	22/01/08	M-8
Cable	HUBER+SUHNER	SUCOFLEX106	21/01/08	22/01/08	M-9

Note1: The measurement antennas were calibrated in accordance to the requirements of ANSI C63.5-2017.

Note2: The cable is not a regular calibration item, so it has been calibrated by DT & C itself.

5. SUMMARY OF TEST RESULTS

FCC Part Section(s)	RSS Section(s)	Parameter	Status Note 1
2.1046	-	Conducted Output Power	C ^{Note2}
22.913(a) 24.232(c) 27.50(d.4)	RSS-132 [5.4] RSS-133 [6.4] RSS-139 [6.5]	Effective Radiated Power Equivalent Isotropic Radiated Power	C ^{Note3}
2.1049	RSS-Gen [6.7]	Occupied Bandwidth	С
2.1051 22.917(a) 24.238(a) 27.53(h)	RSS-132 [5.5] RSS-133 [6.5] RSS-139 [6.6]	Band Edge Emissions at Antenna Terminal Spurious Emissions at Antenna Terminal	с
24.232(d) 27.50(d.5)	RSS-132 [5.4] RSS-133 [6.4] RSS-139 [6.5]	Peak to Average Ratio	С
2.1053 22.917(a) 24.238(a) 27.53(h)	RSS-132 [5.5] RSS-133 [6.5] RSS-139 [6.6]	Radiated Spurious and Harmonic Emissions	C ^{Note3}
2.1055 22.355 24.235 27.54	RSS-132 [5.3] RSS-133 [6.3] RSS-139 [6.4]	Frequency Stability	С
Note 1: C =Comply Note 2: Refer to RI Note 3: This test ite	exposure report.	Not Tested NA =Not Applicable orthogonal EUT positions and the worst case data was reported	ed.

6. EMISSION DESIGNATOR AND SAMPLE CALCULATION

A. Emission Designator

GSM850 Emission Designator

Emission Designator = **251KGXW** GSM OBW = 250.73 kHz G = Phase Modulation X = Cases not otherwise covered W = Combination (Audio/Data)

GSM1900 Emission Designator

Emission Designator = **246KGXW** GSM OBW = 246.10 kHz G = Phase Modulation X = Cases not otherwise covered W = Combination (Audio/Data)

WCDMA850 Emission Designator

Emission Designator = **4M12F9W** WCDMA OBW = 4.115 8 MHz F = Frequency Modulation 9 = Composite Digital Information W = Combination (Audio/Data)

WCDMA1900 Emission Designator

Emission Designator = **4M12F9W** WCDMA OBW = 4.122 4 MHz F = Frequency Modulation 9 = Composite Digital Information W = Combination (Audio/Data)

EDGE850 Emission Designator

Emission Designator = **248KG7W** EDGE OBW = 248.21 kHz G = Phase Modulation 7 = Cases not otherwise covered W = Combination (Audio/Data)

EDGE1900 Emission Designator

Emission Designator = **243KG7W** EDGE OBW = 242.99 kHz G = Phase Modulation 7 = Cases not otherwise covered W = Combination (Audio/Data)

WCDMA1700 Emission Designator

Emission Designator = **4M12F9W** WCDMA OBW = 4.118 7 MHz F = Frequency Modulation 9 = Composite Digital Information W = Combination (Audio/Data)



B. For substitution method

- 1) The EUT was placed on a turntable with 0.8 meter height for frequency below 1GHz and 1.5 meter height for frequency above 1 GHz respectively above ground.
- 2) The EUT was set 3 meters from the receiving antenna mounted on the antenna tower.
- 3) During the test, the turn table is rotated until the maximum signal is found.
- 4) Record the field strength meter's level. (ex. Spectrum reading level is -8.5 dBm)
- 5) Replace the EUT with dipole/Horn antenna that is connected to a calibrated signal generator.
- 6) Increase the signal generator output till the field strength meter's level is equal to the item (4).
- (ex. Signal generator level is -18.04 dBm)
- 7) The gain of the cable and amplifier between the signal generator and terminals of substituted antenna is 46.92 dB at test frequency.
- 8) Record the level at substituted antenna terminal. (ex. 28.88dBm)
- 9) The result is calculated as below;

EIRP(dBm) = LEVLE@ANTENNA TERMINAL + TX Antenna Gain (dBi)

ERP(dBm) = LEVLE@ANTENNA TERMINAL + TX Antenna Gain (dBd)

Where, TX Antenna Gain (dBd) = TX Antenna Gain (dBi) - 2.15 dB

7. TEST DATA

7.1. PEAK TO AVERAGE RATIO

- Plots of the EUT's Peak- to- Average Ratio are shown in Clause 8.1

7.2. OCCUPIED BANDWIDTH (99 % Bandwidth)

Mode	Channel	Frequency (MHz)	Test Result (kHz)
	128	824.2	245.44
GSM850	190	836.6	250.73
	251	848.8	245.47
	128	824.2	241.01
EDGE850	190	836.6	248.21
	251	848.8	242.51
	512	1 850.2	244.89
GSM1900	661	1 880.0	246.10
	810	1 909.8	241.74
	512	1 850.2	242.47
EDGE1900	661	1 880.0	242.99
	810	1 909.8	242.89
	4 132	826.4	4 112.50
WCDMA850	4 183	836.6	4 115.80
	4 233	846.6	4 109.20
	1 312	1 712.4	4 101.10
WCDMA1700	1 412	1 732.4	4 117.30
	1 513	1 752.6	4 118.70
	9 262	1 852.4	4 106.80
WCDMA1900	9 400	1 880.0	4 122.40
	9 538	1 907.6	4 122.40

7.3. SPURIOUS MISSIONS AT ANTENNA TERMINAL

- Plots of the EUT's Conducted Spurious Emissions are shown in Clause 8.3

7.4. BAND EDGE EMISSIONS AT ANTENNA TERMINAL

- Plots of the EUT's Band Edge are shown in Clause 8.4



7.5. EFFECTIVE RADIATED POWER

- Test Notes

This EUT was tested under all configurations and the highest power is reported in GSM mode and WCDMA mode with HSDPA inactive at 12.2 kbps RMC and TPC bits set to "1" and in GSM mode using a Power Control Level of "0" in PCS Band and "5" in the Cellular Band. This EUT was tested with the fully charged battery. The worst case data is reported.

- GSM850 data

Mode	СН	Frequency (MHz)	Ant. Pol. (H/V)	LEVEL@ TX ANTENNA TERMINAL (dBm)	Antenna Gain (dBd)	ERP (dBm)	ERP (W)	Note.
GSM850	128	824.2	Н	28.60	-0.76	27.84	0.608	-
GSM850	190	836.6	Н	28.60	-0.85	27.75	0.596	-
GSM850	251	848.8	Н	27.99	-0.95	27.04	0.506	-
EDGE850	128	824.2	Н	23.74	-0.76	22.98	0.199	-

- WCDMA850 data

Mode	СН	Frequency (MHz)	Ant. Pol. (H/V)	LEVEL@ TX ANTENNA TERMINAL (dBm)	Antenna Gain (dBd)	ERP (dBm)	ERP (W)	Note.
WCDMA850	4 132	826.4	Н	19.23	-0.77	18.46	0.070	-
WCDMA850	4 183	836.6	н	19.40	-0.85	18.55	0.072	-
WCDMA850	4 233	846.6	Н	18.59	-0.93	17.66	0.058	-



7.6. EQUIVALENT ISOTROPIC RADIATED POWER

- Test Notes

This EUT was tested under all configurations and the highest power is reported in GSM mode and WCDMA mode with HSDPA inactive at 12.2 kbps RMC and TPC bits set to "1" and in GSM mode using a Power Control Level of "0" in PCS Band and "5" in the Cellular Band. This EUT was tested with the fully charged battery. The worst case data is reported.

- GSM1900 data

Mode	СН	Frequency (MHz)	Ant. Pol. (H/V)	LEVEL@ TX ANTENNA TERMINAL (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP (W)	Note.
GSM1900	512	1 850.2	V	26.81	5.12	31.93	1.560	-
GSM1900	661	1 880.0	V	26.64	4.83	31.47	1.403	-
GSM1900	810	1 909.8	V	26.39	4.68	31.07	1.279	-
EDGE1900	512	1 850.2	V	23.86	5.12	28.98	0.791	-

- WCDMA1700 data

Mode	СН	Frequency (MHz)	Ant. Pol. (H/V)	LEVEL@ TX ANTENNA TERMINAL (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP (W)	Note.
WCDMA1700	1 312	1 712.4	V	19.87	6.09	25.96	0.394	-
WCDMA1700	1 412	1 732.4	V	19.85	5.96	25.81	0.381	-
WCDMA1700	1 513	1 752.6	V	18.12	5.82	23.94	0.248	-

- WCDMA1900 data

Mode	СН	Frequency (MHz)	Ant. Pol. (H/V)	LEVEL@ TX ANTENNA TERMINAL (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP (W)	Note.
WCDMA1900	9 262	1 852.4	V	20.69	5.10	25.79	0.379	-
WCDMA1900	9 400	1 880.0	V	19.91	4.83	24.74	0.298	-
WCDMA1900	9 538	1 907.6	V	19.13	4.67	23.80	0.240	-

7.7. RADIATED SPURIOUS EMISSIONS

- Test Notes

- This EUT was tested under all configurations and the highest power is reported in GSM mode and WCDMA mode with HSDPA inactive at 12.2 kbps RMC and TPC bits set to "1" and in GSM mode using a Power Control Level of "0" in PCS Band and "5" in the Cellular Band. This EUT was tested with the fully charged battery. The worst case data is reported.
- 2. Limit Calculation = 43 + 10 log₁₀(P[Watts])
- 3. No other spurious and harmonic emissions were reported greater than listed emissions.

- GSM850 data

Channel	Tx Freq. (MHz)	Freq. (MHz)	POL (H/V)	LEVEL@ ANTENNA TERMINAL (dBm)	Substitute Antenna Gain (dBd)	Correct Generator Level (dBm)	Limit (dBm)	Margin (dB)	Note.
		1 648.56	Н	-55.54	3.82	-51.72	-13.00	38.72	-
128	824.2	2 472.77	Н	-47.01	3.80	-43.21	-13.00	30.21	-
		3 296.15	Н	-54.18	5.52	-48.66	-13.00	35.66	-
		1 673.28	Н	-53.30	3.91	-49.39	-13.00	36.39	-
190	836.6	2 509.74	Н	-44.71	3.64	-41.07	-13.00	28.07	-
		3 346.30	Н	-53.18	5.95	-47.23	-13.00	34.23	-
		1 697.72	Н	-53.47	4.01	-49.46	-13.00	36.46	-
251	848.8	2 546.59	Н	-50.69	3.58	-47.11	-13.00	34.11	-
		3 395.04	Н	-52.69	6.32	-46.37	-13.00	33.37	-

- WCDMA850 data

Channel	Tx Freq. (MHz)	Freq. (MHz)	POL (H/V)	LEVEL@ ANTENNA TERMINAL (dBm)	Substitute Antenna Gain (dBd)	Correct Generator Level (dBm)	Limit (dBm)	Margin (dB)	Note
4 132	826.4	1 645.01	Н	-58.58	3.80	-54.78	-13.00	41.78	-
4 132	020.4	2 470.97	Н	-54.25	3.81	-50.44	-13.00	37.44	-
4 183	836.6	1 665.41	Н	-57.53	3.88	-53.65	-13.00	40.65	-
4 103	030.0	2 519.61	Н	-54.24	3.62	-50.62	-13.00	37.62	-
4 233	846.6	1 689.76	Н	-58.07	3.98	-54.09	-13.00	41.09	-
4 233	040.0	2 542.41	Н	-54.32	3.58	-50.74	-13.00	37.74	-

- GSM1900 data

Channel	Tx Freq. (MHz)	Freq. (MHz)	POL (H/V)	LEVEL@ ANTENNA TERMINAL (dBm)	Substitute Antenna Gain (dBi)	Correct Generator Level (dBm)	Limit (dBm)	Margin (dB)	Note
512	1 850.2	3 702.36	Н	-55.76	8.07	-47.69	-13.00	34.69	-
512	1 000.2	5 543.60	Н	-56.34	10.76	-45.58	-13.00	32.58	-
661	1 880.0	3 766.80	Н	-55.08	8.29	-46.79	-13.00	33.79	-
001	1 000.0	5 632.01	Н	-55.68	11.02	-44.66	-13.00	31.66	-
810	1 909.8	3 825.11	Н	-54.97	8.67	-46.30	-13.00	33.30	-
010	1 909.0	5 738.82	Н	-56.44	11.02	-45.42	-13.00	32.42	-

- WCDMA1700 data

Channel	Tx Freq. (MHz)	Freq. (MHz)	POL (H/V)	LEVEL@ ANTENNA TERMINAL (dBm)	Substitute Antenna Gain (dBi)	Correct Generator Level (dBm)	Limit (dBm)	Margin (dB)	Note
1 312	1 712.4	3 427.46	Н	-56.36	8.62	-47.74	-13.00	34.74	-
1 312	1712.4	5 127.75	Н	-56.92	10.54	-46.38	-13.00	33.38	-
1 412	1 732.4	3 471.94	Н	-54.69	8.70	-45.99	-13.00	32.99	-
1412	1752.4	5 187.40	Н	-55.92	10.54	-45.38	-13.00	32.38	-
1 513	1 752.6	3 499.58	Н	-56.30	8.68	-47.62	-13.00	34.62	-
1010	1752.0	5 264.06	Н	-56.73	10.26	-46.47	-13.00	33.47	-

- WCDMA1900 data

Channel	Tx Freq. (MHz)	Freq. (MHz)	POL (H/V)	LEVEL@ ANTENNA TERMINAL (dBm)	Substitute Antenna Gain (dBi)	Correct Generator Level (dBm)	Limit (dBm)	Margin (dB)	Note
9 262	1 852.4	3 702.20	Н	-55.90	8.06	-47.84	-13.00	34.84	-
9 202	1 052.4	5 551.84	Н	-56.61	10.79	-45.82	-13.00	32.82	-
9 400	1 880.0	3 756.22	Н	-55.18	8.22	-46.96	-13.00	33.96	-
9 400	1 000.0	5 643.98	Н	-56.00	11.04	-44.96	-13.00	31.96	-
9 538	1 907.6	3 820.42	Н	-54.82	8.64	-46.18	-13.00	33.18	-
9 000	1 907.0	5 729.53	Н	-56.38	11.04	-45.34	-13.00	32.34	-



7.8. FREQUENCY STABILITY / VARIATION OF AMBIENT TEMPERATURE

- Test Notes.

Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

7.8.1. FREQUENCY STABILITY (GSM850)

OPERATING FREQUENCY	:	<u>836,600,000 Hz</u>		
REFERENCE VOLTAGE	:	<u>3.85 </u> V DC		
LIMIT(FCC&IC)	:	<u>± 0.000 25 </u> % or	2.5	_ppm

VOLTAGE	POWER	TEMP	TEMP FREQ		iation
(%)	(V DC)	(°C)	(Hz)	(ppm)	(%)
100 %		+20(Ref)	836,599,989	-0.013	-0.000 001 31
100 %		-30	836,600,009	+0.011	+0.000 001 08
100 %		-20	836,600,011	+0.013	+0.000 001 31
100 %		-10	836,599,999	-0.001	-0.000 000 12
100 %	2.05	0	836,599,992	-0.010	-0.000 000 96
100 %	3.85	+10	836,599,981	-0.023	-0.000 002 27
100 %		+20	836,599,989	-0.013	-0.000 001 31
100 %		+30	836,600,008	+0.010	+0.000 000 96
100 %		+40	836,599,998	-0.002	-0.000 000 24
100 %		+50	836,600,006	+0.007	+0.000 000 72
115 %	4.43	+20	836,600,016	+0.019	+0.000 001 91
BATT.ENDPOINT	3.10	+20	836,599,988	-0.014	-0.000 001 43

7.8.2. FREQUENCY STABILITY (WCDMA850)

OPERATING FREQUENCY : REFERENCE VOLTAGE : LIMIT(FCC&IC) :

836,600,000 Hz 3.85 V DC ± 0.000 25 % or 2.5 ppm

VOLTAGE	POWER	R TEMP FREQ		TEMP	TEMP FREQ		viation
(%)	(V DC)	(°C)	(Hz)	(ppm)	(%)		
100 %		+20(Ref)	836,600,010	+0.012	+0.000 001 20		
100 %		-30	836,599,998	-0.002	-0.000 000 24		
100 %		-20	836,599,991	-0.011	-0.000 001 08		
100 %		-10	836,600,002	+0.002	+0.000 000 24		
100 %	3.85	0	836,600,006	+0.007	+0.000 000 72		
100 %	3.65	+10 836,600,016		+0.019	+0.000 001 91		
100 %		+20	836,600,010	+0.012	+0.000 001 20		
100 %		+30	836,599,992	-0.010	-0.000 000 96		
100 %		+40	836,599,997	-0.004	-0.000 000 36		
100 %		+50	836,600,007	+0.008	+0.000 000 84		
115 %	4.43	+20	836,600,011	+0.013	+0.000 001 31		
BATT.ENDPOINT	3.10	+20	836,599,998	-0.002	-0.000 000 24		

7.8.3. FREQUENCY STABILITY (WCDMA1700)

OPERATING FREQUENCY REFERENCE VOLTAGE <u>1,732,400,000 Hz</u>

QUENCY : <u>1,732</u> VOLTAGE : <u>3.85</u> (FCC&IC) : <u>The f</u>

LIMIT(FCC&IC)

<u>3.85 V DC</u> The frequency stability shall be sufficient to ensure that the

fundamental emission stays within the authorized frequency block.

VOLTAGE	POWER	TEMP FREQ		Dev	viation
(%)	(V DC)	(°C)	(Hz)	(ppm)	(%)
100 %		+20(Ref)	1,732,400,010	+0.006	+0.000 000 58
100 %		-30	1,732,399,993	-0.004	-0.000 000 40
100 %		-20	1,732,400,002	+0.001	+0.000 000 12
100 %		-10	1,732,399,997	-0.002	-0.000 000 17
100 %	2.95	0	1,732,400,011	+0.006	+0.000 000 63
100 %	3.85	+10	1,732,400,008	+0.005	+0.000 000 46
100 %		+20	1,732,400,010	+0.006	+0.000 000 58
100 %		+30	1,732,399,999	-0.001	-0.000 000 06
100 %		+40	1,732,399,994	-0.003	-0.000 000 35
100 %		+50	1,732,400,011	+0.006	+0.000 000 63
115 %	4.43	+20	1,732,399,997	-0.002	-0.000 000 17
BATT.ENDPOINT	3.10	+20	1,732,400,009	+0.005	+0.000 000 52

7.8.4. FREQUENCY STABILITY (GSM1900)

OPERATING FREQUENCY	:	<u>1,880,000,000</u> Hz
REFERENCE VOLTAGE	:	3.85 V DC

LIMIT(FCC) : The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

LIMIT(IC) : <u>± 0.000 25 % or 2.5 ppm</u>

VOLTAGE	POWER	TEMP FREQ		TEMP FREQ		OWER TEMP FREQ	Dev	viation
(%)	(V DC)	(°C)	(Hz)	(ppm)	(%)			
100 %		+20(Ref)	1,880,000,002	+0.001	+0.000 000 11			
100 %		-30	1,880,000,016	+0.009	+0.000 000 85			
100 %		-20	1,879,999,989	-0.006	-0.000 000 59			
100 %		-10	1,879,999,994	-0.003	-0.000 000 32			
100 %	2.95	0	1,880,000,002	+0.001	+0.000 000 11			
100 %	3.85	+10	1,879,999,997	-0.002	-0.000 000 16			
100 %		+20	1,880,000,002	+0.001	+0.000 000 11			
100 %		+30	1,879,999,993	-0.004	-0.000 000 37			
100 %		+40	1,880,000,005	+0.003	+0.000 000 27			
100 %		+50	1,880,000,016	+0.009	+0.000 000 85			
115 %	4.43	+20	1,879,999,998	-0.001	-0.000 000 11			
BATT.ENDPOINT	3.10	+20	1,879,999,991	-0.005	-0.000 000 48			

7.8.5. FREQUENCY STABILITY (WCDMA1900)

OPERATING FREQUENCY	:	<u>1,880,000,000</u> Hz
REFERENCE VOLTAGE	:	3.85 V DC

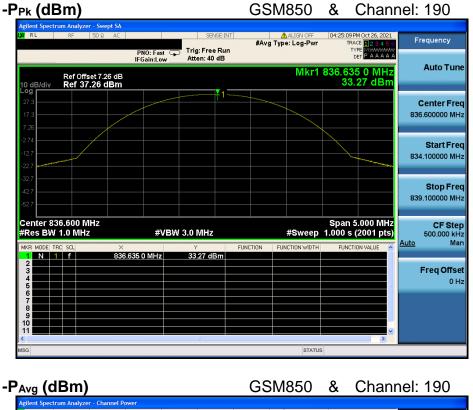
The frequency stability shall be sufficient to ensure that the LIMIT(FCC) : fundamental emission stays within the authorized frequency block.

LIMIT(IC) : <u>± 0.000 25 % or 2.5 ppm</u>

VOLTAGE	POWER	TEMP FREQ		TEMP	FREQ	Dev	viation
(%)	(V DC)	(°C)	(Hz)	(ppm)	(%)		
100 %		+20(Ref)	1,879,999,995	-0.003	-0.000 000 27		
100 %		-30	1,880,000,011	+0.006	+0.000 000 59		
100 %		-20	1,879,999,999	-0.001	-0.000 000 05		
100 %		-10	1,880,000,009	+0.005	+0.000 000 48		
100 %	2.95	0	1,880,000,006	+0.003	+0.000 000 32		
100 %	3.85	+10	1,879,999,998	-0.001	-0.000 000 11		
100 %		+20	1,879,999,995	-0.003	-0.000 000 27		
100 %		+30	1,879,999,993	-0.004	-0.000 000 37		
100 %		+40	1,879,999,984	-0.009	-0.000 000 85		
100 %		+50	1,880,000,005	+0.003	+0.000 000 27		
115 %	4.43	+20	1,880,000,007	+0.004	+0.000 000 37		
BATT.ENDPOINT	3.10	+20	1,879,999,989	-0.006	-0.000 000 59		

8. TEST PLOTS

8.1. PEAK TO AVERAGE RATIO

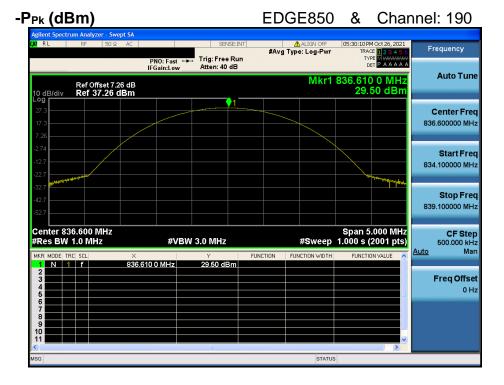




PAPR (dB) = P_{Pk} (dBm) - P_{Avg} (dBm) = 33.27 dBm - 32.98 dBm = 0.29 dB

Dt&C

IC : 10664A-PM75

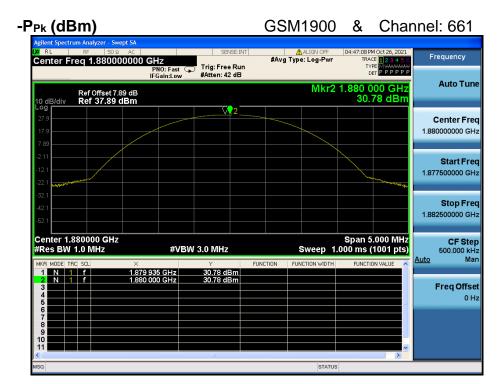




PAPR (dB) = P_{Pk} (dBm) - P_{Avg} (dBm) = 29.50 dBm - 25.99 dBm = 3.51 dB

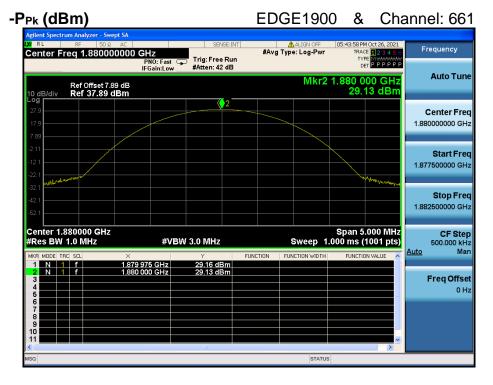
Dt&C

IC : 10664A-PM75





PAPR (dB) = P_{Pk} (dBm) - P_{Avg} (dBm) = 30.78 dBm - 30.42 dBm = 0.36 dB

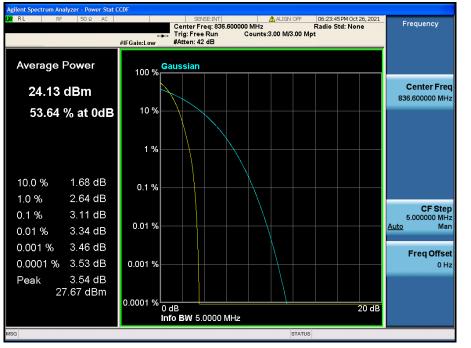


-P_{Avg} (dBm)

EDGE1900 & Channel: 661

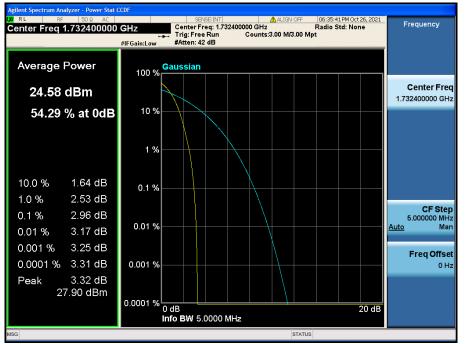


PAPR (dB) = P_{Pk} (dBm) - P_{Avg} (dBm) = 29.16 dBm - 25.25 dBm = 3.91 dB



WCDMA850 & Channel: 4 132

WCDMA1700 & Channel: 1 412





WCDMA1900 & Channel: 9 400



8.2. OCCUPIED BANDWIDTH (99 % Bandwidth)

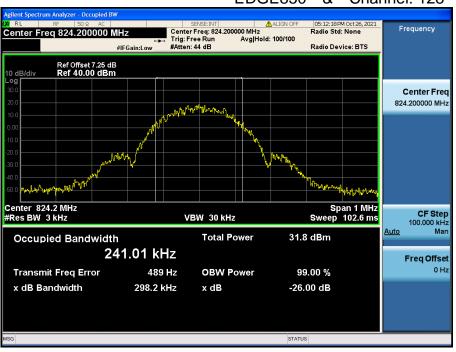
GSM850 & Channel: 128 04:06:56 PM Oct 26, 202 Radio Std: None Frequency Center Freq: 824.200000 MHz Trig: Free Run Avg|Hold: 100/100 #Atten: 44 dB Center Freq 824.200000 MHz #IFGain:Low Radio Device: BTS Ref Offset 7.25 dB Ref 40.00 dBm **Center Freq** 824.200000 MHz M. an Center 824.2 MHz #Res BW 3 kHz Span 1 MHz Sweep 102.6 ms **CF Step** 100.000 kHz Man VBW 30 kHz Auto Total Power 38.8 dBm **Occupied Bandwidth** 245.44 kHz Freq Offset Transmit Freq Error 1.103 kHz **OBW Power** 99.00 % 0 Hz x dB Bandwidth 307.9 kHz x dB -26.00 dB STATUS

GSM850 & Channel: 190



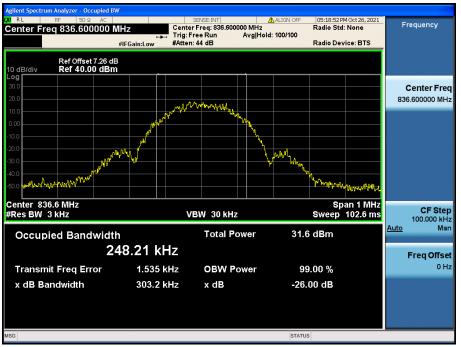


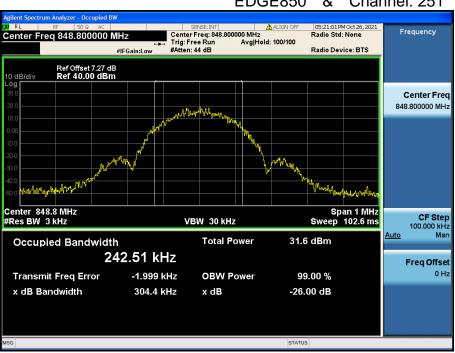
GSM850 & Channel: 251



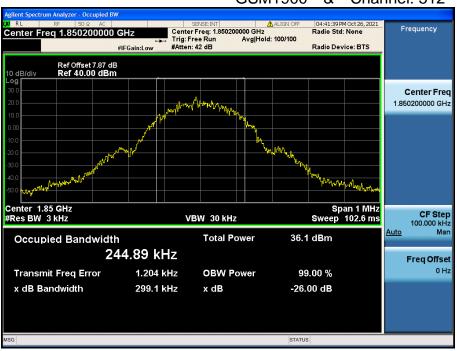
EDGE850 & Channel: 128

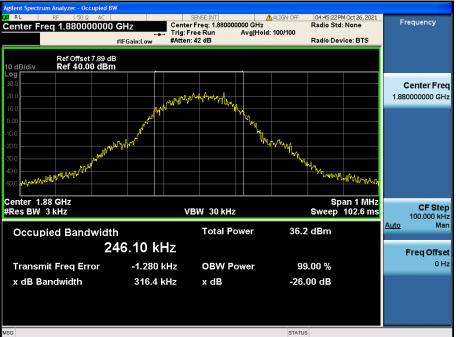
EDGE850 & Channel: 190

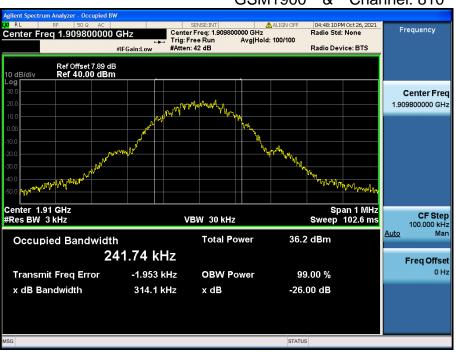




EDGE850 & Channel: 251









EDGE1900 & Channel: 512

EDGE1900 & Channel: 661



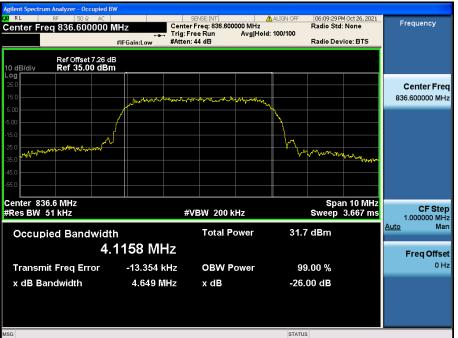


EDGE1900 & Channel: 810



WCDMA850 & Channel: 4 132

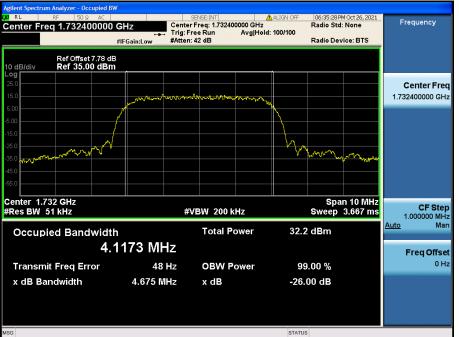
WCDMA850 & Channel: 4 183

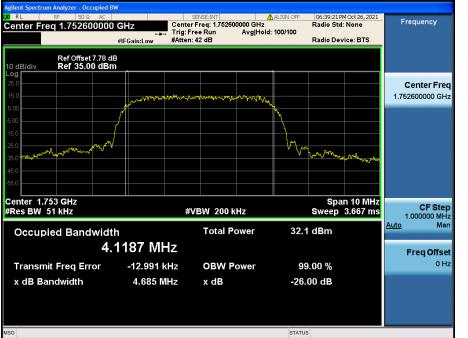




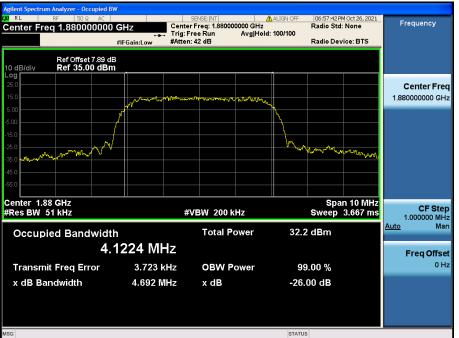
WCDMA850 & Channel: 4 233



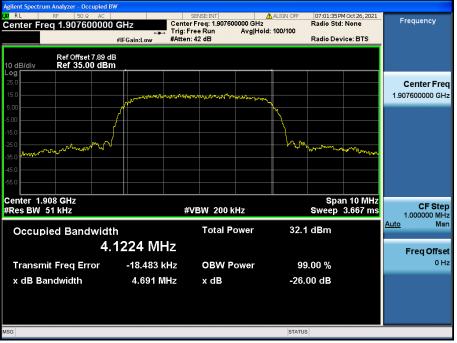










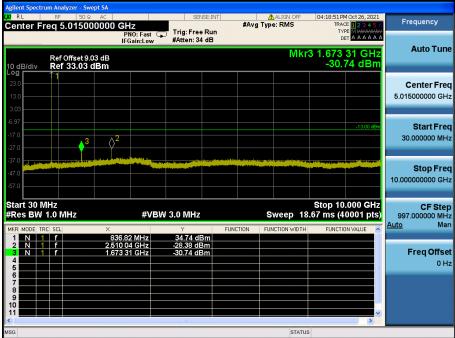


Dt&C

8.3. SPURIOUS EMISSIONS AT ANTENNA TERMINAL

								G	SM	850	&	Chan	ne	el: 128
Agilent S	spectru	m Ana	alyzer - Sw	rept SA										
Cente	er Fr	RF eq (2 AC	GHz PNO: Fast	Trig: Fre		#A	∧ ∕g Туре	ALIGN OFF		12 PM Oct 26, 2021 TRACE 1 2 3 4 5 TYPE M WWWWW	6	Frequency
10 dB/	div		Offset 9. 5 33.03	.03 dB	IFGain:Low	#Atten: 3	4 dB			Mk		DET A A A A A 18 63 GHz 0.32 dBm		Auto Tune
Log - 23.0 - 13.0 - 3.03 -		↑1 												Center Freq 5.015000000 GHz
-6.97 -17.0 -27.0			3									-13.00 dBm		Start Freq 30.000000 MHz
-37.0 -47.0													1	Stop Freq 10.000000000 GHz
Start #Res	BW	1.0 1	∕IHz		#V	BW 3.0 MHz					8.67 ms	10.000 GHz (40001 pts)	CF Step 997.000000 MHz uto Man
MKR MD		SCL		× 82/	4.36 MHz	ү 34.64 d	Bm	FUNCTION	FUN	CTION WIDTH	I FUN	ICTION VALUE		
2 N 3 N 4 5	j 1	f		2.472	2 90 GHz 3 63 GHz	-30.04 di -30.32 di	Bm							Freq Offset 0 Hz
6 7 8 9 10														
<						ш						>		
MSG										STATU	JS			

GSM850 & Channel: 190

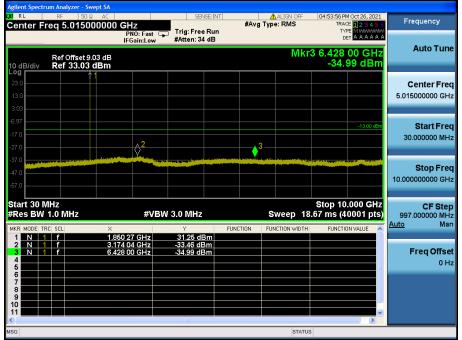


11

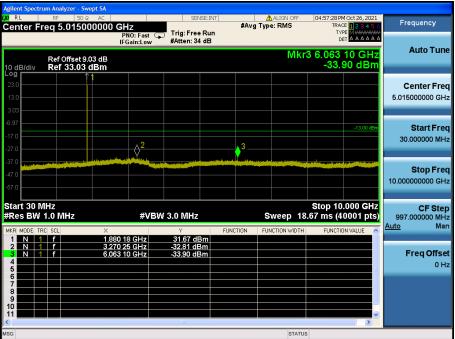
		G2101820	& Chani	nei: 251
pt SA				
AC 0000 GHz PNO: Fast IFGain:Low	SENSE:INT Trig: Free Run #Atten: 34 dB	ALIGN OFF #Avg Type: RMS	04:19:31PM Oct 26, 2021 TRACE 2 3 4 5 6 TYPE M WWWWW DET A A A A A A	Frequency
3 dB Bm		Mkr	3 1.697 73 GHz -31.59 dBm	Auto Tune
				Center Freq 5.015000000 GHz
			-13.00 dBm	Start Freq 30.000000 MHz
				Stop Freq 10.000000000 GHz
#VBV	V 3.0 MHz	Sweep 18	Stop 10.000 GHz 67 ms (40001 pts)	CF Step 997.000000 MHz
× 849.04 MHz 2.546 68 GHz 1.697 73 GHz	Y Fl 34.89 dBm -28.43 dBm -31.59 dBm	FUNCTION WIDTH	FUNCTION VALUE	Auto Man Freq Offset 0 Hz
	AC 0000 GHz PNO: Fast IFGain:Low 3 dB Bm 2 db 4 db	AC SENSE:INT D000 GHz PNO: Fast IFGain:Low Trig: Free Run #Atten: 34 dB Bm 3 dB Bm #VBW 3.0 MHz *VBW 3.0 MHz × Y Ft 84.89 04 MHz 2.546 68 GHz - 2.24.3 dBm	AC SENSE:INT ALIGN OFF 0000 GHz #Augn OFF #Augn OFF PN0: Fast Trig: Free Run #Avg Type: RMS B dB MKr Bm Image: Construction of the second se	ACCONTRACT SENSE:INT ALIGN OFF 04:19:31 PM OC120, 2021 PRO: Fast PRO: Fast FRACE 2:24 4:50 PRO: Fast FRACE 2:24 5:0 PRO: Fast FRACE 2:24 5:0 FRACE 2:24 5:25 5:25 5:25 5:25 5:25 5:25 5:25

STATUS

GSM850 & Channel: 251









Agilent Spectrum Analyzer - Swept SA							
RL RF 50 Ω AC Center Freq 5.015000000) GHz	SENSE: I	#Avg	ALIGN OFF	05:01:00 PM Oct 26, TRACE 1 2 3	456	Frequency
	PNO: Fast 🗣 IFGain:Low	Trig: Free Ru #Atten: 34 dB	n			AAA	Auto Tune
Ref Offset 9.03 dB 10 dB/div Ref 33.03 dBm					3 6.397 59 G -34.95 dI		
23.0 13.0 3.03							Center Freq 5.015000000 GHz
-17.0			3		-13.0	0 dBm	Start Freq 30.000000 MHz
-37.0 -47.0 -57.0							Stop Freq 10.000000000 GHz
Start 30 MHz #Res BW 1.0 MHz	#VBW	3.0 MHz			Stop 10.000 C .67 ms (40001	pts)	CF Step 997.000000 MHz Auto Man
2 N 1 f 3.3	910 09 GHz 800 16 GHz 897 59 GHz	31.60 dBm -33.30 dBm -34.95 dBm	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE		Freq Offset 0 Hz
7 8 9 10 11						~	
MSG				STATUS			





WCDMA850 & Channel: 4 132

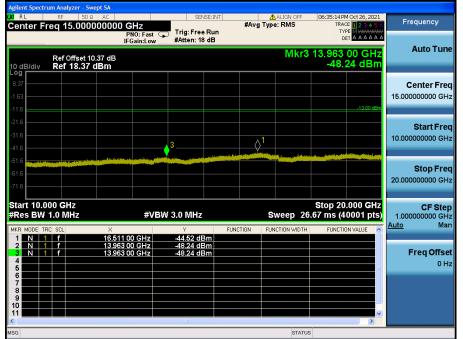
WCDMA850 & Channel: 4 183

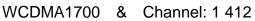


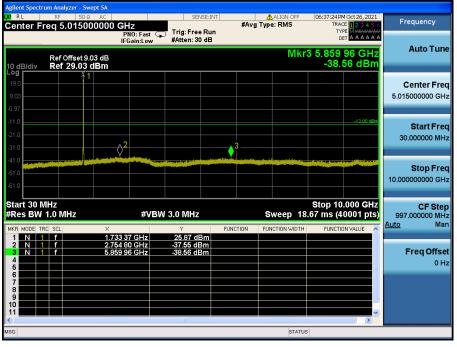


WCDMA850 & Channel: 4 233

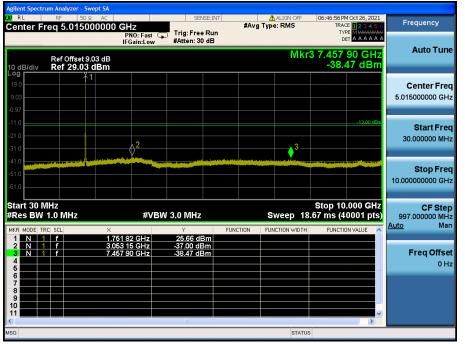




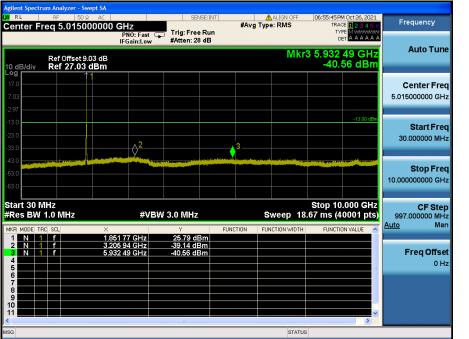






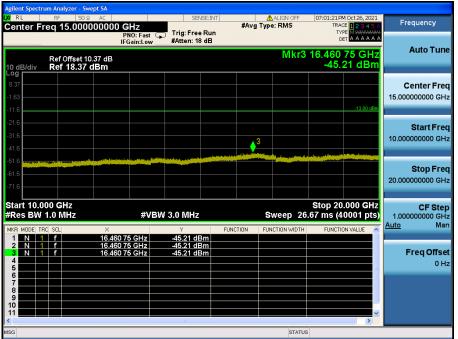




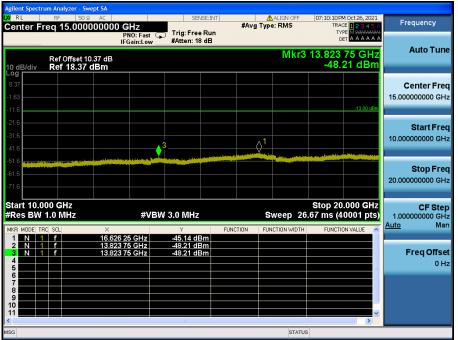




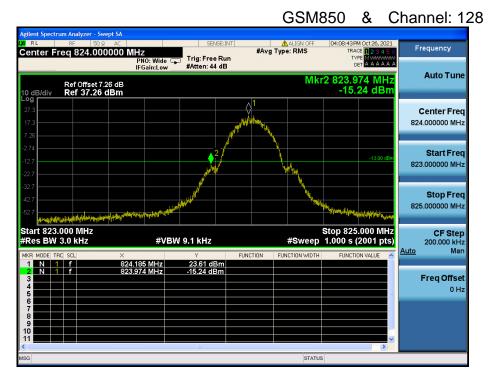




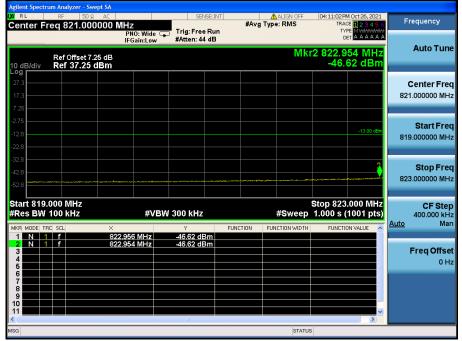




8.4. BAND EDGE EMISSIONS AT ANTENNA TERMINAL

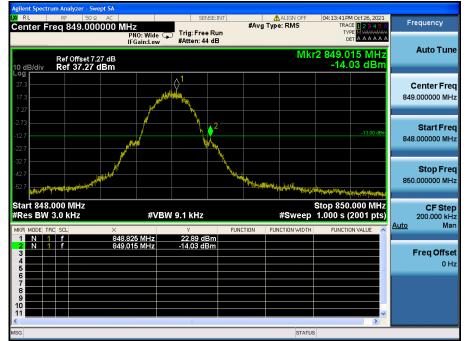


GSM850 & Channel: 128



Dt&C

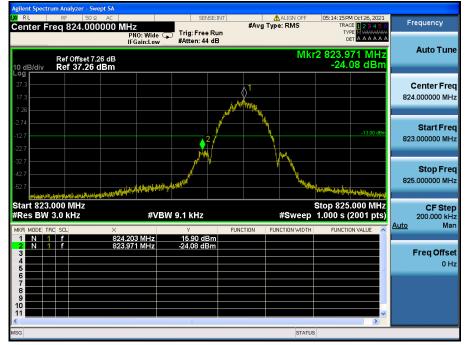
GSM850 & Channel: 251



GSM850 & Channel: 251

						<u> </u>		00	~	<u> </u>	
gilent Spectrum	Analyzer - Sw	ept SA									
RL	RF 50 Ω	AC		SENSI	EINT	ALIG	IN OFF	04:16:00 PN	1 Oct 26, 202:	1	_
enter Fred	a 852.000	0000 MHz	7			Avg Type: RM		TRAC	E 1 2 3 4 5	6	Frequency
		PN	lO:Wide (🖵 🛛 Trig: Free F				TYP		A.	
		IFO	Gain:Low	#Atten: 44 d	IB			DE	ТААААА	<u></u>	
							Mkr2	850.0	09 MH:		Auto Tur
5	Ref Offset 7.	27_dB					WINT 2	45 (98 dBn		
odB/div R	Ref 37.27	dBm						-40.	o ubii		
7.3											Center Fr
7.3											852.000000 MI
.27											
.21											
.73											Start Fr
2.7									-13.00 dB	n	
											850.000000 MI
2.7											
2.7											
2.7											Stop Fre
2.1											854.000000 MI
2.7							**************************************				004.000000 111
tart 850.00	IO MHz						St	op 854.	000 MH:	z	CF Ste
Res BW 10)0 kHz		#VB	W 300 kHz		#S\	weep 1.	000 s (1001 pts)	400.000 kl
KRI MODEL TRC 1			_	Y	FUNCTIO	N FUNCTION		CI INICATIO	IN VALUE	Au	to M
	f	× 850.00	o MLI-	-45.98 dBr		PONCTION	NWIDTH	FUNCTIO	IN VALUE		
	f	850.00	9 MHz	-45.98 dBr							
3		000.00		-10.00 42							Freq Offs
4											0
5											
6											
8											
0											
9								_		<u> </u>	
0				IU			STATUS				

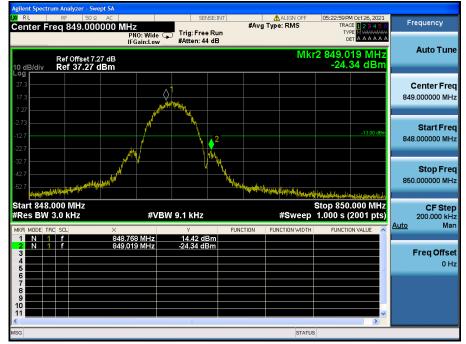
EDGE850 & Channel: 128



EDGE850 & Channel: 128

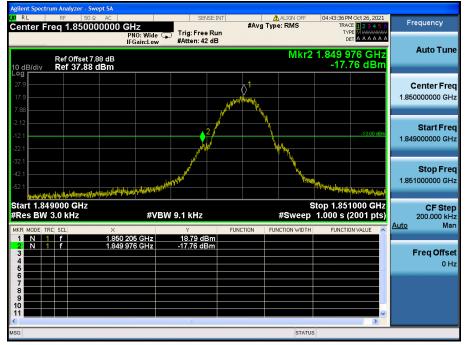
	rum Analyzer - Sv								
Center Fi	RF 50: req 821.00	2 AC	7	SENSE		ALIGN OFF	05:16:44 PM Oct 2 TRACE	3456	Frequency
Genter T	100 02 1.00	P	NO: Wide G Gain:Low	Trig: Free F #Atten: 44 d	lun	• <i>/</i> /		AAAA	
10 dB/div	Ref Offset 7 Ref 37.25					Mk	r2 822.978 -48.34 (MHz IBm	Auto Tune
27.3 17.3 7.25									Center Fred 821.000000 MHz
-2.75 -12.8 -22.8								3.00 dBm	Start Fred 819.000000 MH;
-32.8 -42.8 -52.8								2	Stop Free 823.000000 MH
Start 819. #Res BW	.000 MHz 100 kHz		#VB\	V 300 kHz		#Sweep	Stop 823.000 1.000 s (100	1 pts)	CF Stej 400.000 kH Auto Ma
MKR MODE TP	f	× 822.98	80 MHz	∀ -48.34 dBn	FUNCTION	FUNCTION WIDTH	FUNCTION VAL	UE 🔺	<u>Auto</u> Mai
2 N 1 3 4 5	f	822.9	78 MHz	-48.34 dBn					Freq Offse 0 H
6 7 8 9 10									
11				Ш				>	
ISG						STATU	S		

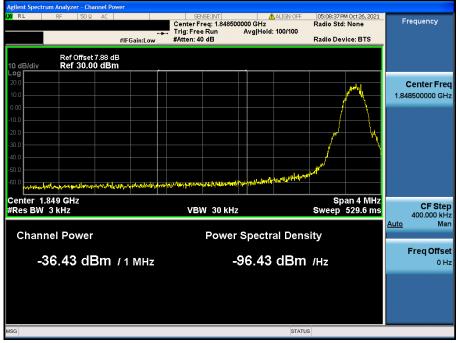
EDGE850 & Channel: 251



EDGE850 & Channel: 251

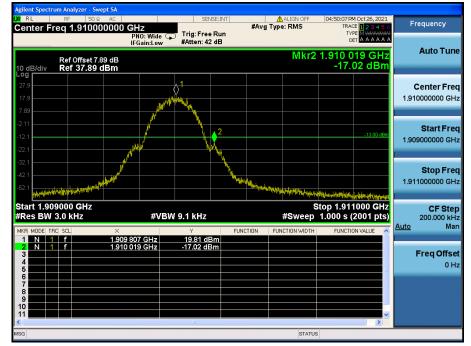
Agilent Spectru		e								
Agilent Spectru		Swept SA		SENSE:	INIT	ALIGN OFF	05:25:28 PM	Oct 26, 2021	_	
Center Fr			Hz	JENJE.		Type: RMS	TRACE	123456	Fre	quency
Genter II	cq 002.0	00000	PNO: Wide (IFGain:Low	Trig: Free Ru #Atten: 44 di			TYPE	M wwww A A A A A A		
10 dB/div	Ref Offset Ref 37.2					Mk	r2 850.21 -48.8	17 MHz 4 dBm		Auto Tune
27.3 17.3 7.27										enter Fred 000000 MH:
-2.73 -12.7 -22.7								-13.00 dBm		Start Fred 000000 MH:
-32.7 -42.7 -52.7	2									Stop Fre 000000 MH
Start 850. #Res BW			#VB	W 300 kHz		#Sweep	Stop 854. 1.000 s (1	000 MHz 001 pts)		CF Stej 100.000 kH
MKR MODE TR	f		216 MHz	۲ -48.84 dBm		FUNCTION WIDTH	FUNCTIO	N VALUE	<u>Auto</u>	Ма
2 N 1 3 4 5 5	f	850.	217 MHz	-48.84 dBm					F	r eq Offse 0 H
6 7 8 9 10										
11				10				~		
ISG						STATU	S			

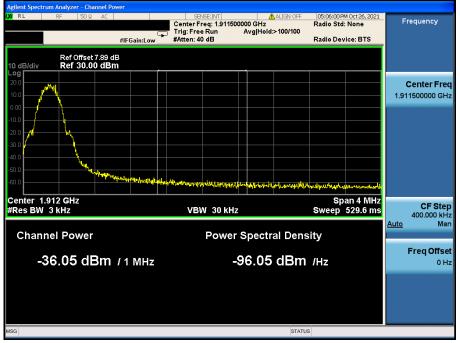




Dt&C

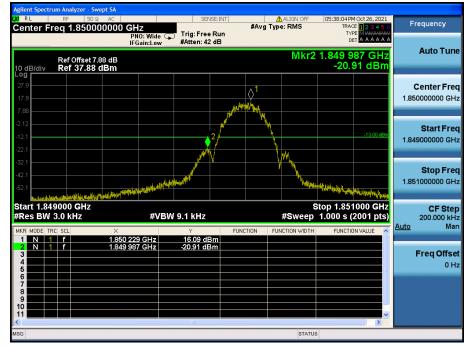
GSM1900 & Channel: 810





🛈 Dt&C

EDGE1900 & Channel: 512

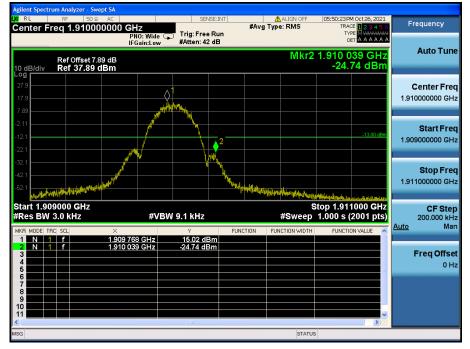


EDGE1900 & Channel: 512

Agilent Spectrum											
LX/IRL	RF 50 Ω	: AC #IF	Gain:Low				ALIGN OFF	Radio Std Radio Dev		Frequ	ency
10 dB/div Log	Ref Offsel Ref 29.9										
20.0 9.99									Mm		ter Freq 0000 GHz
-0.01 -10.0 -20.0											
-30.0 -40.0									M		
-50.0 -60.0		program the state of the	webber	han yaki dalamin dirin diri	sected and the second second	MARCANALIS (LANA)	and the second second				
Center 1.8 #Res BW (#V	BW 30 kł	lz			an 4 MHz 529.6 ms		CF Step 0.000 kHz Man
Chann	el Power	r			Power	Spectr	al Dens	sity			
-3	8.23 dl	Bm / 1	MHz			98.23	dBm	/Hz		Fre	q Offset 0 Hz
100							CTATU				
MSG							STATU	5			

Dt&C

EDGE1900 & Channel: 810



EDGE1900 & Channel: 810

Agilent Spectrum Analyzer - Channel Power			
LXX RL RF 50Ω AC	SENSE:INT ALIGN OFF	05:57:18 PM Oct 26, 2021 Radio Std: None	Frequency
	Trig: Free Run Avg Hold: 100/100	Radio Device: BTS	
#IFGain:Lov	v #Atten: 40 dB	Radio Device: B15	
Ref Offset 7.89 dB 10 dB/div Ref 30.00 dBm			
Log			
20.0			Center Freq
10.0 10.0			1.911500000 GHz
0.00			
-10.0			
-20.0			
-30.0			
-40.0			
-50.0			
-60.0	Aver Martin and a state and a state and the state of the	Alutions show was hard the	
Center 1.912 GHz		Span 4 MHz	
#Res BW 3 kHz	#VBW 30 kHz	Sweep 529.6 ms	CF Step 400.000 kHz
			Auto Man
Channel Power	Power Spectral Den	sity	
			Freq Offset
-38.06 dBm / 1 мна	-98.06 dBm	/Hz	0 Hz
MSG	STATI	IS	
	on the		

Dt&C

WCDMA850 & Channel: 4 132



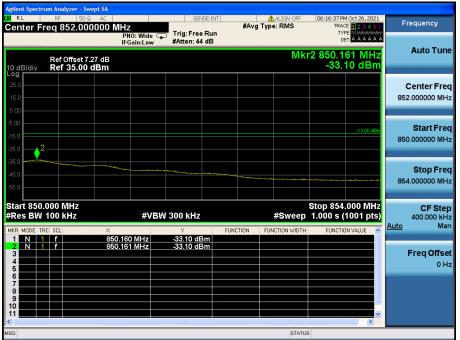
WCDMA850 & Channel: 4 132

Agilent Spectrum Analyzer					
X RL RF Center Freq 821.	50 Ω AC 000000 MHz	SENSE:INT	ALIGN OFF #Avg Type: RMS	06:07:32 PM Oct 26, 2021 TRACE 1 2 3 4 5 6 TYPE MWWWW	Frequency
Ref Offse 10 dB/div Ref 35.	PNO: Wide IFGain:Low et 7.25 dB		Mk	r2 822.794 MHz -28.34 dBm	Auto Tune
25.0					Center Free 821.000000 MH:
-5.00				-13.00 dBm	Start Fred 819.000000 MH
-35.0					Stop Fre 823.000000 MH
Start 819.000 MHz #Res BW 100 kHz	#VI	BW 300 kHz	#Sweep		CF Ste 400.000 kH Auto Ma
MKR MODE TRC SCL 1 N 1 F 2 N 1 F 4 6 6 6 7 8 9 9 10 1 11	X 822.796 MHz 822.794 MHz	¥ -28.34 dBm -28.34 dBm	FUNCTION FUNCTION WIDTH	FUNCTION VALUE	Freq Offse 0 H
ISG			STATU		



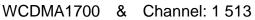
WCDMA850 & Channel: 4 233

WCDMA850 & Channel: 4 233

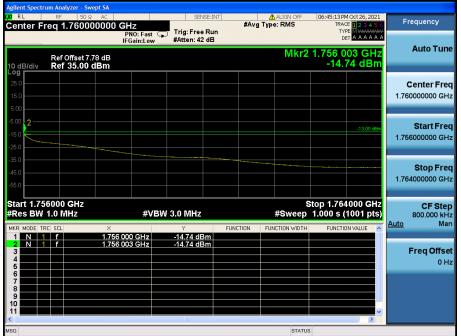




XIRL	um Analyzer - Swept RF 50 Ω A req 1.7050000	AC	SENSE: IN		ALIGN OFF	06:31:48 PM Oct 26, 2021 TRACE 1 2 3 4 5	Frequency
10 dB/div	Ref Offset 7.78 o	PNO: Fast (IFGain:Low	 Trig: Free Rur #Atten: 42 dB 	1		1.708 996 GHz -14.13 dBm	Auto Tune
- og 25.0 15.0 5.00							Center Fred 1.705000000 GH:
5.00 15.0 25.0						-13.00 dBm	Start Free 1.701000000 GH
35.0 45.0 55.0							Stop Fre 1.709000000 GH
Res BW		X	W 3.0 MHz	FUNCTION		top 1.709000 GHz 1.000 s (1001 pts) FUNCTION VALUE	800.000 kH Auto Ma
3 4 5		1.709 000 GHz 1.708 996 GHz	-14.13 dBm -14.13 dBm				Freq Offse 0 H
6 7 8 9 10							
11 					STATUS		









enter F	RF 50 G req 1.8470	F	HZ PNO: Fast G Gain:Low		Run	<mark>⊿</mark> #Avg Typ	ALIGN OFF e: RMS	TRA	M Oct 26, 2021 CE 123456 PE M WWWWWW ET A A A A A A	Frequei	ncy
0 dB/div	Ref Offset 7. Ref 35.00	87 dB d B m					Mkr2	1.848 9 -14.	98 GHz 30 dBm	Auto	o Tune
og 25.0 15.0 5.00										Cente 1.8470000	er Fred 00 GHz
5.0									-13.00 dBn	Sta 1.8450000	rt Fred 00 GH:
15.0 15.0 15.0										Sto 1.8490000	p Free 00 GH:
	5000 GHz 1.0 MHz	×	#VB	N 3.0 MHz	FUNCTI		Sweep Sweep	1.000 s (9000 GHz 1001 pts)		F Step 000 kH: Mar
1 N 1 2 N 1 3 4 5 5	f	1.849 00 1.848 99		-14.30 dBr -14.30 dBr						Freq	Offse 0 H:
6 7 8 9 0											
3				III			STATUS	3	>		





