

"High Frequency Ceramic Solutions"

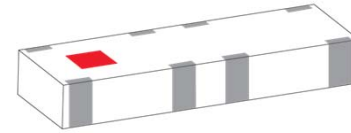
BT/WiFi and GPS/BDS/GLNSS Quad band, Dual Feed Chip Antenna: 2.4/1.561/1.575/1.602GHz, SMD P/N 2450AD47A1590

Detail Specification: 11/10/2015

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General Specifications

| | | | | | | |
|--|--------------------|--------------------|--------------------|--------------------|------------------------------|----------------|
| Part Number | 2450AD47A1590 | | | | | |
| Frequency (MHz) | 2400~2500 | 1561 | 1575 | 1602 | | |
| Peak Gain (dBi typ.) | 1.0 (YZ-Total) | 0.5 (YZ-Total) | 1.5 (YZ-Total) | 1.5 (YZ-Total) | | |
| Average Gain (dBi typ.) | -1.0 (YZ-Total) | -2.5 (YZ-Total) | -2.0 (YZ-Total) | -2.0 (YZ-Total) | | |
| Return Loss (dB) | 8 min. | 7.5 min. | 9.0 min. | 8 min. | Reel Quantity | 1,000 |
| Ave Radiation Efficiency %¹ (on JTI EVB) | 83 | 45 | 51 | 51 | Operating Temperature | -40 to +85°C |
| Isolation | 20 dB | 15 dB | 15 dB | 15 dB | Storage Temperature | -40 to +85°C |
| | | | | | Storage Period | 18 months max. |
| | | | | | Power Capacity | 2W max. (CW) |



¹On Johanson test board p/n: 2450AD47A1590-EB1SMA. EVB details on pages 2/3

Part Number Explanation

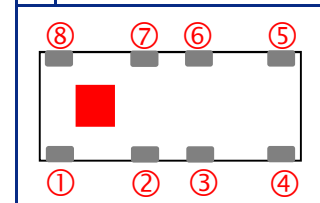
| | | | | |
|-------------------|-------------------------|--|-----------------|-----------------------------|
| P/N Suffix | Packing Style | Bulk (loose) | Suffix = S | e.g.. 2450AD47A1590S |
| | | T & R | Suffix = E | e.g.. 2450AD47A1590E |
| | | 100% Tin | Suffix = E or S | e.g.. 2450AD47A1590(E or S) |
| | Evaluation Board | 2450AD47A1590-EB1SMA (Pre-tuned with SMA connectors) | | |

Mechanical Dimensions

| | In | mm |
|-----------|----------------------|-----------------|
| L | 0.394 ± 0.008 | 10.00 ± 0.20 |
| W | 0.126 ± 0.008 | 3.20 ± 0.20 |
| T | 0.059 ± 0.008 | 1.50 ± 0.20 |
| a1 | 0.031 ± 0.008 | 0.80 ± 0.20 |
| a2 | 0.106 ± 0.008 | 2.70 ± 0.20 |
| a3 | 0.039 ± 0.008 | 1.00 ± 0.20 |
| b | 0.012 ± 0.004/-0.008 | 0.30 ± 0.1/-0.2 |

Terminal Configuration

| No. | Function |
|-----|-----------------------|
| 1 | 2.4GHz Feed Point |
| 2 | GND |
| 3 | GND |
| 4 | 1.5-1.6GHz Feed Point |
| 5 | GND |
| 6 | GND |
| 7 | GND |
| 8 | GND |



Find out more about our antenna design assistance services at:

<http://www.johansontechnology.com/ipc-antenna-services>



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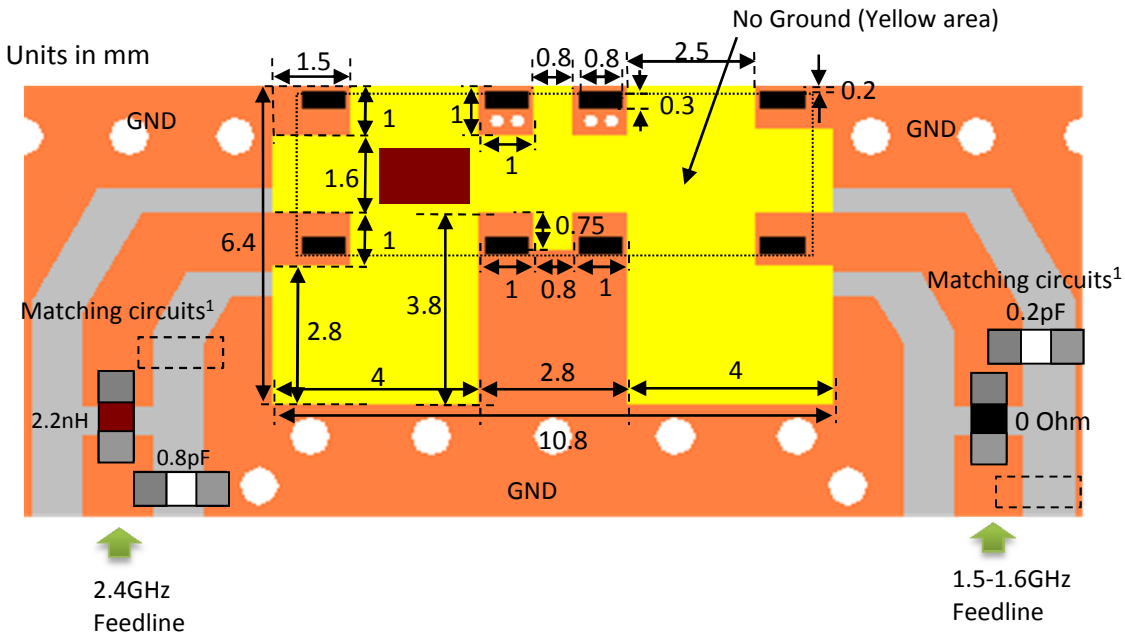
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Layout Recommendations



Would you like the layout file of the above? Contact our applications engineers at: www.johansontechnology.com/ask-a-question

¹Attention: Matching circuits and component values will be different on the client's design, depending on PCB layout, geometry, etc. It is recommended that the designer leave available slots for a "pi" (or shunt-series-shunt) network. The antenna matching network values you see here are used when antenna is mounted on Johanson's evaluation board.

Need help laying out the antenna, want us to review your antenna design (free!), require the Gerber files for this EVB, or would like us to validate the new tuning values of your PCB (fee may apply) go to: www.johansontechnology.com/ask-a-question

Orderable EVB for evaluation, it comes with a female SMA connector. Go to: www.johansontechnology.com/component/samplerrequest and ask for p/n 2450AD47A1590-EB1SMA

* Line width should be designed to match 50Ω characteristic impedance, depending on PCB material, thickness, and preferably CPWG (co-planar wave guide) type.

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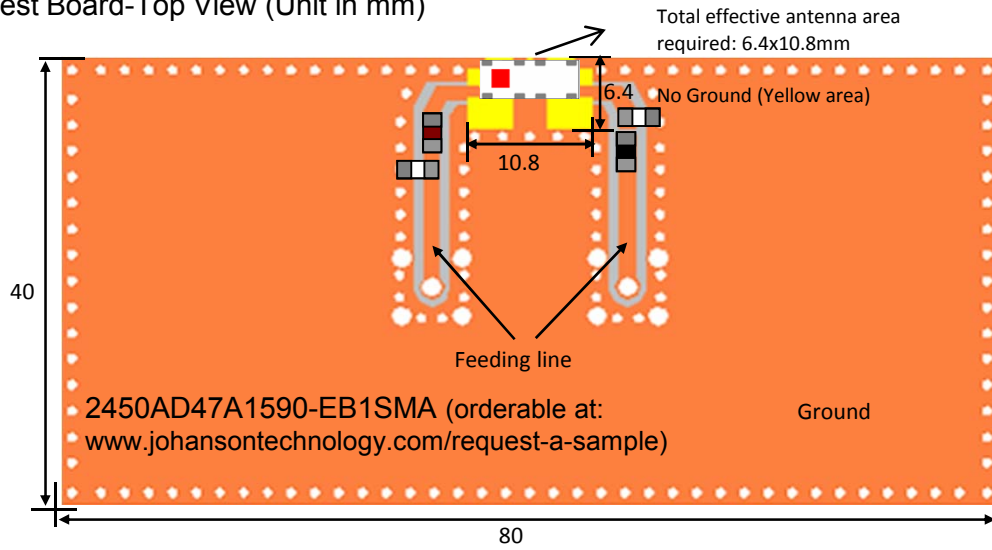
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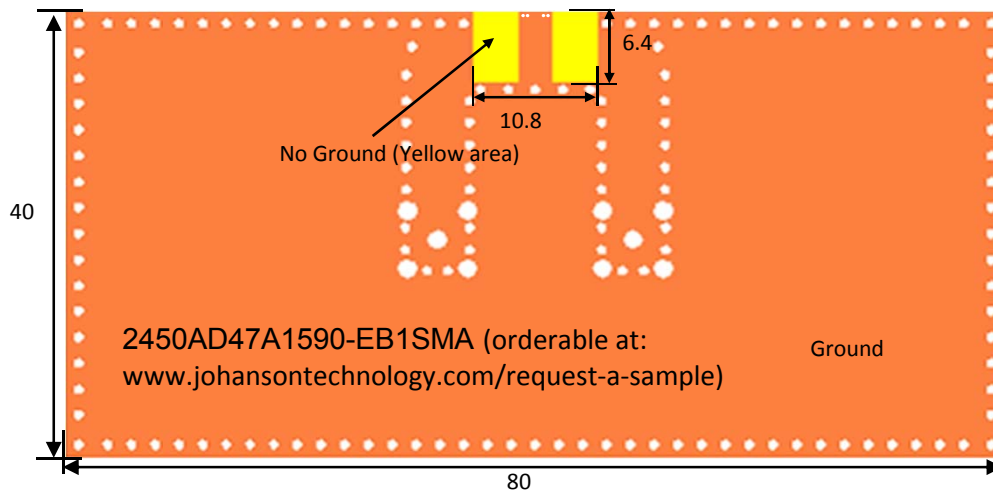
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Typical Electrical Characteristics (T=25°C)

❖ Test Board-Top View (Unit in mm)



❖ Test Board-Bottom View (Unit in mm)



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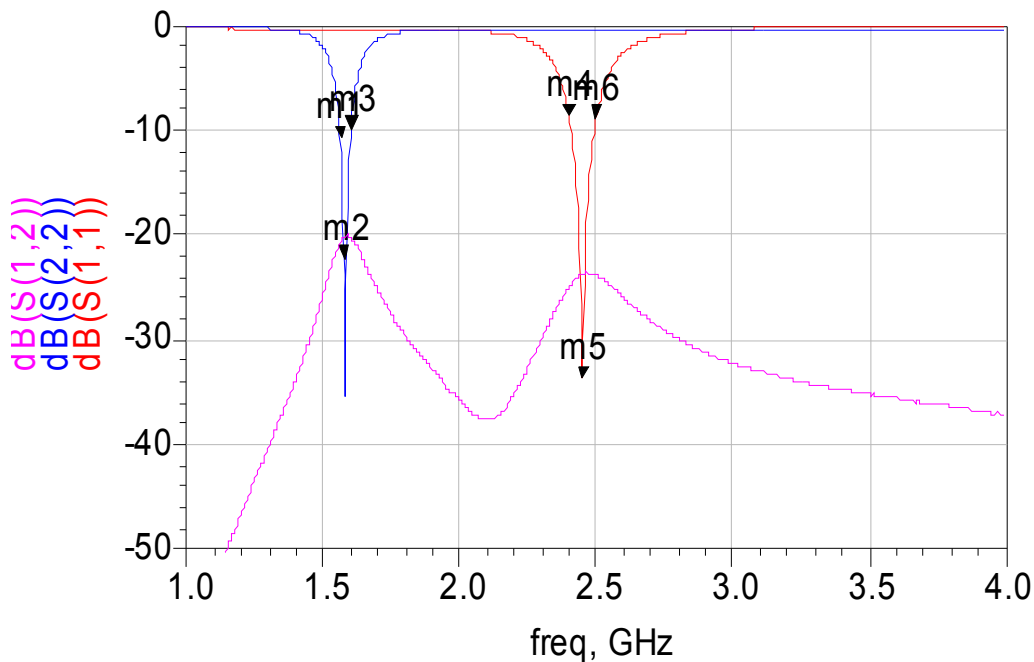
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Detail Specification: 11/10/2015

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Typical Electrical Characteristics (T=25°C)

Return Loss and Isolation With Matching Circuits On Johanson EVB



| | |
|--------------------|--------------------|
| m1 | m4 |
| Freq=1.561GHz | Freq=2.400GHz |
| dB(S(2,2))=-10.697 | dB(S(1,1))=-8.678 |
| m2 | m5 |
| Freq=1.575GHz | Freq=2.450GHz |
| dB(S(2,2))=-22.294 | dB(S(1,1))=-33.793 |
| m3 | m6 |
| Freq=1.602GHz | Freq=2.500GHz |
| dB(S(2,2))=-9.842 | dB(S(1,1))=-8.901 |

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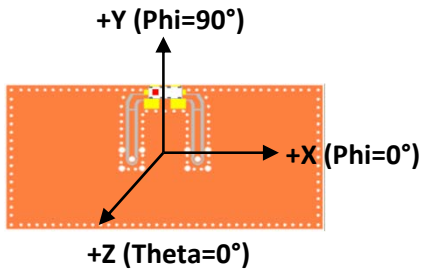
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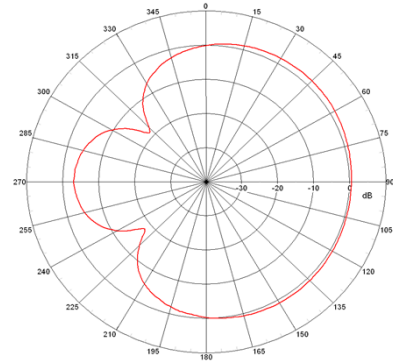
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Typical Radiation Patterns

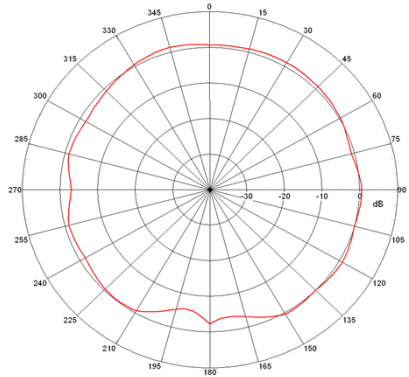
❖ Radiation Patterns @ 2.44GHz



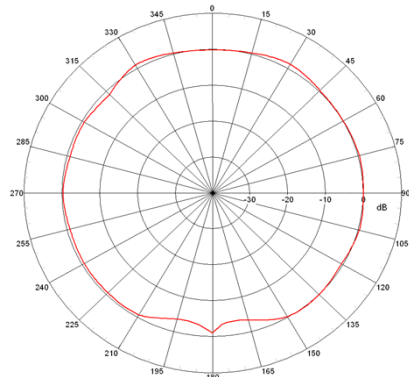
XY-Plane



YZ-Plane



XZ-Plane



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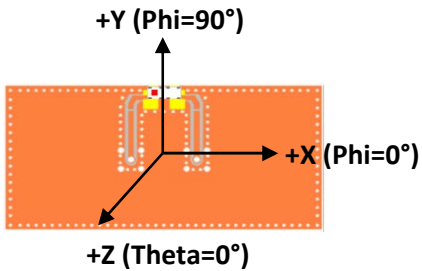
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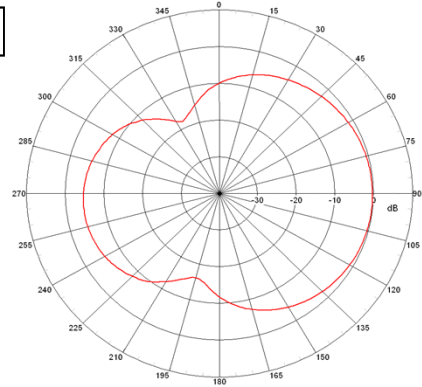
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Typical Radiation Patterns

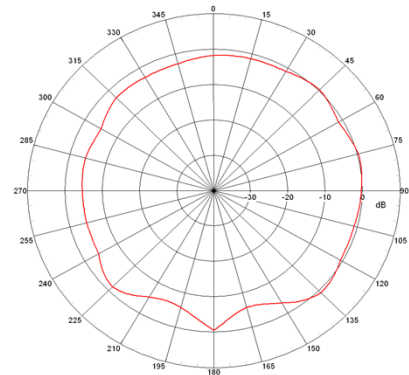
❖ Radiation Patterns @ 1.561GHz



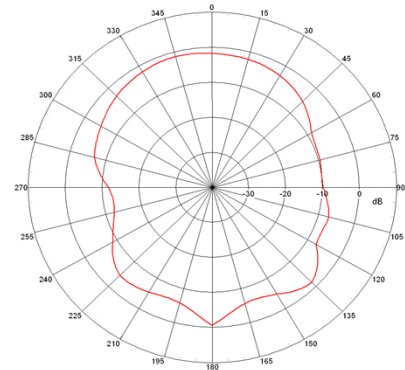
XY-Plane



YZ-Plane



XZ-Plane



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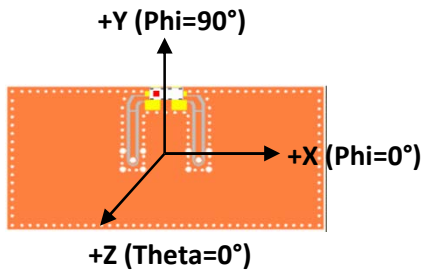
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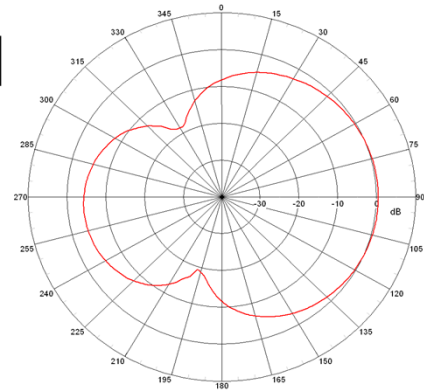
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Typical Radiation Patterns

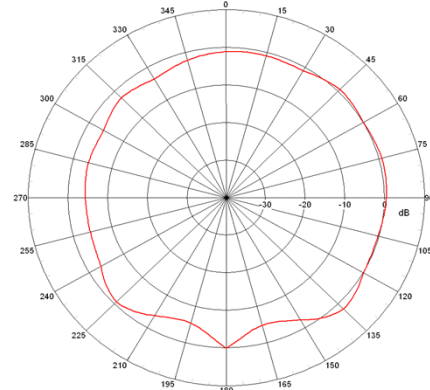
❖ Radiation Patterns @ 1.575GHz



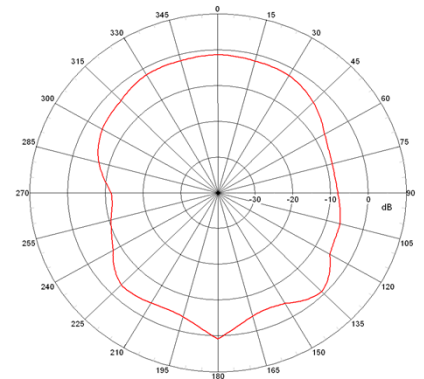
XY-Plane



YZ-Plane



XZ-Plane



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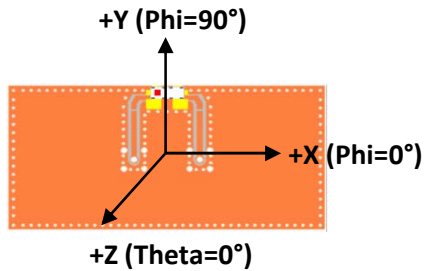
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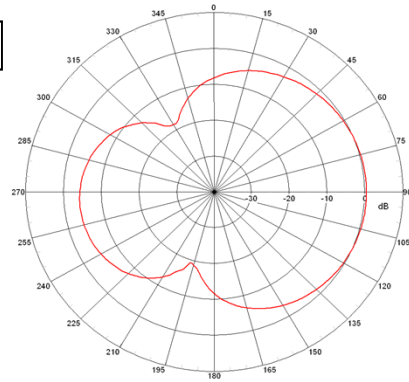
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Typical Radiation Patterns

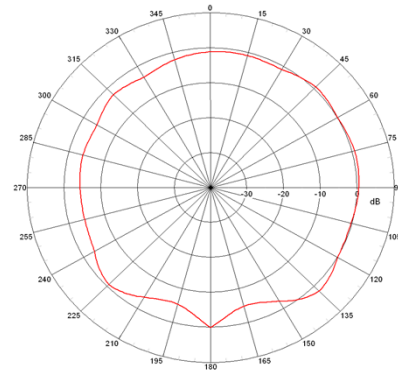
❖ Radiation Patterns @ 1.602GHz



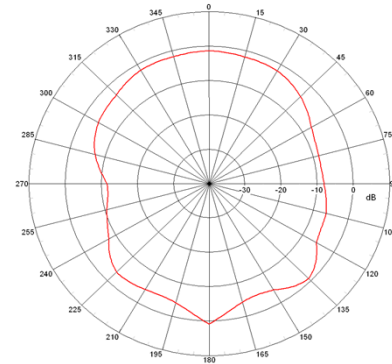
XY-Plane



YZ-Plane



XZ-Plane



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Antenna tuning, optimization, and validation services:

www.johansontechnology.com/ipcantennaservices

For more antennas and to download measured S-parameters, go to:

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Soldering Information

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MSL Info

www.johansontechnology.com/technical-notes/msl-rating.html

Packaging information

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For layout review contact our Applications Team at:

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RoHS Compliance

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- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
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- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Поставка электронных компонентов под контролем ВП;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- При необходимости вся продукция военного и аэрокосмического назначения проходит испытания и сертификацию в лаборатории (по согласованию с заказчиком);
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